

**School of Marketing  
Curtin Business School**

**Consumer Attitudes towards Generic Brands**

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**This thesis is presented for the Degree of  
Doctor of Philosophy  
of  
Curtin University**

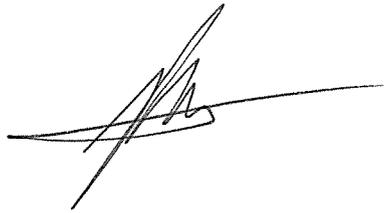
**October 2014**

## Statement of Original Authorship

### Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

A handwritten signature in black ink, consisting of several overlapping, fluid strokes that form a stylized representation of the author's name.

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Johan Liang

12 June 2015

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## **Publications and Awards**

### **Awards**

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### **Publications**

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- Liang, J., and I. Y. Phau. 2011. “A proposed study on consumer attitudes towards generic prescription medicines in Australia.” In *Australian and New Zealand Marketing Academy Conference, Nov 28, 2011, Perth, Australia: Australian and New Zealand Marketing Academy*.
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- Liang, J., V. Quintal, and I. Y. Phau. 2013. “Attitudes towards Generic Brands: The Development of a Multiple Item Scale in Medicine Context.” In *IMDA Conference, June 25, 2013, Taipei, Taiwan*.
- Liang, J., and I. Y. Phau. 2013. “Development and validation of “attitude towards generic brand” scale for medicine and pharmaceutical supplements.” In *Australian and New Zealand Marketing Academy Conference, Dec 1, 2013, Auckland, New Zealand: Australian and New Zealand Marketing Academy*.

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- Liang, J., and I. Y. Phau. 2013. “Investigating the confusion between generic prescription medicines and counterfeit medicines.” In *Australian and New Zealand Marketing Academy Conference, Dec 1, 2013*, Auckland, New Zealand: Australian and New Zealand Marketing Academy.
- Liang, J., and I. Y. Phau, 2014. “Is it risky to switch to generic medication?: Consumer perspectives towards generic medicines in Australia.” In *The European Institute of Retailing and Services Studies (EIRASS) 21<sup>st</sup> Conference, July, 7, 2014*, Bucharest, Romania: Recent Advances in retailing Services Science.
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## **Abstract**

The overarching aim of this study is to investigate consumers' attitudes towards generic brands of over-the-counter medicines. As such, three objectives are derived. Firstly, a conceptual framework underpinned by the theory of planned behaviour is developed to investigate how attitudes towards generic brands of over-the-counter (OTC) medicines, social norms and perceived behavioural control influence the intention and ultimately actual purchase of generic brands of OTC medicines. Secondly, a scale to measure consumers' attitudes towards generic brands is also developed which will be adapted to the context of this study. Lastly, the moderating influence of price differential on attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines is investigated.

The scale development process, consisting of the generation of items, purification, validation and confirmation was achieved through four stages. The main methodology entailed an experimental design to examine consumer behaviour towards generic brands in the context of over-the-counter medicines. The data collection is conducted through online survey and gains 484 usable responses. Exploratory factor analysis and Cronbach alpha is conducted before the data is analysed with structural equation modelling to gain the final Structural Equation Modelling (SEM) model to test hypotheses 1–9.

Structural equation modelling supports the model and shows that consumer concerns about counterfeit OTC medicines, psychological risk, consumer trust in generic brands of OTC medicines and social factors are the key factors that influence attitudes towards generic brands of OTC medicines, while only psychological risk, consumer trust in generic brands of OTC medicines and social factors have significant impact on the intention to buy generic brands of OTC medicines. Another finding shows that attitudes towards generic brands of

OTC medicines are a strong predictor of intention to buy generic brands of OTC medicines. Hierarchical moderated regression was conducted to test the moderation relationship, however the result indicates that price differential is not a moderation variable between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. Based on the final SEM model, there are three possible mediation relationships that need to be tested by using Baron and Kenny's four-step method. The Sobel test was also conducted to reconfirm the results from Baron and Kenny's four-step method. The results of the mediation analysis indicate that psychological risk, consumer trust in generic brands of OTC medicines and social factors as independent variables are partially mediated by the influence of attitudes towards generic brands of OTC medicines on intention to buy generic brands of OTC medicines as a dependent variable.

This study provides significant theoretical, methodological and managerial contributions. The most significant contribution of this research is the development of 'attitudes towards generic brands' scale. The findings from this study have bridged several gaps in the literature, providing pertinent initiatives for medical practitioners, the pharmaceutical industry and governmental policymakers regarding to consumer behaviour towards generic brands of OTC medicines.

**Keywords:** generic brands, theory of planned behaviour, social cognitive theory, over-the-counter medicine, attitudes, purchase intentions

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# **Chapter 1**

## **Introduction**

### **1.1. Overview**

This chapter will begin with a general introduction, which will be followed by an extensive literature review, where the research gaps in the literature will be identified. Next, the research objectives are created to satisfy the acknowledged research gaps. Based on the research gaps and research objectives, hypotheses and justification for the study are discussed, followed by an overview of methodology used in the study. Finally, conceptual, methodological and managerial contributions are presented to indicate how significant this study is, based on the findings. Limitations of the study and future research are mentioned, followed by the structure of the report.

### **1.2. Background of Study**

#### **1.2.1 History of Generic Brands**

Traditional marketing is commonly only focused on branded products (Choi and Huddleston 2014; Neidell, Boone, and Cagley 1985). By using branded products, firms can develop customer loyalties and increase customer awareness towards those products. In addition, firms can assist customers to distinguish their branded products from others and develop line extensions of their branded products (Choi and Huddleston 2014; Moutinho 1987). This indicates that brand marketing is an essential method of creating a new identity for a new product. As such, the idea of generating generic brands is established as one of brand extension strategies to compete with other brands, such as national brands and private label

brands. Aders and Jenkins (1980) stated that the development of generic brands is one of the most successful brand revolutions in brand marketing strategy.

The idea of developing generic brands was pioneered by Carrefour in 1976 by introducing a new range of products with generic brand concepts (de Chernatony 1988; Neidell, Boone, and Cagley 1985). At this stage, generic brands were defined as ‘a distributor’s brand that does not include a traditional brand name on its label’ (McEnally and Hawes 1984). The purpose of introducing generic brands into the market was to compete with private label brands and national brands based on price and quality. Generic brands were purposely sold cheaper than private label or national brands and were perceived to be of a similar quality to other brands. In 1979, the generic brands successfully captured 40 per cent of the market share within categories where they competed with other brands (Burck 1979). This success story of generic brands inspired other corporations to formulate a similar strategy by creating their own generic brands to gain their own market share in the local or global market. For example, several of the nation’s largest food retailers in the US (i.e. A&P, Topco Associates, Safeway Stores, and Pathmark Supermarkets) began to offer generic brands in their stores in 1981 (Neidell, Boone, and Cagley 1985). In 1987, it is recorded that generic brands had been implemented in over 320 product categories, including beer, cigarettes, vitamins, car parts, toys and apparels, in more than 250 supermarket chains throughout the United States (Moutinho 1987).

### **1.2.2. The Evolution of Generic Brands**

Generic brands were initially implemented mostly in grocery products (i.e. paper towels, detergent or canned products) to compete with other brands and this then expanded to other product categories, such as car parts, electronic products, liquors, health supplements, apparels and medicines, as the market grew rapidly, year on year (Choi and Huddleston 2014; Moutinho 1987). More recently, the characteristics of generic brands have been upgraded by

improving the packaging to provide more product information to comply with the health and safety standards issue (Alrasheedy et al. 2014; Choi and Huddleston 2014; Moutinho 1987). In addition, generic brands create their own logo and brand names so as to be easily distinguished by the consumers from other brands (Alrasheedy et al. 2014; Chiou and Chao 2011; Choi and Huddleston 2014; Moutinho 1987). However, generic brands are still restricted by a no-advertising policy in order to maintain their low-price concept. As such, this does not solve the issues of the negative perception of generic brands as ‘low-quality’ products, and the confusion of generic brands with other brands.

Generic brands of medicines have received more attention than other product categories (e.g. grocery products) because they have an enormous impact on government efforts to reduce the massive cost of medical expenses (Donovan 2007; Smit and Bredenkamp 2013) and in assisting in relieving the drug shortage as an alternative medication option for patients or consumers around the world (Alrasheedy et al. 2014; Chabner 2011). In addition, several recent studies compared generic brands of medicines with branded medicines based on perceived risk (Abzakh, Ling, and Alkilani 2013; Ganther and Kreling 2000; Papsdorf et al. 2009; Rathe et al. 2015; Suplet, Suarez, and Martin 2009), quality (Al Ameri et al. 2013; Drozdowska and Hermanowski 2015; Kohli and Buller 2013; Ngo, Stupans, and McKinnon 2013; Sansgiry, Bhosle and Pope 2005; Shrank et al. 2009), demographic (Babar et al. 2010; Bulsara et al. 2010; Iosifescu et al. 2008; Keenum et al. 2012; Yousefi et al. 2015), safety (Pereira et al. 2005; Sewell et al. 2012; Yousefi et al. 2015), attitudes towards generic medicines (Heikkila et al. 2007; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Kumar et al. 2015; Lebanova, Manolov, and Getov 2012; Palagyi and Lassanova 2008; Rathe et al. 2013; Toklu et al. 2012), consumer confusion (Alrasheedy et al. 2014; Drozdowska and Hermanowski 2015; Hassali, Kong and Stewart 2005), efficacy (Bulsara et al. 2010; Figueiras, Marcelino, and Cortes 2008; Ibrahim,

McKinnon, and Ngo 2012; Shrank et al. 2009; Yousefi et al. 2015), low price (Ahire et al. 2013; Hoshi and Kimura 2008; Piccholiya et al. 2015), consumer knowledge of generic medicines (Al Ameri et al. 2013; Bertoldi, Barros, and Hallal 2005; Kumar et al. 2015; Lebanova, Manolov, and Getov 2012; Patel et al. 2010), disease type (Denoth, Pinget, and Wasserfallen 2011; Figueiras, Marcelino, and Cortes 2008; Roman 2009; Rathe et al. 2015; Toverud et al. 2011), consumer trust (Gill et al. 2010; Quintal and Mendes 2012; Yousefi et al. 2015) and communication with health-care providers (Al-Gedadi, Hassali, and Shafie 2008; Albadr and Khan 2015; Hassali, Kong and Stewart 2005; Keenum et al. 2012; Shrank et al. 2009; Yousefi et al. 2015). Based on these extensive literatures, there is a need to examine consumer attitudes towards generic brands of medicine within a specific scope. Theory of Planned Behaviours, Neutralization Theory and Social Cognitive Theory will act as the foundation theories to gain new perspectives in the literature of generic brands.

### **1.2.3. Generic Medicines Defined**

According to the World Health Organization (2014), generic medicines can be defined as ‘a pharmaceutical product, usually intended to be interchangeable with an innovator product, that is manufactured without a license from the innovator company and marketed after the expiry date of the patent or other exclusive rights’. Generic medicines are defined as medicinal substances that have the same active ingredients (bioequivalent) as branded medicines or genuine medicines (McLachlan, Ramzan, and Milne 2007; Meredith 2003; Roger 2006; Therapeutic Goods Administration 2014). Generic medicines can be produced after branded medicines’ patents have expired (Löfgren 2009; Therapeutic Goods Administration 2014). Bioequivalent means that the medicines have the same active ingredients and the same dosage formulation to meet the standards for strength, purity, quality and identity of branded medicines (Löfgren 2004; Meredith 2003; Roger 2006). The rate of absorption may differ but it is still considered as bioequivalent if the difference is

intentional and there is no significant difference in the extent of absorption when the two products are assessed under similar experimental conditions (Löfgren 2004; Meredith 2003; Roger 2006).

#### **1.2.4. Generic Medicines in Australia**

In 1994, pharmacists were permitted to substitute generic medicines if they were listed on the Schedule of Pharmaceutical Benefits in Australia (Beecroft 2007; Gill et al. 2010). In 2001, generic medicines' market share accounted for only 20%, and by 2004/2005 it had grown to only 25% (Beecroft 2007; Gill et al. 2010). When compared to other countries, such as Finland or Italy, this percentage was relatively low (Gill et al. 2010; Löfgren 2004). It is predicted that generic medicines will represent the value of overall Pharmaceutical Benefits Scheme (PBS) sales around 30–50% in 2013 (Feldman and Lobo 2013; Löfgren 2009; Nicholson 2008). In 2015, PBS has calculated that the sales of generic medicines in Australia has increased significantly which represents approximately 60-70% of overall PBS sales because the price of generic medicine has been pushed down further compared to the prices in 2014. As such, it encourages more new potential consumers to shift their medications into generic medicines (Harrison 2015). Recent research shows that patients' acceptance of generic substitution medicines is quite high in Australia (above 70%) (Chong et al. 2011), however this finding is uncertain as the survey was completed by pharmacists, not consumers. Recent research also shows that the Australian government has encouraged the utilisation of generic medicines to reduce expenditure in the PBS and has provided cheaper alternatives for consumers (Chong et al. 2011; Feldman and Lobo 2013; Harrison 2015; McCarthy 2010). However, the same studies have shown that it has not effectively induced consumers to switch to generic medications. This provides a potential gap for the study of why this has not happened.

By engaging consumers to substitute their use of branded medicines with generic ones, this will result in a significant cut in costs for the government, the PBS, and hospitals (Donovan 2007; Smit and Bredenkamp 2013; Piccholiya et al. 2015). It is reported that the Australian government has encouraged all hospitals to use generic medicines to save costs of around AUD\$2.5 billion for the next five years (McCarthy 2010). In addition, the Australian government has invested AUD\$7.3 billion in the National Health and Hospital Network and AUD\$10 million for a generic medicines education programme (McCarthy 2010) to encourage consumers to purchase generic medicines by assuring them that different brands of similar medicines have the same clinical effect. Hence, this will help the PBS to increase the sales of generic medicines in Australia.

In order to keep costs low, there is very limited advertising and promotion of generic medicines to the public (Feldman and Lobo 2013; Löfgren 2009). As such, this limited information has led to the misconception of generic medicines as being inferior, and this influences consumers to choose brand name medicines rather than generic medicines. It is proven by Donovan (2007) that Australian consumers have a lower utilisation of generic medicine (28%) compared to the USA and the United Kingdom (50%). Even though consumers are aware of the availability of generic medicines as an alternative, consumers still hesitate to switch their medication to generic medicines (Hassali et al. 2009; Mason and Bearden 1980). Consumers have a strong resistance towards generic medicines as most feel that generic medicines are more risky and less effective compared to branded medicines (Alrasheedy et al. 2014; Mason and Bearden 1980; Shepherd 1988; Tootelian, Gaedeke, and Schlacter 1988). Hence, the support of general practitioners (e.g. doctors, pharmacists, and nurses) is an important element in encouraging consumers to use generic medicines, especially first-timer consumers (Donovan 2007). In spite of this, some general practitioners

resist recommending generic medicines, as the conditions of their patients have stabilized on a particular branded medicine (Feldman and Lobo 2013).

### **1.2.5. Counterfeit Medicines Issues in the Global Market and in Australia**

The issues of counterfeit medicines makes the job of encouraging consumers to use generic medicines increasingly difficult, since the ever-increasing presence of counterfeit medicines over the last decade has created even greater brand confusion, and Australia is not exempt from the possibility of counterfeit medicines entering the country illegally (World Health Organization 2014). In developed countries, the most targeted counterfeit medicines are generic and branded medicines, and specifically medicines with high sales, such as Viagra, aspirin and other common generic medicines. Some research has found that sildenafil citrate (Viagra), tadalafil (Cialis) and vardenafil hydrochloride (Levitra) have been counterfeited since 2007 and distributed through Internet sales (De Peinder et al. 2008; Sacre et al. 2010). Based on Therapeutic Goods Administration (2011), most of the counterfeit medicines that enter Australia are imported mistakenly in small quantities for personal use bought via the Internet, or by travellers who made the purchase while travelling overseas. Most of the counterfeit medicines that are usually found in Australia are generally lifestyle medicines, such as weight loss, hair loss and erectile dysfunction medicines. As such, there is a potential risk for counterfeit medicines to enter Australia and endanger consumers' health.

### **1.3. Research Issue/Justification and Objectives**

Through an extant literature review, several research gaps have been identified. These research gaps will consequently become the foundation of the development of the theoretical framework and hypotheses for this study. The following discusses several significant research

gaps which give rise to the possibility of further research opportunities. The key gaps are as follows:

(1) There are a number of studies that examine attitudes of consumers regarding generic brands in a specific product category (Babar et al. 2010; Choi and Huddleston 2014; Heikkila, Mantyselka, and Ahonen 2011; Hensler et al. 2013; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; McEnally and Hawes 1984; Moutinho 1987; Neidell, Boone, and Cagley 1985; Palagyi and Lassanova 2008; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011), however these studies fail to generate an appropriate scale with which to measure consumers' attitudes towards generic brands in general. Most past studies did not develop a scale of 'attitudes towards generic brands' using a proper method and only created a temporary scale to fulfil their particular research objectives without giving any considerations to developing an appropriate "attitudes towards generic brands" scale that could be used in future research.

(2) There is a need to establish a more robust measurement of the constructs by developing an empirically tested model with theoretical supports to examine consumer perception of generic brands of medicines. This is because most of the studies only focus on qualitative study or only utilise descriptive statistical analysis to discuss their findings, without any theoretical supports (Alrasheedy et al. 2014; Bulsara et al. 2010; Chong et al. 2011; Chua et al. 2010; Gill et al. 2010; Hassali et al. 2009; Hassali, Kong, and Stewart 2005; Muirhead 1994; Sharrad and Hassali 2011; Shepherd 1988; Toverud et al. 2011; Yousefi et al. 2015). As such, there is a lack of solid findings and there is no causal relationship between variables in past studies. Most importantly, there are no theoretical implications that can be established from the past studies. Therefore, a conceptual framework will be developed with underpinning theories to provide the much needed justifications and support for the study.

(3) Most generic medicine literatures in Australia only focus on general practitioners' or pharmacists' perceptions based on past studies (Alrasheedy et al. 2014; Albadr and Khan 2015; Chong et al. 2011; Hassali et al. 2010; Hassali, Kong, and Stewart 2005, 2006; Valles et al. 2003). Even though a few studies examine the attitudes of consumers or patients regarding generic medicines, they only focus on a specific target sample, such as elderly patients (Bulsara et al. 2010), only generic users (Hassali, Kong, and Stewart 2005), or patients with a chronic medical condition (Ngo, Stupans, and McKinnon 2013). Specifically, there is no study of the Australian general population's perspective on generic brands of medicines.

(4) Many studies only focused on generic medicines for chronic medical condition (Al Ameri et al. 2013; Bulsara et al. 2010; El-Dahiyat and Kayyali 2013; Lebanova, Manolov, and Getov 2012; Quintal and Mendes 2012) or generic medicines for acute medical conditions (Denoth, Pinget, and Wasserfallen 2011; Hensler et al. 2013). There is no study to examine the impact of generic brands of OTC medicines towards a less serious disease type, such as common flu (Kohli and Buller 2013).

(5) There are a number of direct, moderating (e.g. price differential) and mediating factors (consumer concern, consumer knowledge, perceived risk, consumer trust, social factors, interpersonal influence, and facilitating conditions) that need to be examined to test whether these factors have significant influence or not on attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines, as suggested by many researchers (Chong et al. 2011; Chua et al. 2010; Hassali, Kong, and Stewart 2006; Tootelian, Gaedeke, and Schlacter 1988; Valles et al. 2003).

In summary, the study will (1) undertake the development of a consumer attitudes towards generic brands scale, (2) investigate consumer behaviour towards generic brands of OTC

medicines with a theoretical-driven model, (3) focus on consumers' perspective regarding generic brands of OTC medicines in Australia, (4) focus the study on OTC medicines only, (5) examine internal, external, moderating (e.g. price differential) and mediating factors that have direct or indirect influences on attitudes towards generic brands and intention to buy generic brands.

Based on these research gaps, the overarching aim of this study is to investigate consumers' attitudes towards generic brands of OTC medicines. As such, three objectives are derived from this aim:

**Objective 1:** To develop a conceptual framework underpinned by the theory of planned behaviour in the context of a study on generic OTC medicine. This incorporates key constructs, including consumer concern, consumer knowledge, perceived risk, consumer trust, social factors, interpersonal influences, and facilitating conditions. Attitudes towards generic brands of OTC medicines, intention to buy generic brands of OTC medicines and actual purchase behaviour will be the outcome variables. (Gaps 2, 3, 4, and 5)

**Objective 2:** To develop a scale to measure consumers' attitudes towards generic brands. This developed scale will be used and adapted to the context of this study (generic brands of OTC medicines). (Gaps 1 and 4)

**Objective 3:** To investigate the moderating relationship (i.e. price differential) between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. (Gap 5)

#### **1.4. Delimitations and Scope**

In order to fulfil the research gaps as described in the research objectives, the delimitation and the scope of the study need to be mentioned. The main focus in this study is to investigate consumer behaviour towards generic brands in the context of over-the-counter (OTC) medicines. This study is limited to non-prescription OTC generic medicines. Over-the-counter medicines purchased from online sites are not included in this study. This study is also limited to one visual stimulus by comparing Panadol (branded medicines) and Paracetamol (generic version of Panadol); hence it may not be sufficient to generalize the results to all OTC medicine in Australia. This particular visual stimulus is used to provide a clear example of O medicine to respondents before filling out the survey. There is no clear focus on what medical condition OTC medicines can cure since the study is based on OTC medicines in general, without specifying for less serious medical conditions. The sample size is adequate for SEM analysis (Kline 2005); however it may not be sufficient to represent the Australian population. There is no information as to whether the respondents did actually make these purchases and this would need to be improved in future studies. The data is collected through an online survey and is therefore limited to respondents who can use the Internet.

#### **1.5. Key Constructs and Definitions**

According to the context of this study, each key construct and its definition are discussed as follows:

**Consumer Concern** – Consumer concern can be defined as ‘factors that can cause anxiety to consumers regarding to a product or a brand’ (Marcketti and Shelley 2009).

**Consumer Knowledge** – Consumer knowledge can be defined as the cognitive representation of product-related experience in a consumer’s memory, which takes the form of a product schema and is likely to contain knowledge in the form of coded representations of brands, product attributes, usage situations, general product class information, and evaluation and choice rules (Maheswaran 1994; Marcketti and Shelley 2009).

**Perceived Risk** – Perceived risk can be defined as ‘the unpleasant or unfavourable consequences from the consumer’s action’ (Stone and Gronhaug 1993). Stone and Gronhaug (1993) found that perceived risk consists of five dimensions to capture the whole domain of subjective expectation of loss. They are performance, financial, physical, psychological and social risks.

**Consumer Trust** – Consumer trust can be defined as a ‘feeling of security held by the consumer in his/her interaction with the brand, which is based on the perceptions that the brand is reliable and responsible for the interests and welfare of the consumer’ (Delgado-Ballester 2003).

**Social Factors** – Social factors can be defined as those norms, roles and values at the societal level that influence an individual’s intention to buy generic medicines (Limayem, Khalifa, and Chin 2004).

**Interpersonal Influence** – Interpersonal influence can be defined as the external factor that affects consumers through observation of what others are buying and what information others share with the consumers (Bearden, Netemeyer, and Teel 1989). Interpersonal influence can be specified into normative influence and informational susceptibility. Normative influence, based on the number of product-followers (i.e. potential purchasers), could result in acting to persuade, convince or influence others in an attempt to achieve a specific effect (Kozinets et al. 2010). On the other hand, information susceptibility is the basis of decision to purchase

made on informed choices, based on the expert opinion of others (Bearden, Netemeyer, and Teel 1989).

**Facilitating Conditions** – Facilitating conditions can be defined as those factors in an individual’s environment that facilitate the act of purchase.

**Attitudes towards Generic Brands of OTC Medicines** – In the context of this study, attitudes towards generic brands can be defined as the ‘predisposition to respond, in a favourable or unfavourable manner, to a particular brand during their consumer purchase decision-making process’ (Lutz 1985).

**Intention to Buy Generic Brands of OTC Medicines** – In the context of this study, intention to buy generic brands can be defined as a ‘planned behaviour response to acquire or obtain a particular product or a particular brand’ (Ajzen 1991).

**Price Differential (Moderation Effect)** – Based on the context of this study, price differential can be defined as ‘the level of significance of the price difference between two brands or product according to individual perspective’ (Plowman and Goode 2009).

## **1.6. Key Theoretical Underpinning**

The research model in this study is underpinned by three overarching theories, namely, theory of planned behaviour (TPB), neutralization theory and social cognitive theory. Each key theory is discussed as follow:

### **Theory of Planned Behaviour (TPB)**

The theory of reasoned action (TRA) indicates that personal, in nature (attitude), and social influences (subjective norms) affect human behaviour whereby people intend to behave in ways that allow them to obtain favourable outcomes and meet the expectations of others

(Fishbein and Ajzen 1975). The TPB is an extension of the (TRA) (Ajzen and Fishbein 1977), introduced by Ajzen in 1985 with the additional variable of perceived behavioural control as a predictor for intentions and behaviour to improve the main flaw of the TRA. According to Ajzen (1991), behaviour is guided by belief about likely outcomes of behaviour and evaluations of these outcomes (behavioural beliefs), beliefs about normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of behaviour and the perceived power of these factors (control beliefs).

### **Neutralization Theory**

Originally, neutralization theory was developed by Sykes and Matza (1957) to justify individual illegal behaviours or actions by neutralizing their wrongdoing. The use of this theory in marketing has been supported by a growing number of studies (Henry 1990; Hinduja 2006; Klockars 1974; Minor 1981; Phau and Liang 2012; Phau, Teah, and Lwin 2014). In the context of this study, purchase intention towards generic brands of medicines will be justified as a 'normal' act. Five techniques are created by Sykes and Matza (1957): denial of responsibility, denial of injury, denial of victim, condemnation of the condemners, and appeal to higher loyalties (Hinduja 2006). Hinduja (2006) also explored the metaphor of the ledger (Klockars 1974; Minor 1981), claim of normalcy, denial of negative intent and claim of relative acceptability (Henry 1990) as four other techniques to explain neutralization theory. Denial of responsibility, denial of injury, denial of victim, claim of normalcy, denial of negative intent, and claim of relative acceptability are the six techniques that will be implemented to explain the research model in this study.

### **Social Cognitive Theory**

Social cognitive theory defines human behaviour as a triadic, dynamic and reciprocal interaction of personal factors, behaviour, and the social environment (Bandura 1977a, 1986,

2001). The theory suggests that the dynamic interplay of personal, behavioural, and social environmental influences uniquely determines human functioning (an individual's behaviour). Furthermore, people are both products and producers of their social environment (Bandura 1977b; Pincus 2004). A person's behaviour influences the aspects of the social environment to which they are exposed, and in turn that social environment or 'social interaction' modifies the person's behaviour. Social cognitive theory focuses on understanding how people act in a certain way or change their behaviour as a result of interacting with internal and external stimuli (Bandura 1986).

### **Other Secondary Theories**

There are a number of secondary theories used in this study in conjunction with the overarching theories to justify the relationship of each hypothesis. These include the following:

#### **Attribution theory (Heider 1958) (H1, H2, H3, H4, H5, H6, H7, H8 and H10)**

Attribution theory was developed by Heider in 1958 to understand the process of how an individual explains the causes of behaviour or events. It can be internal or external motives that affect the causal explanation.

#### **Self-perception theory (Bem 1972) (H8 and H9)**

Self-perception was developed by Bem in 1972 to examine individual motivation to act in accordance with one's attitudes and behaviours. Bem (1972) emphasizes that consumers decide their own attitudes and feelings from watching themselves behave in various situations.

#### **Confirmation Bias Theory (Evans 1989) (H1, H2, H3, and H4)**

Confirmation bias theory is a tendency to interpret information in a way that confirms one's beliefs, leading to wrong judgements (Evans 1989).

### **Social Learning Theory (Bandura 1963, 1977a) (H5 and H6)**

The development of social learning theory was pioneered by Bandura in 1963 to understand how an individual can learn through observation. Bandura (1977a) emphasized five key principles in social learning theory. Firstly, learning is a cognitive process that takes place in a social context. Secondly, learning can be conducted through observing behaviour and its consequences. Thirdly, learning involves gaining information through observation and judging the performance of the behaviour. Fourthly, learning requires internal motivation. Lastly, cognition, environment and behaviour are essential in the process of learning.

### **Cognitive Dissonance Theory (Festinger 1954) (H1, H2, H3 and H4)**

Cognitive dissonance theory was developed by Festinger in 1954 to explain how people change their opinion about themselves and their environment when they are faced with a contradiction which involves having to choose between two incompatible attitudes or behaviours (Festinger 1957). Cognitive dissonance happens when there are 'new ideas' that the individual needs to accept in their changing attitudes (Festinger 1957).

## **1.7. Methodology**

To ensure a good representation of the Australian general population sample, as well as ecological validity, data is captured using an online self-administered survey consisting of an introductory page, visual stimulus, filter questions, demographic profile, and 18 sections of scales. The research will be undertaken in two phases. Based on the work by Churchill (1979) and DeVellis (1991, 2003), Phase One (Chapter 5) develops and validates the 'attitudes towards generic brands' scale to measure consumer attitudes towards generic brands. This scale will be used as the key construct in the main study (Phase Two). Phase Two is an empirical study focused on OTC medicines, with respondents exposed to a visual stimulus (Panadol versus Paracetamol). The developed scale from Phase One and a number of

established brands are adopted and added to the survey instrument (Bearden, Netemeyer, and Teel 1989; Delgado-Ballester and Munuera-Alema 2005; Limayem, Khalifa, and Chin 2004; Marcketti and Shelley 2009; Marimon et al. 2009; Pereira et al. 2005; Plowman and Goode 2009; Stone and Gronhaug 1993).

To test the research model, SEM will be used (H1-9) (Kline 2005). Hierarchical moderated regression will be used to test moderation analysis (H10) (Aiken and West 1991; Caruana, Money, and Berthon 2000). A combination of Baron and Kenny's four-step method and a Sobel test will be used to test mediation analysis in the study (Baron and Kenny 1986; Sobel 1982). Further, exploratory factor analysis (EFA), Cronbach's alpha, Pearson's correlation, and confirmatory factor analysis (CFA) are the key statistical techniques used in the study for certain purposes (Kline 2005; Nunnally 1978).

## **1.8. Expected Results**

As mentioned before, there are several research gaps identified based on an extensive literature review in the area of generic medicine study (Alrasheedy et al. 2014; Bulsara et al. 2010; Chong et al. 2011; Chua et al. 2010; Gill et al. 2010; Hassali, Kong, and Stewart 2005; Hassali et al. 2009; Muirhead 1994; Sharrad and Hassali 2011; Shepherd 1988; Toverud et al. 2011). As such, to test the hypotheses and offer a solution to resolve the research objectives (Chapter 3), a sound research methodology (Chapter 4), a number of relevant scales, and appropriate research techniques have been adopted and developed. The first study will develop and validate the 'attitudes towards generic brands' scale (Chapter 5). It is predicted that this scale will accurately measure consumer attitudes towards generic brands in any product categories. For the main study, a new set of data will be collected through an online survey. The result for the main study is discussed in Chapter 6. Findings and implications for

conceptual, methodological, and managerial areas are elaborated in Chapter 7 to illustrate how significant this study is.

## **1.9 Significance of the Study**

The focus of this study is to understand consumer attitudes towards generic brands in the context of an OTC medicine study. As a result of the research undertaken in this study, a number of conceptual, methodological and managerial significances are made as follows:

### **Conceptual Significance**

The key conceptual significances are:

- (1) This study examines consumer behaviour in general towards pharmaceutical generic brand products, specifically regarding over-the-counter (OTC) medicines, and it provides much needed expansion of our knowledge of consumer behaviour towards generic brands in the pharmaceutical industry, including any other generic industries.
- (2) This study provides a new conceptual understanding as it is the first empirical research to show that consumer behaviour towards generic brands can be explored in the pharmaceutical industry, especially in the context of over-the-counter medicines (H1-H9).
- (3) This study develops a theoretical-driven model to examine the causal relationship between variables that could have direct and indirect influences on the attitudes towards generic brands of OTC medicine and intention to buy generic brands of OTC medicines (Alrasheedy et al. 2014). The research model will be supported by the theory of planned behaviour, neutralization theory, and social cognitive theory as the underpinning theories. In addition, this study also has extended and compiled three different underpinning theories which complement each other to justify the conceptual framework in measuring consumer behaviour towards generic brands in the context of OTC medicines.

(4) This study will also satisfy the gap in the literature regarding price differential as a moderator in the research model, as suggested by Plowman and Goode (2009).

### **Methodological Significance**

The key methodological significances are:

(1) The most significant methodological contribution is the development, validation and generalization of the scale of ‘attitudes towards generic brands’. The scale development procedures are discussed in Chapter 5.

(2) The development of the ‘attitudes towards generic brands’ scale followed strict guidelines from previous researchers (Chen and Wells 1999; Churchill 1979; DeVellis 2003; Wells, Leavitt, and McConville 1971). The development of the ‘attitudes towards generic brands’ scale is very different to other methods as the scale items are generated from previous attitudes toward generic brands scales, and visual stimuli are used to capture the essence and the characteristics of consumers’ attitudes towards generic brands of a specific product category.

(3) Using visual stimuli from the real-life marketing example can enhance the validity and generalizability of the scale into the industry. In addition, using real-life marketing brands can improve the ecological validity of the study (Hornik and Ellis 1988).

### **Managerial Significance**

This study will highlight important findings for governmental policymakers, the pharmaceutical industry, medical practitioners, and the advertising industry by providing an understanding of consumer behaviour towards generic brands of over-the-counter (OTC) medicines.

(1) **Policymakers** – The findings can assist governmental policymakers in identifying an effective way to convince consumers that generic medicines provide them many benefits (Alrasheedy et al. 2014; Drozdowska and Hermanowski 2015; Hassali, Kong, and Stewart 2005).

(2) **Pharmaceutical industry and medical practitioners** – The implications for consumer behaviour towards generic brands of OTC medicines are being empirically tested and a discussion of the findings will show interesting trends that allow better formulation of promotion strategies. Based on the findings on consumers' attitudes towards generic brands of OTC medicines, the study provides insights into managing, and understanding how to enhance, consumer attitudes towards generic brands of OTC medicines as a strategy. The findings can also help the pharmaceutical industry and medical practitioners to engage in an effective way to encourage consumers to switch to generic medications (Bulsara et al. 2010; Hassali et al. 2009; Kumar et al. 2015; Yousefi et al. 2015).

(3) **Advertising industry** – The findings will also discuss an alternative strategy, such as utilising advertisements, to increase the public's awareness of the generic brands of OTC medicines (Alrasheedy et al. 2014).

## **1.10. Organization**

This chapter provided a brief overview of this research. Chapter Two provides a detailed literature review on generic brands and generic medicines. Then, the Australian health-care system and generic medicine regulatory system will be discussed. Further, the chapter addresses the performance of the generic medicine industry in Australia. This includes how counterfeit medicines have become a global issue, and a brief outline of the growth of the

generic medicines industry in Australia. The chapter concludes with the identification of the existing research gaps, and provides justification for each one.

Chapter Three presents the conceptual framework and the theoretical foundations of the study. Further, this chapter discusses the research objectives and the formulation of the research hypotheses. These include a number of consumer behaviour-related concepts, constructs and models that align the proposed theoretical framework with the individual supporting hypotheses. The chapter concludes with the proposed research model.

Chapter Four addresses the research methodology. This includes the details about the pre-tests, research design, and the expansion of the concept framework into a research model. It also reveals the justification for using these instruments and procedures and how they relate to methodologies used in previous research.

Chapter Five presents the process undertaken in developing the ‘attitudes towards generic brands’ scale through four independent studies. The scale items were first generated and purified through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) (Stage 1 and 2). It also comprises studies to confirm the nomological, convergent, discriminant, and predictive validity of the scale (Stage 3). In addition, the scale is tested with the measurement invariance method (configural, metric and scalar invariance) to ensure the generalizability of the scale in various pharmaceutical product categories (Stage 4). The final items are presented in Figures 5–6.

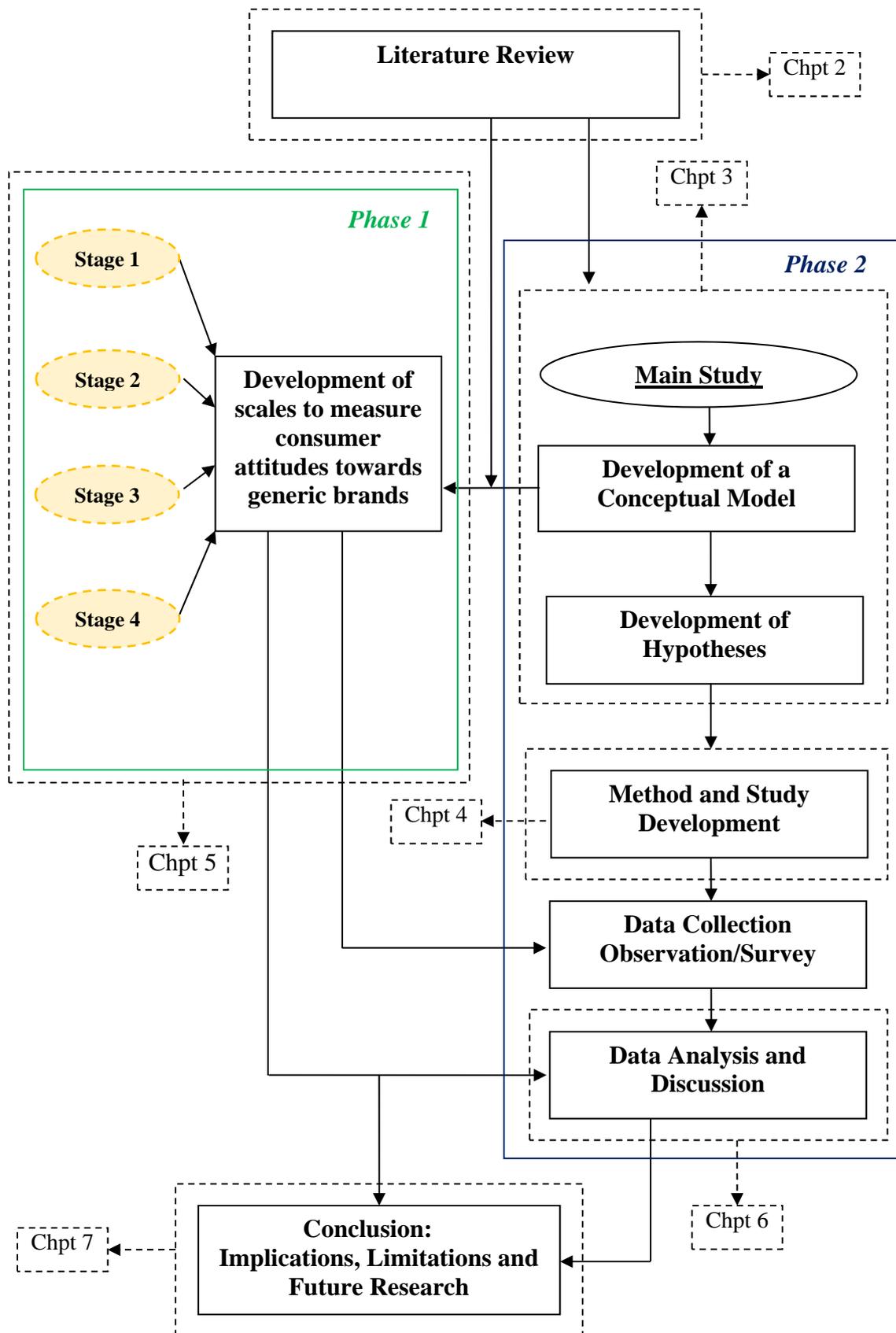
Chapter Six provides a statistical analysis of the data collected by using Analysis of Moment Structure (AMOS), hierarchical moderated regression, Baron and Kenny’s four-step methods and the Sobel test. All these statistical techniques are explained in detail including what particular techniques were used for analysis of data and the rules that govern the use of these techniques. Further, this chapter concludes the results of the study with a discussion to

summarize the key findings. In addition, it also provides a discussion of all the findings from the previous chapters.

Chapter Seven is the conclusion, which includes a general discussion of the study and how it will help policymakers and business practitioners, based on the findings from data analysis, followed by the conceptual, methodological and managerial contributions. The chapter concludes with the limitations of this research, and delineates the prospect passages leading to recommendations for future research.

Appendices and documentation of the references used in the current study are included at the end of the report. The summary of the structure of this report is presented in Figure 1-1.

**Figure 1-1: A Schematic Overview of the Research Process**



### **1.11. Concluding Comments for Chapter One**

The thesis highlights the need to investigate the study of generic brands, especially generic medicines. As shown in Figure 1-1, the dissertation is structured as follows: Chapter 2 contains the literature review exploring generic brands, especially in generic medicines and the issue of counterfeit medicines. Next, Chapter 3 will present the theoretical framework and development of the hypotheses for this study. Chapter 4 provides an explanation of the methodology undertaken for the main study. The development of 'attitudes towards generic brands' scale will be discussed in Chapter 5. Chapter 6 provides an in-depth discussion on the results from the main study. Finally, Chapter 7 concludes the study with implications, discussion on the findings, limitations and suggestions for future research.

## **Chapter 2**

### **Literature Review**

#### **2.1. Introduction**

This chapter provides a review of all relevant literature pertaining to this study. The scope of the review will be focused on generic brands in a pharmaceutical products context and their effects on consumer behaviour. This chapter can be divided into five main sections. In the first section, the history of generic brands, a definition of generic brands, the characteristics of generic brands and recent literature on generic brands, including the revolution of generic brands are discussed, since generic brand is the parent literature for this study. The second section begins with the extant literature review of generic medicine study starting from the 1970s until the 2000s, followed by the definition of generic brands based on literature. The third section begins with an overview of Australia's health-care system and its generic medicines regulatory system. This is followed by the discussion of recent developments in the pharmaceutical industry and generic medicines in Australia. Next, the benefits and issues of generic medicines in Australia are explained, followed by the extant literature of generic medicine studies in Australia. In the fourth section, counterfeit medicine issues in the global market are presented. The difference between counterfeit medicines and generic medicines is explained and counterfeit medicine issues in Australia are discussed. In the fifth section, the academic literature on the variables affecting attitudes towards generic brands of medicines and intention to buy generic brands of medicines are reviewed. Each variable is explained based on why each is essential for use in this study and the literature for each variable is discussed in the context of generic medicine study. Finally, in the conclusion of the chapter, the gaps relating directly to the purpose of this study are reviewed and summarized.

## **2.2. What are Generic Brands?**

### **2.2.1. History of Generic Brands**

Traditional marketing is commonly only focused on branded products (Choi and Huddleston 2014; Neidell, Boone, and Cagley 1985). By using branded products, firms can develop customer loyalties and increase customer awareness towards those products. In addition, firms can assist customers to distinguish their branded products from other products and develop line extensions of them (Choi and Huddleston 2014; Moutinho 1987). This suggests that brand marketing is an essential method in creating a new identity for a new product. As such, the idea of generating generic brands is established as one of brand extension strategies to compete with other brands, such as national brands and private label brands. Aders and Jenkins (1980) stated that the development of generic brands is one of the most successful brand revolutions in brand marketing strategy.

The idea of developing generic brands was pioneered by Carrefour in 1976 by introducing a new range of products with generic brand concepts (de Chernatony 1988; Neidell, Boone, and Cagley 1985). At this stage, generic brands were defined as ‘a distributor’s brand that does not include a traditional brand name on its label’ (McEnally and Hawes 1984). The purpose of introducing generic brands into the market was to compete with private label brands and national brands based on price and quality. Generic brands were purposely sold more cheaply than private label or national brands and they were perceived to be of a similar quality to other brands. In 1979, the generic brands had successfully captured 40 per cent of the market share within those categories where they competed with other brands (Burck 1979). This success story of generic brands inspired other corporations to formulate a similar strategy by creating their own generic brands to gain their own market share in the local or global market. For example, several of the nation’s largest food retailers in the US (i.e. A&P,

Topco Associates, Safeway Stores, and Pathmark Supermarkets) began to offer generic brands in their stores in 1981 (Neidell, Boone, and Cagley 1985). In 1987, it is recorded that generic brands had been implemented in over 320 product categories, including beer, cigarettes, vitamins, car parts, toys and apparels, in more than 250 supermarket chains throughout the United States (Moutinho 1987).

### **2.2.2. Definition of Generic Brands and Their Characteristics**

In the past literature, generic brands have been defined in a number of ways, based on how they were perceived in past studies. According to McEnally and Hawes (1984), a generic brand is ‘a distributor’s brand that does not include a traditional brand name on its label’ because the study focused only on generic brands of grocery products with plain packaging. Based on Neidell, Boone, and Cagley (1985), generic brands can be defined as ‘products characterized by little or no advertising, absence of brand names, and plain, stark, black-and-white labels’ because the authors described the development of generic brands as going against the traditional views of the importance of brands names, packaging and advertising in influencing consumer decision making to purchase the brands or products. Moutinho (1987) defined a generic brand as ‘a plainly packaged, less expensive version of a product, such as paper towels, canned fruit, potato chips and coffee filters’ to complement McEnally and Hawes’s (1984) definition of generic brands in the grocery products category. As such, there are three essential elements to identify the characteristics of generic brands in any product category which can be found in the stores. Firstly, the most important factor is the price. Generic brands are usually sold at a cheaper price compared to other brands, such as established brands, national brands and private label brands (Neidell, Boone, and Cagley 1985; Yelkur 2000). Secondly, generic brands have simpler packaging, with no brand name, compared to other brands (Chiou and Chao 2011; Choi and Huddleston 2014; Moutinho 1987; Neidell, Boone, and Cagley 1985). As such, it lacks product information and this

creates a ‘low quality’ image on the products. Thirdly, in order to reduce operational costs and maintain their low price there are no advertising materials to promote generic brands (Chiou and Chao 2011; Choi and Huddleston 2014; Moutinho 1987). As a result, this makes a generic brand an ‘unknown brand’ in the consumer mind which can create negative side effects for generic brands, such as a fear of using generic brands or the confusion of generic brands with other similar characteristic brands.

### **2.2.3. The Evolution of Generic Brands**

Generic brands were initially implemented mostly in grocery products (i.e. paper towels, detergent or canned products) to compete with other brands and this then expanded to other product categories, such as car parts, electronic products, liquors, health supplements, apparels and medicines, as the market grew rapidly, year on year (Choi and Huddleston 2014; Moutinho 1987). More recently, the characteristics of generic brands have been upgraded by improving their packaging to provide more product information to comply with the health and safety standards issue (Alrasheedy et al. 2014; Choi and Huddleston 2014; Moutinho 1987). In addition, generic brands have created their own logo and brand names so as to be easily distinguished by the consumers from other brands (Alrasheedy et al. 2014; Chiou and Chao 2011; Choi and Huddleston 2014; Moutinho 1987). However, generic brands are still restricted by a no-advertising policy in order to maintain their low-price concept. As such, this does not solve the issues of the negative perception of generic brands as ‘low-quality’ products, and the confusion of generic brands with other brands.

Based on the recent literature, generic brands of medicines have received more attention than other product categories (e.g. grocery products) because they have an enormous impact on government efforts to reduce the massive cost of medical expenses (Donovan 2007; Smit and Bredenkamp 2013) and in assisting in relieving the drug shortage as an alternative medication option for patients or consumers around the world (Alrasheedy et al. 2014; Chabner 2011). In

addition, several recent studies compared generic brands of medicines with branded medicines based on perceived risk (Abzakh, Ling, and Alkilani 2013; Ganther and Kreling 2000; Papsdorf et al. 2009; Suplet, Suarez, and Martin 2009; Yousefi et al. 2015), quality (Al Ameri et al. 2013; Kohli and Buller 2013; Kumar et al. 2015; Ngo, Stupans, and McKinnon 2013; Sansgiry, Bhosle and Pope 2005; Shrank et al. 2009), demographic (Babar et al. 2010; Bulsara et al. 2010; Iosifescu et al. 2008; Keenum et al. 2012; Yousefi et al. 2015), safety (Pereira et al. 2005; Sewell et al. 2012; Yousefi et al. 2015), attitudes towards generic medicines (Heikkila et al. 2007; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; Palagyi and Lassanova 2008; Rathe et al. 2013; Toklu et al. 2012; Yousefi et al. 2015), consumer confusion (Alrasheedy et al. 2014; Drozdowska and Hermanowski 2015; Hassali, Kong and Stewart 2005), efficacy (Bulsara et al. 2010; Figueiras, Marcelino, and Cortes 2008; Ibrahim, McKinnon, and Ngo 2012; Shrank et al. 2009; Yousefi et al. 2015), low price (Ahire et al. 2013; Hoshi and Kimura 2008; Piccholiya et al. 2015), consumer knowledge of generic medicines (Al Ameri et al. 2013; Bertoldi, Barros, and Hallal 2005; Kumar et al. 2015; Lebanova, Manolov, and Getov 2012; Patel et al. 2010), disease type (Denoth, Pinget, and Wasserfallen 2011; Drozdowska and Hermanowski 2015; Figueiras, Marcelino, and Cortes 2008; Roman 2009; Toverud et al. 2011), consumer trust (Gill et al. 2010; Quintal and Mendes 2012; Yousefi et al. 2015) and communication with health-care providers (Al-Gedadi, Hassali, and Shafie 2008; Albadr and Khan 2015; Hassali, Kong and Stewart 2005; Keenum et al. 2012; Shrank et al. 2009). Based on these extensive literatures, there is a need to examine consumer attitudes towards generic brands of medicine within a specific scope. As such, the literature of generic brands of medicines is explored including their definition in the next section.

## 2.3. What are Generic Brands of Medicines?

### 2.3.1. Literature Review of Generic Medicines

#### *Generic Medicines in the 1970s*

In the seventies, most of the generic medicine studies were conducted in the United States because the United States was the pioneer of generic brands of medicines and had the Food and Drug Administration (FDA) as the authority to approve generic medicines' entry into the market after an extensive examination process (Bearden and Mason 1978; Hassali et al. 2009). A summary of generic medicine literatures in 1970s can be seen in Table 2-1.

| Source                 | Location     | Methods              | Samples               | Outcomes   | Limitations   |
|------------------------|--------------|----------------------|-----------------------|--|---|
| Bearden and Mason 1978 | USA          | Questionnaire survey | 105 household samples | Cost-saving is the primary reason for most of the consumers to switch to generic substitution or medications and support them.   | Small number of samples cannot be generalized to the USA population.                            |
| Lambert et al. 1980    | Florida, USA | Questionnaire survey | 510 household samples | Age (older with higher income) and perceptions of effectiveness of generic medicines (less effective than branded medicines) have significant influence on rejection of generic substitutions. | The study only focused on intention as the outcome variable, not the actual purchase behaviour. |

Early studies on generic medicines focused more on consumer attitudes, perceived risk, consumer knowledge and satisfaction with generic medications (Bearden and Mason 1978; Lambert et al. 1980; Mason and Bearden 1980). In addition, perspective comparisons among consumers, physicians and pharmacists were explored as well. Based on Lambert et al.'s (1980) study, more than 60 per cent of the respondents in Florida rejected generic medication because they perceived generic medicines to be less effective than branded medicines, even though they could save a substantial amount of money by using generic medicines. The demographic profiles that rejected the generic medications were older with higher incomes. By utilising theory of reasoned action (Ajzen and Fishbein 1977), Bearden and Mason (1978)

found that consumers who declined generic medicines were concerned about drug performance, potential financial and safety. As such, this indicates that consumers were still lacking information about generic brands of medicine which led to negative perspectives about them being of lower quality, less effective and having doubtful performance.

### *Generic Medicines in the 1980s*

In the eighties, most of the studies were conducted in the United States and Canada (Kendall, Ng, and Schoner 1991; Mason and Bearden 1980; Podulka, Krautkramer, and Amerson 1989; Shepherd 1988; Tootelian, Gaedeke, and Schlacter 1988). A summary of literature on generic medicines in 1980s can be seen in Table 2-2.

| <b>Source</b>                          | <b>Location</b> | <b>Methods</b>                                  | <b>Samples</b>           | <b>Outcomes</b>   | <b>Limitations</b>   |
|--|-----------------|---|--------------------------|---|--|
| Mason and Bearden 1980                 | USA             | Questionnaire survey                            | 105 Household samples    | Performance risk, financial risk, and physical risk were the key factors that influenced one-third of respondents to reject generic substitutions.  | Small number of samples cannot be generalized to the USA population.   |
| Shepherd 1988                          | USA             | Interview-administered survey                   | 621 Community pharmacies | Generic medicines were perceived as lower quality, more risky, less effective, and less healthful compared to branded medicines.  | The samples only focus on the pharmacy perspectives.   |
| Tootelian, Gaedeke, and Schlacter 1988 | USA             | Questionnaire survey                            | 389 college students     | Branded medicines were viewed as being less risky, more effective, and having more value compared to generic medicines. Perceived risk was the key element in consumers' decision to purchase branded medicines rather than generic medicines.                                    | The student samples cannot be generalized to the USA population and the study is limited to homogeneous samples. |
| Podulka, Krautkramer, and Amerson 1989 | USA             | Questionnaire survey                            | 100 community-based      | Even though most of the respondents believed that generic medicines had a similar quality to branded medicines, they were less likely to use them for chronic and serious conditions. Recommendation from pharmacists would boost consumers' confidence to use generic medicines. | The small number of samples cannot be generalized to the USA population.   |
| Kendall, Ng, and Schoner 1991          | Canada          | Field experiment based on prescription analysis | 295 chain pharmacies     | Most of the respondents did not mind using generic medicines for less serious conditions if they only had to pay a part of the cost and they were recommended by a health professional.   | The small number of samples cannot be generalized to the USA population.   |

Based on Mason and Bearden's (1980) finding, consumers in the USA supported the practice of generic substitution because it could save them money; however it is essential for health

professionals to educate consumers about the benefit of generic substitutions. Shepherd (1988) found that generic brands of medicines were perceived as being of lower quality, more risky, less effective and less healthful to take compared to branded medicines. Similarly, Tootelian, Gaedeke, and Schlacter (1988) also found that branded medicines were viewed as being less risky, more effective, and to have more value compared to generic medicines. Conversely, Podulka, Krautkramer, and Amerson (1989) found that the majority of the consumers perceived generic medicines as being of a similar quality as branded medicines; however, consumers were less likely to use generic medications for chronic conditions. It also found that recommendation from a health professional (i.e. pharmacists and physicians) could boost the consumer's confidence in using generic medications. In Canada, Kendall, Ng, and Schoner (1991) found that the majority of patients who would like to switch to generic medications, wanted to pay only part of the cost of medication and needed health professional support by actively promoting the generic medications to the patients. Hence, the support from a health professional was an important factor in influencing consumers or patients to switch to generic medications; however, this is limited to medicines for less serious conditions (i.e. influenza, coughing or headache).

### *Generic Medicines in the 1990s*

In the nineties, most of the studies were conducted in the United States (Ganther and Kreling 2000; Muirhead 1994; Rosendahl 1994). A summary of literature of generic medicines in 1990s can be seen in Table 2-3.

| <b>Source</b>            | <b>Location</b> | <b>Methods</b>       | <b>Samples</b>         | <b>Outcomes</b>  | <b>Limitations</b>   |
|--------------------------|-----------------|----------------------|------------------------|--|--|
| Rosendahl 1994           | USA             | Questionnaire survey | 736 community-based    | More than 80 per cent of the respondents were familiar with generic medicines, however less than 50 per cent of consumers switched their medications to generic medicines.                       | Most of the samples are elderly patients; hence the results cannot be generalized to the USA population. |
| Muirhead 1994            | USA             | Mail survey          | 876 nation-wide survey | Most of the respondents, with the exception of lower-income patients, had requested generic substitution because they believed that generic medicine has a similar quality to branded medicines. | Limitations not mentioned by authors   |
| Ganther and Kreling 2000 | USA             | Mail survey          | 355 household samples  | Consumers had different perceptions of risks depending on how serious the medical condition was. Financial incentives were recommended to enhance the use of generic medicines.                  | The study was conducted in a small region of one state, as such, generalization is limited.              |

Based on Rosendahl's (1994) findings, more than 80 per cent of consumers in the United States were familiar with generic medications and less than 50 per cent of consumers in the United States requested the pharmacist to switch their medication to generic medicines. Correspondingly, Muirhead (1994) also found that the majority of consumers in the USA had requested generic substitution; however lower-income consumers still viewed generic medicines as being of lower quality than branded medicines. Ganther and Kreling (2000) found that consumers have different perspectives of risks depending on the medical condition being treated. This shows that consumers perceive the risk of using generic substitution to be greater when the patient is suffering from a more serious medical condition. As such, there is

a need to provide education to patients or consumers to increase the use of generic medicines, as suggested by Ganther Kreling (2000).

### ***Generic Medicines in the 2000s***

In the 2000s, most of the studies were conducted not only in the United States, but also in Spain, Brazil, Australia, Norway, Finland, Portugal, and Malaysia. A summary of literature of generic medicines in 2000s can be seen in Table 2-4.

| <b>Source</b>                       | <b>Location</b> | <b>Methods</b>                                    | <b>Samples</b>         | <b>Outcomes</b>  | <b>Limitations</b>   |
|-------------------------------------|-----------------|---|------------------------|--|--|
| Momani et al. 2000                  | USA             | Mail survey                                       | 303 household samples  | More than 50 per cent of respondents were aware of the benefits of generic medicines and used them. Their attitudes towards generic medicines were fairly positive.  | Generalization was conducted in three different states; as such, generalization of the total US population was not possible. |
| Hassali, Kong, and Stewart 2005     | Australia       | Interview-administered survey (qualitative study) | 16 household samples   | Generic medicines are known as 'cheaper brands of medicines' in the consumer mind and cost saving was the only reason why consumers were willing to use generic medicines. Side effects of generic medicines and brand confusion were the barriers to acceptance of generic medicines. | Generalization was not possible because the study was only conducted in one state.   |
| Bertoldi, Barros, and Hallal 2005   | Brazil          | Interview-administered survey                     | 3182 household samples | Even though more than 60 per cent of respondents understood that generic medicines cost less and were of a similar quality to brand-name medicines, consumers were choosing their medications based on the price and the prescription that they got from the health professional.      | Generalization was not possible because the study was only conducted in one state.   |
| Pereira et al. 2005                 | Canada          | Self-administered survey                          | 81 clinic patients     | Around 40 per cent of respondents believed that generic medicines were bioequivalent with brand-name medicines; however, they were concerned about switching to generic brands of Warfarin medicines.  | A small sample size and only used Warfarin users so the sample could not enable the study to be generalized.                 |
| Al-Gedadi, Hassali, and Shafie 2008 | Malaysia        | Questionnaire survey                              | 400 students           | Less than 40 per cent of respondents were familiar with the term of generic medicines and believed that generic medicines may cause more side effects. More than 60 per cent of respondents knew that generic medicines cost less than branded medicines.                              | The small sample size meant that the study could not be generalized.   |

Based on Momani et al.'s (2000) findings, more than 50 per cent of respondents in the USA were aware of the benefit of cost saving when using generic medications and their attitudes towards generic medicines were fairly positive. In Australia, Hassali, Kong and Stewart (2005) found that most of the consumers recognized generic medicines as being 'cheaper brands of medicine' and cost saving was the major reason for using generic medications. No recommendation from medical practitioners, a fear of the side effects of using generic brands of medicines, and brand confusion between generic brands of medicines with other brands were the major causes of rejecting generic medications. In Brazil, Bertoldi, Barros, and Hallal (2005) found that consumers or patients were choosing their medications based on the price and the prescription that they got from their health professional. In Canada, a minority of the patients were reluctant to switch to generic brands of Warfarin medicines because of a lack of knowledge about generic Warfarin (Pereira et al. 2005). In Malaysia, Al-Gedadi, Hassali, and Shafie (2008) found that consumer knowledge about generic medicines was limited. According to Iosifescu et al.'s (2008) study, consumers, who have low health literacy and who have poor communication with their medical practitioners about generic medicines, usually held negative views towards generic brands of medicines. As such, education from medical practitioners is necessary to enhance generic medicine uses.

In the 2000s, most European countries started to implement generic medicines in their health-care system. A summary of literature of generic medicines in European countries in the 2000s can be seen in Table 2-5.

| <b>Source</b>                          | <b>Location</b> | <b>Methods</b>                | <b>Samples</b>                    | <b>Outcomes</b>   | <b>Limitations</b>   |
|--|-----------------|-------------------------------|-----------------------------------|---|--|
| Valles et al. 2003                     | Spain           | Randomized intervention study | 4620 samples from 27 care centres | Almost all respondents were keen to accept generic substitutions. Individual educational intervention in patients with repeat prescribing resulting in a high rate of generic acceptability.  | Response bias was possible because the samples are controlled and restricted under specific circumstances. |
| Kjoenniksen, Lindbaek, and Granas 2006 | Norway          | Mail survey                   | 386 household samples             | More than 60 per cent of respondents were satisfied with generic substitution and around 30 per cent had had a bad experience with generic substitution.  | Generalization was not possible because number of sample size was not sufficient.                          |
| Heikkila et al. 2007                   | Finland         | Questionnaire survey          | 860 community pharmacies          | Majority of respondents accepted generic substitution as a good reform measure; however, some respondents were confused with the new legislation and rejected generic substitution because they were satisfied with their previous medications. | Generalization was not possible because study was conducted in two different states.                       |
| Figueiras, Marcelino, and Cortes 2008  | Portugal        | Questionnaire survey          | 1125 general population           | Younger respondents with a higher level of education perceived generic medicines as having a similar efficacy to branded medicines and older respondents believed that generic medicines have a similar quality to branded medicines.           | Most of the samples were urban employees, hence generalization was not possible.                           |

In Spain, generic brands of medicines were introduced in late 1997 and shared only 0.15 per cent of the Spanish drug market (Valles et al. 2003). Valles et al. (2003) found ‘individual educational intervention in patients with repeat prescribing resulting in a high rate of generic acceptability’. In Norway, generic medications were allowed to switch with branded medications starting in March 2001 and more than 60 per cent of the patients were satisfied with generic substitution (Kjoenniksen, Lindbaek, and Granas 2006). In Finland, a generic substitution law was implemented in April 2003 and the majority of consumers accepted

generic substitution as a good reform measure, however some consumers were still confused and cautious about the new legislation (Heikkila et al. 2007). In Portugal, Figueiras, Marcelino, and Cortes (2008) found that younger respondents with a higher level of education perceived generic medicines as having a similar efficacy to branded medicines and older respondents believed that generic medicines have a similar quality to branded medicines. Based on these extensive literature reviews, generic medicines in the USA had reached a mature phase in which most consumers in the United States were aware of generic medications, while in other countries, generic medicines were only recently introduced and were at an early phase in the market.

### **2.3.2. Generic Medicines Defined**

According to World Health Organization (2014), generic medicine can be defined as ‘a pharmaceutical product, usually intended to be interchangeable with an innovator product that is manufactured without a license from the innovator company and marketed after the expiry date of the patent or other exclusive rights’. Generic medicines are defined as medicinal substances that have the same active ingredients (bioequivalent) as branded medicines or genuine medicines (McLachlan, Ramzan, and Milne 2007; Meredith 2003; Roger 2006; Therapeutic Goods Administration 2014). Generic medicines can be produced after a branded medicine’s patent has expired (Löfgren 2009; Therapeutic Goods Administration 2014). Bioequivalent means that the medicines have the same active ingredients and the same dosage formulation to meet the standards for strength, purity, quality and identity of branded medicines (Löfgren 2004; Meredith 2003; Roger 2006). The rate of absorption may differ but it is still considered as bioequivalent if the difference is intentional and there is no significant difference in the extent of absorption when the two products are assessed under similar experimental conditions (Löfgren 2004; Meredith 2003; Roger 2006).

## **2.4. Literature of Generic Medicines in Australia**

### **2.4.1. Overview of Australia's Health-care System**

In 1946, the Constitution of the Commonwealth was amended to enable the Commonwealth to provide health benefits and services, without altering the powers of the States. The Commonwealth has the authority to create policies in national issues such as public health, research and national information management. The States and Territories only have the authority to deliver and manage public health services, including maintaining good relationships with health-care providers and managing the regulation of health professionals (Commonwealth Department of Health and Aged Care 2000).

Based on the Commonwealth Department of Health and Aged Care (2000), Australia's health-care system consists of public and private sectors. The public health-care system is funded fully by the Commonwealth government and the State or Territories governments, while the State and Territory governments directly fund a broad range of health services. The Commonwealth funds private medical services and health research. The Commonwealth, States and Territories jointly fund public hospitals and community care for aged and disabled persons (Commonwealth Department of Health and Aged Care 2000; Löfgren 2009). In Australia, the Commonwealth government created Medicare as a major part of the national health-care system to provide high-quality health care to all Australians. It is financed largely from general taxation revenue, which includes a Medicare levy based on a person's taxable income (Commonwealth Department of Health and Aged Care 2000; Medicines Australia 2013). Private sector health (i.e. private hospital or doctor's clinic) expenditures are funded by out-of-pocket spending by individuals, private health insurance and private corporations (Commonwealth Department of Health and Aged Care 2000; Löfgren 2009).

### **2.4.2. Generic Medicines Regulatory System in Australia**

Australia's system of generic medicines regulation consists of two major steps. First, medicines need to be registered in the Australian Register of Therapeutic Goods (ARTG) and get approval by the Therapeutic Goods Administration (TGA) for acceptable quality, safety and efficacy (Therapeutic Goods Administration 2014). The TGA will test the generic products for bioequivalence with the originator brand through a process of rigorous scientific evaluation normally completed within 45 working days (McLachlan, Ramzan, and Milne 2007; Therapeutic Goods Administration 2014). For bioequivalence, the guidelines of the European Medicines Agency (EMA) are adopted by the TGA and each submission is assessed on a case-by-case basis. Omnitrope (supplied by Sandoz/Novartis) was the first bioequivalence generic medicine introduced (in November 2005) to the Australian market (Roger 2006). Second, patent rights extend beyond those mandated by the Agreement on Trade-Related aspects of Intellectual Property Rights (TRIPS) to include a five-year data exclusivity period, precluding data submitted to the TGA relating to a pharmaceutical product from being used by another company in applying for marketing approval until five years after approval of the original product (Löfgren 2009; Therapeutic Goods Administration 2014). Moreover, patent extensions of up to five years are available for pharmaceutical standard patents, under certain circumstances, to compensate for delays in the marketing approval process. Generics can also not be produced for exports whilst patents still apply in Australia. Therefore, Australian generic manufacturers are in a disadvantaged situation in which global companies will choose non-Australian manufacturers to manufacture new generic products (Pharmaceutical Industry Strategy Group: Final Report 2008).

### **2.4.3. Development of Australia Pharmaceutical Industry**

In 2006, the Australian pharmaceuticals industry had invested \$860 million in research and development and this increased to \$2.3 billion in 2008 (Medicines Australia 2013). In 2007,

the generics medicines industry provided nearly 5,000 jobs and made \$928 million in sales from the top eight companies. In 2008, the Australian medicinal and pharmaceuticals sector contributed over \$2 billion in export earnings and overtook automotive and liquors industries as the largest manufactured export sector. In 2009, the community pharmacy sector had an annual turnover of \$12 billion and this increased to over \$22 billion in 2013 (Medicines Australia 2009, 2013). In 2011, Australian medicines manufacturing contributed an estimated \$9.7 billion to the economy; however, Australia's total health expenditure was \$130 billion of which 69 percent of total expenditure was funded by the government (Medicines Australia 2013). In 2012, Australian medicines exports had reached over \$4 billion and Australian medicines received the highest manufacturing industry investment in R&D of over \$1 billion (Medicine Australia 2013). From all this information, it can be seen that there is substantial development in the Australian pharmaceutical industry year by year; however medical expenses are also increasing year by year, with an average annual increase of \$10 billion. Therefore, the Australian government needs to back the entry of more generic medicines into the market and encourage consumers to purchase generic medicines in order to reduce its medical expenses.

#### **2.4.4. Growth of Generic Medicines in Australia**

In Australia, all pharmaceutical products (including generic medicines) are strictly regulated by the government. They must be examined by the Australian Register of Therapeutic Goods (ARTG) for safety purposes and must also be listed in the Pharmaceutical Bureau Scheme (PBS) before they can be commercialized to the public (Therapeutic Goods Administration 2014). In addition, generic medicines need to create an appropriate different labelling from the original medicines and have to pass a preapproval goods manufacturing process (GMP) inspection (Lybecker 2008). Another important criterion for approval is that generic medicines must be bioequivalent (same quality and efficacy characteristics) to the originator

(brand name) medicine that they duplicate (Fatokun, Ibrahim, and Hassali 2013; Roger 2006). It is estimated that around 30% of Pharmaceutical Benefits Scheme (PBS) prescriptions are dispensed with a generic, representing between 10% and 15% of the value of PBS sales (Löfgren 2009; Nicholson 2008; Pharmaceutical Society of Australia 2009). Around 20% of all generics available in Australian community pharmacies are estimated to be in this category, which includes repackaged versions of major products such as Ventolin, Losec, Valium, Normison, Augmentin, and Prozac (Löfgren 2009). The Generic Medicines industry Association (GMiA) claims its six member companies supply 98% of generic prescriptions and Alphapharm has a market share of around 60% and Sigma about 20% (Mylan Inc. Annual Report 2008). Therefore, most pharmacies in Australia have provided generic medicines in their product lists; hence Australian consumers have another option to purchase generic medicines instead of trade name (branded) medicines.

In 1994, pharmacists were given permission to substitute generic medicines if they were listed on the Schedule of Pharmaceutical Benefits in Australia (Beecroft 2007; Gill et al. 2010). In 2001, the generic medicines market share accounted for only 20%, and by 2004/2005 it had grown to only 25% (Beecroft 2007; Gill et al. 2010). When compared to other countries such as Finland or Italy, this percentage was relatively low (Gill et al. 2010; Löfgren 2004). It is predicted that generic medicines will represent overall PBS sales to the value of around 30–50% in 2013 (Feldman and Lobo 2013; Löfgren 2009; Nicholson 2008). In 2015, PBS has calculated that the sales of generic medicines in Australia has increased significantly which represents approximately 60-70% of overall PBS sales because the price of generic medicine has been pushed down further compared to the prices in 2014. As such, it encourages more new potential consumers to shift their medications into generic medicines (Harrison 2015). Recent research shows that patients' acceptance of generic substitution medicines is quite high in Australia (above 70%) (Chong et al. 2011), however this finding is

uncertain as the survey was completed by pharmacists, not consumers. Recent research also shows that the Australian government has encouraged the utilisation of generic medicines to reduce expenditure in the Pharmaceutical Benefits Scheme (PBS) and has provided cheaper alternatives for consumers (Chong et al. 2011; Feldman and Lobo 2013; Harrison 2015; McCarthy 2010). However, the same studies have shown that this has not effectively induced consumers to switch to generic medications. This provides a potential gap for the study of why this has not happened.

#### **2.4.5. Benefits of Generic Medicines**

By engaging consumers in substituting their branded medicines with generic medicines, significant costs can be saved by the government, the PBS, and the hospitals (Donovan 2007; Smit and Bredenkamp 2013). It is reported that the Australian government has encouraged all hospitals to use generic medicines to save costs of around AUD\$2.5 billion over the next five years (McCarthy 2010). In addition, the Australian government has invested AUD\$7.3 billion in the National Health and Hospital Network and AUD\$10 million for a generic education programme (McCarthy 2010) to encourage consumers to purchase generic medicines by assuring them that different brands of similar medicines have the same clinical effect. Hence, it will help the PBS to increase the sales of generic medicines in Australia.

#### **2.4.6. Generic Medicine Issues in Australia**

In order to keep costs low, there is very limited advertising and promotion of generic medicines to the public (Feldman and Lobo 2013; Löfgren 2009). As such, this limited information has led to the misconception of generic medicines being inferior, and this influences consumers to choose brand name medicines rather than generic medicines. It has been proven by Donovan (2007) that Australian consumers have a lower utilisation of generic medicine (28%) compared to the USA (50%) and the United Kingdom (50%). Even though consumers are aware of the availability of generic medicines as an alternative, they still

hesitate to switch their medication to generic medicines (Hassali et al. 2009; Mason and Bearden 1980). Consumers have a strong resistance towards generic medicines as most feel that they are more risky and less effective compared to branded medicines (Alrasheedy et al. 2014; Mason and Bearden 1980; Shepherd 1988; Tootelian, Gaedeke, and Schlacter 1988). Hence, the support of general practitioners (e.g. doctors, pharmacists, and nurse) is an important element to encourage consumers to use generic medicines, especially first-timer consumers (Donovan 2007). In spite of this, some general practitioners resist recommending generic medicines because the conditions of their patients have stabilized on a particular branded medicine (Feldman and Lobo 2013).

#### **2.4.7. Generic Medicine Studies in Australia**

There have been a few studies conducted in Australia (Bulsara et al. 2010; Chong et al. 2011; Hassali, Kong and Stewart 2005; Ibrahim, McKinnon, and Ngo 2012; Ngo, Stupans, and McKinnon 2013). A summary of the generic medicine studies in Australia can be seen in Table 2-6.

**Table 2-6: Summary of generic medicine studies in Australia based on consumer or patient or pharmacist perspectives**

| Source                          | Location                               | Methods                            | Samples                                  | Outcomes  | Limitations  |
|---------------------------------|--|------------------------------------|--|---|--|
| Hassali, Kong, and Stewart 2005 | Melbourne, Australia                   | Qualitative approach (interviews)  | 16 consumers (generic users)             | <p>Cost saving and recommendation from medical practitioners were the reasons for accepting generic substitution.</p> <p>Influence of medical practitioners, fear of side effects, brand confusion, and lack of adequate information about generic medicines are the reasons that consumers reject generic medicines.</p> | <ul style="list-style-type: none"> <li>Conducted only in one state</li> <li>Only use English-speaking consumers</li> </ul>   |
| Bulsara et al. 2010             | Western Australia                      | Qualitative approach (focus group) | 172 participants                         | <p>Respondents mistrusted generic medicines because they believed that generic medicines have inferior quality compared to branded medicines.</p> <p>Participants were confused about generic medicines because of a lack of uniformity of packaging and labelling of medicines.</p>                                      | <ul style="list-style-type: none"> <li>Only used elderly patients (over 65 years) with chronic disease</li> <li>Conducted only in one state</li> </ul>                     |
| Chong et al. 2011               | Australia nationwide                   | Mail survey                        | 97 pharmacists (response rate 16.4%)     | <p>Patients with a chronic condition had lower acceptability of generic substitution compared to patients with acute condition.</p> <p>Patients' acceptance of generic medicines in remote areas was higher than in rural and urban areas.</p> <p>Patients' medical cost reduced by 21% by using generic medicines.</p>   | <ul style="list-style-type: none"> <li>Only collected data from pharmacists</li> <li>Sample size is too small to represent each state in Australia</li> </ul>              |
| Ibrahim, McKinnon, and Ngo 2012 | Adelaide, South Australia              | Self-administered survey           | 503 patients                             | <p>Younger patients (&lt;55 years) asked for generic medicines more often than older patients (&gt;55years).</p> <p>Almost half of respondents lacked knowledge of generic medicines.</p>   | <ul style="list-style-type: none"> <li>Conducted only in one state</li> <li>There is no clarification of respondents' preferences in the survey.</li> </ul>                |
| Ngo, Stupans, and McKinnon 2013 | South Australia and Northern Territory | Mail survey                        | 47 returned surveys (response rate 6.7%) | <p>Majority of respondents are concerned about the effectiveness and safety of generic medicines.</p> <p>Less than 25 per cent of respondents prefer to use generic medicines because of potential cost saving.</p>   | <ul style="list-style-type: none"> <li>Sample size is too small to cover all states.</li> <li>Low response rate</li> <li>Only focused on patients with epilepsy</li> </ul> |

Based on the five studies as shown in Table 2-6, extant literature revealed that most research in generic medicines in Australia has been studied from the perspective of a specific target

sample, such as patients with a chronic condition, generic users or pharmacists (Alrasheedy et al. 2014; Bulsara et al. 2010; Chong et al. 2011; Hassali, Kong and Stewart 2005; Ibrahim, McKinnon, and Ngo 2012; Ngo, Stupans, and McKinnon 2013). Little research has examined generic medicines from the consumers' perspective in general (Alrasheedy et al. 2014; Smit and Bredenkamp 2013). It is extremely important to address consumer concerns regarding the issues surrounding generic medicines. Hence, there is a dire need to first investigate and understand consumer attitudes towards generic medicines. In turn, this will provide further insights into the consumer confusion between generic medicines and branded medicines. In addition, most of the consumer perception studies about generic medicines are conducted using qualitative approaches (Alrasheedy et al. 2014; Bulsara et al. 2010; Chua et al. 2010; Hassali, Kong, and Stewart 2005; Sharrad and Hassali 2011).

Based on previous literature, most researchers found that the price of generic medicines in Australia is more expensive than other countries, such as the USA and New Zealand, because of a lack of competition in the market (Medications cost more in Australia 2009; Searles et al. 2007). Therefore, the PBS changed the generic medicine regulation in order to lower generic medicine prices in Australia by getting subsidies from the government. According to Hassali, Kong, and Stewart (2006), some general practitioners in Melbourne still have a misconception about the safety and efficacy of generic medicines because there is not enough education from the government and the generic medicine industry for general practitioners. This will have a negative influence on the utilisation of generic medicines in Australia in the future. Chua et al. (2010) found that general practitioners in the northern state of Malaysia have fundamentally accepted the use of generic medicines but they still have concerns regarding the safety and quality of generic products because there is not enough education for general practitioners from the government regarding the generic products approval system in Malaysia concerning quality and safety. The Malaysian government should clarify all the

uncertainties about generic products in order to gain trust from general practitioners about the quality and safety of generic medicines. Sharrad and Hassali (2011) have found that consumers in Iraq still find it difficult to accept the use of generic medicines because of a lack of knowledge about them. In addition, the low price of generic medicines has become the main reason for consumers in Iraq to consume them. Therefore, education is very important to correct the misconception about generic medicines for consumers in Iraq. Both developing countries (e.g. Iraq and Malaysia) and modern countries (e.g. Australia) have the same issues regarding the misconceptions of generic medicines by general practitioners and consumers. This demonstrates that governments and the generic medicine industry must provide education on generic medicines for society in order to correct these misconceptions. As such, there is a need to conduct a cross-national study between Australia and another developing country or developed country to gain in-depth insight into consumer decision making towards generic brands of pharmaceutical products in different cultural environments. In addition, the availability of counterfeit medicines, which differs in each country, needs to be addressed.

## **2.5. Counterfeit Medicines Issues in the Global Market**

The World Health Organization (WHO) estimates that up to 60% of drugs in some developing countries and up to 20% in some developed countries are counterfeits (Liang 2006; WHO, 2010). Counterfeit drugs result in significant health risks for patients and can cause long-term harm and even death (Liang 2006; Lybecker 2007; Moken 2003). While there have been many studies done in this area (e.g. Liang 2006; Lybecker 2007; Moken 2003), there is a dearth of research from the consumers' perspective (Bian and Veloutsou 2007; Staake, Thiesse, and Fleisch 2009; Veloutsou and Bian 2008).

Counterfeit generic drugs have been found in developed countries (Liang 2006; Lybecker 2007, 2008). For example, China (PRC) has one of the highest incidences of counterfeit drugs (Lybecker 2008; Moken 2003; Wyld 2008). There are two overarching issues with respect to counterfeit drugs in China. First, consumers ‘unknowingly’ purchase deceptive counterfeit drugs (Bloch, Bush, and Campbell 1993; Liang 2006). These can be defined as drugs sold as pharmaceutical company brand name drugs, usually at a much lower price. These drugs may (a) contain a lower amount of the real drug’s active ingredient (b) contain no active ingredient at all (c) be composed of substances varying from talcum powder to aspirin to poison (d) blatantly mimic the real drug, inclusive of the manufacturer’s labels, pamphlets, and purity seals but are in fact fakes (Moken 2003). Second, consumers are confused as to whether ‘generic brands’ of drugs are in fact counterfeits (D’Astous and Gargouri 2001; Lybecker 2008). As such, growing consumer concern and lack of consumer knowledge have led to less than favourable attitudes towards generic medicines (Bang et al. 2000; Liang 2006; Marcketti and Shelley 2009). In a state of consumer confusion, these issues may lead consumers to willingly pay more for genuine drugs. This is especially so for drugs that are used to treat more risk-related diseases, such as chemotherapy tablets, than drugs used for less life-threatening illnesses, such as a cough mixture used to treat the common cold. It can also be postulated that consumers are more likely to purchase genuine drugs and develop a reluctance to buy generic brands even from legitimate pharmacies. In the context of this study, consumers in Australia also have the same issues with respect to counterfeit medicines. According to WHO facts (2014), more than 50 per cent of medicines that are purchased from the Internet are counterfeit and some researchers suggest that currently 60 per cent of online products are counterfeit or substandard (Howard 2010). The Internet has become a ‘grey’ market for counterfeiters who reach consumers by using discount and greater discretion to attract consumers’ attention (Howard 2010). These issues

create a bad image for online pharmacies, affecting consumer trust in purchasing generic medicine from the Internet. Therefore, the government should create stricter regulations and stiffer penalties to guarantee the safety of online pharmacies for the consumer.

### **2.5.1. The Difference between Counterfeit Medicines and Generic Medicines**

There are three main differences between counterfeit medicines and generic medicines. Firstly, based on the definition, generic medicines can be defined as a copy of branded medicines with legal authorisation because the patent of branded medicines has expired (Beecroft 2007); however counterfeit medicine is defined as a copy of generic or branded medicines without legal authorisation (Liang 2006). Secondly, generic medicines are safe to be consumed (Meredith 2003) but counterfeit medicines can endanger consumers' lives (Moken 2003). Lastly, generic medicines can be cost saving for customers and government as they are cheaper than branded medicines (Gill et al. 2010) but counterfeit medicines will only benefit the counterfeiters (Liang 2006).

### **2.5.2. The Counterfeit Medicines Issue in Australia**

Counterfeit medicines have become increasingly prevalent over the last decade and Australia is not exempt from the possibility of counterfeit medicines entering the country illegally (World Health Organization 2014). In developed countries, the most targeted counterfeit medicines are generic and branded medicines, specifically those with high sales, such as Viagra, aspirin and other common generic medicines. Some researchers have found that sildenafil citrate (Viagra), tadalafil (Cialis) and vardenafil hydrochloride (Levitra) have been counterfeited since 2007 and distributed through Internet sales (De Peinder et al. 2008; Sacre et al. 2010). Therefore, medical technology has also evolved to tackle these issues by creating advanced instruments to detect counterfeit medicines in the market. In previous literature, Raman spectroscopy, NIR spectroscopy and FT-IR spectroscopy have been used to detect counterfeit medicines in the market (De Peinder et al. 2008; Sacre et al. 2010).

Based on the Therapeutic Goods Administration (2011), most counterfeit medicines that enter Australia are imported mistakenly in small quantities for personal use. It was bought via the Internet or by travellers who made the purchase while travelling overseas. Most of the counterfeit medicines that are usually found in Australia are generally lifestyle medicines, such as weight loss, hair loss and erectile dysfunction medicines. As such, there is a potential risk for counterfeit medicines to enter Australia and endanger consumers' health.

## **2.6. Academic Literature on Variables Affecting Consumer Attitudes towards Generic Brands of OTC Medicines and Intention to Buy Generic Brands of OTC Medicines**

Based on the literature review, there are a number of key variables that can affect consumers' attitudes towards generic brands of OTC medicines and their intention to buy generic brands of OTC medicines. These key variables that provide a direct relationship between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines are discussed.

### **2.6.1. Consumer Concern**

#### ***Consumer Concern about Generic Brands of OTC Medicines***

There are a few studies in generic medicines that focus on consumer concern about generic medicines (Alrasheedy et al. 2014; Hassali, Kong, and Stewart 2005; Shrank et al. 2009). Most of the studies found that consumer concerns about the safety of using generic medicines (Ngo, Stupans, and McKinnon 2013), the efficacy of generic medicines (Hassali, Kong, and Stewart 2005; Ngo, Stupans, and McKinnon 2013), the side effects of using generic medicines (Hassali, Kong, and Stewart 2005; Sewell et al. 2012), pharmacist communication skills (Shrank et al. 2009), and brand confusion (Bulsara et al. 2010) generate negative attitudes towards generic medicines that lead to no intention to buy generic medicines. These concerns need to be addressed to gain more in-depth information about why most studies

found almost similar findings. As such, there is a need to explore consumer concerns regarding generic brands of OTC medicines to understand why these concerns happen and how to dissolve consumer concerns about the negative sides of generic brands of OTC medicines, which will enhance positive attitudes towards generic brands of OTC medicines and increase the intention to buy.

### ***Consumer Concerns about Counterfeit OTC Medicines***

Even though there is no study that discusses consumer concerns towards counterfeit OTC medicines, it is necessary to explore these concerns since counterfeit medicine has become a global issue and Australia is one of the countries targeted by counterfeiters (Howard 2010; Liang 2006; World Health Organization 2014). In addition, brand confusion, due to the many different brands of medicines, can mislead consumers into mistaking counterfeit medicines for generic medicines and vice versa (Bulsara et al. 2010; Hassali, Kong, and Stewart 2005). Hence, there is a need to explore consumer concerns about counterfeit OTC medicines and how they affect their attitudes towards generic brands of OTC medicines and their intention to buy.

### **2.6.2. Consumer Knowledge**

#### ***Consumer Knowledge about Generic Brands of OTC Medicines***

There are a number of studies that examine consumer knowledge of generic medicine (Babar et al. 2010; Ibrahim, McKinnon, and Ngo 2012). A few studies found that most consumers lack adequate knowledge about generic medicines, which leads to their rejecting them (Al-Gedadi, Hassali, and Shafie 2008; Ibrahim, McKinnon, and Ngo 2012; Lebanova, Manolov, and Getov 2012). Conversely, findings from Babar et al.'s (2010) study indicated that consumers who have a better knowledge of generic medicines are more likely to accept them. As such, it proves that consumer knowledge of generic medicines is an indicator to predict consumer attitudes towards generic medicines and their intention to buy. However, there is

no study which purposefully examines the direct relationship between consumer knowledge of generic brands of OTC medicines and attitudes towards them. In addition, there is a need to investigate the relationship between consumer knowledge of generic brands of OTC medicines and their intention to buy.

### ***Consumer Knowledge about Counterfeit OTC Medicines***

There is no study to explore consumer knowledge of counterfeit OTC medicines and how it affects their' attitudes towards generic brands of OTC medicines and their intention to buy those brands. It is predicted that consumer knowledge of counterfeit OTC medicines can have an influence on their attitudes towards generic brands of OTC medicines and their intention to buy, due to brand confusion which leads consumers to believe that generic medicines are 'counterfeit' medicines (Bulsara et al. 2010). As such, it is essential to test whether such a direct influence exists and, if so, to what extent.

### **2.6.3. Perceived Risk**

Most of the past studies in the area of generic medicines have used perceived risk variables to examine the reason why consumers reject generic medicines (Abzakh, Ling, and Alkilani 2013; Bearden and Mason 1978; Ganther and Kreling 2000; Suplet, Suarez, and Martin 2009; Tootelian, Gaedeke, and Schlacter 1988). Perceived risk is an essential element that affects consumer decision making regarding whether to purchase a generic medicine or not (Bearden and Mason 1978; Suplet, Suarez, and Martin 2009; Tootelian, Gaedeke, and Schlacter 1988). However, Abzakh, Ling, and Alkilani (2013) found that only physical risk and performance risk had a significant relationship with resistance to using generic medicines, while Ganther and Kreling (2000) confirmed that perceived risk increases when dealing with more serious medical conditions. Hence, there is a need to use the perceived risk variable to predict consumers' attitudes towards generic brands of OTC medicines and their intention to buy those brands.

#### **2.6.4. Consumer Trust in Generic Brands of OTC Medicines**

There are a number of studies that measure consumer trust in generic medicines (Bulsara et al. 2010; Palagyi and Lassanova 2008; Quintal and Mendes 2012). A few studies have similar findings, indicating that there is a lack of trust regarding the effectiveness of generic medicine (Palagyi and Lassanova 2008; Quintal and Mendes 2012). Bulsara et al. (2010) found that most consumers mistrusted generic medicines and were confused about them. However, there is no study that has tested the direct relationship between consumer trust in generic brands of OTC medicines and their attitudes towards or intention to buy them. Therefore, there is a need for such a test to be conducted.

#### **2.6.5. Social Factors**

There is no study to measure the social factors that affect attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. It is essential to examine the effect of those social factors that encourage consumers to buy generic medicines because the government has encouraged medical practitioners to recommend generic medications to consumers (Chong et al. 2011; Feldman and Lobo 2013; McCarthy 2010). In addition, family members, colleagues and friends are other social factors that can affect consumers' decision making regarding the purchase of generic medicines. As such, there is a need to investigate the direct relationship between social factors and attitudes towards generic brands of OTC medicines. In addition, the relationship between social factors and intention to buy generic brands of OTC medicines also needs to be examined.

#### **2.6.6. Interpersonal Influence**

No study has been conducted to examine interpersonal influence in the area of generic brands of OTC medicines. There is a need for such a study because consumers or patients may like to seek information about generic medicine from former generic users or medical experts before they buy it (Alrasheedy et al. 2014; Roman 2009). In addition, consumers or patients

may follow what others buy for their medication because it is effective for them or because consumers want to feel that they belong to a certain group. This indicates that interpersonal influence is an important factor in assisting consumers to decide on whether to purchase generic medicines or not. As such, an investigation into the direct relationship between interpersonal influence and attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines is a research gap that needs to be fulfilled.

### **2.6.7. Facilitating Conditions**

Based on past studies, a measurement of facilitating conditions has never been used for generic brands of OTC medicine studies because most consumers were passive and were dependent on their medical practitioners to switch their generic medications (Hassali, Kong, and Stewart 2005). However, passive consumers have shifted into active ones who search for information and buy their own medications without seeking assistance from medical experts (Alrasheedy et al. 2014). As such, external supports that can facilitate consumers to access generic brands of OTC medicines have become an essential factor for active consumers. From these discussions, it is concluded that there is a need to measure facilitating conditions to determine consumers' attitudes towards generic brands of OTC medicines and their intention to buy generic brands of OTC medicines.

### **2.6.8. Attitudes towards Generic Brands of OTC Medicines**

There are a number of studies that examine the attitudes of consumers regarding generic medicines (Babar et al. 2010; Heikkila, Mantyselka, and Ahonen 2011; Hensler et al. 2013; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; Palagyi and Lissanova 2008; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011), however none of these studies use a robust measurement to examine the causal relationship between 'attitudes towards generic brands of OTC medicines' with other variables. Importantly, most of the past studies did not use a

proper method to create a valid scale to measure consumers' attitudes towards generic brands and the scales used were created based on their assumption or on the findings from qualitative studies with small-number samples (Babar et al. 2010; Kjoenniksen, Lindbaek, and Granas 2006; Lebanova, Manolov, and Getov 2012; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011). As such, it is necessary to develop an appropriate scale of 'attitudes towards generic brands' with solid validity. The aim to develop such a scale is to assist any industries, especially the retail industry or pharmaceutical industry, to provide a comprehensive, psychometrically sound, and operationally valid measure of an individual's attitudes towards generic brands. The scale of 'attitudes towards generic brands' is also an important contribution for practitioners as a manipulation check to ensure a continuing association with consumer attitudes and behaviour expectation toward brands and brand choice. In addition, there is a need to examine the causal relationship between consumers' attitudes towards generic brands of OTC medicines and their intention to buy these brands, as supported by the theory of planned behaviour (TPB) (Ajzen 1985).

#### **2.6.9. Intention to Buy Generic Brands of OTC Medicines and Actual Purchase Behaviour**

A few studies have examined consumers' intention to buy generic medicine (Alrasheedy et al. 2014; Roman 2009); however there is no study that has investigated the actual purchase behaviour based on the intention to buy generic brands of OTC medicines. Roman (2009) found that consumers do not have any intention of buying generic medicines because of their different packaging and because they have no belief in their effectiveness. Based on the TPB (Ajzen 1985), it is predicted that if a consumer has the intention of buying generic brands of OTC medicines this will lead to actual purchase behaviour. Hence, it is essential to examine the causal relationship between intention to buy generic brands of OTC medicines and actual purchase behaviour.

### **2.6.10. Price Differential as Moderation**

No study has used a price differential variable as a moderation variable, however there are a number of studies that found that the price difference between generic medicines and branded medicines is the main reason for consumers to switch their medication to generic medicines (Alrasheedy et al. 2014; Ganther and Kreling 2000; Heikkila, Mantyselka, and Ahonen 2011; Hoshi and Kimura 2008; Kobayashi et al. 2011; Palagyi and Lassanova 2008; Patel et al. 2010; Sharrad and Hassali 2011; Thomas and Vitry 2009). Alrasheedy et al. (2014) found that if the amount of price difference between generic medicines and branded medicines is minimal or of no significance according to consumers' perspective, consumers prefer to stick with the original branded medicines. As such, it is necessary to investigate whether price differential is a moderation variable between attitudes towards generic brands of OTC medicines and intention to buy.

## **2.7. Gaps in the Literature**

Through an extant literature review, several research gaps have been identified. These research gaps will consequently become the foundation in the development of the theoretical framework and hypotheses for this study. The following discusses several significant research gaps which propose further research opportunities to be postulated:

### **2.7.1. Gap 1 – The Need to Develop an ‘Attitudes towards Generic Brands’ Scale**

There are a number of studies that examine the attitudes of consumers regarding generic brands in a specific product category (Babar et al. 2010; Choi and Huddleston 2014; Heikkila, Mantyselka, and Ahonen 2011; Hensler et al. 2013; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; McEnally and Hawes 1984; Moutinho 1987; Neidell, Boone, and Cagley 1985; Palagyi and Lassanova 2008; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et

al. 2011), however these studies failed to generate an appropriate scale of ‘attitudes towards generic brands’ to measure consumers’ attitudes towards generic brands in general. Most past studies did not develop a scale of ‘attitudes towards generic brands’ using a proper method and scales were created to fulfil their research objectives without any consideration to developing an appropriate ‘attitudes towards generic brands’ scale for use in future research. To address this issue, a full scale development and validation process will be conducted and further discussed in Chapter 5.

### **2.7.2. Gap 2 – The Need to Empirically Test Consumer Perception about Generic Brands of OTC Medicines with Theoretical Supports**

There is a need to establish a more robust measurement of the constructs by developing an empirically tested model with theoretical supports to examine consumer perception about generic brands of OTC medicines because most studies only focus on qualitative study or only utilise descriptive statistical analysis to discuss their findings, without any theoretical supports (Alrasheedy et al. 2014; Bulsara et al. 2010; Chong et al. 2011; Chua et al. 2010; Gill et al. 2010; Hassali et al. 2009; Hassali, Kong, and Stewart 2005; Kumar et al. 2015; Muirhead 1994; Sharrad and Hassali 2011; Shepherd 1988; Toverud et al. 2011). As such, there is a lack of solid findings and there is no causal relationship between variables in past studies. Most importantly, there are no theoretical implications that can be established from the previous studies. Therefore, a conceptual framework will be developed with underpinning theories to provide the much needed justifications and support in the study. To address this, vital theories underpinning the key concepts of this study and the development of conceptual framework will be further discussed in Chapter 3.

### **2.7.3. Gap 3 – The Need to Examine the General Population’s Perspectives about Generic Brands of OTC Medicines in Australia**

To begin with, most generic medicine literature in Australia only focus on the general practitioners’ or pharmacists’ perception based on past studies (Albadr and Khan 2015; Alrasheedy et al. 2014; Chong et al. 2011; Hassali et al. 2010; Hassali, Kong, and Stewart 2005, 2006; Kumar et al. 2015; Piccholiya et al. 2015; Valles et al. 2003; Yousefi et al. 2015). Even though a few studies examine the attitudes of consumers or patients regarding generic medicines, they only focus on a specific target sample, such as elderly patients (Bulsara et al. 2010), only generic users (Hassali, Kong, and Stewart 2005), or patients with a chronic medical condition (Ngo, Stupans, and McKinnon 2013). Specifically, there is no study of the general population’s perspective in Australia about generic brands of OTC medicines. This gap can be considered to be undertaken in this study to understand more the consumer perception of generic brands of OTC medicines in Australia in general. As such, the general population will be the samples in this study in order to fulfil the research gaps and will be discussed further in Chapter 4.

### **2.7.4. Gap 4 – The Need to Examine Generic Brands of OTC Medicines (Non-Prescription Medicines)**

Many studies only focused on generic medicines for chronic medical conditions (Al Ameri et al. 2013; Bulsara et al. 2010; Drozdowska and Hermanowski 2015; El-Dahiyat and Kayyali 2013; Lebanova, Manolov, and Getov 2012; Quintal and Mendes 2012), or generic medicines for acute medical conditions (Denoth, Pinget, and Wasserfallen 2011; Hensler et al. 2013). There is no study to examine the impact of generic brands of OTC medicines towards a less serious disease type, such as common flu (Kohli and Buller 2013). As such, there is a need to investigate generic brands of OTC medicines, and how this will be conducted is elaborated in Chapter 4.

### **2.7.5. Gap 5 – The Need to Investigate Factors that Influence Attitudes towards Generic Brands of OTC Medicines and Intention to Buy Generic Brands of OTC Medicines**

As discussed in section 2.6, there are a number of direct, moderating (e.g. price differential) and mediating factors (consumer concern, consumer knowledge, perceived risk, consumer trust, social factors, interpersonal influence, and facilitating conditions) that need to be examined to test whether these factors have a significant influence or not upon attitudes towards generic brands of OTC medicines and intention to buy these medicines (Chong et al. 2011; Chua et al. 2010; Hassali, Kong, and Stewart 2006; Kumar et al. 2015; Tootelian, Gaedeke, and Schlacter 1988; Valles et al. 2003). To address this issue, the development of hypotheses, based on these factors, is elaborated in Chapter 3.

### **2.8. Concluding Comments for Chapter Two**

Relevant literature, findings and trends have been discussed in the current chapter, and the place of the current study within this existing literature has been established. By providing the established literature behind the current study, its aims and research propositions are further understood. Chapter 3 will explore the research objectives, theoretical underpinnings, the conceptual framework and the development of hypotheses that will address the gaps identified in this chapter.

## Chapter 3

### Theoretical Framework and Hypothesis Development

#### 3.1. Introduction

This chapter will provide a theoretical framework and the development of the hypotheses for the study. According to the gaps that have been identified in the previous chapter, the research objectives of this study are reviewed in the first section of this chapter. This is then followed by a discussion of the key theories, including the secondary theories that underpin the research. Next, the proposed conceptual model of the study is presented in Figure 3-1. Lastly, the theoretical justifications are reinforced with the relevant literature to formulate the hypotheses of the study and presented within the chapter. The summary of all hypotheses is presented at the end of the chapter.

#### 3.2. Research Objectives

The overarching aim of this study is to investigate consumers' attitudes towards generic brands of over-the-counter (OTC) medicines. As such, three objectives are derived from this aim:

**Objective 1:** To develop a conceptual framework underpinned by the theory of planned behaviour in the context of generic OTC medicine study. This incorporates key constructs, including consumer concern, consumer knowledge, perceived risk, consumer trust, social factors, interpersonal influences, and facilitating conditions. Attitudes towards generic brands of OTC medicines, intention to buy generic brands of OTC medicines and actual purchase behaviour will be the outcome variables. (Gaps 2, 3, 4, and 5)

**Objective 2:** To develop a scale to measure consumers' attitudes towards generic brands. This developed scale will be used and adapted to the context of this study (generic brands of OTC medicines). (Gaps 1 and 4)

**Objective 3:** To investigate the moderating relationship (i.e. price differential) between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. (Gap 5)

### **3.3. Theoretical Foundations**

The research model is underpinned by three key overarching theories, namely the theory of planned behaviour (Ajzen 1985; Fishbein and Ajzen 1975), the neutralization theory (Sykes and Matza 1957) and social cognitive theory (Bandura 1986).

#### **3.3.1. Theory of Planned Behaviour (TPB)**

The theory of reasoned action (TRA) indicates that personal in nature (attitude) and social influences (subjective norms) affect human behaviour by which people intend to behave in ways that allow them to obtain favourable outcomes and meet the expectation of others (Ajzen and Fishbein 1977). The TPB is an extension of the (TRA), introduced by Ajzen in 1985 with the additional variable of perceived behavioural control as a predictor for intentions and behaviour to improve the main flow of the TRA. According to Ajzen (1991), behaviour is guided by a belief about likely outcomes of behaviour and evaluations of these outcomes (behavioural beliefs), beliefs about normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of behaviour and the perceived power of these factors (control beliefs). Ajzen's theory of planned behaviour (TPB) is a well-recognized intention model because it is very useful for understanding and explaining

behaviour in a wide range of topics, specifically in the context of this study (Alrasheedy et al. 2014; Himmel et al. 2005; Palagyi and Lassanova 2008; Rathe et al. 2013). In the context of this study, it is predicted that attitudes towards generic brands of OTC medicines, social factors, interpersonal influence, and facilitating conditions have significant impact on intention to buy generic brands of OTC medicines. In addition, facilitating conditions is predicted to have a significant influence upon the actual purchase behaviour.

### **3.3.2. Neutralization Theory**

Originally, neutralization theory was developed by Sykes and Matza (1957) to justify individual illegal behaviours or actions by neutralizing their wrongdoing. The use of this theory in marketing has been supported by a growing number of studies (Henry 1990; Hinduja 2006; Klockars 1974; Minor 1981; Phau and Liang 2012; Phau, Teah, and Lwin 2014). In the context of this study, purchase intention toward generic brands of OTC medicines will be justified as a ‘normal’ act. Five techniques are created by Sykes and Matza (1957): denial of responsibility, denial of injury, denial of victim, condemnation of the condemners, and appeal to higher loyalties (Hinduja 2006). Hinduja (2006) also explored the metaphor of the ledger (Klockars 1974; Minor 1981), claim of normalcy, denial of negative intent and claim of relative acceptability (Henry 1990) as four other techniques to explain neutralization theory. Denial of responsibility, denial of injury, denial of victim, claim of normalcy, denial of negative intent, and claim of relative acceptability are the six techniques that will be implemented to explain the research model in this study. The study will be divided into two perspectives. Firstly, pharmacists’ perspectives will act as the social factors influencing customers to purchase generic brands of OTC medicines. ‘Generic brands of OTC medicines are cheaper than branded OTC medicines’, ‘generic brands of OTC medicines are the bioequivalent of branded OTC medicines’, ‘buying generic brands of OTC medicines is helping the government to reduce health-care expenditure’, and ‘other people

also buy generic brands of OTC medicines’ are good examples of pharmacists’ perspectives towards generic brands of OTC medicines. Secondly, the customers’ perspective will act as the personal factors that lead their attitudes and intention to buy generic brands of OTC medicines. ‘There is no harm from purchasing generic brands of OTC medicines’, ‘nobody will get hurt if I buy generic brands of OTC medicines’, ‘it is not my fault that I purchase generic brands of OTC medicines, because branded OTC medicines are too expensive for me’, ‘I am helping government to reduce health-care expenditure by purchasing generic brands of OTC medicines’, ‘everyone is purchasing generic brands of OTC medicines so it should be ok’, ‘I did not intend to cause harm to branded OTC medicines manufacturers’, and ‘I am just buying generic brands of OTC medicines, other people engage in much worse activities than this’ are good examples of the attributes of neutralization theory explaining the decision to purchase generic brands of OTC medicines from the customers’ perspectives.

### **3.3.3. Social Cognitive Theory**

Social cognitive theory defines human behaviour as a triadic, dynamic and reciprocal interaction of personal factors, behaviour, and the social environment (Bandura 1977b, 1986, 2001). The theory suggests that the dynamic interplay of personal, behavioural, and social environmental influences uniquely determines human functioning (an individual’s behaviour). Furthermore, people are both products and producers of their social environment (Bandura 1977a; Pincus 2004). A person’s behaviour influences the aspects of the social environment to which they are exposed, and in turn that social environment or ‘social interaction’ modifies the person’s behaviour. This theory in marketing has been used to investigate changing consumer behaviour towards a product or a brand based on the internal and external environmental variables (Abraham, Norman, and Conner 2013; Bandura 1977a, 1977b, 1986, 2001; Pincus 2004; Zikic and Skas 2009).

Social cognitive theory incorporates the theory of planned behaviour in a more comprehensive theoretical framework, which includes both external and internal environmental factors that influence an individual's behaviour. The theory of planned behaviour proposed that an individual's behaviour is pre-planned and there is no impulsive decision making (Ajzen 1985), while social cognitive theory emphasizes more the environmental changes that affect an individual's behaviour (Bandura 2001). As such, social cognitive theory complements the theory of planned behaviour in such a way that one's behaviour is dependent on the many potential social environmental influences that come into play, and what forms they take. In turn, the social environment (or the exchange of social antics, norms and behaviours) partly influences the development and activation of one's behaviour (Ajzen 1985; Bandura 1986, 2001).

Social cognitive theory focuses on understanding why people act in a certain way or change their behaviour as a result of interacting with internal and external stimuli (Bandura 1986). In the context of this study, this theory will be utilised as a theoretical framework for the conceptual model, as it includes both internal and external environmental variables. Individual knowledge about generic medicines or counterfeit medicines, consumer concern about generic medicines or counterfeit medicines, perceived risk, and consumer trust in generic medicines will act as the internal variables that influence an individual's attitudes towards generic brands of OTC medicines and intention to buy (Alrasheedy et al. 2014; Bulsara et al. 2010; Ganther and Kreling 2000; Hassali, Kong, and Stewart 2005; Ibrahim, McKinnon, and Ngo 2012; Quintal and Mendes 2012). Social factors, interpersonal influence, and facilitating conditions will act as the external environmental variables that affect individual's attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. In addition, it is predicted that price differential as an external environmental variable will moderate the relationship between attitudes towards

generic brands of OTC medicines and intention to buy generic brands of OTC medicines. Then, the theoretical framework of social cognitive theory is justified in terms of why it is the most appropriate theory for the research conducted in this study.

### **3.4. Secondary Theories**

The secondary theories do not underpin the whole research model; however these theories support specific relationships in the model. Each theory will be elaborated together with the hypothesis that is supported by the theory. Next, the following secondary theories will be discussed.

#### **3.4.1. Attribution Theory (Heider 1958) (H1, H2, H3, H4, H5, H6, H7, H8 and H10)**

Attribution theory was developed by Heider in 1958 to understand the process of how an individual explains the causes of behaviour or events. It can be internal or external motives that affect the causal explanation. In the context of this study, consumer concern (H1), consumer knowledge (H2), perceived risk (H3), and consumer trust (H4) are the internal motives that affect their attitudes towards generic brands of OTC medicines and their intention to buy. Social factors (H5), interpersonal influence (H6), and facilitating conditions (H7) are the external motives that influence their attitudes towards generic brands of OTC medicines and their intention to buy. The relationship between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines (H8) can be justified with attribution theory, whereby attitudes towards generic brands of OTC medicines is the internal variable that influence the intention to buy generic brands of OTC medicines. In addition, this theory can also justify how price differential (H10) can act as an external variable that moderates the relationship between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines.

### **3.4.2. Self-Perception Theory (Bem 1972) (H8 and H9)**

Self-perception was developed by Bem in 1972 to examine individual motivation to act in accordance with their attitudes and behaviours. Bem (1972) emphasizes that consumers decide their own attitudes and feelings from watching themselves behave in various situations. In the context of this study, consumers will act according to their own attitudes towards generic brands of OTC medicines and decide their own intention to buy generic brands of OTC medicines or not, based on their own behaviour. As such, this theory justifies the relationship between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines which lead to the actual purchase behaviour (H8 and H9).

### **3.4.3. Confirmation Bias Theory (Evans 1989) (H1, H2, H3, and H4)**

Confirmation bias theory is a tendency to interpret information in a way that confirms one's beliefs, leading to wrong judgements (Evans 1989). In the context of this study, most consumers who have used branded OTC medicines and found they worked effectively, are less likely to switch to generic brands of OTC medicines because they believe branded OTC medicines are better than the generics. Even if it is explained that generic brands of OTC medicines have a similar quality to branded OTC medicines and are cheaper than branded OTC medicines, these branded OTC medicines believers will misinterpret cheaper price as meaning lower quality. As such, this theory can be related to consumer concern (H1), consumer knowledge (H2), perceived risk (H3), and consumer trust (H4), which will affect their attitudes towards generic brands of OTC medicines and their intention to buy generic brands.

### **3.4.4. Social Learning Theory (Bandura 1963, 1977a) (H5 and H6)**

The development of social learning theory was pioneered by Bandura in 1963 to understand how an individual can learn through observation. Bandura (1977a) emphasizes five key

principles in social learning theory. Firstly, learning is a cognitive process that takes place in a social context. Secondly, learning can be conducted through observing behaviour and its consequences. Thirdly, learning involves gaining information through observation and judging the performance of the behaviour. Fourthly, learning requires internal motivation. Lastly, cognition, environment and behaviour are essential in the process of learning. In the context of this study, learning from family members, colleagues, friends or medical practitioners about generic brands of OTC medicines is the first step to developing positive or negative attitudes towards generic brands of OTC medicines, which will lead to high or low intention to buy generic brands of OTC medicines. As such, this theory indicates that social factors (H5) and interpersonal influence (H6) will have significant influence upon attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines.

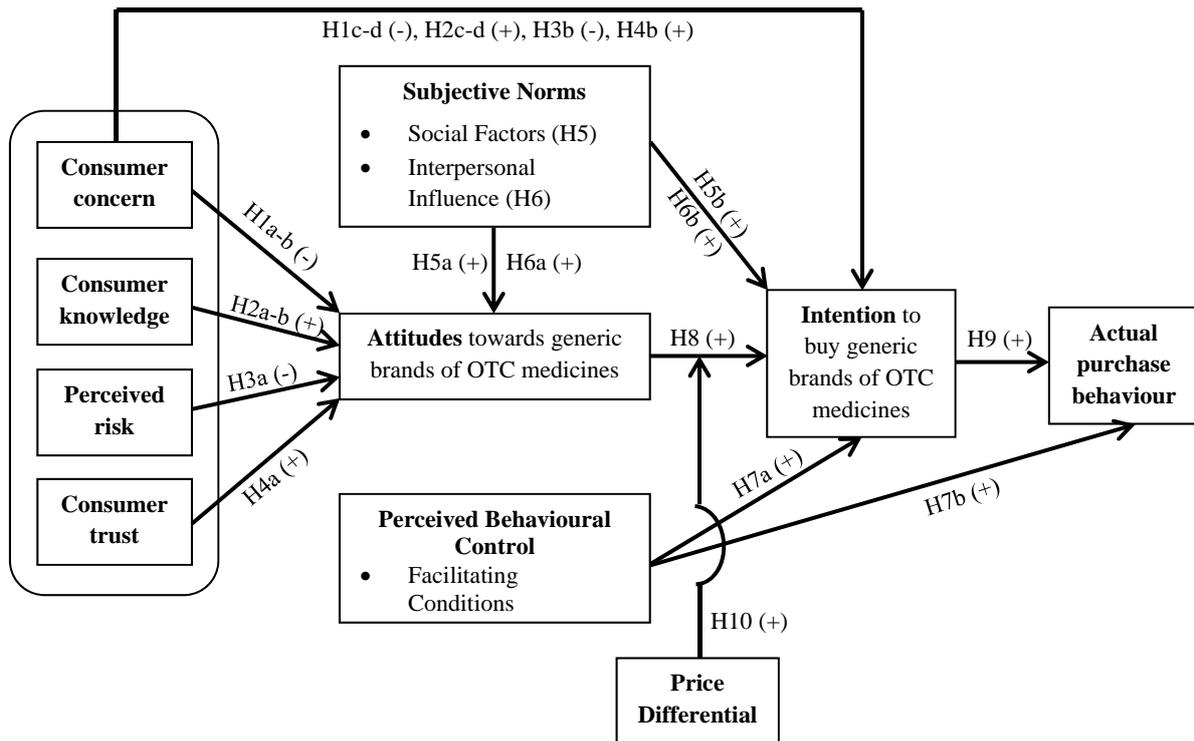
#### **3.4.5. Cognitive Dissonance Theory (Festinger 1954) (H1, H2, H3 and H4)**

Cognitive dissonance theory was developed by Festinger in 1954 to explain how people change their opinion about themselves and their environment when they are faced with a contradiction which involves having to choose between two incompatible attitudes or behaviours (Festinger 1957). Cognitive dissonance happens when there are 'new ideas' that the individual needs to accept in their changing attitudes (Festinger 1957). In the context of this study, generic brands of OTC medicines are the 'new ideas' that the consumers need to add in to their purchase decision making when deciding whether to buy generic brands of OTC medicines and branded OTC medicine. As such, this theory relates to consumer concern, consumer knowledge, perceived risk and consumer trust as the variables that affect the decision of whether to purchase generic brands of OTC medicines or branded OTC medicines.

### 3.5. Hypotheses Development

Based on the literature review and the theoretical underpinnings, the following conceptual model has been developed, as shown in Figure 3-1.

**Figure 3-1: Conceptual Framework**



#### 3.5.1. Consumer Concern (Hypothesis 1)

Consumer concern about counterfeit OTC medicines and consumer concern about generic brands of OTC medicines will be discussed in this hypothesis.

#### *Consumer Concern about Counterfeit OTC Medicines*

Even though there is no study measure for consumer concern about counterfeit OTC medicines and how this will affect consumers' attitudes towards generic brands of OTC medicines and intention to buy, it is essential to explore this concern. When consumers believe that there is a certain problem and they are concerned, they are more likely to adopt consumer behaviour practices to assuage or solve the problem (Hines, Hungerford, and Tomera 1986; Marcketti and Shelley 2009). It was found that the greater the knowledge and

concern about issues within the industry, the greater the support for more socially responsible businesses (Dickson 2000). Consumer concern in the counterfeiting context examines their concerns regarding labelling, the legitimacy of the supplier, the source of drug production, the country of origin, contamination of drugs, cost, penalties of being caught possessing counterfeit drugs, health risks, drug policy and regulations and the consequences of purchasing counterfeit prescription medicines (Liang 2006; Moken 2003). Based on the TPB, social cognitive theory, cognitive dissonance theory, attribution theory and neutralization theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), consumers who have concerns about counterfeit OTC medicines, will justify their concern by purchasing branded OTC medicines instead of generic ones, which leads to negative attitudes towards the generic brands of OTC medicines and to having no intention to purchase them. Brand confusion is another reason why consumers choose branded OTC medicines instead of generic brands. There is a variety of brands of OTC medicines that consumers can choose from, however generic brands of OTC medicines are new to consumers and there is no adequate information about them, which leads to the misconception that generic brands of OTC medicines are counterfeit medicines, as explained by the confirmation bias theory (Evans 1989). As such, the following hypotheses are proposed:

**H1a:** Consumer concern about counterfeit OTC medicines has a negative influence on the attitudes towards generic brands of OTC medicines.

**H1c:** Consumer concern about counterfeit OTC medicines has a negative influence on the intention to buy generic brands of OTC medicines.

### ***Consumer concern about generic brands of OTC medicines***

A few studies found that consumers who have concerns about generic medicines have negative attitudes towards generic brands of medicines which lead to no intention to buy

them (Alrasheedy et al. 2014; Hassali, Kong, and Stewart 2005; Shrank et al. 2009). The safety of using generic medicines, their efficacy, and brand confusion are a few examples of consumer concerns about generic medicines (Bulsara et al. 2010; Hassali, Kong, and Stewart 2005; Ngo, Stupans, and McKinnon 2013). As supported by the neutralization theory, TPB, social cognitive theory, cognitive dissonance theory and attribution theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), consumer concern about generic brands of OTC medicines is an internal factor of individuals that affects their decision making regarding the purchase of generic brands of OTC medicines and how the individuals justify their action in purchasing generic brands of OTC medicines or not. When the consumer starts having concerns about a product or brand, it is likely that they will have a negative reaction towards the product or brand, as justified by confirmation bias theory (Evans 1989). Based on these theories, it is predicted that consumer concern about generic brands of OTC medicines will generate negative attitudes towards generic brands of OTC medicines, which will lead to low intention to buy them. As such, the following hypotheses are proposed:

**H1b:** Consumer concern about generic brands of OTC medicines has a negative influence on the attitudes towards generic brands of OTC medicines.

**H1d:** Consumer concern about generic brands of OTC medicines has a negative influence on the intention to buy generic brands of OTC medicines.

### **3.5.2. Consumer Knowledge (Hypothesis 2)**

Consumer knowledge about counterfeit OTC medicines and consumer knowledge about generic brands of OTC medicines will be discussed in this hypothesis.

#### ***Consumer Knowledge about Counterfeit OTC Medicines***

Consumer knowledge can be defined as the cognitive representation of product-related experience in a consumer's memory, which takes the form of a product schema and is likely

to contain knowledge in the form of coded representations of brands, product attributes, usage situations, general product class information, and evaluation and choice rules (Maheswaran 1994; Marcketti and Shelley 2009). Farhar (1996) stated that consumer perceptions and preferences about the environment are influenced by both factual and faulty information. If consumers are more knowledgeable, they will have information that will better assist them in making their decisions. As supported by confirmation bias theory, more knowledgeable consumers are also more likely to have positive attitudes towards the product or brands which leads to high intention to buy the product or brand (Bang et al. 2000). As supported by neutralization theory, TPB, social cognitive theory, cognitive dissonance theory and attribution theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), consumer knowledge of counterfeit OTC medicines can act as an internal cause that leads consumers to purchase generic brands of OTC medicines and to have positive attitudes towards generic brands of OTC medicines. Hence, it makes sense that heightened knowledge about counterfeit OTC medicine would lead to stronger beliefs about the positive consequences or benefits of generic brands of OTC medicines because consumers have adequate information to differentiate between counterfeit OTC medicines and generic brands of OTC medicines. As such, the following hypotheses are proposed:

**H2a:** Consumer knowledge about counterfeit OTC medicines has a positive influence on attitudes towards generic brands of OTC medicines.

**H2c:** Consumer knowledge about counterfeit OTC medicines has a positive influence on intention to buy generic brands of OTC medicines.

### ***Consumer Knowledge about Generic Brands of OTC Medicines***

In exploring consumer knowledge of generic brands of OTC medicines, literature posits that consumers who lack adequate knowledge about generic medicines are against using generic

brands of medicines (Al-Gedadi, Hassali, and Shafie 2008; Ibrahim, McKinnon, and Ngo 2012; Lebanova, Manolov, and Getov 2012). However, Babar et al. (2010) found that consumers with better knowledge of generic medicines are more likely to accept the generic brands. In parallel with neutralization theory, TPB, social cognitive theory, cognitive dissonance theory and attribution theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), consumer knowledge about generic brands of OTC medicines is an essential element that affects individual decision making internally. If consumers have adequate information about generic brands of OTC medicines, it is unlikely that they will initiate negative perceptions towards those brands, as explained in confirmation bias theory (Evans 1989). In the context of this study, it is predicted that consumers with a higher level of knowledge about generic brands of OTC medicines are more likely to purchase them and enhance their attitudes towards generic brands of OTC medicines. As such, the following hypotheses are proposed:

**H2b:** Consumer knowledge about generic brands of OTC medicines has a positive influence on attitudes towards generic brands of OTC medicines.

**H2d:** Consumer knowledge about generic brands of OTC medicines has a positive influence on intention to buy generic brands of OTC medicines.

### **3.5.3. Perceived Risk (Hypothesis 3)**

There are a number of studies that have used the perceived risk variable in the area of generic medicines (Abzakh, Ling, and Alkilani 2013; Bearden and Mason 1978; Ganther and Kreling 2000; Suplet, Suarez, and Martin 2009; Tootelian, Gaedeke, and Schlacter 1988). Perceived risk can be defined as ‘the unpleasant or unfavourable consequences from [a] consumer’s action’ (Stone and Gronhaug 1993). Stone and Gronhaug (1993) found that perceived risk consists of five dimensions to capture the whole domain of subjective expectation of loss. As

such, performance, financial, physical, psychological and social risks towards generic brands of OTC medicines will be used in this study to measure various risks of generic brands of OTC medicines. Performance risk refers to a probable loss due to functional failure after purchase. Financial risk is a potential loss of money associated with the purchase. Physical risk refers to the potential loss of health as a result of using the purchase. Psychological risk reflects the possible loss of self-image as the result of the purchase. Social risk is the potential loss of esteem from significant others because of the purchase. Mason and Bearden (1980) found that performance and financial risks are the strongest influences to affect the consumer's decision to purchase generic medicines, while Abzakh, Ling, and Alkilani (2013) found that only physical risk and performance risk had significant impact on rejecting generic medicines. According to Stone and Mason's (1995) findings, perceived risk has a direct contribution towards attitudes. As supported by neutralization theory, TPB, social cognitive theory, cognitive dissonance theory and attribution theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), perceived risk is a fundamental factor acting as the internal cause of consumers' decision making that determines their attitudes towards generic brands of OTC medicines and their intention to buy them. If perceived risk exists in the consumer's mind, it is inevitable that they will judge the product or brand negatively based on their negative perception, as supported by confirmation bias theory (Evans 1989). Therefore, it is predicted that greater perceived risk will have a negative influence on attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. Hence, the following hypotheses are proposed:

**H3a:** Perceived risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the attitudes towards generic brands of OTC medicines.

**H3b:** Perceived risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the intention to buy generic brands of OTC medicines.

#### **3.5.4. Consumer Trust in Generic Brands of OTC Medicines (Hypothesis 4)**

There are a few studies that have examined consumer trust in generic medicines (Bulsara et al. 2010; Palagyi and Lissanova 2008; Quintal and Mendes 2012). Some have similar findings, indicating that there is lack of trust regarding the effectiveness of generic medicine (Palagyi and Lissanova 2008; Quintal and Mendes 2012). Bulsara et al. (2010) found that most consumers mistrusted generic medicines and were confused about generic brands of medicines. In the context of this study, consumer trust in generic brands of OTC medicines can be defined as a ‘feeling of security held by the consumer in his/her interaction with the brand, that it is based on the perceptions that the brand is reliable and responsible for the interests and welfare of the consumer’ (Delgado-Ballester 2003). As explained by neutralization theory, TPB, social cognitive theory, cognitive dissonance theory, and attribution theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), consumer trust in generic brands of OTC medicine will act as an internal variable that affects individual attitudes towards generic brands of OTC medicines and their intention to buy generic brands of OTC medicines. Based on confirmation bias theory (Evans 1989), consumers are likely to purchase generic brands of OTC medicines when there is trust between the consumer and generic brands of OTC medicines and this determines the consumer’s decision to use generic brands of OTC medicines rather than branded OTC medicines. Hence, the following hypotheses are proposed:

**H4a:** Consumer trust in generic brands of OTC medicines has a positive influence on the attitudes towards generic brands of OTC medicines.

**H4b:** Consumer trust in generic brands of OTC medicines has a positive influence on the intention to buy generic brands of OTC medicines.

### **3.5.5. Social Factors (Hypothesis 5)**

As supported by social learning theory (Bandura 1963, 1977a), social factors are the key external factors that assist consumers in learning from observation to understand why generic brands of OTC medicines are being used by others or why they are recommended by others. According to neutralization theory, TPB, social cognitive theory and attribution theory (Ajzen 1985; Bandura 1986; Heider 1958; Sykes and Matza 1957), social factors influence an individual's decision-making process through external environments or interaction with others which arouse positive or negative attitudes towards generic brands of OTC medicines and high or low intention to buy generic brands of OTC medicines. According to Limayem, Khalifa, and Chin (2004), perceived social pressure refers to the individual's perception being affected by whether most people who they are influenced by think that the behaviour should be performed or not. Social factors can be defined as those norms, roles and values at the societal level that influence an individual's intention to buy generic brands of OTC medicines. In the context of this study, the norms and values that are conveyed through interaction with doctor, nurses, pharmacists, friends, colleagues, and family members, such as comments, suggestions or directives, are all examples of social factors (Limayem, Khalifa, and Chin 2004). In such instances, the influence of social norms on personal behaviour is positively related. As such, the following hypotheses are proposed:

**H5a:** Social factors have a positive influence on the attitudes towards generic brands of OTC medicines.

**H5b:** Social factors have a positive influence on the intention to buy generic brands of OTC medicines.

### **3.5.6. Interpersonal Influence (Hypothesis 6)**

As justified by social learning theory (Bandura 1963, 1977a), an important determinant of an individual's behaviour is the influence of others (Bandura 1986; Bearden, Netemeyer, and Teel 1989). According to social learning theory, interpersonal influence can act as an external factor affecting consumers through the observation of what others are buying and what information others share with the consumers. Interpersonal influence can be specified into normative influence and informational susceptibility. Normative influence, based on the number of product-followers (i.e. potential purchasers), could result in acting to persuade, convince or influence others for the purpose of having a specific effect (Kozinets et al. 2010). On the other hand, information susceptibility is the basis of purchase decision whereby informed choices are made based on the expert opinion of others (Bearden, Netemeyer, and Teel 1989). The assurance of the opinion of others plays an important role as a point of reference, especially when consumers have little knowledge of the product category in question. If peers or reference group were to have expert knowledge on the differences between generic brands of OTC medicines and established brand of OTC medicines, this would consequently have an effect on consumers' attitude towards generic brands of OTC medicines. As suggested by TPB (Ajzen 1985), interpersonal influence will act as subjective norms in the research model. With the support of TPB, neutralization theory, social cognitive theory, and attribution theory, interpersonal influence is an essential external motivation to assist consumers to justify their attitudes towards generic brands of OTC medicines and their commitment to purchasing generic brands of OTC medicines. As such, the hypotheses can be proposed as follows:

**H6a:** Interpersonal influence has a positive influence on the attitudes towards generic brands of OTC medicines.

**H6b:** Interpersonal influence has a positive influence on the intention to buy generic brands of OTC medicines.

### **3.5.7. Facilitating Conditions (Hypothesis 7)**

Parallel to Ajzen's (1991) perceived behavioural control, facilitating conditions are substantial in explaining consumer behaviour because they influence an individual's intention to buy generic brands of OTC medicines and their actual purchase behaviour. According to neutralization theory, TPB, and attribution theory, the availability of generic brands of OTC medicines, strict regulations towards generic brands of OTC medicines and easy access to generic brands of OTC medicines are the key external elements of facilitating conditions to enhance consumers' intention to buy generic brands of OTC medicines which lead to actual purchase behaviour. Hassali, Kong, and Stewart (2006) also found that affordability, access, and pharmacist communication skills were the key dimensions affecting customers' attitudes towards generic medicines. As such, it is believed that facilitating conditions, which can facilitate consumers' access to generic brands of OTC medicines, will lead to a positive attitude towards generic brands of OTC medicines which in turn will lead to a strong intention to buy generic brands of OTC medicines. Hence, the following hypothesis is proposed:

**H7a:** Facilitating conditions have a positive influence on the intention to buy generic brands of OTC medicines.

**H7b:** Facilitating conditions have a positive influence on actual purchase behaviour.

### **3.5.8. Attitudes towards Generic Brands of OTC Medicines (Hypothesis 8)**

The attribution theory (Heider 1958) and self-perception theory (Bem 1972) can justify how consumers make judgements about their attitudes based on their own behaviour. These two theories suggest that individuals shape their own attitudes in a rational manner and this

affects their behaviour. As stated by TPB and supported by social cognitive theory (Ajzen 1985; Bandura 1986; Fishbein and Ajzen 1975), attitude towards behaviour is stronger than attitudes towards an object as it will result in a higher likelihood of purchasing. Some of the common beliefs and concerns about the generic brands of OTC medicines are to do with their safety and reliability. Based on the theoretical underpinnings, consumers with strong belief in generic brands of OTC medicines will be more likely to buy them (Limayem, Khalifa, and Chin 2004). As such, the following hypothesis is proposed:

**H8:** Attitudes towards generic brands of OTC medicines have a positive influence on the intention to buy generic brands of OTC medicines.

### **3.5.9. Intention to Buy Generic Brands of OTC Medicines (Hypothesis 9)**

Based on self-perception theory and attribution theory, consumers' intention to buy generic brands of OTC medicines depends on how their attitudes towards generic brands of OTC medicine are formed based on their own motive from watching themselves behave in the context of this study. Based on neutralization theory, social cognitive theory and TPB (Ajzen 1985; Bandura 1986; Sykes and Matza 1957), a higher intention to buy will lead consumers to engage in actual purchase behaviour. In the context of this study, consumers, who have a strong intention to buy generic brands of OTC medicines, will be more likely to buy them, rather than established brands of OTC medicines (Limayem, Khalifa, and Chin 2004). As such, the following hypothesis is proposed:

**H9:** Intention to buy generic brands of OTC medicines has a positive influence on the actual purchase behaviour.

### **3.5.10. Moderating Effects of Price Differential (Hypothesis 10)**

As suggested by attribution theory (Heider 1958), price differential between generic brands of OTC medicines and established brands of OTC medicines is the external variable that

encourages consumers to change their medication to a generic brand as it is significantly cheaper, based on consumers' perspectives (Plowman and Goode 2009). As explained by the theoretical underpinnings, attitudes towards generic brands of OTC medicines will be enhanced by price differential towards having a higher intention to buy generic brands of OTC medicines. As such, the following hypothesis is proposed:

**H10:** The price differential between generic brands of OTC medicines and branded OTC medicines will moderate the relationship between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines.

### **3.5.11. Mediation Effects**

As discussed before in section 2.5, there is a prospect of a mediating relationship being formed in the research model. This will be tested if the mediation relationships occur in the final SEM model (as shown in Figure 6-1). As such, the following research question is proposed:

**Research Question:** What is the mediating role of attitudes towards generic brands of OTC medicines between the six variables (consumer concern, consumer knowledge, perceived risk, consumer trust in generic brands of OTC medicines, social factors and interpersonal influence) and intention to buy generic brands of OTC medicines?

### 3.6. Summary of All Hypotheses

| <b>HYPOTHESES</b> |   |
|-------------------|---|
| <b>H1a</b>        | Consumer concern about counterfeit OTC medicines has a negative influence on the attitudes towards generic brands of OTC medicines.   |
| <b>H1b</b>        | Consumer concern about generic brands of OTC medicines has a negative influence on the attitudes towards generic brands of OTC medicines.   |
| <b>H1c</b>        | Consumer concern about counterfeit OTC medicines has a negative influence on the intention to buy generic brands of OTC medicines.  |
| <b>H1d</b>        | Consumer concern about generic brands of OTC medicines has a negative influence on the intention to buy generic brands of OTC medicines.  |
| <b>H2a</b>        | Consumer knowledge about counterfeit OTC medicines has a positive influence on attitudes towards generic brands of OTC medicines.   |
| <b>H2b</b>        | Consumer knowledge about generic brands of OTC medicines has a positive influence on attitudes towards generic brands of OTC medicines.   |
| <b>H2c</b>        | Consumer knowledge about counterfeit OTC medicines has a positive influence on intention to buy generic brands of OTC medicines.  |
| <b>H2d</b>        | Consumer knowledge about generic brands of OTC medicines has a positive influence on intention to buy generic brands of OTC medicines.  |
| <b>H3a</b>        | Perceived risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the attitudes towards generic brands of OTC medicines. |
| <b>H3b</b>        | Perceived risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the intention to buy generic brands of OTC medicines.  |
| <b>H4a</b>        | Consumer trust in generic brands of OTC medicines has a positive influence on the attitudes towards generic brands of OTC medicines.  |
| <b>H4b</b>        | Consumer trust in generic brands of OTC medicines has a positive influence on the intention to buy generic brands of OTC medicines.   |
| <b>H5a</b>        | Social factors have a positive influence on the attitudes towards generic brands of OTC medicines.  |
| <b>H5b</b>        | Social factors have a positive influence on the intention to buy generic brands of OTC medicines.   |
| <b>H6a</b>        | Interpersonal influence has a positive influence on the attitudes towards generic brands of OTC medicines.  |
| <b>H6b</b>        | Interpersonal influence has a positive influence on the intention to buy generic brands of OTC medicines.   |

|                            |   |
|----------------------------|---|
| <b>H7a</b>                 | Facilitating conditions have a positive influence on the intention to buy generic brands of OTC medicines.  |
| <b>H7b</b>                 | Facilitating conditions have a positive influence on the actual purchase behaviour.   |
| <b>H8</b>                  | Attitudes towards generic brands of OTC medicines have a positive influence on the intention to buy generic brands of OTC medicines.  |
| <b>H9</b>                  | Intention to buy generic brands of OTC medicines has a positive influence on the actual purchase behaviour.   |
| <b>Moderation effects:</b> |   |
| <b>H10</b>                 | The price differential between generic brands of OTC medicines and branded OTC medicines will moderate the relationship between attitudes towards generic brands of OTC medicines and intention to buy generic brands of OTC medicines. |

### **3.7. Concluding Comments for Chapter Three**

A number of gaps have been highlighted based on the literature review in the preceding chapters. This research attempts to fill these gaps by providing knowledge and insights into some of the more important questions surrounding generic brands of medicines. The conceptual framework and relevant hypotheses have been addressed in the current chapter. Furthermore, relevant theories have been discussed, and the place of these theories within the existing literature has been established. By providing the theoretical reasoning behind the current study, its aims and research propositions are better understood. In addition, by listing the individual hypotheses and specific research objectives a sound understanding of the research purpose has been attained. As discussed in the previous chapter, the literature lacks a scale that provides an accurate and rigorous measure of ‘attitudes towards generic brands’, which is the key construct in the research model in this study. Hence, the development of an ‘attitudes towards generic brands’ scale will be discussed in Chapter 5. The next chapter will review the research methodology for the main study.

## **Chapter 4**

### **Methodology**

#### **4.1. Introduction**

This chapter outlines the detailed methodology used specifically for the main study in Phase Two (Chapter 6). Please refer to Chapter 5 for in-depth proceedings of Phase One of the study (Development of ‘Attitudes towards Generic Brands’ Scale). This chapter begins with a brief outline of the research design and stimulus design. The chapter continues with a section on pre-testing the survey, including the stimulus for the focus group and the respondents’ pre-test to ensure the target samples are familiar with the stimulus, followed by the results of the pre-test. The next section presents the information about the intended research participants and the justification of the sample size in this study. Next, the survey instruments used in the study are explained with literature support, and the data collection method is presented with the pros and cons justification. Lastly, the intended statistical analysis techniques are discussed in detail and the ethical issues are justified in the final section.

#### **4.2. Research Design**

The research design for this study is based on an experimental approach by comparing the parent brand and its generic version of over-the-counter medicines (Panadol vs Paracetamol). This experimental approach is considered as an appropriate option because it offers the manipulation of stimuli that are randomly assigned to groups or respondents under different conditions (Simonson 1994). This approach has been used in past studies examining alternative brands (Anderson, Taylor, and Holloway 1966; Chakravarti and Janiszewski 2004; Charlton and Ehrenberg 1973; Dohle and Siegrist 2013; Kong and Zhang 2014;

Martinez and Soriano 2006). However, this experimental approach has some limitations. One of the flaws of this approach would be the complexity of the experiment (Simonson 1994). As such, the experiments are cautiously designed and controlled to minimize the fault in the experiment. In addition, the experiments are designed to direct respondents to focus on over-the-counter medicines only, whereas this study enables the respondents to consider many product categories, such as medicines for acute conditions or chronic condition. Hence, the respondents can measure the risk and the probability of using this particular generic brand. In addition, the purpose of the designed experiment is to reduce the possible bias of how the questions should be answered and to avoid possible leading questions (Simonson 1994).

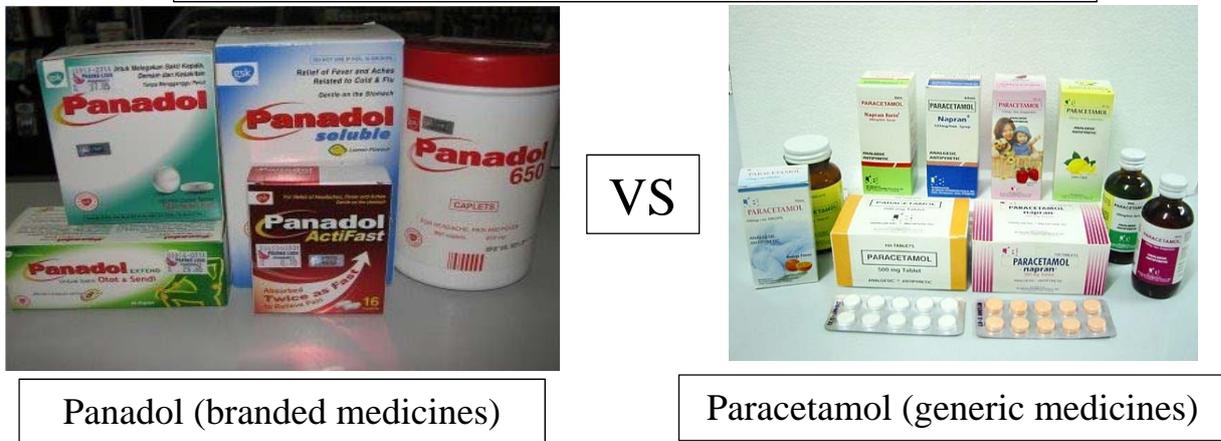
#### **4.3. Product Category Selection**

In order to capture the essence of the generic brand as an alternative brand, this study will focus on only one product category, which is over-the-counter medicine. The Panadol brand and Paracetamol brand are chosen after extensive research of existing brands because both brands have the highest familiarity in Australia compared to other brands. In addition, both brands are globally known and this will prevent any possible alienation of certain respondents. This set of brands went through a panel of judges in a pre-test to discuss the relevance and knowledge of the set of brands before using it for the final questionnaire. Both brands are also pretested to ensure that they fall within the scope of generic pharmaceutical medicines. This also allows the scale to be applied across a broader spectrum of products to better represent the generic pharmaceutical industry.

#### 4.4. Stimulus Design and Preparation

The stimulus of the Panadol brand is taken from the images that can be retrieved from the official company sites (Panadol.com.au), while the Paracetamol brand stimulus is taken from the Google Images website and has been carefully selected from the huge number of images to ensure that it is an appropriate image for this study. There has been no manipulation of the images. The stimulus for both brands can be seen in Figure 4-1. Both images display various

**Figure 4-1: Visual Stimulus for Main Study**



types of products in each brand to ensure a better evaluation from respondents and to engage the respondents' intention to buy the brands. This approach has been used by Hagtvedt and Patrick (2008) to provide a closer examination for respondents to familiarize themselves with the brands. Product similarity comparison with the stimulus has been conducted in past research to compare between the parent brand and the generic brand (Bijmolt et al. 1998; Dohle and Siegrist 2013; Loken, Ross, and Hinkle 1986). As such, this study follows a similar method to test respondents' behaviour towards the generic brand by comparing the parent brand and its generic brand. Importantly, the stimulus is using real-life brands to enhance the ecological validity of the study (Cowan 1989; Hornik and Ellis 1988).

## **4.5. Pre-Test of the Stimulus and Survey**

### **4.5.1. Focus Group**

A focus group with a panel of ten judges, comprising experts from the pharmaceutical industry, medical experts, academics and other industry professionals, was conducted to ensure that the stimulus used in the survey instrument is appropriate for the study. The definition of ‘attitudes towards generic brands’ and a brief presentation of the study were provided to the panel of judges as a guide to the exercise. After extensive focus group discussion, all the members of focus group are keen that the visual stimulus has been chosen well and it fits the survey instrument. It is also easy to be understood by the general respondents. However, few amendments of the survey instruments need to be made to rectify the common bias issue, such as double-barrelled questions or ambiguous questions.

### **4.5.2. Respondent Pre-test**

Through an online survey, the general population in Australia were used as the sample to pre-test the stimulus and the scale items in the survey for testing the respondents’ behaviour towards generic brands. This was conducted with the assistance from a specialized market research firm by using their local email directories and databases. The Paracetamol brand (generic brand) and the Panadol brand (popular brand) were chosen as the stimulus in this study because they have the highest familiarity compared to other brands. A number of considerations, such as whether the stimulus falls into the category of over-the-counter medicines and whether the brand is easily recognized by any potential respondents, are filtered prior to using the brands for the pre-test.

#### **4.6. Pre-Test Results**

Online respondents were requested to fill in the survey properly and follow the instructions step-by-step. The question regarding familiarity with the stimulus is provided to check whether the chosen brands are recognized by the respondents or not. Respondents were also asked to provide any feedback for improvement after filling out the survey. A total of 50 surveys were collected. Although the data collected from the pre-test sample size were insufficient for meaningful analysis, a general examination to get the feel for the data was conducted. The pre-test data was analysed by using exploratory factor analysis (EFA) to ensure each scale consists of one dimension, and Cronbach's alpha score to check whether each scale is reliable. The results of the EFA and Cronbach's alpha have concluded that each scale has one dimension and has good reliability. Most respondents also had a high familiarity score towards the stimulus. In addition, the overview of the descriptive results from the pre-test did not reveal any abnormality; the response range was generally satisfactory over the scales with the presence of variability, central tendency, and dispersion (Sekaran 2003). Based on the feedback and examination of the pre-test data, there was no need to amend the content or format of the online survey. From this point onwards, the research participants for the main study will be explored, and this is followed by an in-depth outline of the final survey instrument and discussions on the main data collection and procedures.

#### **4.7. Research Participants (Sample for Final Study)**

The general population in Australia are the target sample in this study, even though it must be taken into account that most of the younger generation use less medicine compared to the elderly population. Most previous researches have targeted adult consumers or particular patients with chronic conditions to capture the accurate findings for their research (Al Ameri

et al. 2013; Alrasheedy et al. 2014; Dohle and Siegrist 2013; Momani et al. 2000; Muirhead 1994; Rosendahl 1994). In the context of this study, there is a need to investigate a wide range of demographic profile in order to generalize the study's findings. The brands selected have been pretested to test for brand familiarity and exposure within the Australian context prior to use in the actual study.

#### **4.7.1. Justification of Sample Size**

It is essential to justify the sample size based on the application of structural equation modelling (SEM) as the method of data analysis in the study. Structural equation modelling and confirmatory factor analysis (CFA) techniques are chosen because both measurements are considered as more appropriate techniques for measurement and theory testing than traditional statistical techniques as competing theoretical models can be evaluated. Therefore, large sample sizes are required to obtain reasonable stability in the parameter estimates (Kline 2005). As suggested by Kline (2005), a sample size of 400 respondents is proposed for the study because sample sizes in excess of 200 as a general rule have been recommended for SEM analyses. There are no definitive guidelines for sample size; however Kline (2005) proposed 20:1 as the optimal ratio for the number of respondents to the number of parameters. Kline (2005) also stated that the 10:1 ratio is a more realistic target and the resulting parameter estimates tend to be very unstable for a ratio of less than 5:1.

As the research model consists of ten exogenous variables and 16 pathways, the sample has been tailored to provide consideration for the sensitive nature of the SEM's application, particularly regarding model mis-specification, model size, departure from normality and estimation procedure (Hair et al. 1998; Holmes-Smith, Coote, and Cunningham 2004; Kline 2005).

#### **4.8. Survey Instrument**

The survey instruments are discussed in detail in this section. The survey consists of an introductory page, visual stimulus, filter questions, demographic profile, and 18 sections of scales. The survey begins with a cover page that explains the purpose of the study in the survey and confidentiality issues. In addition, the ethical issue is also explained in the cover page. The next page displays the visual stimulus of branded over-the-counter (OTC) medicine (Panadol) and generic brands of over-the-counter (OTC) medicines (Paracetamol), with a question regarding brand familiarity for each brand. In the following page, a number of filter questions are provided to filter the respondents into a few categories, such as user versus non-user or heavy users versus light users.

This is followed by 18 sections that address the 18 constructs (i.e. consumer concern about counterfeit OTC medicines, consumer concern about generic brands of OTC medicine, consumer knowledge about counterfeit OTC medicine, consumer knowledge about generic brands of OTC medicines, perceived risk [performance, financial, physical, psychological, and social], consumer trust in generic brands of OTC medicines, social factors, interpersonal influence [informational susceptibility and normative influence], facilitating conditions, attitudes towards generic brands of OTC medicines, intention to buy generic brands of OTC medicines, price differential, and willingness to recommend generic brands of OTC medicines) of the research undertaken in this study, as well as the corresponding visual stimulus pertaining to the survey. The questionnaire concludes with a manipulation check, briefly assessing consumer knowledge of over-the-counter medicines through a 7-point Likert scale, in which 1 represents 'strongly disagree' and 7 represents 'strongly agree'. A sample of each of the survey instruments set can be found in Appendix A.

#### **4.8.1. Demographics**

##### ***Section A – Respondent Profile***

In this section, respondents were asked general demographic and background questions on their gender, age group, level of education, annual income level, country of origin and which state of Australia they are currently living in. These questions are essential to ensure the representatives of the sample have a balanced ratio and the questions' relevance to the domestic Australian market, as well as to identify the relationship between variables and to compare directly with other studies conducted within other countries.

#### **4.8.2. Measures: Consumer Concern about Counterfeit OTC Medicines**

##### ***Section B – Consumer Concern about Counterfeit OTC Medicines***

The measure for this construct is a 6-item scale modified and adopted from Marcketti and Shelley (2009). The respondents would answer a 7-point Likert scale where 1 represents 'strongly disagree' and 7 represents 'strongly agree'. The questions are related to consumer concern regarding side effects and the danger of counterfeit OTC medicines in the market. These items can be seen at Appendix A.

#### **4.8.3. Measures: Consumer Concern about Generic Brands of OTC Medicines**

##### ***Section C – Consumer Concern about Generic Brands of OTC Medicines***

The measure to examine consumer concern about generic brands of OTC medicines is adapted from Marcketti and Shelley (2009). The measure consists of 7-item scale and the scales use a 7-point Likert scale in which 1 represents 'strongly disagree' and 7 represents 'strongly agree'. These items are measuring respondents' concern about the quality of generic brands of OTC medicines and are presented in Appendix A.

#### **4.8.4. Measures: Consumer Knowledge about Counterfeit OTC Medicines**

##### ***Section D – Consumer Knowledge about Counterfeit OTC Medicines***

In this section, the measure of consumer knowledge about counterfeit OTC medicines was based on the study by Marcketti and Shelley (2009). The construct contains a 3-item scale with a 7-point Likert scale where 1 rates as ‘strongly disagree’ and 7 rates as ‘strongly agree’. This construct was used to determine the consumer’s knowledge of fashion or apparel counterfeiting and has been adapted to the context of this study to measure consumer knowledge of OTC medicines counterfeiting. These items are displayed in Appendix A.

#### **4.8.5. Measures: Consumer Knowledge about Generic Brands of OTC Medicines**

##### ***Section E – Consumer Knowledge about Generic Brands of OTC Medicines***

Consumer knowledge of generic brands of OTC medicines is tested in this section with a 4-item scale. The items are measured on a 7-point Likert scale in which 1 represents ‘disagree’ and 7 represents ‘strongly agree’. This construct measures whether respondents know the advantages of generic brands of OTC medicines and their difference from other brands of medicines. The construct was modified and adopted from Marcketti and Shelley (2009). These items are shown in Appendix A.

#### **4.8.6. Measures: Perceived Risk**

##### ***Sections F, G, H, I and J – Perceived Risk (Performance, Financial, Physical, Psychological, and Social)***

This measure examines respondents’ perspective towards the risk of using generic brands of OTC medicines. There are five dimensions of perceived risk that will be measured and adapted in this study based on Stone and Gronhaug (1993). Each dimension uses a 7-point Likert scale ranging from ‘strongly disagree’ to ‘strongly agree’. Firstly, performance risk (Section F) measures the effectiveness of generic brands of OTC medicines as a remedy for consumers’ health problems. It consists of three items. Secondly, the financial risk (Section

G) measures consumer concern about financial loss when using generic brands of OTC medicines. This has three items. Thirdly, physical risk (Section H) measures consumer concern about possible side effects caused by consuming generic brands of OTC medicines. This contains three items. Fourthly, psychological risk (Section I) measures how using generic brands of OTC medicines influences the consumer's psychology negatively. This consists of four items. Lastly, social risk (Section J) measures how buying generic brands of OTC medicines affects the consumer's self-esteem negatively. This contains four items. All these items of perceived risk can be seen in Appendix A.

#### **4.8.7. Measures: Consumer Trust in Generic Brands of OTC Medicines**

##### ***Section K – Consumer Trust in Generic Brands of OTC Medicines***

In this section, consumer trust in generic OTC medicine is measured by adapting the 7-item scales from Morgan and Hunt's (1994) study. In the context of this study, only four items can be used and adapted. The 4-item scale uses a 7-point Likert scale where 1 rates as 'strongly disagree' and 7 rates as 'strongly agree'. These items are presented in Appendix A.

#### **4.8.8. Measures: Social Factors**

##### ***Section L – Social Factors***

Six items of social factors are adapted from the study of Marcketti and Shelley (2009). This scale measures the effect of social influence through interaction with family, colleagues, general practitioners and friends. A 7-point Likert scale is used in this measure where 1 represents 'strongly disagree' and 7 represents 'strongly agree'. These items are shown in Appendix A.

#### **4.8.9. Measures: Interpersonal Influence**

##### ***Section M and N – Informational Susceptibility and Normative Influence***

Adapted from Bearden, Netemeyer, and Teel's (1989) study, interpersonal influence (4-item scale) is divided into informational susceptibility and normative influence. Informational susceptibility is one of the elements of interpersonal influence that affect consumers' perspectives towards a brand or product through information gained from others' knowledge or by observing their behaviour. Normative influence (8-item scale) is measuring the consumer's action towards a product or a brand based on others' expectations or duplicates others' identity, especially how buying generic OTC medicines can affect consumers' self-esteem. Both measures use a 7-point Likert scale (1 = 'strongly disagree' and 7 = 'strongly agree'). These items can be seen in Appendix A.

#### **4.8.10. Measures: Facilitating Conditions**

##### ***Section O – Facilitating Conditions***

Facilitating conditions measures the external factors that support consumer action to purchase a product or a brand. This measure is adapted from Limayem, Khalifa, and Chin's (2004) study. It is represented with a 5-item scale and uses a 7-point Likert scale (1 = 'strongly disagree', 7 = 'strongly agree'). These items are presented in Appendix A.

#### **4.8.11. Measures: Attitudes towards Generic Brands of OTC Medicines**

##### ***Section P – Attitudes towards Generic Brands of OTC Medicines***

An entirely new scale is developed to measure respondent's attitudes towards generic brands and is adapted to the context of this study (over-the-counter medicines). The measure for this construct is a 5-item scale with particular literature reference to Neidell, Boone, and Cagley's (1985) study on different labelling on generic brands, Yelkur's (2000) study on cheaper prices for generic brands, Chiou and Chao's (2011) study on the similarity between the functions of generic brands and their parent brands, and Sanyal and Datta's (2011) study on

the similarity between the quality of generic brands and their parent brands. All five questions represent the 'attitudes towards generic brands' scale in one dimension. The respondents would answer a 7-point Likert scale, where 1 rates as 'strongly disagree' and 7 rates as 'strongly agree'. These items can be seen in Appendix A.

### ***Preview of the Scale Development Process***

One of the research objectives was to develop an appropriately psychometrically valid and reliable 'attitudes towards generic brands' measure to be used as a manipulation check in future parts of the research. As such, one scale to measure consumer attitudes towards generic brands was required. For the purpose of this study, the process of scale development encompasses a number of studies, books and articles; however, with regard to the process undertaken, those of particular importance are Churchill (1979), DeVellis (1991, 2003), Li, Edwards, and Lee (2002), Nunnally (1978), Oh (2005), Spector (1992), and, Wells, Leavitt, and McConville (1971). The process undertaken involved a total of nine respective studies spread over four different stages as per the suggested procedure for 'developing better measures', as set out by Churchill (1979). Exploratory factor analysis (EFA) would be undertaken in the first stage of the scale development to ensure the number of dimensions from all items. Confirmatory factor analysis (CFA) would be utilised using the AMOS 23.0 program in the second stage of the scale development as a test for unidimensionality for each dimension. Other statistical techniques were also consulted at various stages within the scale development process. Full coverage of the scale development process, including an in-depth explanation and discussions of the respective studies and various stages, can be viewed in the following Chapter 5.

#### **4.8.12. Measures: Intention to Buy Generic Brands of OTC Medicines**

##### ***Section Q – Intention to Buy Generic brands of OTC Medicines***

This measure is adapted from Limayem, Khalifa, and Chin's (2004) study and consists of a 4-item scale. It uses a 7-point Likert scale where 1 rates as 'strongly disagree' and 7 rates as 'strongly agree'. This scale measures how likely it is that the consumer will have the intention to buy generic OTC medicines. These items can be seen in Appendix A.

#### **4.8.13. Measures: Price Differential**

##### ***Section R – Price Differential***

This scale measures how price differential influences consumer choice between two products or two brands. This measure is adapted from Plowman and Goode's (2009) study and has a 3-item scale. A 7-point Likert scale (1= 'strongly disagree' and 7 = 'strongly agree') is implemented for this measure. These items are presented in Appendix A.

#### **4.8.14. Measures: Willingness to Recommend**

##### ***Section S – Willingness to Recommend***

This measure is necessary as the element of actual purchase behaviour. This measure is adapted from Marimon et al.'s (2009) study and consists of one scale item only. Based on the previous literature (Bagozzi and Heatherton 1994; Holmes-Smith and Coote 2002), using one item construct in Structural Equation Modelling (SEM) has been justified as a proper method because it can reduce distraction from accumulated error from whole SEM model. It uses a 9-point Likert scale where 1 rates as 'unlikely at all' and 9 rates as 'extremely likely'. These items are shown in Appendix A.

#### 4.9. Survey Instruments – A Summary of Scales and Measurements

The table below (Table 4-1) provides the number of items in each scale as well as the reliability from earlier adaptations that are used in the survey instrument.

| <b>Section</b> | <b>General and Unobserved Latent Variable</b>                                  | <b>Items</b> | <b><math>\alpha</math></b> | <b>References</b>   |
|----------------|--|--------------|----------------------------|---|
| A              | Demographic Background   | 6            | n/a                        | See section 4.7 for a detailed overview on research sample                                |
| B              | Consumer Concern about Counterfeit Medicines                                   | 6            | .868                       | Marcketti and Shelley (2009)  |
| C              | Consumer Concern about Generic Medicines                                       | 7            | .809                       | Pereira et al. 2005   |
| D              | Consumer Knowledge of Counterfeit Medicines                                    | 3            | .814                       | Marcketti and Shelley (2009)  |
| E              | Consumer Knowledge of Generic Medicines  | 4            | .814                       | Marcketti and Shelley (2009)  |
| F–J            | Perceived Risk [Performance, Financial, Physical, Psychological, and Social]   | 3            | .591–.810                  | Stone and Gronhaug (1993)   |
| K              | Consumer Trust in Generic Brands of OTC Medicines                              | 4            | .947                       | Morgan and Hunt (1994) and Delgado-Ballester and Munuera Alema (2005)                     |
| L              | Social Factors   | 6            | .700                       | Limayem, Khalifa, and Chin (2004)   |
| M–N            | Interpersonal Influence [Informational Susceptibility and Normative Influence] | 4            | .830 - .880                | Bearden, Netemeyer, and Teel (1989)   |
| O              | Facilitating Conditions  | 5            | .700                       | Limayem, Khalifa, and Chin (2004)   |
| P              | Attitudes towards Generic Brands of OTC Medicines                              | 5            | N/A                        | Scale Development of “Attitudes towards Generic Brands” scale. Please refer to Chapter 5. |
| Q              | Intention to Buy Generic Brands of OTC Medicines                               | 4            | .980                       | Limayem, Khalifa, and Chin (2004)   |
| R              | Price Differential   | 3            | .899                       | Plowman and Goode (2009)  |
| S              | Willingness to Recommend   | 1            | N/A                        | Marimon et al. (2009)   |

## **4.10. Data Collection and Procedure**

### **4.10.1. Overview**

As previously stated, the main research will focus on Australia only. The data was collected through a centralized email database using an Internet survey with the assistance from a specialized market research firm. Respondents were pre-qualified as being 18 years and above before filling out the online survey. It was determined that the use of a self-administered questionnaire would be deemed as the most appropriate method for data collection, given the in-depth nature of the data required for analysis. To attain the proposed 400 questionnaires as well as to maintain reliability and validity of the data collected, the data was collected only through the online survey.

### **4.10.2. Online Data Collection**

#### *Overview*

A convenience sample method to target the general population in Australia was drawn from a wide variety of local email directories and databases with assistance from a specialized market research firm in Australia to capture ecological validity. Prior to commencing the online questionnaire, participants had to acknowledge a number of explanatory statements outlining the research focus and objectives as well as the right to anonymity and other ethics-related matters, such as voluntary participation and the right to discontinue the survey. The demographic details requested were purely for statistical analysis.

#### *Online Survey Procedures*

Respondents were required to click on the web-based link ([https://curtin.asia.qualtrics.com/SE/?SID=SV\\_6WMOiDIvvsGPJLT](https://curtin.asia.qualtrics.com/SE/?SID=SV_6WMOiDIvvsGPJLT)) that was embedded within the email or to copy the web address into their Internet browser to access the online survey. This web address took participants to a web-based survey form on our Internet

website. The web-based survey form had the advantage of a point-and-click format, where participants could click on their responses. As a primary feature, the web-based programming permits skip patterns or branching in the questionnaire, which allowed for a more sophisticated survey instrument with a number of benefits.

Firstly, the data is immediately available at the end of the fielding phase as the responses are automatically tabulated by a Microsoft Excel or SPSS database which minimizes cost and time. In addition, it also maximizes the speed and accuracy of data entry. Secondly, it minimizes the possibility of multiple entries via a single participant as well as possible participants not part of the intended sample frame – each response was embedded with a unique identification number as part of a preventive measure. The unique identification number operates as a security function which automatically restricts the access of respondents who have already filled out the survey. In addition, the unique identification number also allowed the sending of reminder emails to participants who had not yet completed a survey before the online survey closed. Follow-up method has been proven as an effective way to increase the overall response rate in online surveys (Dillman 2000; Heberlein and Baumgartner 1978; Illieva, Baron, and Healey 2002; Yu and Cooper 1983); however follow-up method in online surveys should be done cautiously to avoid a perception of ‘spam’ and creating discomfort for the respondents (Solomon 2001). Lastly, added security features online allow for greater control over the intended survey procedures, which were made suitable for facilitating the advert stimuli and overall experimental research design.

### ***Data Collected from Online Survey***

A total of 600 self-administered online surveys were distributed to research panels in Australia, sourced by a specialized market research firm. The whole process of collecting the data took approximately ten weeks (from mid-February until the end of April 2014) through

the online survey, including the time framework for re-collecting the data to replace bad data. Reminder emails were sent to respondents one week before the online survey was closed. Questionnaires with incomplete data or that failed to pass the manipulation check were eliminated and not used for statistical analysis purposes. As a result, 484 valid data from Australia were usable and valid for analysis. The number of sample size is sufficient for structural equation modelling (SEM) analysis, as suggested by Kline (2005).

#### **4.11. Analysis Methods / Statistical Techniques**

The first part of the research was to develop an ‘attitudes towards generic brands’ scale by employing Churchill’s (1979) and DeVellis’s (2003) procedures or methods. Exploratory factor analysis and Cronbach’s alpha using SPSS were utilised to check the dimensions of all scale items in the first stage and the reliability of each dimension in each stage. Confirmatory factor analysis using AMOS was employed to derive the final set of scales in the second stage of the scale development. Pearson correlation analysis using SPSS was conducted to test nomological, convergent, discriminant and predictive validity of the scale in the third stage. Measurement invariance using AMOS was used to examine whether the ‘attitudes towards generic brands’ scale can be interpreted and used in the same way in four different product categories. The detailed explanation of the scale development process is elaborated in Chapter 5.

The purpose of this research is to examine the hypothesized relationship between four variables (consumer concern, consumer knowledge, perceived risk and consumer trust in generic brands of OTC medicines) and attitudes towards generic brands of OTC medicines (Hypotheses 1–4). It also examines the relationship between these four variables and intention to buy generic brands of OTC medicines (Hypotheses 1–4). Parallel with TPB, attitudes towards generic brands of OTC medicines, subjective norms (social factor and

interpersonal influence) and facilitating conditions as a perceived behavioural control factor are strong predictors of intention to buy generic brands of OTC medicines (Hypotheses 5–8). It is also predicted that subjective norms and facilitating conditions have a positive relationship with attitudes towards generic brands of OTC medicines (Hypotheses 5–7). In addition, intention to buy generic brands of OTC medicines affects the respondent's willingness to recommend generic brands of OTC medicines to others as actual purchase behaviour (Hypothesis 9). Further, price differential would moderate the relationship between intention to buy generic brands of OTC medicines and willingness to recommend OTC medicines (Hypothesis 10). Structural equation modelling using AMOS was conducted to test Hypotheses 1–9 and hierarchical moderated regression was used to test Hypothesis 10. In addition, a number of mediation effects based on the final SEM model (refer to Figure 6-1) used mediation analysis following the guidelines of Baron and Kenny (1986). These statistical techniques will be elaborated in Chapter 6.

#### **4.12. Ethical Issues**

The Minimal Risk Research Ethics Form C was required to apply for ethics approval for this research through the Human Research Ethics Committee. Proper protocol was observed, through consultation with Dr Isaac Cheah, the School of Marketing Coordinator for ethics approval, to ensure every effort was made, both in the survey instrument and the conduct of data collection, to adhere to the university standards, and were approved by the Human Research Ethics Committee (Form C) followed by the Pro Vice-Chancellor, Academic Services. In addition, an information sheet was attached to every questionnaire to ensure that respondents were aware of the study. Consent was assumed with the return of each completed questionnaire. The respondents were also clearly informed of complete confidentiality of the study and that all responses would be treated with the strictest confidence and would not be

disclosed to third parties. Their responses will also be kept at a safe place for five years in line with the regulations set by the university. The ethic numbers are SOM2013026. The approved ethics forms can be seen in Appendix B.

#### **4.13. Concluding Comments for Chapter Four**

The research methodology in this study has been discussed in detail in this chapter. Each measure in the survey instruments is explained in detail and the choice of the targeted sample in this study is justified. A pre-test of the survey and stimulus was conducted to ensure the validity and reliability of the survey instruments. As such, this chapter is presented to ensure that the study was engaged through a rigorous research process in order to achieve the goal of the study. The ‘attitudes towards generic brands’ scale is developed and its detailed explanation presented in Chapter 5. The analysis and results of the hypotheses are shown in Chapter 6. The next chapter describes the process and procedures of the study’s scale development.

## Chapter 5

### Phase One: Scale Development

#### 5.1. Introduction

This chapter outlines the scale development procedures based on Churchill (1979) and DeVellis (1991). It is divided into four stages, with a number of studies occurring in each stage, relating to the developed scale. The four stages are undertaken in this scale development to develop the “attitudes towards generic brands” scale, examine its dimensionality, and test its reliability, validity, and measurement invariance. The data collection process and statistical techniques for data analysis for each stage are explained in detail. A quick guide to the structure of this chapter and process can be seen in Table 5-1.

| <b>Stages of scale development</b>            | <b>Study</b> | <b>Method</b>  |
|---|--------------|--|
| <b>Stage One: Item generation</b>             | Study One    | Generate initial 90 items                                  |
|   | Study Two    | Review initial 90 items (panel of 4 judges)                |
|   | Study Three  | Review 83 items (panel of 7 judges)                        |
|   | Study Four   | Review 63 items (focus group)                              |
|   | Study Five   | Review 39 items (panel of 4 industry experts)              |
|   | Study Six    | Exploratory factor analysis                                |
| <b>Stage Two: Purification and refinement</b> | Study One    | Confirmatory factor analysis                               |
| <b>Stage Three: Validation</b>                | Study One    | Pearson correlation matrix                                 |
| <b>Stage Four: Generalization</b>             | Study One    | Measurement invariance<br>(4 different product categories) |

This chapter outlines the initial development of the scale items, purification of the scale items, and validity tests (convergent, discriminant, nomological, and predictive) and, finally, it examines the generalizability of the “attitudes towards generic brands” scale. To achieve

this aim, an extensive literature review, thesaurus search, and experience survey were undertaken to generate 90 initial items. Next, a total of 15 panel experts and a focus group reviewed the initial 90 items and the number of items was reduced to 39. Data were collected from a student sample for item purification using exploratory factor analysis (in Stage One) and confirmatory factor analysis (in Stage Two). In addition, the validity test in Stage Three also utilised a student sample to maintain a homogenous sample. In Stage Four, data from the general population were collected through an online survey to test the generalizability of the developed scale based on four different pharmaceutical product categories. Finally, the overall conclusion and future direction are presented in the last section of this chapter.

## **5.2. Definition of Terms**

Firstly, it is essential to define the scale that will be developed in this study before generating the items in Study One. The “attitudes towards generic brands” term consists of two keywords (“attitudes” and “generic brands”). As such, both keywords need to be defined separately according to the literature review before the composite definition of “attitudes towards generic brands” can be formed in this study.

### **5.2.1. Attitude Defined**

Attitude is commonly defined as “the degree of positive or negative effect associated with some psychological object” (Thurstone 1946). According to Babin and Harris (2012), affect, behaviour, and cognition are the three components of attitudes that can be utilised to measure the degree of positive or negative effect on a brand or product. For example, “I always buy generic brands” (behaviour) because “I like generic brands” (affect) and “Generic brands serve my needs just like other brands” (cognition).

### **5.2.2. Generic Brand Defined**

The literature defines generic brands as “brands with plain packaging, absence of brand names, no advertising, and less expensive version of an established brand” (Neidell, Boone, and Cagley 1985). The definition is quite similar to that of private label brands. The significant difference between generic brands and private label brands is the availability of the brands in the global market segment (Bellizzi et al. 1981). For example, paracetamol (a generic version of the Panadol brand) can be found in any store in the global market; however, private label brands, such as Woolworth or Coles Home Brand, can only be found in Woolworth’s or Coles’ market stores, respectively.

### **5.2.3. Attitudes towards Generic Brands Defined**

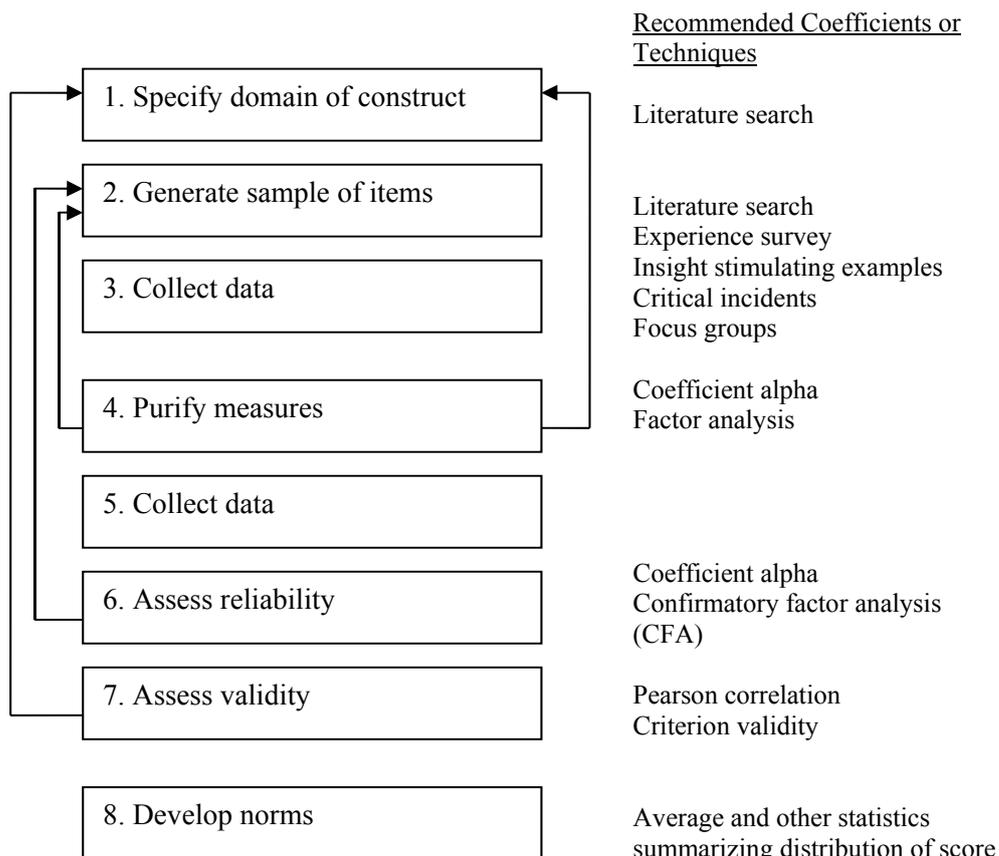
Based on both the attitude and the generic brands definition in the past literature, “attitudes towards generic brands” can be defined as a person’s belief and feeling towards brands that mimic parent or famous brands with different labels (Neidell, Boone, and Cagley 1985), lower prices (Yelkur 2000), similar functions (Chiou and Chao 2011), and equal quality (Sanyal and Datta 2011).

In order to understand consumer attitudes towards generic brands, and to help practitioners to gauge the level of consumer reactions to specific generic product categories, the ability to measure each form independently is required. The current scales used in studies on attitudes towards generic brands are adopted from other literature, for example attitudes towards private label products (Burton et al. 1998), the consumer perception of generic brands (Bellizzi et al. 1981), and the macro view of generic brands (Prendergast and Marr 1997). However, these scales do not distinguish between the specific types within the “attitudes towards generic brands” concept. To achieve this, the logical first step is the development of

a scale to measure “attitudes towards generic brands”: specifically, a task that is currently unachievable with the existing scale instruments.

Based on the review of a number of key studies, books, and journals by Churchill (1979), DeVellis (1991, 2003), Li, Edwards, and Lee (2002), Marchegiani and Phau (2010), Nunnally (1978), Oh (2005), Spector (1992), and Wells, Leavitt, and McConville (1971), the research investigated the proper scale development process. The suggested scale development procedure by Churchill (1979) acted as the guidelines followed in conducting the whole process of scale development in this study. The step-by-step procedures, as suggested by Churchill (1979), can be seen in Figure 5-1.

**Figure 5-1: Suggested procedure for developing better measures**



**Source: Adapted from Churchill (1979)**

### **5.3. Stage One: Developing Scale Items**

#### **5.3.1. Study One: Generate Initial Items**

##### ***What Are We Trying to Achieve?***

Using the preceding definition of “attitudes towards generic brands”, based on the literature review (Churchill 1979), the thesaurus search (Wells, Leavitt, and McConville 1971), and the experience survey (Chen and Wells 1999; Churchill 1979), a set of potential scale items (Li, Edwards, and Lee 2002) was generated. In addition, the steps for scale development set out by DeVellis (2003) were followed.

##### ***What Do We Want to Measure?***

Based on DeVellis’s (2003) suggestions, the theory surrounding the concepts of the study needed to be determined in order to provide clarification of the purpose of scale development. The key theories of this study are the neutralization theory and the theory of planned behaviour. The extension of these theories to the marketing discipline required legal, marketing, and branding journals on counterfeiting, private label brands, national brands, brand confusion, and so on to gain a better understanding of the current literature and existing scales. Based on the extensive review of the literature, specific attention was paid to the work by Ajzen (1985, 1991), Ajzen and Fishbein (1977), Bellizzi et al. (1981), Burton et al. (1998), Huang, Lee, and Ho (2004), Minor (1981), Prendergast and Marr (1997), Sykes and Matza (1957), and Wang et al. (2005) to extend the theory and develop the scale.

DeVellis (2003) stated that it is important to distinguish the construct to be developed from other existing constructs. According to the extensive review of studies on “attitudes towards generic brands”, there is a similarity between items from the “attitudes towards private label products” scale (Burton et al. 1998) and items from the “perception of generic products” scale (Prendergast and Marr 1997). However, the “attitudes towards private label products”

scale (Burton et al. 1998) and the “perception of generic products” scale (Prendergast and Marr 1997) focus on consumer perspectives towards the product rather than the brand itself. In addition, both scales measure only the grocery product category. Specifically, the “perception of generic products” scale (Prendergast and Marr 1997) focuses more on consumer perception than on consumer attitudes. The intended “attitudes towards generic brands” scale is intended to measure respondents’ feelings towards a particular generic brand; hence, it can be generalized across any product category.

### ***Generate the Item Pool***

The first step of the scale development process is to generate a large set of pool items. The three scale development techniques (literature review, experience survey, and thesaurus searches) were used, as suggested by other researchers (Li, Edwards, and Lee 2002; Marchegiani and Phau 2010).

### ***Literature Review***

The purpose of the literature review is to seek previous research that has a similar concept of the construct and theory. Based on the extensive literature review, there are a few scales that have a similar measurement of “attitudes towards generic brands” but in different concepts. These scales are from the studies by Bellizzi et al. (1981), Burton et al. (1998), Huang, Lee, and Ho (2004), Pereira et al. (2005), Prendergast and Marr (1997), and Wang et al. (2005). Ten items from Prendergast and Marr (1997), six items from Burton et al. (1998), nine items from Wang et al. (2005), fifteen items from Bellizzi et al. (1981), five items from Huang, Lee, and Ho (2004), and nine items from Pereira et al. (2005) were included in the pool of items. These 54 items were selected based on the content analysis of the items and conceptualized the construct of “attitudes towards generic brands”.

### *Thesaurus Searches*

The items expected to relate to “attitudes towards generic brands” could be constructed with thesaurus terms. For example, the thesaurus terms for “attitudes” are “approach, belief, opinion, perspective, point of view, reaction, sentiment, and view”, while the thesaurus terms for “generic brands” are “common brands and general brands”. A broader search using these terms revealed other items, such as “copy, clone, duplicate, or replica”. According to the thesaurus search approach, it could also be deduced that “belief towards replica brands”, “perspective towards clone brands”, and “sentiment towards duplicate brands” are related to the “attitudes towards generic brands” construct. The use of the thesaurus search provided a solid starting point for the scale.

### *Experience Surveys*

A panel consisting of four academics and two industry experts was consulted regarding the words derived from the thesaurus search and a list of adjectives was developed. The relevance of the items, their clarity, their conciseness, and other criteria that needed to be considered were discussed. Furthermore, this process was used to provide insights into item wording and response formats. Items were checked intensively for any appearance of ambiguity, exceptional length, double-barrelled items, and multiple negatives. For example, ambiguous words, such as “convenience”, “appealing”, and “dull packaging”, were discussed in relation to amendments. There were a few item statements, such as “there is nothing wrong with purchasing generic brands” or “the packages of generic brands are easy to understand”, that were ambiguous and required rephrasing. Simple and clear sentences are recommended by panels to avoid biased answers or leading statements. The panel of judges was always reminded that this study is about “attitudes towards generic brands”, not “perception towards generic products”, to ensure the accuracy and consistency of the measurement.

### ***Determine the Format of Measurement***

Most of the scales from previous studies (Bellizzi et al. 1981; Burton et al. 1998; Huang, Lee, and Ho 2004; Pereira et al. 2005; Prendergast and Marr 1997; Wang et al. 2005) successfully use 7-point Likert scales, on which 1 rates as “strongly disagree” and 7 rates as “strongly agree”. Thus, the development of the scales in this study will follow a similar process and style to the prior studies.

#### **5.3.2. Study Two: The Initial 90 Items Are Reviewed by a Panel of Four Judges**

In Study Two, all 90 initial items were listed in survey form. The definition of “attitudes towards generic brands” and the purpose of the scale development study were presented at the beginning of the survey form. They were evaluated by a panel of 4 judges (2 industry experts and 2 academics) to ensure that all the items are adaptable to the context of generic medicines. Based on the results of the review, 7 items were deleted due to duplication, irrelevance, and ambiguity. Hence, the number of items was reduced to 83 items.

#### **5.3.3. Study Three: The 83 Items Are Reviewed by a Panel of Seven Judges**

In Study Three, 83 items were constructed in a questionnaire format with X1 = “not representative at all”, X4 = “somewhat representative”, and X7 = “clearly representative” as the scale for each item. The questionnaire format can be seen in Appendix C. As the panel of judges to review the 83 items by filling in the questionnaire, 5 academics and 2 practitioners in the pharmaceutical field were chosen. Each scale (X1, X4, and X7) scored 1, 4, and 7, respectively. The items with composite mean scores  $((\text{Total score} - (\text{Max. score}) - (\text{Min. score})) / 5)$  less than 4 were omitted. This method is a valid method to increase the validity of the scale items, based on Churchill (1979) and DeVellis (1991). This method is also used in Marchegiani and Phau’s (2010) study. Some items were modified based on the reviewers’ comments to achieve better validity of the items. Based on the results of Study Three, the number of items was reduced to 63.

#### **5.3.4. Study Four: The 63 Items Are Reviewed by a Focus Group**

In Study Four, a focus group was conducted to discuss each item in greater depth. A panel of eleven judges, consisting of four academics, three postgraduate students, two undergraduate students, and two industry experts, was involved in the focus group to capture the range of understanding of the generic brands concept. A brief presentation about “attitude towards generic brands” was presented. A visual stimulus of generic brands (as shown in Figure 4-1) was shown to provide a clearer concept of generic brands. The focus of the study in this focus group was generic medicines. Each item was discussed thoroughly by constantly using the visual stimulus as the focus study. Some items were omitted because of ambiguity and irrelevance. A few items were amended for increased validity. After intensive focus group discussion, the number of items was reduced to 39.

#### **5.3.5. Study Five: The 39 Items Are Reviewed by a Panel of Four Judges**

In Study Five, 39 items remained to be reviewed by a panel of judges from professional industries. A similar questionnaire format to that of Study Three was used to review the 39 items based on industry experts’ perspectives. The questionnaire format is provided in Appendix D. Based on the reviewers’ results, no items were removed and some items were modified based on the reviewers’ suggestions.

#### **5.3.6. Study Six: Exploratory Factor Analysis**

##### ***Consideration of the Inclusion of Validation Items***

As suggested by DeVellis (2003), there is a need to include purposefully a number of items in the questionnaire to detect flaws or problems. It is essential to include such items because they can discover whether there are motivations that could influence responses’ social desirability or similar issues for the development of the scale, given the anonymity and the nature of the questions. In addition, including these items can assist in measuring the construct validity. As such, a number of validation items were included in the questionnaire

in an attempt to test the construct validity. However, the number of additional items that could be included was limited to prevent deterioration of the accuracy of the findings.

### ***Evaluation of the Items***

Based on the literature review, focus group discussion, and suggestions from reviewers, it was predicted that there would be at least two dimensions from the pool of items. Exploratory factor analysis (EFA) using SPSS was employed to purify the scale and identify the dimensions within the scale (DeVellis 1991; Spector 1992; Sweeney, Hausknecht, and Soutar 2000). Churchill (1979) states that the coefficient alpha is often calculated first; however, conducting exploratory factor analysis initially is sufficient during the early stages of research on a construct.

### ***Stimulus and Sample for EFA***

The survey instrument with 39 items, including demographic information, was designed and administered to a sample of 226 respondents. A 7-point Likert-style scale was produced and anchored with “strongly disagree” and “strongly agree”, respectively. The demographics and characteristics of the respondents were relatively representative of the respondents for the future studies. Students were used as the sample for scale development as past studies indicate that students are appropriate subjects for scale development as they serve as surrogate consumers and maintain a homogenous sample (Yavas 1994). In addition, student sampling is proposed to be representative of general consumers (DeLVecchio 2000). The concept of “attitudes towards generic brands” and a visual stimulus of generic medicines (e.g. paracetamol as a generic version of the Panadol brand) (refer to Figure 4-1) were presented to the respondents before they participated in the survey to ensure that the desired reaction to the visual stimulation was achieved. Incomplete data or inappropriate completed data were removed. Valid respondents totalling 202 were used for the analysis after the data manipulation check. The exercise was undertaken in a classroom setting at a large Australian

university. The students were allowed to provide feedback in an open-ended discussion with the administrator and other students at the end of the exercise about the brands.

### *Results of the EFA and optimization of the scale length*

**Table 5-2: Rotated component matrix for scale development: Study One (varimax)**

| No.                                | Items  | Factors   |             |              |
|------------------------------------|--|---|-------------|--------------|
|                                    |  | 1 (ATGB)  | 2 (Ethical) | 3 (Inferior) |
| 1                                  | I feel that generic brands have similar quality to established brands.             | .793  |             |              |
| 2                                  | I feel that generic brands as safe as established brands.                          | .789  |             |              |
| 3                                  | I feel that generic brands are as reliable as established brands.                  | .787  |             |              |
| 4                                  | I feel that generic brands are as effective as established brands.                 | .777  |             |              |
| 5                                  | Generic brands can be trusted.   | .770  |             |              |
| 6                                  | I trust generic brands.  | .763  |             |              |
| 7                                  | I feel that generic brands provide similar benefits to established brands.         | .753  |             |              |
| 8                                  | I am convinced that generic brands are just as good as established brands.         | .743  |             |              |
| 9                                  | I feel that generic brands are safe.   | .735  |             |              |
| 10                                 | I like it when generic brands are available for the product categories I purchase. | .703  |             |              |
| 11                                 | I like the quality of generic brands.  | .662  |             |              |
| 12                                 | I feel that there is nothing wrong with purchasing generic brands.                 | .621  |             |              |
| 13                                 | I feel that generic brands are good value for money.                               | .618  |             |              |
| 14                                 | I feel that it is unethical to buy generic brands.                                 |   | .862        |              |
| 15                                 | I feel that buying generic brands makes me become an unethical person.             |   | .828        |              |
| 16                                 | I feel that generic brands are unethical.  |   | .812        |              |
| 17                                 | I feel that only unethical people buy generic brands.                              |   | .811        |              |
| 18                                 | I feel that generic brands are made from cheaper ingredients.                      |   |             | .777         |
| 19                                 | I feel that generic brands have lower quality than established brands.             |   |             | .724         |
| 20                                 | I feel that generic brands are for low-income groups.                              |   |             | .702         |
| <b>Cronbach's alpha</b>            |  | .939  | .883        | .661         |
| <b>Eigenvalues (% of variance)</b> |  | 43.710  | 12.118      | 7.857        |
| <b>KMO</b>                         |  |   | .915        |              |
| <b>Bartlett</b>                    |  | Approx. chi-squared = 2478.106<br>Df = 190, Sig. = .000 |             |              |

Exploratory factor analysis (EFA) is a common method used in scale development to examine the dimensionality of the items and to allow the reduction of the items (DeVellis 1991). The principal component method is recommended to refine the new scales in this study because it can uncover the structure of an underlying set of the proposed variable

(attitudes towards generic brands) and analyse the reliable variance of the proposed variable (Hinkin 1998; Rummel 1970). The orthogonal (varimax) rotation method is recommended to develop scales that are reasonably independent of one another (Hinkin 1998). A key assumption in domain sampling theory is indispensable at the purification stage because all the items must have strong intercorrelation with each other in the same domain (Churchill 1979). The EFA revealed three factors that seem to qualify as potential items for use. These three factors are shown in Table 5-2. Items with double or triple factor loading and their factor loading scores below 0.5 were omitted. The items in the other isolated factors were examined and items that were found to have little relevance to the isolated factors or the study were removed. The EFA process included removing items indicated as unusable in the EFA in addition to using Cronbach's alpha and removing items with squared multiple correlations of less than 0.30 and corrected item-to-total correlations of less than 0.50 (DeVellis 1991). The analysis of the items' means scores was positive as they showed no extreme means either way (between 2.5 and 4.8 on a 7-point scale) (DeVellis 1991). Weaker items were also removed in favour of almost identical stronger items to optimise the scale length, as suggested by Nunnally (1978) and Peterson (1994). Of the 39 items that were factor analysed, 20 items remained and were used to measure the "attitudes towards generic brands" construct. Finally, 13 items were left relating to "attitudes towards generic brands" (alpha = .939), 4 items relating to ethical issues of generic brands (alpha = .883), and 3 items relating to the inferior complex of generic brands (alpha = .661) (KMO and Bartlett's test = .915, approx. chi-square = 2478.106, df. = 190, sig. = .000). Based on the Cronbach alpha score for each dimension, the items were deemed to be reliable for the study.

### **5.3.7. Stage One Conclusion**

Following Churchill's (1979) and DeVellis's (2003) scale development method, 90 initial items were generated. Through 4 stages of extensive review, the items were reduced to 39

and analysed by EFA using SPSS. The EFA results revealed 3 potential factors that represent the “attitudes towards generic brands” scale. From this point, Step 2 of the scale development could begin. This included the collection of new data sets for purification and validation of the unidimensionality of the item sets.

#### **5.4. Stage Two: Purifying the Measure (CFA)**

##### **5.4.1. Purpose of Stage Two**

This stage was conducted to examine the unidimensionality of the scale developed in Stage One and to purify the items further. As suggested by Churchill (1979), it is essential to purify the scale by examining the dimensionality of the items. Churchill (1979) also suggests that the content validity of the scale needs to be examined by comparing the remaining items with the working definition of the “attitudes towards generic brands” construct.

##### **5.4.2. Setting up the Measures**

A new survey was designed based on the EFA results from Stage One. The survey consists of 20 items of the “attitudes towards generic brands” scale and the demographic profile is also included for future studies. A pre-test was conducted to ensure that no errors or difficulties existed in the understanding and the application of the survey. In fact, this survey at this stage was basically smaller than the versions of the surveys used in Stage One.

##### **5.4.3. Intended Analysis**

Confirmatory factor analysis (CFA) was utilised in this stage to test for unidimensionality (Pedhazur and Schmelkin 1991), which is considered to be a superior technique to EFA for this task (O’Leary-Kelly and Vokurka 1998). In addition, CFA has been shown to be a superior means of scale reduction by identifying which items may be trimmed from the scale to finalize its form (Floyd and Widaman 1995; Netemeyer, Bearden, and Sharma 2003). The

CFA was undertaken using the AMOS 23 programme. From this point, each scale factor was analysed separately during this stage.

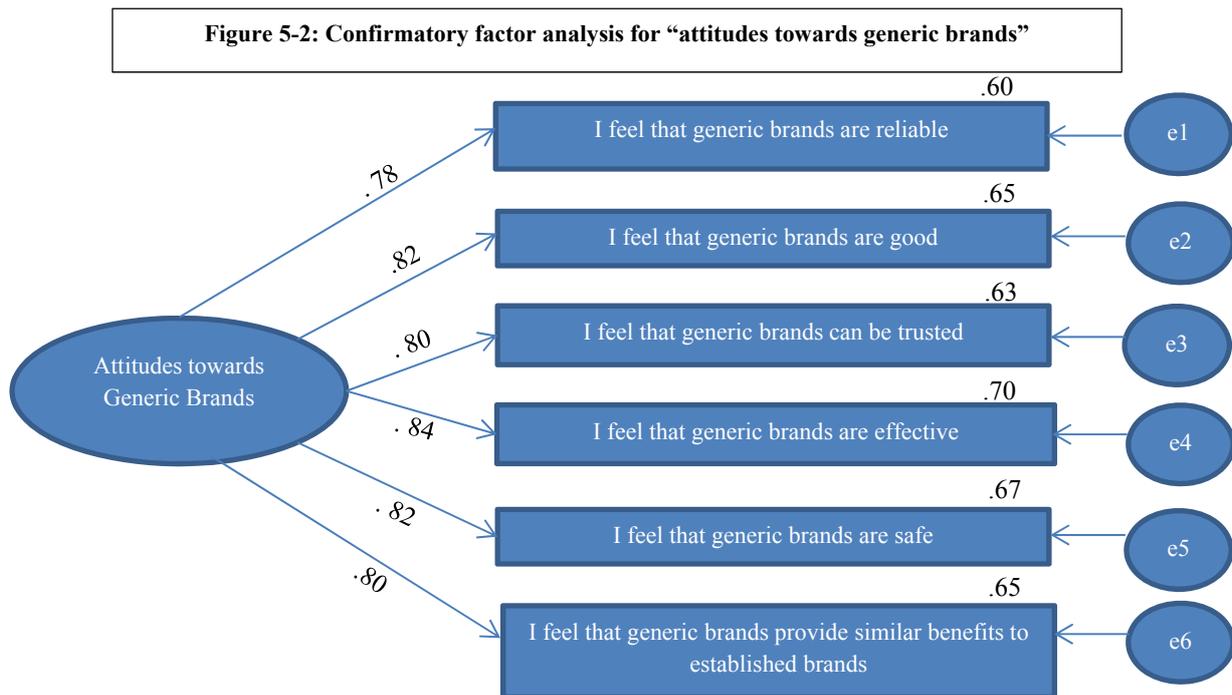
#### **5.4.4. Sample**

New data were collected for this study. A similar visual stimulation to that of Stage One (as shown in Figure 4-1) was provided to test the new survey instrument containing the 20 items for “attitudes towards generic brands” from Stage One. A brief presentation was undertaken to inform the respondents of the working definition of the construct and the purpose of the exercise before commencement. Similar to the conditions in Stage One, the respondents were students who fell between 10 and 35 years of age. Confidentiality issues were explained and the respondents had the right to withdraw from the exercise at any point in time. This was conducted in a classroom-style setting in a large Australian university with a new group of respondents. The valid respondents for this study totalled 253.

#### **5.4.5. Analysis and Results**

Confirmatory factor analysis (CFA) using AMOS is deemed to be useful to refine scales further. Prior to completing the measurement model, the congeneric model for each of the dimensions within the “attitudes towards generic brands” scale was tested to ensure the model fit before testing it as a measurement model.

CFA further refined the scale, resulting in six items for the first factor (attitudes towards generic brands) with acceptable measures (Hu and Bentler 1999) (chi-square = 10.435, degrees of freedom = 9, probability level = .316, GFI = .987, AGFI = .969, RMSEA = .025, alpha = .917). All six item statements reflected the elements of the definition of the construct that the scale is intended to measure (content validity). The CFA is presented in Figure 5-2,



which also reveals the six items that emerged through the procedure. Conversely, the CFA test for the second factor (ethical) (chi-square = 10.096, degrees of freedom = 2, probability level = .006, GFI = .980, AGFI = .898, RMSEA = .127, Cronbach’s alpha = .870) and third factor (inferior) (chi-square = N/A, degrees of freedom = 0, probability level = N/A, GFI = 0.999, AGFI = N/A, RMSEA = .495, Cronbach’s alpha = .733) did not satisfy the standard indicator fits. As suggested by Raubenheimer (2004), at least three items are presented in multi-dimensional scales to load significantly on each factor in order to be successfully identified.

Using CFA, the 20 items (as shown in Table 5-2) based on the EFA results were refined to 6 remaining items. The 7 items in the first factor were removed due to low regression weights

that were below the acceptable standards (Hu and Bentler 1999). The second and third factors needed to be removed due to their standard indicator fits not being supported.

#### **5.4.6. Concluding Comments for Stage Two**

As the conclusion of this stage of the scale development process, the initial 20 items in Stage One have been refined to 6 remaining items. These items have acceptable loadings and are reliable based on the Cronbach alpha score. Next, tests of the reliability and validity of the scales can be conducted.

### **5.5. Stage Three: Validation of the “Attitude towards Generic Brands” Scale**

#### **5.5.1. Purpose of Stage Three**

The purpose of this step is to establish the scale’s criterion validity (predictive) and construct/trait validity (nomological, discriminant, and convergent). The studies by Campbell and Fiske (1959), Churchill (1979), and Oh (2005) were followed as the guidelines for this stage. Accordingly, new survey forms and the collection of new data were necessary. These are discussed in the following section.

#### **5.5.2. Sample**

A new survey instrument was produced, comprising six items of the “attitudes towards generic brands” scale from Stage Two and the existing established scales, to confirm the predictive, nomological, discriminant, and convergent validity of the developed scale (Ang et al. 2001; Burton et al. 1998; Figueiras et al. 2009; Limayem, Khalifa, and Chin 2004). These scale items can be seen in Appendix E. In addition, the demographic profile was included for future studies and a similar visual stimulus to that in Stage One and Stage Two (as shown in Figure 4-1) was used to maintain the consistency of the scale development. The survey was pre-tested on respondents who were similar to those in Stage One and Stage Two to maintain

a homogenous sample. A small focus group session was conducted for the pre-test to collect feedback regarding the possible issues related to readability, grammar, comprehension of instructions, and so on. The results of the pre-test indicated that the new survey was appropriate for use in this stage.

The data collection was conducted using a new group of respondents who did not have prior exposure to any of the “attitudes towards generic brands” scale development procedures. Data that failed the manipulation check and incomplete data were removed. The valid respondents totalled 409.

### **5.5.3. Setting up the Measures and Intended Analysis**

#### **5.5.3.1. Criterion (Predictive) and Construct (Nomological) Validity**

As suggested by Campbell (1960), trait and nomological validity are both useful distinctions for the exploration of construct validity. As stated by Eastman, Goldsmith, and Flynn (1999), criterion validity can be defined as “the extent to which a measure is related to actual behaviours of other real life outcomes (Anastasi 1986; Nunnally 1978)”. Oh (2005) states that criterion validity relates to the ability of a scale “to predict something that should theoretically be related or ability to predict”. As suggested by Churchill (1979), it is important to indicate that the measure behaves as expected towards other constructs as a final step in scale development. As such, criterion validity attempts to predict the criterion measure correctly. The “intention to buy generic brands” scale was included in the survey instrument to test the criterion validity of the presence of “attitudes towards generic brands”. As supported by the theory of planned behaviour (Ajzen 1985, 1991), attitude is a strong predictor of intention. Previous studies have also demonstrated that attitudes towards brands are expected to have a significant effect on the intention to buy (Fishbein and Ajzen 1975; Limayem, Khalifa, and Chin 2004). Even though DeVellis (2003) states that it is not

sufficient to achieve a strong correlation between a predictor measure and a criterion to prove the criterion validity because it is not the most accurate estimate of the criterion, past studies use correlations to test the relationship between constructs in the validation of scales (Heeler and Ray 1972). Studies (Churchill 1979; Netemeyer, Durvasula, and Lichtenstein 1991; Shimp and Sharma 1987) also support the use of Pearson correlation analysis for validation testing in scale development. Accordingly, this study used Pearson correlation analysis to test the validity of the developed scales. Under the conditions outlined, the “attitudes towards generic brands” and “intention to buy generic brands” measures achieved positive Cronbach’s alpha scores (respectively  $\alpha = .95$  and  $\alpha = .96$ ). The criterion (predictive) validity of the scale was supported. Those who reported high “attitudes towards generic brands” (measured by the scale in development) had a significantly higher correlation score with “intention to buy generic brands” (ITBGB =  $.759^{**}$ ,  $p < .01$ ) than those with a lower “attitudes towards generic brands” reaction. The Pearson correlation matrix results incorporating the “attitudes towards generic brands” are shown in Table 5-3.

**Table 5-3: Pearson correlation matrix results for “attitudes towards generic brands” (validity test)**

|                    | Attitude scale | ITBGB (predictive) | ATGM (nomological) |
|--------------------|----------------|--------------------|--------------------|
| Attitude scale     | 1              |                    |                    |
| ITBGB (predictive) | $.759^{**}$    | 1                  |                    |
| ATGM (nomological) | $.598^{**}$    | $.496^*$           | 1                  |

\*\* Correlation is significant at the 0.01 level (2-tailed).

To strengthen the evidence of criterion validity, a regression analysis was conducted to analyse the direct effect of the “attitudes towards generic brands” on the “intention to buy generic brands” (Churchill 1979). The result of the regression analysis (as shown in Table 5-4) indicates that those who perceive high attitudes towards generic brands have a

| <b>Table 5-4: Predictors of the intention to buy generic brands (criterion validity)</b>  |                 |           |             |                               |                |                     |
|---|-----------------|-----------|-------------|-------------------------------|----------------|---------------------|
| <b>Independent variables</b>  | <b>B-values</b> | <b>SE</b> | <b>Beta</b> | <b>Adjusted R<sup>2</sup></b> | <b>t-value</b> | <b>Significance</b> |
| Attitudes towards generic brands  | .902            | .038      | .759        | .577                          | 23.549         | .000                |
| Dependent variable: intention to buy generic brands; adjusted R <sup>2</sup> = 0.577; F = 554.569 (significant at p < 0.01);<br>** significant at p < 0.01. |                 |           |             |                               |                |                     |

significantly high intention to buy generic brands. As such, it is proven that the “attitudes towards generic brands” scale is a strong predictor of the “intention to buy generic brands”. This finding supports the TPB (Ajzen 1985).

In conjunction with establishing criterion validity, the consumers’ evaluation scale should also be used to establish “nomological validity”. Eastman, Goldsmith, and Flynn (1999) state that nomological validity is “the degree to which the construct as measured by a set of indicators predicts other constructs that past theoretical and empirical work says it should predict”. Cronbach and Meehl (1955) also propose that nomological validity serves as a form of construct validity that is lawlike and the examination of the constructs and measures is conducted using formal hypotheses based on theory (Cadogan, Diamantopoulos, and de Mortanges 1999; Peter 1981). When an instrument is believed to have nomological validity, it will demonstrate a relationship with another construct to which it is theoretically related (Churchill 1995). As such, the “attitudes towards generic medicines” scale from Figueiras et al.’s (2009) study is used to test the nomological validity of the “attitudes towards generic brands” scale; it is anticipated that there should be a relationship between “attitudes towards generic medicines” and “attitudes towards generic brands”, as dictated in the literature

(Hagtvedt and Patrick 2008). This would provide evidence that the scale and the related constructs in the study should behave as theory dictates (Cadogan, Diamantopoulos, and de Mortanges 1999). As discussed earlier, the Pearson correlation matrix (PCM) was intended to test the nomological validity. The results of the PCM incorporating the “attitudes towards generic brands” scale are shown in Table 5-3: the evidence of nomological validity is demonstrated by significant correlations of the scale with measures of other constructs to which it is expected to be related (Churchill 1979). The results show that “attitudes towards generic brands” are positively related to “attitudes towards generic medicines” (ATGM = .598\*\*,  $p < .01$ ). This result indicates that the “attitudes towards generic brands” scale performs as expected with the related constructs. In addition, it can be postulated that the scale has the “ability to predict” what past studies on “attitudes towards generic brands or products” have postulated.

#### **5.5.3.2. Discriminant and Convergent Validity (Trait Validity)**

As stated by Churchill (1979), a particular construct or trait should be measurable by more than one method based on the fundamental principles of science. Trait validity provides essential information for accepting construct validity because it relates to the empirical relationship between measures of different constructs (Peter 1981). As suggested by Campbell and Fiske (1959), trait validity can be established using discriminant and convergent validity. The purpose of conducting discriminant and convergent validity tests is mainly to examine “the amount of systematic variance in a measure’s scores and determine whether the systematic variance results in high correlations with other measures of the construct and low correlations with constructs of other phenomena with which the construct should not be associated” (Peter 1981, 135). As such, convergent validity relates to the degree of agreement in measures of the same or a similar construct, whereas discriminant

validity relates to the degree to which measures of conceptually different constructs differ (Campbell and Fiske 1959; Churchill 1979; Oh 2005).

Past studies use correlations to test discriminant validity and demonstrate that a measure does not highly correlate with another measure from which it is different to determine discriminant validity (Campbell 1960; Ping 2004). As suggested by Ping (2004), a correlation score between two measures below 0.7 is deemed acceptable to test discriminant validity and serve as evidence of measuring distinctness. On the other hand, Peter (1981) states that convergent validity is “based on the correlation between responses obtained by maximally different methods of measuring the same construct”. By using Ang et al.’s (2001) and Ping’s (2004) studies as the guidelines for the validity tests, the “attitudes towards pirated brands” scale was used for discriminant validity. The “attitudes towards pirated brands” scale was chosen because it is expected that the “attitudes towards pirated brands” scale will, however, not measure the same traits as the “attitudes towards generic brands” scale, although they will be weakly correlated due to their theoretical and conceptual connection, suggesting discriminant validity of the developing scale. It is also believed that theoretically the “attitudes towards generic brands” scale should not be related to “attitudes towards pirated brands” (Ang et al. 2001) as the items that the scale consists of are “... help the pharmaceutical industry”, “... benefit society”, and “... many people will not be able to purchase medicines”. The three items were reliable ( $\alpha = .750$ ). The “attitudes towards pirated brands” are from Ang et al. (2001).

For convergent validity, the “attitudes towards private label brands” scale from Burton et al. (1998) was used and the scale was found to be reliable ( $\alpha = 0.798$ ). The “attitudes towards private label brands” scale was selected based on the justification that consumers will have similar attitudes towards private label brands and generic brands because the characteristics of private label brands and generic brands are similar, but they are cheaper than and have a

similar quality to established brands (Ang et al. 2001; Burton et al. 1998). Therefore, based on this premise, it was postulated that “attitudes towards private label brands” and “attitudes towards generic brands” were likely to be positively related.

A Pearson correlation test was conducted to test the discriminant validity between the “attitudes towards pirated brands” scale and the “attitudes towards generic brands” scale. As mentioned earlier, the “attitudes towards pirated brands” scale should not theoretically be related to the “attitudes towards generic brands” scale since the “attitudes towards pirated brands” scale discusses the level of benefit that a consumer obtains (Ang et al. 2001) as opposed to consumer outlooks towards generic brands based on their quality, reliability, safety, and effectiveness (“attitudes towards generic brands” scale). The results in Table 5-5

**Table 5-5: Pearson correlation matrix result for “attitudes towards generic brands” (validity test)**

|                     | Attitude scale | ATPLB (convergent) | ATPB (discriminant) |
|---------------------|----------------|--------------------|---------------------|
| Attitude scale      | 1              |                    |                     |
| ATPLB (convergent)  | .638**         | 1                  |                     |
| ATPB (discriminant) | .174**         | .121*              | 1                   |

\*\* Correlation is significant at the 0.01 level (2-tailed).

show that the “attitudes towards generic brands” scale and the “attitudes towards pirated brands” scale have a significant correlation with a low correlation score (ATPB = .174\*\*,  $p < .01$ ), indicating discriminant validity.

In order to test the convergent validity, a Pearson correlation test was conducted between the “attitudes towards private label brands” scale and the “attitudes towards generic brands” scale. Based on the results in Table 5-5, the bivariate correlation between the two scales is significant with a high correlation score (ATPLB = .638,  $p < .01$ ). This result suggests a degree of convergent validity.

#### **5.5.4. Concluding Comments for Stage Three**

From this study, we can conclude that the proposed “attitudes towards generic brands” scale performed successfully in the predictive, nomological, convergent, and discriminant validity tests. In the next stage, tests of generalizability are undertaken to confirm the appropriateness of the scale use further.

### **5.6. Stage Four: Validation and Generalizability**

#### **5.6.1. Purpose of Stage Four**

Even though the proposed factorial structure has a good fit, as shown in Figure 5-2, this result is only specific to one product category (generic over-the-counter medicine) and a student sample; hence, there is a need to test the generalizability of the “attitude towards generic brands” scale with other product categories and a wider range of respondents. To provide evidence on the generalizability of the “attitudes towards generic brands” scale, a replication study with different product categories and a wider sample range is essential. In this stage, the purpose of this study was to increase the generalizability of the scales by performing measurement invariance using AMOS on the previously validated items in each of the scales using a variation in sample respondents (general population) and stimuli (four different product categories).

#### **5.6.2. Generalizability**

It is essential for a scale to be able to function under varying conditions and scenarios; hence, it can be successfully adopted and applied both academically and managerially. In order to test the generalizability of the scale, four different pharmaceutical product categories (chronic prescription medicines, acute prescription medicines, over-the-counter medicines, and fish oil supplements) were used. In addition, a variation in the sample respondents was applied. The general population was the main respondent group as opposed to the original sample

consisting of university students. Measurement invariance was gauged using responses obtained from a sample of the general population through an online survey to test the generalizability of the scale based on four different product categories.

### **5.6.3. Sample**

Four sets of new survey instruments with 4 different visual stimuli were created to test each new survey instrument containing the 6 items of “attitudes towards generic brands” from Stage Two. Each product category consisted of a collage of 2 brands (an established brand and a generic version of the established brand). The details of the stimuli can be seen in Appendix F. Each of the stimuli was pre-tested with a focus group that consisted of respondents similar to those in the intended group for analysis. The stimuli were discussed intensively with the group to ensure that they were accurately measuring the “attitudes towards generic brands” scale for each product category. The general population was a new sample that was collected through an online survey for each product category. A total of 1486 valid respondents were collected from 4 different product categories (chronic prescription medicines = 360 data, acute prescription medicines = 414 data, over-the-counter medicines = 357 data, and fish oil supplements = 355 data) and they were used for the measurement invariance analysis.

### **5.6.4. Setting up the Measures and Intended Analysis**

Measurement invariance is a common method to test measurement models that have the same meaning and are used in the same way by different groups of respondents (Hair et al. 2006). As developed by Steenkamp and Baumgartner (1998), three measurement invariance diagnostic techniques (configural invariance, metric invariance, and scalar invariance) were adopted in this study, each requiring a different set of established invariances. Configural invariance is essentially the baseline model, which consists of the same configuration of salient and non-salient factor loadings across the samples (Vanderberg and Lance 2000).

Metric invariance is the baseline model with constrained loading estimates between observed and latent variables to specify the same pattern of fixed and free factor loadings for each group (Vanderberg and Lance 2000). Scalar invariance is essential to test the consistency between groups in latent means and observed means by constraining the latent construct with zero-intercept estimates to be equal across all the groups (Steenkamp and Baumgartner 1998).

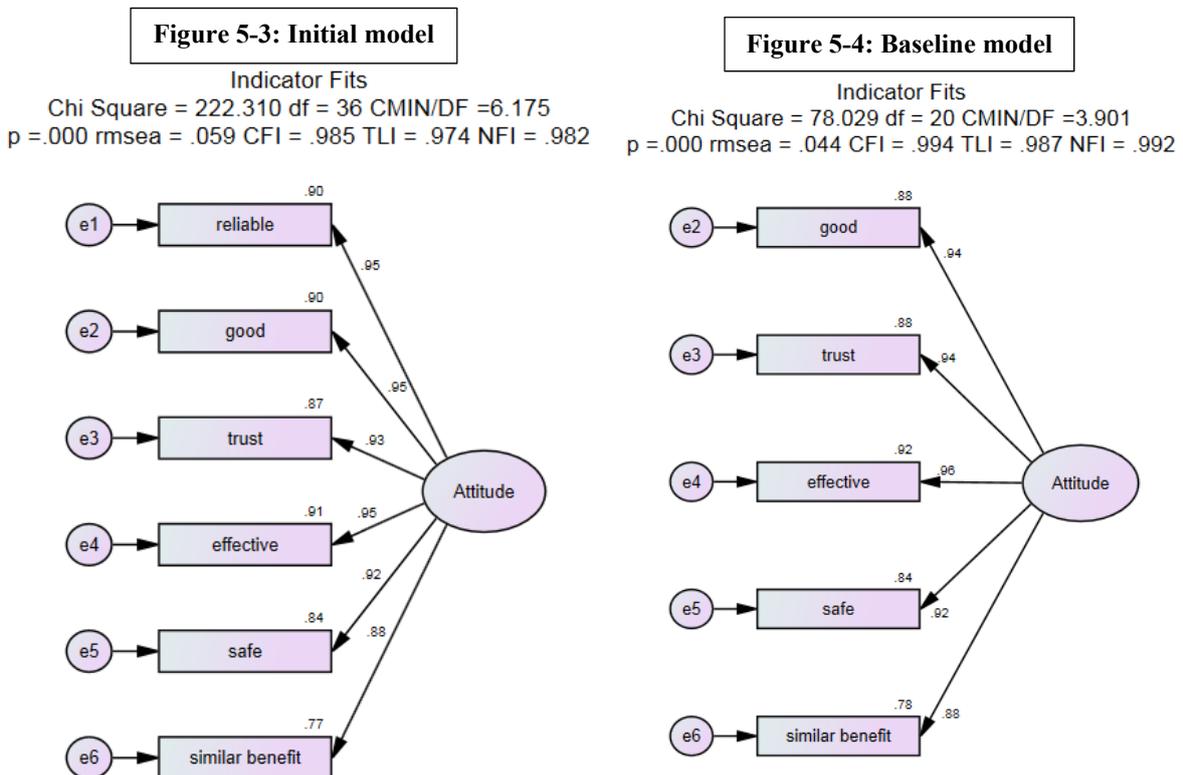
As stated by Steenkamp and Baumgartner (1998), there are three different purposes for using measurement invariance techniques, which require different sets of established invariances. Firstly, if the purpose of the study is to explore the basic meaning and structure of a measurement model (i.e. to establish that the “attitudes towards generic brands” scale can be conceptualized in the same way across different product categories), only configural invariance is needed. Secondly, if the aim of the study is to compare factor loading estimates between observed and latent variables (i.e. the relationship between the “attitudes towards generic brands” scale item and its respective underlying construct across different product categories) across groups, at least partial metric invariance is required. Thirdly, if the objective of the study is to compare construct means (i.e. “attitudes towards generic brands” scale items’ means across different product categories), partial scalar invariance is needed.

In this stage, three key aims of this study were identified. The first aim was to develop the “attitudes towards generic brands” scale from Stage Two (as shown in Figure 5-2), which is generalizable across different product categories. The second aim was to examine whether the factor loading estimate (strength of the relation) between the “attitudes towards generic brands” scale item and its respective construct are the same across different product categories. The third aim was to determine whether the “attitudes towards generic brands” scale items’ means are the same across different product categories. As such, configural

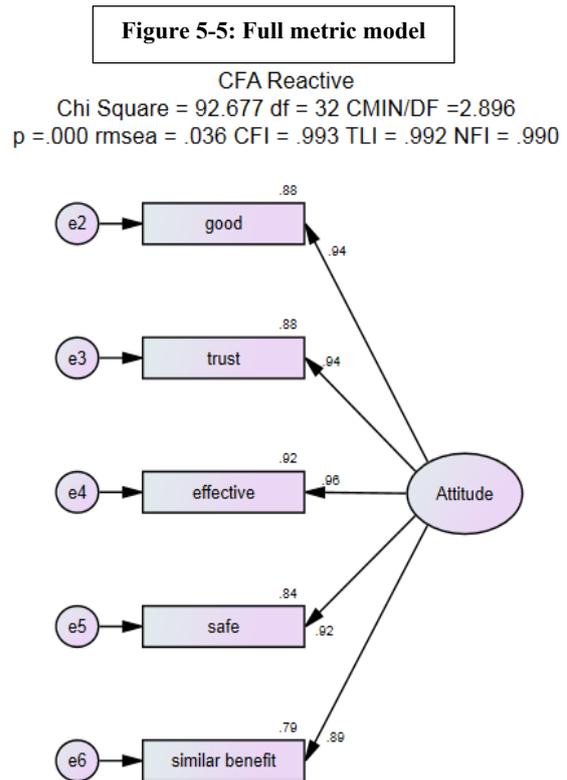
invariance was required to achieve the first aim, metric invariance was required to accomplish the second objective, and scalar invariance was required to achieve the third aim.

### 5.6.5. Testing for Measurement Invariance

To achieve the first objective of this study, the test of configural invariance was conducted. For this test, a fully unconstrained measurement model was tested to create a baseline model as a benchmark against the metric invariance model and the scalar invariance model. The initial model (as shown in Figure 5-3) did not satisfy the indicator fits ( $\chi^2 = 222.310$ ,  $df = 36$ ,  $\chi^2/df = 6.175$ , RMSEA = 0.059, CFI = 0.985, TLI = 0.974, NFI = 0.982) (Hu and Bentler 1999). Therefore, one item (“I feel that generic brands are reliable”) was omitted because this item was strongly correlated with other items based on modification indices. The amended unconstrained model had an acceptable fit ( $\chi^2 = 78.029$ ,  $df = 20$ ,  $\chi^2/df = 3.901$ , RMSEA = 0.044, CFI = 0.994, TLI = 0.987, NFI = 0.992), which suggested that the “attitudes towards generic brands” scale had configural invariance across the four different pharmaceutical product categories, as can be seen in Figure 5-4 and Table 5-6.



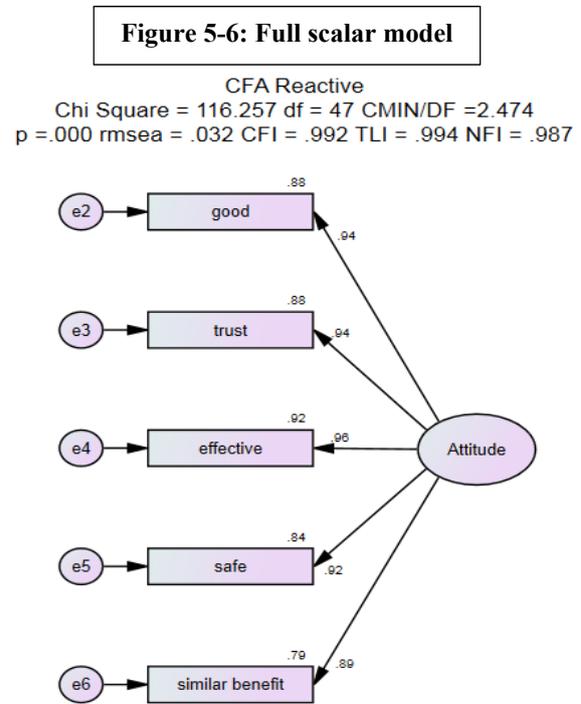
Since configural invariance was established, a test for full metric invariance was the next step. For this test, all the standardized regression weights between the “attitudes towards generic brands” items and the latent variable were constrained using IBM Statistic Amos 22. This full metric invariance model (Figure 5-5) satisfied the indicator fits ( $\chi^2 = 92.677$ ,  $df = 32$ ,  $\chi^2/df = 2.896$ , RMSEA = 0.036, CFI = 0.993, TLI = 0.992, NFI = 0.990) and was compared with the baseline model (Figure 5-4). As can be seen in Table 5-6, the



| Model comparison   | $\chi^2$ (df) | $\chi^2/df$ | RMSEA | TLI  | CFI  | NFI  | $\Delta\chi^2$ ( $\Delta df$ ) | p       | Supported |
|--|---------------|-------------|-------|------|------|------|--------------------------------|---------|-----------|
| Initial model (Figure 5-3)                                   | 222.310 (36)  | 6.175       | .059  | .974 | .985 | .982 |                                |         |           |
| Baseline/configural model (Figure 5-4)                       | 78.029 (20)   | 3.901       | .044  | .987 | .994 | .992 |                                |         |           |
| Metric model (Figure 5-5)                                    | 92.677 (32)   | 2.896       | .036  | .992 | .993 | .990 |                                |         |           |
| Testing for metric invariance (metric versus baseline model) |               |             |       |      |      |      | 14.648 (12)                    | p > .10 | Yes       |
| Scalar model (Figure 5-6)                                    | 116.257 (47)  | 2.474       | .032  | .994 | .992 | .987 |                                |         |           |
| Testing for scalar invariance (scalar versus baseline model) |               |             |       |      |      |      | 38.228 (27)                    | p > .05 | Yes       |

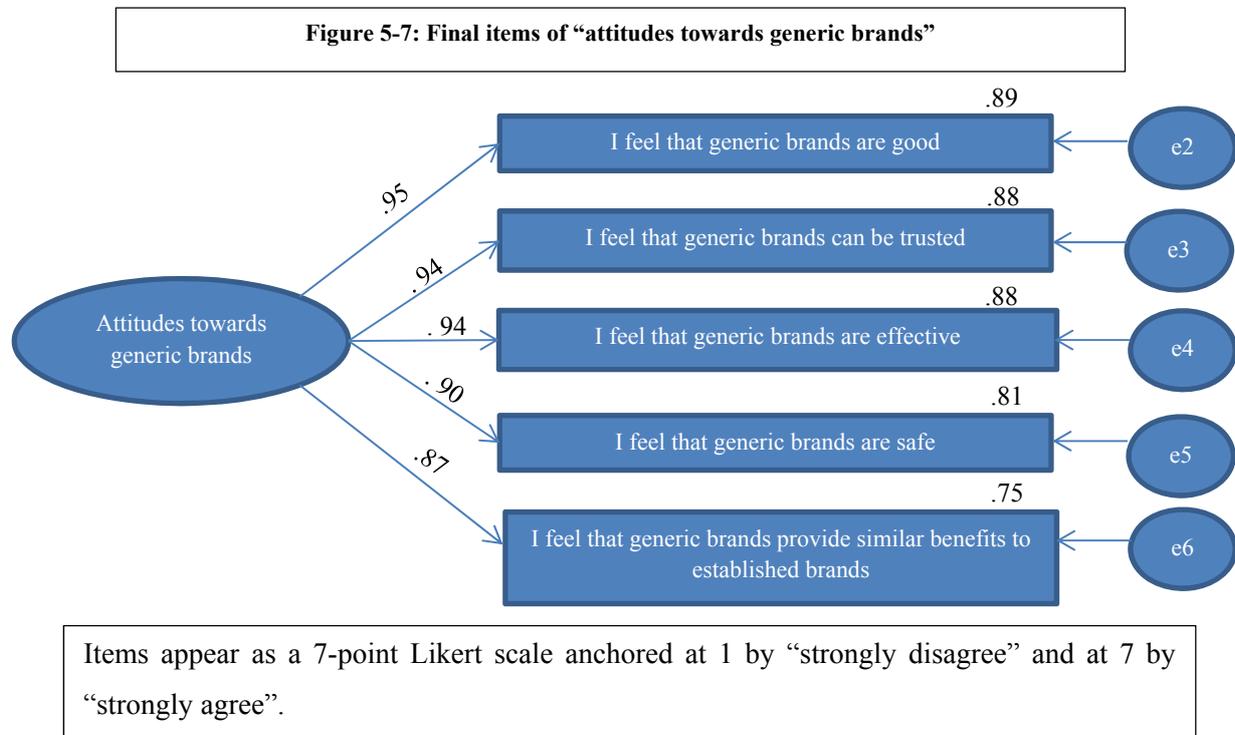
$\Delta\chi^2$  and  $\Delta df$  were 14.648 and 12, respectively, with a non-significant  $p$ -value between 0.90 and 0.10. This suggested that the “attitudes towards generic brands” scale had full metric invariance across the four different pharmaceutical product categories.

To test the full scalar invariance model (Figure 5-6), the baseline model (Figure 5-4) was revisited. Each latent variable in the baseline model was constrained with IBM SPSS AMOS 22. The full scalar invariance model showed an acceptable model fit ( $\chi^2 = 116.257$ ,  $df = 47$ ,  $\chi^2/df = 2.474$ , RMSEA = 0.032, CFI = 0.992, TLI = 0.994, NFI = 0.987) and it was compared with the baseline model. As can be seen in Table 5-6, the  $\Delta\chi^2$  and  $\Delta df$  were 38.228 and 27, respectively, with a non-significant  $p$ -value between 0.10 and 0.05. This suggested that the “attitudes towards generic brands” scale had full scalar invariance across the four different pharmaceutical product categories.



### 5.6.6. Concluding Comments for Stage Four

This stage indicated the success of the five-item “attitudes towards generic brands” scale (as shown in Figure 5-7) in terms of generalizability by utilising scales in four different



pharmaceutical product categories and with a wider range of samples. At this stage, the results showed that the “attitudes towards generic brands” scale would benefit from an additional test of generalizability, especially in terms of other alternative respondents (specific age group, culture, education, and level of income) and varying product categories (i.e. grocery product or electronic product) to ensure their appropriateness under a variety of conditions.

### 5.7. Concluding Comments for Chapter Five

This chapter has given an overview of the process undertaken in developing the “attitudes towards generic brands” scale through four independent studies. The scale items were first generated and purified through EFA and CFA (Stages 1 and 2). The scale showed content validity and unidimensionality (Stage 2). It also comprised studies to confirm the

nomological, convergent, discriminant, and predictive validity of the scale (Stage 3). In addition, the scale was tested with the measurement invariance method (configural, metric, and scalar invariance) to ensure the generalizability of the scale in various pharmaceutical product categories (Stage 4). The final items in their complete form are presented in Figure 5-7. This scale fills an important gap in the knowledge of “attitudes towards generic brands”, specifically for pharmaceutical products, as it surpasses its pre-measures by noting the important elements that affect consumer attitudes towards generic brands. The scale of “attitudes towards generic brands” is also an important contribution for practitioners as a manipulation check to ensure the continuing association with consumer attitudes and behaviour expectation towards brands and brand choice. These evaluations are made based on eliciting the correct and intended form of attitudes and thus will assist in gaining increased accuracy of the expected results regarding consumer behaviour reactions to generic brands. For instance, it can serve as a better knowledge indicator for brand judgement and intention to buy. Finally, despite the increasing research attention paid to the relative concept of generic brands, to date, there has been no valid and comprehensive operational measure of “attitudes towards generic brands”. Therefore, it is suggested that this study is amongst the pioneering studies aiming to provide a comprehensive, psychometrically sound, and operationally valid measure of an individual’s attitudes towards generic brands.

### **5.8. Future Directions for the “Attitudes towards Generic Brands” Scale**

The findings of this research are limited to the pharmaceutical products context and should be extended to other product categories, such as food or luxury brands, to validate the scale further. The student samples in the first three studies may have their merits in this context; however, larger non-convenience samples with more variation in demographic profiles should be pursued for future studies. Another limitation of this study is that the

generalizability of the proposed scale has not been tested in non-consumption product categories and this will be the next step that needs to be established for the comprehensive validation of the “attitudes towards generic brands” scale.

**Table 5-7: Summary of scale development for the “attitudes towards generic brands” scale**

|                      |             |  |
|----------------------|-------------|--|
| Stage 1<br>(Study 1) | Purpose     | Identify the working definition of the “attitudes towards generic brands” scale and generate the initial scale items.  |
|                      | Items       | 54 items from the literature review + 36 items from the thesaurus search and experience survey   |
|                      | Respondents | 6 (4 academics + 2 industry experts)   |
|                      | Stimuli     | Explained working definitions of the concepts  |
|                      | Methods     | Literature search, thesaurus search, and experience survey   |
|                      | Results     | 90 items are generated   |
| Stage 1<br>(Study 2) | Purpose     | Review the 90 initial scale items  |
|                      | Items       | 90 initial items   |
|                      | Respondents | 4 (2 academics + 2 industry experts)   |
|                      | Stimuli     | Explained working definitions of the concepts  |
|                      | Methods     | Survey form of the initial 90 scale items, reviewed individually by the reviewers  |
|                      | Results     | The number of items reduced to 83  |
| Stage 1<br>(Study 3) | Purpose     | Review the 83 items from Study 2   |
|                      | Items       | 83 items   |
|                      | Respondents | 7 (5 academics + 2 general practitioners)  |
|                      | Stimuli     | Explained working definitions of the concepts  |
|                      | Methods     | 83 items are constructed in questionnaire format with X1 = “not representative at all”, X4 = “somewhat representative”, and X7 = “clearly representative” as the scale for each item. They are reviewed individually by the reviewers. |
|                      | Results     | The number of items reduced to 63  |

|                      |             |  |
|----------------------|-------------|--|
| Stage 1<br>(Study 4) | Purpose     | Review the 63 items from Study 3   |
|                      | Items       | 63 items   |
|                      | Respondents | 11 (4 academics + 3 postgraduate students + 2 undergraduate students + 2 industry experts)   |
|                      | Stimuli     | Explained working definitions of concepts + visual stimulus of generic brands (Panadol versus paracetamol)   |
|                      | Methods     | Focus group  |
|                      | Results     | After intensive focus group discussion, the number of items reduced to 39  |
| Stage 1<br>(Study 5) | Purpose     | Review the 39 items from Study 4   |
|                      | Items       | 39 items   |
|                      | Respondents | 4 industry experts   |
|                      | Stimuli     | Explained working definitions of the concepts + visual stimulus of generic brands (Panadol versus paracetamol)   |
|                      | Methods     | 39 items are constructed in questionnaire format with X1 = “not representative at all”, X4 = “somewhat representative”, and X7 = “clearly representative” as the scale for each item. They are reviewed individually by the reviewers.   |
|                      | Results     | No items were removed and some items were modified based on reviewers’ suggestions. The number of items is 39.   |
| Stage 1<br>(Study 6) | Purpose     | Test the unidimensionality of the items developed in Stage 1 (Study 5)   |
|                      | Items       | 39 items; 20 final   |
|                      | Respondents | 202 valid data   |
|                      | Stimuli     | Explained working definitions of the concepts + visual stimulus of generic brands (Panadol versus paracetamol)   |
|                      | Methods     | Exploratory factor analysis (EFA) and reliability analysis (Cronbach alpha)  |
|                      | Results     | EFA identified 13 items left relating to “attitudes towards generic brands” ( $\alpha = .939$ ), 4 items relating to ethics of generic brands ( $\alpha = .883$ ), and 3 items relating to the inferior complex of generic brands ( $\alpha = .661$ ) (KMO and Bartlett’s test = .915, approx. chi-square = 2478.106, df. = 190, sig. = .000). |

|         |             |   |
|---------|-------------|---|
| Stage 2 | Purpose     | Test the unidimensionality of scale items developed in Stage One (Study Six) and purify it with the CFA method  |
|         | Items       | 20 initial; 6 final   |
|         | Respondents | 253 valid data  |
|         | Stimuli     | Explained working definitions of the concepts + visual stimulus of generic brands (Panadol versus paracetamol)  |
|         | Methods     | Confirmatory factor analysis (CFA) with AMOS  |
|         | Results     | Confirmatory factor analysis (CFA) refined the scales, resulting in 6 items for “attitudes towards generic brands” with acceptable measures (Hu and Bentler 1999) (chi-square = 10.435, degrees of freedom = 9, probability level = .316, GFI = .987, AGFI = .969, RMSEA = .025, $\alpha$ = .917). Conversely, the CFA test for the second factor (chi-square = 10.096, degrees of freedom = 2, probability level = .006, GFI = .980, AGFI = .898, RMSEA = .127, $\alpha$ = .870) and third factor (chi-square = N/A, degrees of freedom = 0, probability level = N/A, GFI = 0.999, AGFI = N/A, RMSEA = .495, $\alpha$ = .733) did not satisfy the standard indicator fits.               |
| Stage 3 | Purpose     | Test the “attitudes towards generic brands” scale developed in Stage 2 for nomological, convergent, discriminant, and predictive validity   |
|         | Items       | 6 items   |
|         | Respondents | 409 valid data  |
|         | Stimuli     | Explained working definitions of concepts + visual stimulus of generic brands (Panadol versus paracetamol)  |
|         | Methods     | Pearson correlation method, Cronbach alpha, and regression analysis (only for predictive validity) (Churchill 1979; Netemeyer, Durvasula, and Lichtenstein 1991; Shimp and Sharma 1987); “intention to buy generic brands (ITBGB)” scale ( $\alpha$ = .963) for predictive validity (Limayem, Khalifa, and Chin 2004), “attitudes towards generic medicine (ATGM)” scale ( $\alpha$ = .800) for nomological validity (Figueiras et al. 2009), “attitudes towards private label brands (ATPLB)” scale ( $\alpha$ = .835) for convergent validity (Burton et al. 1998), and “attitudes towards pirated brands (ATPB)” scale ( $\alpha$ = .750) for discriminant validity (Ang et al. 2001). |
|         | Results     | The proposed 6-item “attitudes towards generic brands” scale performed successfully in the predictive ( $r$ = .759), nomological ( $r$ = .598), convergent ( $r$ = .638), and discriminant ( $r$ = .174) validity tests.  |

|         |             |  |
|---------|-------------|--|
| Stage 4 | Purpose     | Test the generalizability of the “attitudes towards generic brands” scale by using 4 different pharmaceutical product categories (chronic prescription medicine, acute prescription medicines, over-the-counter medicines, and fish oil supplements) through measurement invariance analysis   |
|         | Items       | 6 initial ; 5 final  |
|         | Respondents | 1486 total valid data (chronic prescription medicines = 360, acute prescription medicines = 414, over-the-counter medicines = 357, and fish oil supplements = 355)   |
|         | Stimuli     | Explained working definitions of the concepts + visual stimulus of generic brands for each product category, as shown in Appendix F  |
|         | Methods     | Measurement invariance techniques (Steenkamp and Baumgartner 1998), specifically configural invariance, metric invariance, and scalar invariance   |
|         | Results     | The “attitudes towards generic brands” scale exhibited configural invariance ( $\chi^2 = 78.029$ , $df = 20$ , $\chi^2/df = 3.901$ , RMSEA = 0.044, CFI = 0.994, TLI = 0.987, NFI = 0.992), full metric invariance ( $\chi^2 = 92.677$ , $df = 32$ , $\chi^2/df = 2.896$ , RMSEA = 0.036, CFI = 0.993, TLI = 0.992, NFI = 0.990; $\Delta\chi^2 = 14.648$ , $\Delta df = 12$ , p-value > 0.10), and full scalar invariance ( $\chi^2 = 116.257$ , $df = 47$ , $\chi^2/df = 2.474$ , RMSEA = 0.032, CFI = 0.992, TLI = 0.994, NFI = 0.987; $\Delta\chi^2 = 38.228$ , $\Delta df = 27$ , p-value > 0.05). This indicates that all five items of “attitudes towards generic brands” are generalizable across four different pharmaceutical product categories. |

## **Chapter 6**

### **Analysis and Discussion**

#### **6.1. Introduction**

This chapter presents the analysis and discussion of the research. It begins with an overview of the chapter and the flow of the subsequent parts. Next, a summary of all the hypotheses that have been adapted in this study is presented, followed by the demographic profile of the sample. Exploratory factor analysis (EFA) and Cronbach's alpha are conducted to ensure that there are no overlapping dimensions among the scales and that each scale is reliable. To test hypotheses 1–9, structural equation modelling is conducted, following an appropriate procedure. Next, hypothesis 10 is examined with hierarchical moderating regression as the moderation test and mediating effects are examined with Baron and Kenny's four-step method accompanied by the Sobel test to test the existing mediation relationships, as shown in Figure 6-1. Finally, a summary of all the results in this chapter is presented.

#### **6.2. Overview and Structure of Chapter Six**

The following is a brief description of the structure of Chapter Six (Analysis and Discussion):

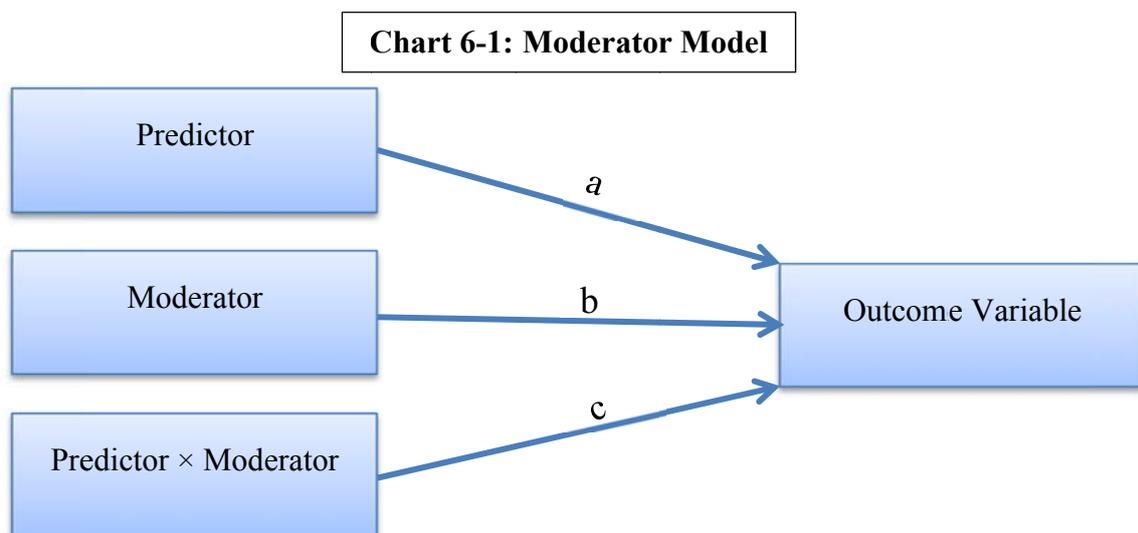
(1) A descriptive statistical analysis in SPSS was conducted to determine whether there were any outliers in the data and to profile the respondents based on age, gender, income, and occupation. The frequency table shows the percentage for each group and assisted in characterizing a typical respondent's profile. The demographic profile shows that the data have a good ratio between males and females. The range of respondents' ages also indicates that the data have ecological validity and can be used to represent the population in Australia.

(2) IBM Statistics SPSS 22 was used to conduct exploratory factor analysis (EFA) using principal component extraction and direct oblimin rotation methods to ensure that each scale was unidimensional. This method was used because most of the scales were adapted from the previous literature, except the developed scale (attitudes towards generic brands). For the developed scale, the principal component extraction and varimax rotation method were used to check its unidimensionality because it is not an established scale. Further, the factor loadings of coefficients less than 0.5 were omitted. Following this, the reliability of the scale items were tested using Cronbach's alpha. The Cronbach's alpha score for each scale is more than 0.80. It is advisable that each scale has strong reliability to determine the internal scale consistency, as suggested by Nunnally (1978).

(3) Structural equation modelling (SEM) using AMOS 22 was used to test hypotheses 1–9. The initial models showed a poor model fit. Hence, model respecification was needed. A combination of methods was used to improve the model fit. Checking the modification indices and ensuring the significance of the regression weights of each path analysis are the key tools to seek model fit. Key goodness of model fit indices, such as the chi-square/df ratio, RMSEA, AGFI, and CFI, were used to determine a good model fit. The following parameters were used to indicate a good model fit. The chi-square shows the measure of fit of the model covariance with that of the data; non-significance and low degree of freedom (DF) show a good fit. It has been suggested that a chi-square/df ratio of 1–3 is acceptable for a reasonable sample size (Carmines and McIver 1981, 80). The RMSEA or root mean square error of approximation is an estimate of how well the model with the parameter values derived from the sample could be expected to fit the population covariance matrix. It is suggested that values of less than 0.05 indicate a good fit, while values up to 0.08 indicate a reasonable fit (Hu and Bentler 1995; Schaufeli et al. 2002). Further, the AGFI or adjusted goodness of fit index takes model parsimony into consideration to measure the relative amount of variance

accounted for by the model (Schaufeli et al. 2002). It is postulated that an AGFI value of 0.90 is a good reference for acceptance; however, many published models fail to reach this indicator (Baumgartner and Homburg 1996). The CFI or comparative fit index is a population measure of model misspecification that is recommended for model comparison (Schaufeli et al. 2002). CFI values that are greater than 0.90 indicate a good fit (Hu and Bentler 1995).

(4) Hypothesis 10 was examined using hierarchical moderated regression following the steps outlined by Anderson (1986) and Caruana, Money, and Berthon (2000). The main objective of using hierarchical moderated regression is to minimize the number of independent and moderator variables and to “maximize the predictive ability of a theoretically based regression model” (Anderson 1986, 187). The moderating effects of the variables to be tested were determined through a series of model comparisons. An F test was performed to determine whether there was a significant change in the model R<sup>2</sup> once a moderator independent variable interaction term was added to the regression equation. The technique consists of fitting a regression equation like the following:

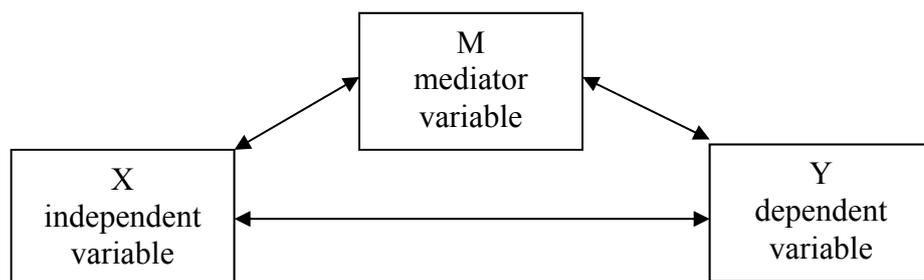


(Adapted from Baron and Kenny 1986)

The intention behind performing a hierarchical moderated regression was to minimize the number of independent and moderator variables, with the purpose of maximizing the predictive ability of a theoretically based regression model. To run a hierarchical moderated regression, an F test is performed to determine whether the addition of a moderator independent interaction term to the regression equation makes a significant change in the model's  $R^2$  (Pedhazur 1982; Roscoe 1975; Saunders 1955, 1956). Peters, O'Connor, and Wise (1984) state that hierarchical moderated regression is an adequate method to test for significant interaction effects between the predictors, the criteria, and the moderating variable.

(5) Baron and Kenny's (1986) four-step test was used to examine the mediation effects in the final tested SEM model fit as shown in Figure 6-1. Baron and Kenny (1986) explain that partial or full mediation relationships could be examined by using four series of linear regression analyses. This method identifies the best predictor of a dependent variable from a number of independent variables. The diagram below illustrates the mediation process.

**Diagram XX: Mediation model**



**(Adopted from Baron and Kenny 1986)**

Baron and Kenny's (1986) four-step regression method was conducted separately in the following order:

**Step 1:** Regression analysis 1 is conducted between (X) as the predictor and (Y) as the dependent variable.

**Step 2:** Regression analysis 2 is conducted between (X) as the predictor and (M) as the dependent variable.

**Step 3:** Regression analysis 3 is conducted between (M) as the predictor and (Y) as the dependent variable.

**Step 4:** Regression analysis 4 is conducted between (X) and (M) as predictors and (Y) as the dependent variable.

Baron and Kenny (1986) state that mediation is possible when there is a significant relationship from the regression analysis in Step 1 to Step 3. Further, some degree of mediation is likely if the effect of (M) remains significant after controlling for (X). For example, if (X) and (M) both predict (Y), then the finding supports partial mediation. However, if (X) is insignificant when (M) is controlled, then the finding supports full mediation. If a significant relationship is reported in Steps 1–3, the Sobel test is used to confirm whether the relationship is partially or fully mediated (Sobel 1982).

### 6.3. Profile of the Respondents

Table 6-1 summarizes the profiles of the respondents for each of the following characteristics – age group, gender, income group, education level, and the state of Australia in which the respondent lives.

| <b>Table 6-1: Respondents' profiles</b> |                                   |                         |                         |
|---|-----------------------------------|-------------------------|-------------------------|
| <b>Characteristics</b>                  | <b>Categories</b>                 | <b>Sample (N = 484)</b> |                         |
|   |                                   | <b>Frequency</b>        | <b>Valid percentage</b> |
| Age                                     | 18–25 years                       | 198                     | 40.9                    |
|   | 26–35 years                       | 38                      | 7.9                     |
|   | 36–45 years                       | 59                      | 12.2                    |
|   | 46–55 years                       | 66                      | 13.6                    |
|   | 56–65 years                       | 54                      | 11.2                    |
|   | 66 years and over                 | 69                      | 14.3                    |
| Gender                                  | Male                              | 253                     | 52.3                    |
|   | Female                            | 231                     | 47.7                    |
| Income                                  | \$0–\$20,000                      | 89                      | 18.4                    |
|   | \$20,001–\$40,000                 | 88                      | 18.2                    |
|   | \$40,001–\$60,000                 | 59                      | 12.2                    |
|   | \$60,001–\$80,000                 | 55                      | 11.4                    |
|   | \$80,001–\$100,000                | 42                      | 8.7                     |
|   | \$100,001–\$120,000               | 45                      | 9.3                     |
|   | \$120,001–\$140,000               | 27                      | 5.6                     |
|   | \$140,000–\$160,000               | 27                      | 5.6                     |
|   | \$160,000 or more                 | 52                      | 10.7                    |
| Education level                         | Primary school                    | 4                       | .8                      |
|   | School certificate/year 10        | 49                      | 10.1                    |
|   | Higher school certificate/year 12 | 147                     | 30.4                    |
|   | TAFE                              | 67                      | 13.8                    |
|   | Diploma/associate diploma         | 77                      | 15.9                    |
|   | Bachelor degree                   | 94                      | 19.4                    |
|   | Honours degree                    | 15                      | 3.1                     |
|   | Masters/PhD                       | 31                      | 6.4                     |
| State of Australia                      | Australian Capital Territory      | 5                       | 1.0                     |
|   | New South Wales                   | 106                     | 21.9                    |
|   | Queensland                        | 51                      | 10.5                    |
|   | South Australia                   | 22                      | 4.5                     |
|   | Tasmania                          | 4                       | .8                      |
|   | Victoria                          | 70                      | 14.5                    |
|   | Western Australia                 | 226                     | 46.7                    |

As mentioned in Chapter 4, a total of 484 valid data from Australia were usable and valid for analysis after the manipulation check and omitting the incomplete data. The profile of the respondents shows that the proportions of males (47.7%) and females (52.3%) were quite well balanced. Regarding the age range, 48.8% of the respondents were within the age range “18–35”, while 51.2% of the respondents were within the age range “36 and above”. This indicates that the proportions of young and elderly respondents were well balanced. In terms of education, the majority of the respondents had at least completed the Higher School Certificate (equivalent to year 12) (41.3%) as their highest level of education. Regarding household income, slightly more than 60% had a household income below AUD 80,000. In addition, the samples had a well-balanced proportion from each state, shown by comparing the proportion of the population in each state. As mentioned in the earlier chapter, the methodology aimed to gain a sample with a wide range of demographics to mirror a good representation of the Australian population; hence, it achieved ecological validity.

#### **6.4. Exploratory Factor Analysis and Cronbach’s Alpha**

As recommended by Holmes-Smith and Coote (2002), exploratory factor analysis (unidimensionality check) and a reliability check (Cronbach alpha) needed to be conducted first with IBM SPSS Statistics 22 before undertaking the confirmatory factor analysis (CFA) and structural equation modelling (SEM) with IBM SPSS AMOS 22. The result of the exploratory factor analysis showed that there is no overlapping among all the constructs and all the scales, except the facilitating condition. Thus, one item (there is a lack of education campaigns about generic brands of OTC medicines in Australia) from the facilitating condition construct was removed because its factor loading was less than 0.50. Exploratory factor analysis was conducted on the “attitudes towards generic brands” scale by using the principal component extraction and varimax rotation methods and the results can be seen in

Table 6-2. The Cronbach’s alpha coefficients were all above 0.80, which is deemed suitable

| <b>Table 6-2: Factor analysis of the developed scale “attitudes towards generic brands”</b>           |                        |
|---|------------------------|
| <b>Items</b>  | <b>Factor loadings</b> |
| I feel that generic brands of OTC medicines are good.   | .954                   |
| I feel that generic brands of OTC medicines can be trusted.   | .951                   |
| I feel that generic brands of OTC medicines are effective.  | .948                   |
| I feel that generic brands of OTC medicines are safe.   | .926                   |
| I feel that generic brands of OTC medicines provide similar benefits to the brand-name OTC medicines. | .898                   |
| <b>% of variance</b>  | 87.566                 |
| <b>Eigenvalue</b>   | 4.378                  |
| <b>Cronbach’s alpha</b>   | .964                   |
| <b>KMO</b>  | .909                   |
| <b>Bartlett’s test of sphericity (significance)</b>   | .000                   |

for further analysis (Nunnally 1978); however, the Cronbach’s alpha score for facilitating conditions was 0.753, which is still acceptable (more than 0.70) based on Nunnally (1978) (refer to Table 6-3).

| <b>Table 6-3: Summary of scale reliabilities and sources</b>                   |  |                     |                               |
|--|--|---------------------|-------------------------------|
| <b>Scale measure</b>   | <b>Source</b>                              | <b>No. of items</b> | <b>Cronbach's alpha</b>       |
| Consumer concern towards counterfeit medicines                                 | Marcketti and Shelley (2009)               | 6                   | 0.942                         |
| Consumer concern towards generic medicines                                     | Pereira et al. (2005)                      | 7                   | 0.912                         |
| Consumer knowledge about counterfeit medicines                                 | Marcketti and Shelley (2009)               | 3                   | 0.880                         |
| Consumer knowledge about generic medicines                                     | Marcketti and Shelley (2009)               | 4                   | 0.896                         |
| Attitudes towards generic brands of OTC medicines                              | <b>DEVELOPED</b>                           | 5                   | 0.974                         |
| Intention to buy generic brands of OTC medicines                               | Limayem, Khalifa, and Chin (2004)          | 4                   | 0.984                         |
| Consumer trust in generic brands of OTC medicines                              | Delgado-Ballester and Munuera Alema (2005) | 4                   | 0.936                         |
| Actual purchase behaviour  | Marimon et al. (2009)                      | 1                   | N/A                           |
| Price differential   | Plowman and Goode (2009)                   | 3                   | 0.941                         |
| Perceived risk (performance, financial, physical, psychological, and social)   | Stone and Gronhaug (1993)                  | 3–4                 | 0.922–0.973                   |
| Social factors   | Marcketti and Shelley (2009)               | 6                   | 0.913                         |
| Interpersonal influence (informational susceptibility and normative influence) | Bearden, Netemeyer, and Teel (1989)        | 4 and 8             | 0.909 and 0.957, respectively |
| Facilitating conditions  | Limayem, Khalifa, and Chin (2004)          | 4                   | 0.753                         |
| All scales measured using a 7-point Likert scale.                              |  |                     |                               |

## **6.5. Results and Discussion**

The following sections will discuss the results of the hypotheses and the findings. The results of the analysis are discussed in the following sections. A summary of the results is provided at the end of this section.

### **6.5.1. Structural Equation modelling (SEM) Techniques for Hypotheses H1–H9**

To ensure that the analyses of the current study were appropriately undertaken and adequately interpreted, a logical procedure using structural equation modelling (SEM) techniques was applied (Holmes-Smith, Coote, and Cunningham 2004; Schumacker and Lomax 2004). Systematically, this study carried out its analyses in the following order: model specification, model identification, model/parameter estimation, model testing, and model modification/respecification (Hair et al. 1998; Schumacker and Lomax 2004). The data were filtered as discussed in section 6.4 to ensure that there are no outliers or overlapping dimensions that will influence the results. The assumptions of normality, linearity, and homoskedasticity were assessed by examining the skewness and kurtosis values and the scatter plot diagrams (Tabachnick and Fidell 1989).

#### ***Confirmatory Factor Analysis (CFA)***

In order to evaluate simultaneously the hypothetical relationships and the measurement properties of the important factors in the model, so that the findings of the study could be more widely applied, the measurement model (confirmatory factor analysis (CFA)) must be estimated first (Arbuckle 1999). CFA also determines the validity of the EFA results for each scale.

The results of the CFA estimation must show that all the items are loaded significantly ( $p < 0.001$ ) on each factor with adequate factor loadings to prove discriminant validity. All the direct effect estimates are positive and most squared multiple correlations are at least 0.30.

The RMSEA, GFI, and AGFI will be used to indicate a good model fit for each congeneric model in CFA testing. These measurement model results also establish divergent validity of the underlying constructs and establish an essential precondition for the validity of the subsequent structural model estimation. Each congeneric model and its indicator results will be discussed.

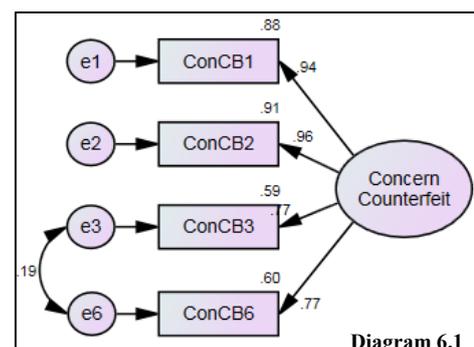
The research comprised seventeen single-construct measurement models, namely: 1) Consumer Concern About Counterfeit Medicines, 2) Consumer Concern About Generic Medicines, 3) Consumer Knowledge About Counterfeit Medicines, 4) Consumer Knowledge About Generic Medicines, 5) Perceived Risk (Performance, Financial, Physical, Psychological, and Social), 6) Consumer Trust in Generic OTC Medicines, 7) Social Factors, 8) Interpersonal Influence, 9) Facilitating Conditions, 10) Attitudes towards Generic Brands of OTC Medicines, 11) Intention to Buy Generic Brands of OTC Medicines, and 12) Price Differential. The reliability and discriminant validity of each of the constructs was established. The internal consistency of the constructs was examined based on the Cronbach's alpha score and the discriminant validity of the measurement model; furthermore, the fit of their multiple-item scales was subjected to latent variable structural equation modelling analysis (Joreskog and Sorbom 1993).

A series of confirmatory factor analyses (CFA) was conducted and respecified on each single-construct measurement model before a full measurement model was tested.

### ***1. Consumer Concern about Counterfeit OTC***

#### ***Medicines***

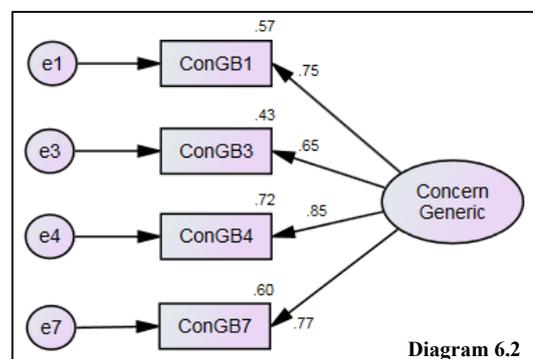
The  $\chi^2$  test of the 6-item scale indicated a poor fit to the model with  $\chi^2 (9) = 49.485$  and a significant p-value = .000. The other indicators also showed a poor fit



(SRMR = .180, GFI = .773, AGFI = .469, TLI = .750 and CFI = .850, RMSEA = .317). Further examination of the construct implied that the two items “source of OTC medicines” and “production of OTC medicines” were strongly correlated, which indicated that both items were measuring a similar context. Thus, one of the items needed to be removed to improve the model fit. The item “production of OTC medicines” was removed because it also had multiple covariances with other items; however, the model fit had not been achieved yet ( $\chi^2 (5) = 34.402$ , SRMR = .156, GFI = .872, AGFI = .615, TLI = .849 and CFI = .924, RMSEA = .263). Another examination showed that another two items (“effect of counterfeit OTC medicines” and “dangers of consuming counterfeit OTC medicines”) were also strongly correlated. The item “effect of counterfeit OTC medicines” was removed because it also had multiple covariances with other items; however, the model was not a good fit yet ( $\chi^2 (2) = 8.500$ , SRMR = .067, GFI = .983, AGFI = .914, TLI = .972 and CFI = .991, RMSEA = .125). The last examination indicated that the item “source of OTC medicines” and the item “dangers of consuming counterfeit OTC medicines” needed to be correlated to achieve the model fit ( $\chi^2 (1) = 2.063$ , SRMR = .012, GFI = .998, AGFI = .979, TLI = .996 and CFI = .999, RMSEA = .047, PCLOSE = .374). As the result, the construct was refined into a 4-item scale (refer to Diagram 6.1).

**2. Consumer Concern about Generic Brands of OTC Medicines**

The  $\chi^2$  test of the 7-item scale indicated a poor fit to the model with  $\chi^2 (14) = 9.509$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .112, GFI = .929, AGFI = .858,

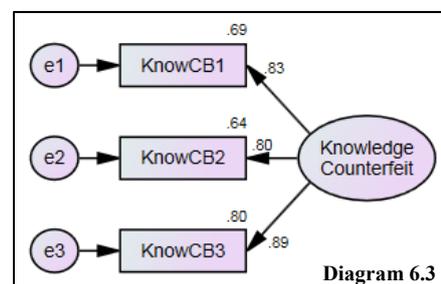


TLI = .917 and CFI = .945, RMSEA = .133). A further examination showed that two items (“my friends have warned me about it” and “look different from my brand-name OTC

medicines”) had strong covariance, as shown in the modification indices score (M.I. = 44.339). The item “look different from my brand-name OTC medicines” was removed since it had multiple covariances with other items; however, the model was not a good fit yet ( $\chi^2$  (9) = 5.085, SRMR = .087, GFI = .969, AGFI = .928, TLI = .960 and CFI = .976, RMSEA = .092). Another examination was conducted and indicated that the “side-effect of consuming generic brands of OTC medicines” item and the “similarity of generic brands of OTC medicines compared with brand-name OTC medicines” item were strongly correlated based on their covariance score (M.I. = 15.791). The item “similarity of generic brands of OTC medicines compared with brand-name OTC medicines” was omitted because it had multiple covariances with other items and the model fit was almost achievable ( $\chi^2$  (5) = 3.022, SRMR = .070, GFI = .988, AGFI = .963, TLI = .981 and CFI = .990, RMSEA = .065). The last examination still found that “prefer the doctor to decide my generic brands of OTC medicines substitution rather than myself” and “my friends have warned me about it” had a covariance effect. As such, “my friends have warned me about it” was removed and a good model fit was achievable ( $\chi^2$  (2) = 0.153, SRMR = .012, GFI = .999, AGFI = .998, TLI = .999 and CFI = .999, RMSEA = .000, PCLOSE = .954). A 4-item scale was the 1-factor solution for this construct (refer to Diagram 6.2).

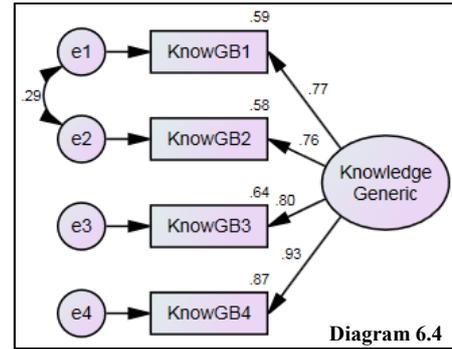
### 3. Consumer Knowledge about Counterfeit OTC Medicines

A  $\chi^2$  test of the 3-item scale was not possible because the congeneric model must have at least 4 items to undertake CFA. Therefore, the initial congeneric model of this construct will be used (refer to Diagram 6.3), although its model fit cannot be tested.



**4. Consumer Knowledge about Generic Brands of OTC Medicines**

The  $\chi^2$  test of the 4-item scale indicated a poor fit to the model with  $\chi^2 (2) = 15.662$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .079, GFI = .968, AGFI = .840, TLI = .926 and CFI =



.975, RMSEA = .174). The examination of the construct showed that there was a need to correlate “I am familiar with generic brands of OTC medicines” and “I know the differences between generic brands of OTC medicines and brand-name OTC medicines” to achieve the model fit ( $\chi^2 (1) = 4.870$ , SRMR = .028, GFI = .995, AGFI = .950, TLI = .980 and CFI = .997, RMSEA = .090, PCLOSE = .134) since the removal of an item was not possible. The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.4).

**5. Perceived Risk (Performance, Financial, Physical, Psychological, and Social)**

For physical risk (refer to Diagram 6.5a), financial risk (refer to

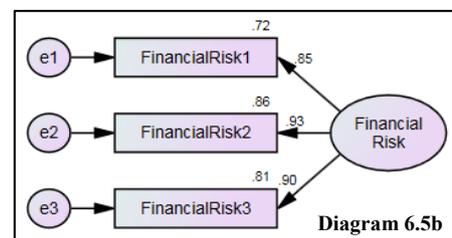
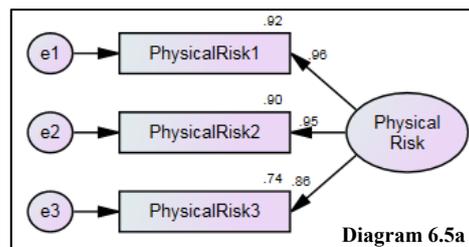
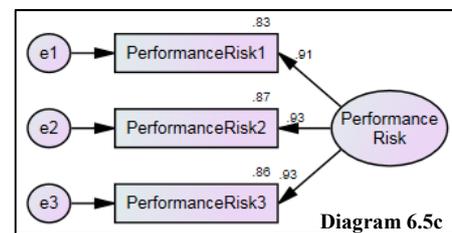
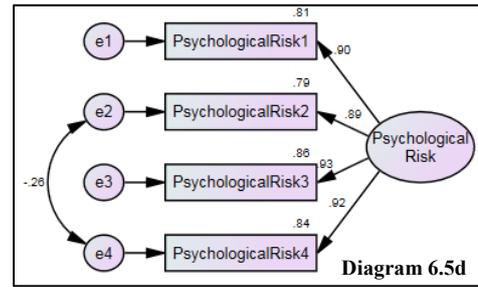


Diagram 6.5b), and performance risk (refer to Diagram 6.5c), the initial congeneric model will be used as the



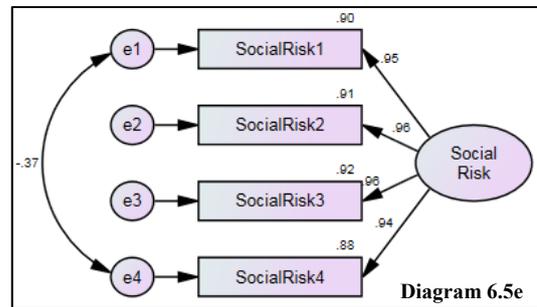
final congeneric model because the construct for these three types of perceived risk only consist of three items, while for psychological risk and social risk, both risks will be analysed to obtain the final congeneric model.

**Psychological Risk** – The  $\chi^2$  test of the 4-item scale indicated a poor fit to the model with  $\chi^2 (2) = 7.489$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .031, GFI = .985, AGFI = .925, TLI = .980 and CFI = .993, RMSEA =



.116). The examination of the construct showed that there was a need to correlate “I am concerned that I will regret my purchase of generic brands of OTC medicines” and “I experience unnecessary tension when I think about purchasing generic brands of OTC medicines” to achieve the model fit ( $\chi^2 (1) = 2.895$ , SRMR = .014, GFI = .997, AGFI = .970, TLI = .994 and CFI = .999, RMSEA = .063, PCLOSE = .276) since the removal of an item was not possible. The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.5d).

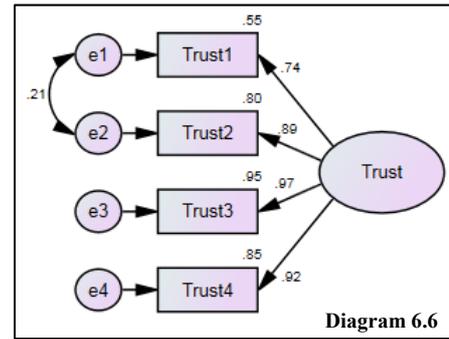
**Social Risk** – The  $\chi^2$  test of the 4-item scale indicated a poor fit to the model with  $\chi^2 (2) = 18.507$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .019, GFI = .964, AGFI = .818, TLI = .962 and CFI =



.987, RMSEA = .190). The examination of the construct showed that there was a need to correlate “I would be concerned that the esteem that my family and friends have for me would drop” and “I am worried that consuming generic brands of OTC medicines would make others look down upon me” to achieve the model fit ( $\chi^2 (1) = 8.600$ , SRMR = .010, GFI = .991, AGFI = .913, TLI = .983 and CFI = .997) since the removal of an item was not possible. The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.5e).

**6. Consumer Trust in Generic Brands of OTC Medicines**

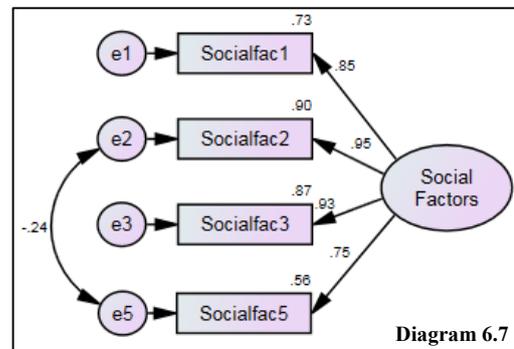
The  $\chi^2$  test of the 4-item scale indicated a poor fit to the model with  $\chi^2 (2) = 9.090$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR



= .031, GFI = .981, AGFI = .906, TLI = .974 and CFI = .991, RMSEA = .129). The examination of the construct showed that there was a need to correlate “The quality of generic brands of OTC medicines guarantees satisfaction” and “Generic brands of OTC medicines are products that meet my expectations” to achieve the model fit ( $\chi^2 (1) = 0.705$ , SRMR = .005, GFI = .999, AGFI = .993, TLI = .999 and CFI = .999, RMSEA = .000, PCLOSE = .629) since the removal of an item was not possible. The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.6).

**7. Social Factors**

The  $\chi^2$  test of the 6-item scale indicated a poor fit to the model with  $\chi^2 (9) = 36.920$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .277, GFI = .807, AGFI = .549, TLI = .771 and CFI = .863, RMSEA = .273). The

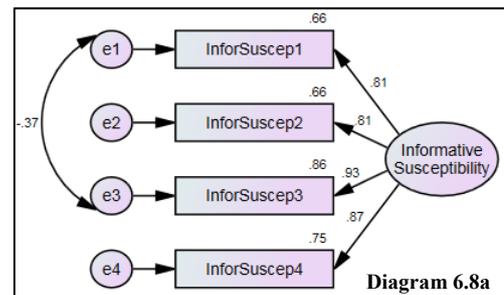


examination indicated that two items (“my doctors suggest that I buy generic brands of OTC medicines” and “my nurses suggest that I buy generic brands of medicines”) were strongly correlated (M.I = 157.873). As such, “my doctors suggest that I buy generic brands of OTC medicines” was removed because it had multiple covariances with other items; however, the model fit was not achievable yet ( $\chi^2 (5) = 10.545$ , SRMR = .130, GFI = .959, AGFI = .878, TLI = .948 and CFI = .974, RMSEA = .141). The next examination indicated that “my pharmacist suggests that I buy generic brands of medicines” needed to be removed because

its square multiple correlation score was less than 0.30, which meant that this item had a very weak relationship with the social factor construct, as suggested by Hair et al. (1998). However, the model was not a good fit yet ( $\chi^2 (2) = 5.155$ , SRMR = .033, GFI = .990, AGFI = .950, TLI = .985 and CFI = .995, RMSEA = .093, PCLOSE = .076). The last examination showed that there was a need to correlate “my friends suggest that I buy generic brands of OTC medicines” and “my nurses suggest that I buy generic brands of medicines” to achieve the model fit ( $\chi^2 (1) = 0.513$ , SRMR = .009, GFI = .999, AGFI = .995, TLI = .999 and CFI = .999, RMSEA = .000, PCLOSE = .684). The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.7).

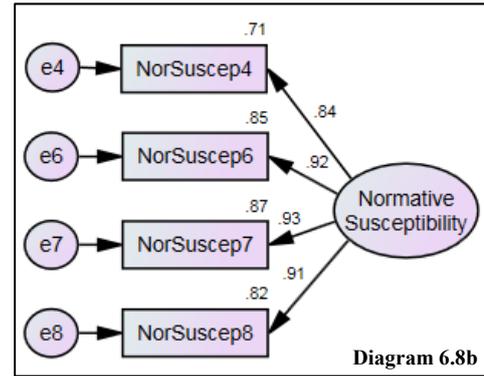
### 8. Interpersonal Influence

**Informational Susceptibility** – The  $\chi^2$  test of the 4-item scale indicated a poor fit to the model with  $\chi^2 (2) = 8.252$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .060, GFI = .984, AGFI = .921, TLI = .967 and CFI = .989, RMSEA = .123).



The examination of the construct showed that there was a need to correlate “I often observe what others are buying and using” and “I often consult other people to help choose the best alternative available from a product class of generic brands of OTC medicines” to achieve the model fit ( $\chi^2 (1) = 1.851$ , SRMR = .023, GFI = .998, AGFI = .981, TLI = .996 and CFI = .999, RMSEA = .042, PCLOSE = .404) since the removal of an item was not possible. The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.8a).

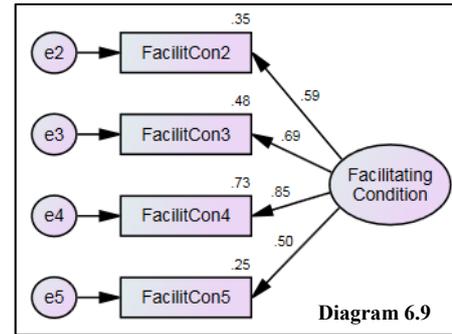
**Normative Susceptibility** – The  $\chi^2$  test of the 8-item scale indicated a poor fit to the model with  $\chi^2 (20) = 18.266$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .116, GFI = .917, AGFI = .640, TLI = .883 and CFI = .917, RMSEA = .189). The first examination indicated that



“When buying generic brands of OTC medicines, I generally purchase those brands that I think others will approve of” had a multiple covariance relationship with other items and it needed to be removed to improve the model fit ( $\chi^2 (14) = 13.248$ , SRMR = .105, GFI = .882, AGFI = .765, TLI = .923, CFI = .949, RMSEA = .159). The second examination suggested that “it is important that others like the generic brands of OTC medicines that I buy” also had a multiple covariance relationship with other items and it was essential to remove this item to improve the model fit ( $\chi^2 (9) = 10.526$ , SRMR = .081, GFI = .932, AGFI = .842, TLI = .949 and CFI = .969, RMSEA = .140). The third examination showed that “I rarely purchase the newest generic brands of OTC medicines until I am sure my friends approve of them” also had a multiple covariance relationship with other items. As such, this item needed to be omitted to improve the model fit ( $\chi^2 (5) = 8.797$ , SRMR = .044, GFI = .964, AGFI = .892, TLI = .969 and CFI = .984, RMSEA = .127). The last examination also indicated that “I like to know which generic brands of OTC medicines make a good impression on others” had a multiple covariance relationship with other items. Thus, it was removed from the construct and the model fit was achieved ( $\chi^2 (2) = 0.696$ , SRMR = .008, GFI = .999, AGFI = .993, TLI = .999 and CFI = .999, RMSEA = .000, PCLOSE = .787). The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.8b).

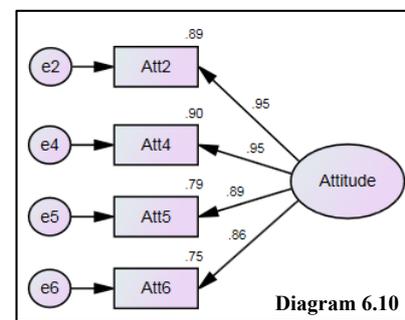
### 9. Facilitating Conditions

The  $\chi^2$  test of the initial 4-item scale indicated a good fit to the model with  $\chi^2 (2) = 2.358$  and a significant p-value = .000. The other indicators showed a poor fit (SRMR = .042, GFI = .995, AGFI = .975, TLI = .982, CFI = .994, RMSEA = .053). As such, the initial 4-item scale was the 1-factor solution (refer to Diagram 6.9).



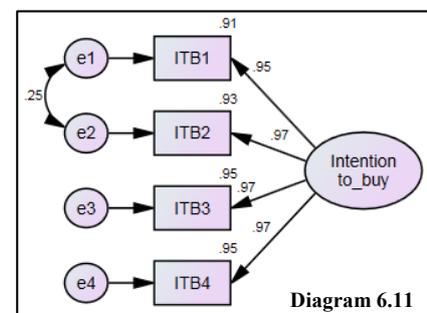
### 10. Attitudes towards Generic Brands of OTC Medicines

The  $\chi^2$  test of the 5-item scale indicated a poor fit to the model with  $\chi^2 (5) = 6.811$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .021, GFI = .973, AGFI = .919, TLI = .981 and CFI = .990, RMSEA = .110). The examination indicated that “I feel that generic brands of OTC medicine can be trusted” had a multiple covariance relationship with other items. As such, this item needed to be removed for the model fit to be achieved ( $\chi^2 (2) = 3.833$ , SRMR = .015, GFI = .992, AGFI = .962, TLI = .992 and CFI = .997, RMSEA = .077, PCLOSE = .167). The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.10).



### 11. Intention to Buy Generic Brands of OTC Medicines

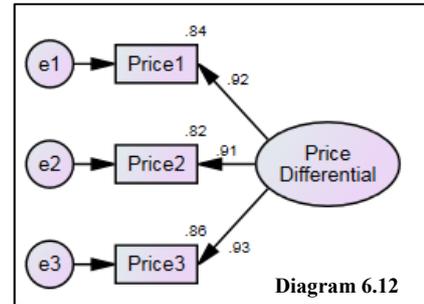
The  $\chi^2$  test of the 4-item scale indicated a poor fit to the model with  $\chi^2 (2) = 9.841$  and a significant p-value = .000. The other indicators also showed a poor fit (SRMR = .011, GFI = .980, AGFI = .900, TLI = .985 and CFI = .995, RMSEA = .135). The examination of the construct showed that there was a need to correlate “I intend to buy generic brands of OTC medicines in the future” and “all things considered, it



is likely that I will buy generic brands of OTC medicines in the future” to achieve the model fit ( $\chi^2 (1) = 4.643$ , SRMR = .005, GFI = .995, AGFI = .952, TLI = .994 and CFI = .999, RMSEA = .087, PCLOSE = .146) since the removal of an item was not possible. The examination confirmed the refined 4-item construct to be a 1-factor solution (refer to Diagram 6.11).

### ***12. Price Differential***

The initial congeneric model will be used because CFA could not be conducted as the construct only consists of three items (refer to Diagram 6.12).



### ***Full Measurement Model***

After the goodness-of-fit and unidimensionality of each construct were determined through the series of CFAs, the full measurement model was tested to ensure discriminant validity among them. While discriminant validity is the main objective of testing the full measurement model, a statistical and practical test of the model was conducted to ensure that there was no significant misfit and that no further improvement to the model was required.

The initial test of the full measurement model produced  $\chi^2 (1746) = 2.142$  and a significant p-value = .000. The other indicators also showed a good fit (GFI = .802, TLI = .934 and CFI = .941, RMSEA = .043, PCLOSE = .854). As such, there was no need to amend the model because the initial full measurement model had shown a good fit.

### ***Full Structural Model***

Following the establishment of the measurement models, the hypothesized pathways between the constructs in the study were specified in the full structural model and evaluated through SEM analysis. In order to provide support for the study's theoretical model, path analysis was conducted to examine the relations between the observed variables, while SEM techniques were engaged to investigate the relations between the latent variables (Joreskog 1973; Kline 2005). The conceptual framework comprising of the hypothesized causal relations among the latent variables was specified and the goodness-of-fit of the hypothesized model to the sample variance–covariance data was evaluated.

As suggested by Kline (2005), structural equation modelling (SEM) was conducted to test the conceptual model fit. Following its conceptual model, the initial structural model was considered not to be a good model fit based on its fit indicators ( $\chi^2 (1732) = 7324.923$ ,  $\chi^2/df = 4.229$ ,  $p = .000$ , RMSEA = .082, GFI = .600, AGFI = .563, and CFI = .828).

There was a need to amend the model to achieve a model fit. The first step was to check the significance of the regression weight for each path analysis in the model. As shown in Table 6-4, the path analysis between two latent variables was removed if the p-value was more than 0.050 because it indicates that the relationship between two latent variables is not significant.

| <b>Table 6-4: Model modification by elimination of insignificant path analysis</b> |                 |             |             |          |
|--|-----------------|-------------|-------------|----------|
| <b>Path analysis</b>   | <b>Estimate</b> | <b>S.E.</b> | <b>C.R.</b> | <b>P</b> |
| 1. Attitude ← Physical Risk  | -.003           | .046        | -.067       | .946     |
| 2. Intention ← Performance Risk  | -.007           | .052        | -.126       | .900     |
| 3. Intention ← Normative Influence   | -.014           | .049        | -.293       | .770     |
| 4. Intention ← Concern Counterfeit   | -.013           | .042        | -.300       | .764     |
| 5. Attitude ← Social Risk  | .016            | .048        | .345        | .730     |
| 6. Attitude ← Informational Susceptibility   | .005            | .030        | .170        | .865     |
| 7. Attitude ← Knowledge Counterfeit  | .020            | .034        | .596        | .551     |
| 8. Attitude ← Performance Risk   | -.025           | .037        | -.673       | .501     |
| 9. Intention ← Concern Generic   | .057            | .051        | 1.115       | .265     |
| 10. Intention ← Informational Susceptibility                                       | .041            | .032        | 1.267       | .205     |
| 11. Attitude ← Financial Risk  | -.060           | .039        | -1.557      | .120     |
| 12. Actual Purchase ← Facilitating Condition                                       | .241            | .134        | 1.794       | .073     |
| 13. Intention ← Physical Risk  | .035            | .042        | .823        | .410     |
| 14. Intention ← Social Risk  | .082            | .046        | 1.779       | .075     |
| 15. Intention ← Knowledge Counterfeit  | -.068           | .039        | -1.741      | .082     |
| After the fourth item of normative influence is removed                            |                 |             |             |          |
| 16. Attitude ← Normative Influence   | -.060           | .032        | -1.856      | .063     |
| * Elimination of each path analysis is conducted in the order from 1 to 16.        |                 |             |             |          |

The next step was to determine that there was no strong correlation between two variables (dependent and independent variables) based on modification indices. A strong correlation between two variables can be interpreted as both variables having similar measurements; hence, one of the variables needs to be omitted from the model to improve the model fit. According to Cunningham (2007), unless the study is of a longitudinal nature, the literature argues against the covariation of error terms based on the modification indices as the generated indices are statistically driven and should not be covaried for the purpose of achieving a better model fit. In fact, many researchers consider such covariations to be a serious theoretical violation if there is no substantive reason to warrant them (Maruyama

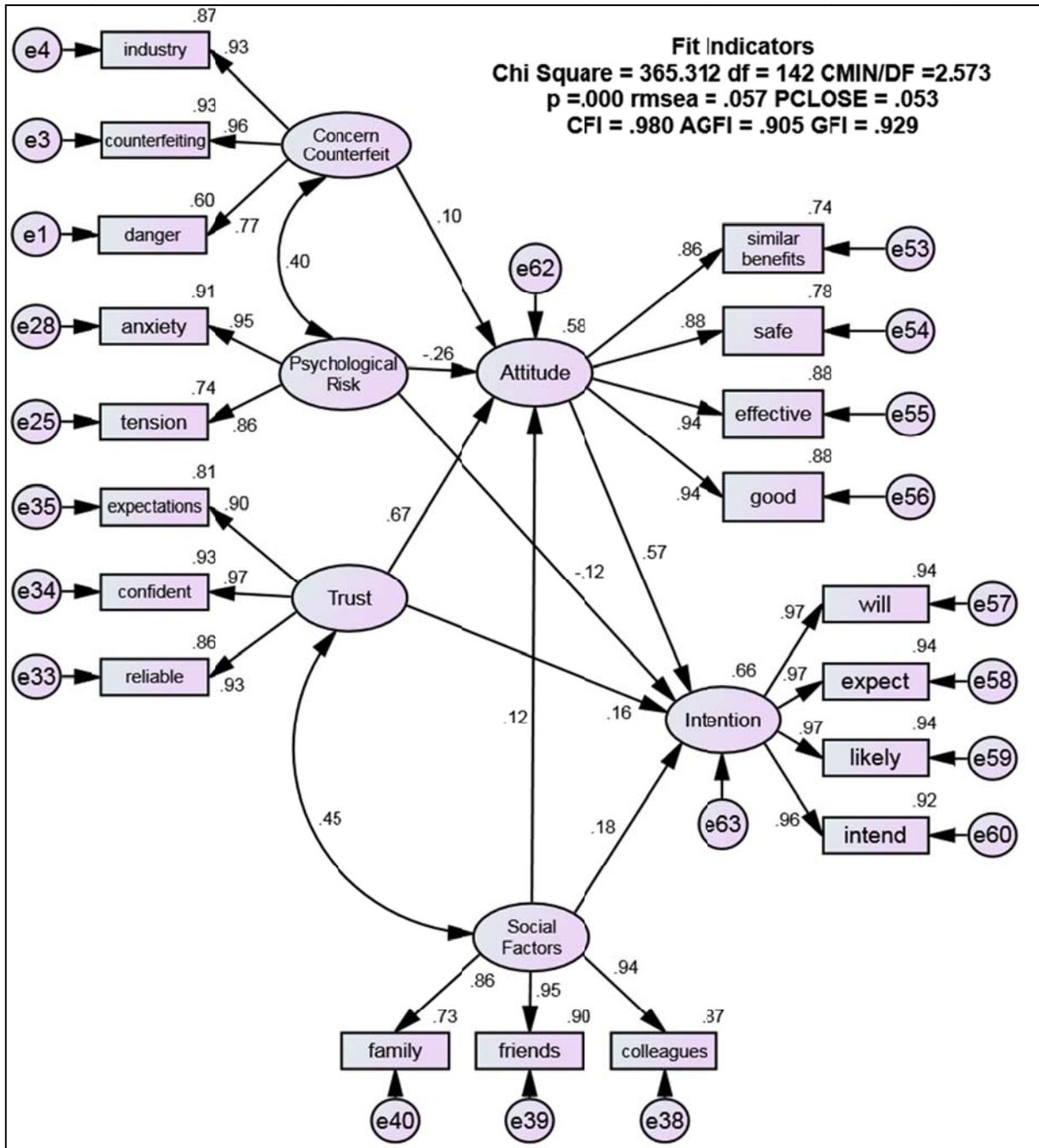
1998). In view of these implications, substantial consideration was given to the scales' similarities as well as to the specified context under which the covaried items were operating. Based on the modification indices, a number of variables were removed from the model, as shown in Table 6-5, because these variables had a strong correlation with more than one variable.

| <b>Eliminated variables</b>   | <b>Reason for elimination</b>   |
|---|---|
| 1. Concern Generic  | Has 7 covariance relations with other latent variables                                      |
| 2. Actual Purchase Behaviour  | Its independent variable has 23 correlations with other dependent and independent variables |
| 3. Knowledge Generic  | Has 4 strong covariance relations with other latent variables                               |
| 4. First item of Trust  | Has 9 correlations with other dependent and independent variables                           |
| 5. Fifth item of Facilitating Condition                                 | Has 29 strong correlations with other dependent and independent variables                   |
| 6. Fourth item of Facilitating Condition                                | Has 25 strong correlations with other dependent and independent variables                   |
| 7. Third item of Facilitating Condition                                 | Has 24 strong correlations with other dependent and independent variables                   |
| 8. Facilitating Condition   | Only consists of 1 independent variable   |
| 9. Fifth item of Social Factors   | Has 12 strong correlations with other dependent and independent variables                   |
| 10. Second item of Psychological Risk                                   | Has 22 strong correlations with other dependent and independent variables                   |
| 11. Fourth item of Normative Influence                                  | Has 19 strong correlations with other dependent and independent variables                   |
| 12. Third item of Concern about Counterfeit Medicines                   | Has 10 strong correlations with other dependent and independent variables                   |
| 13. Third item of Psychological Risk                                    | Has 16 strong correlations with other dependent and independent variables                   |
| * Elimination of each variable was conducted in the order from 1 to 13. |   |

Lastly, two sets of latent variables needed to be correlated. The “Consumer Concern about Counterfeit Medicine” constructs needed to be correlated with the “Psychological Risk” construct and the “Social Factors” construct needed to be correlated with the “Consumer Trust in Generic Brands of OTC Medicines” construct since both correlations were supported by the theoretical foundation.

After a number of iterations of the structural model had been carried out, the conceptual model (refer to Figure 6-1) could be considered a good model fit ( $\chi^2 (142) = 365.312, p = .000, \text{CMIN/df} = 2.573$ ), and the other indicators, such as  $\text{RMSEA} = .057, \text{PCLOSE} = .053, \text{GFI} = .929, \text{AGFI} = 0.905$  and  $\text{CFI} = .980$ , were within the recommended fit level (Hu and Bentler 1999).

Figure 6-1: Final SEM model



### **6.5.2. Results and Discussion for H1–H9**

Table 6-6 shows the summary of the findings based on the results of the SEM model shown in Figure 6-1. Based on these results, only Hypotheses 3a, 3b, 4a, 4b, 5a, 5b, and 8 are accepted, while the rest of the hypotheses (H1a–d, H2a–d, H6a, H6b, H7a, H7b, and H9) are rejected. These findings will be compared with previous studies. The following provides a discussion of the findings for each hypothesis.

#### **Hypothesis H1a: Consumers’ concern about counterfeit OTC medicines has a negative influence on their attitudes towards generic brands of over-the-counter (OTC) medicines (rejected)**

As shown in Figure 6-1, the finding shows that consumer concern about counterfeit OTC medicines has a positive and significant relationship with the attitude towards generic brands of over-the-counter (OTC) medicines. Surprisingly, this finding opposes the predicted hypothesis. As such, Hypothesis 1a is rejected. This finding can be justified with confirmation bias theory, according to which consumers believe in their own opinions and make their own judgement based on their beliefs and their knowledge. In this case, consumers believe that generic brands of OTC medicines in Australia are genuine because consumers in Australia know that the Australian Government cautiously monitors the logistics of medicines and strictly checks the medicines before the products enter the market. In addition, there is no brand confusion between counterfeit OTC medicines and generic brands of OTC medicines in consumers’ mind. As such, consumers develop positive attitudes towards generic brands of OTC medicines when they have concerns about counterfeit OTC medicines. This result provides a new fundamental finding and it can be used as a solid reference for future studies.

**Hypothesis H1b: Consumers' concern about generic brands of OTC medicines has a negative influence on their attitudes towards generic brands of OTC medicines.**

An insignificant relationship was found between consumers' concern about generic brands of OTC medicines and their attitudes towards generic brands of OTC medicines. Thus, H1b is rejected. This finding is reasonable because the visual stimulus that is used in this study is for less serious conditions and consumers do not mind trying generic brands of OTC medicines to treat less serious illnesses. Even though consumers have concerns about generic brands of OTC medicines, they do not affect their attitudes towards generic brands of OTC medicines. This result contradicts the findings from past studies (Alrasheedy et al. 2014; Bulsara et al. 2010; Hassali, Kong, and Stewart 2005; Ngo, Stupans, and McKinnon 2013; Shrank et al. 2009). However, it may have different impacts if the generic brands of OTC medicines for serious conditions (e.g. cancer) are used as the visual stimulus (Alrasheedy et al. 2014; Hassali, Kong, and Stewart 2005; Ngo, Stupans, and McKinnon 2013). Using different visual stimuli to gain new insight of this hypothesis is recommended for future research.

**Hypothesis H1c: Consumers' concern about counterfeit OTC medicines has a negative influence on their intention to buy generic brands of OTC medicines.**

An insignificant relationship was recorded between consumers' concern about counterfeit OTC medicines and their intention to buy generic brands of OTC medicines. It is clear that consumers' concerns about counterfeit OTC medicines will not have any effect on their intention to buy generic brands of OTC medicines. This finding justifies that counterfeit medicines are not the essential factor that affects consumers to buy generic brands of OTC medicines. The lack of visual stimulus of counterfeit medicines is also another factor that enhances this insignificant finding because the packaging or labelling of counterfeit

medicines can deceive consumers' eyes. However, this finding still provides a new contribution to the understanding of the relationship between these two constructs.

**Hypothesis H1d: Consumers' concern about generic brands of OTC medicines has a negative influence on their intention to buy generic brands of OTC medicines.**

An insignificant relationship was reported between consumers' concern about generic brands of OTC medicines and their intention to buy generic brands of OTC medicines. Hence, H1d is rejected. The result confirms that when consumers have concerns about generic brands of OTC medicines, they will not affect their intention to buy generic brands of OTC medicines. This result opposes the findings from past studies (Bulsara et al. 2010; Hassali, Kong, and Stewart 2005; Ngo, Stupans, and McKinnon 2013). There is a possibility that consumers will engage in another way when they have concerns about generic brands of OTC medicines, such as higher intention to buy branded medicines (Hassali et al. 2009) or seek consultations from the medical experts (e.g. doctor or pharmacists) (Alrasheedy et al. 2014). As such, there is a need to engage in a new approach of this rejected hypothesis for future research.

**Hypothesis 2a: Consumers' knowledge about counterfeit OTC medicines has a positive influence on their attitudes towards generic brands of OTC medicines.**

An insignificant relationship was found between consumers' knowledge about counterfeit OTC medicines and their attitudes towards generic brands of OTC medicines. Thus, H2a is rejected. The result shows that consumers' knowledge about counterfeit OTC medicines does not affect their attitudes towards generic brands of OTC medicines because consumers treat it as knowledge only. The flawed measurements of consumer knowledge about counterfeit medicines also can be another factor that enhances this insignificant finding because it does not capture consumers' knowledge about counterfeit medicines thoroughly. However, this finding still can be treated as a new contribution for future research.

**Hypothesis 2b: Consumers' knowledge about generic brands of OTC medicines has a positive influence on their attitudes towards generic brands of OTC medicines.**

An insignificant relationship was recorded between consumers' knowledge about generic brands of OTC medicines and their attitudes towards generic brands of OTC medicines. Hence, H2b is rejected. The finding indicates that when consumers have knowledge about generic brands of OTC medicines, it will not affect their attitudes towards generic brands of OTC medicines because it is treated as knowledge only. Even though consumers know that generic brands of OTC medicines in Australia are safe to consume and they can rely on them, it does not enhance their attitudes towards generic brands of OTC medicines. This finding contradicts the findings from past studies (Al-Gedadi, Hassali, and Shafie 2008; Babar et al. 2010; Ibrahim, McKinnon, and Ngo 2012; Lebanova, Manolov, and Getov 2012).

**Hypothesis 2c: Consumers' knowledge about counterfeit OTC medicines has a positive influence on their intention to buy generic brands of OTC medicines.**

An insignificant relationship was reported between consumers' knowledge about counterfeit OTC medicines and their intention to buy generic brands of OTC medicines. Thus, H2c is rejected. It is reasonable that consumers' knowledge about counterfeit OTC medicine does not affect their intention to buy generic brands of OTC medicines because it is treated as knowledge only. Even though they are aware that there are no counterfeit versions or imitations of generic brands of OTC medicines in Australia, it does not influence them to buy generic brands of OTC medicines. However, this result still provides a new contribution to the literature.

**Hypothesis 2d: Consumers' knowledge about generic brands of OTC medicines has a positive influence on their intention to buy generic brands of OTC medicines.**

An insignificant relationship was found between consumers' knowledge about generic brands

of OTC medicines and their intention to buy generic brands of OTC medicines. Hence, H2d is rejected. It is logical that consumers will have the intention to buy generic brands of OTC medicines based on their needs, not their knowledge about generic medicines. In addition, consumers treat their knowledge about generic brands of OTC medicines as an education or additional information about generic brands of OTC medicines without changing their intention to buy generic brands of OTC medicines. This result opposes the findings from past studies (Al-Gedadi, Hassali, and Shafie 2008; Babar et al. 2010; Ibrahim, McKinnon, and Ngo 2012; Lebanova, Manolov, and Getov 2012).

**Hypothesis 3a: Performance risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the attitudes towards generic brands of OTC medicines.**

Insignificant relationships were recorded between four types of perceived risk (performance, financial, physical, and social) and attitudes towards generic brands of OTC medicines. However, psychological risk has a significant influence on attitudes towards generic brands of OTC medicines. Thus, H3a is accepted (psychological risk only).

Based on the result for performance risk, it is clear that consumers do not pay much attention to the performance of generic brands of OTC medicine in curing their diseases or not because it does not affect their attitudes towards generic brands of OTC medicines post-consumption or pre-consumption. The performance risk from generic brands of OTC medicine is quite low so the justification for this finding is that it does not affect consumers' attitudes since most generic brands of OTC medicines are for less serious medical conditions. According to the result for financial risk, it does not affect consumers' attitudes towards generic brands of OTC medicines because the financial loss from using generic brands of OTC medicines is quite low and does not have a big impact on consumers' attitudes towards generic brands of OTC medicines. Regarding the physical risk outcome, physical risk does not play an important role

in affecting consumers' attitudes towards generic brands of OTC medicines because consumers believe that the physical risk from consuming generic brands of OTC medicines will not lead to a fatal condition. According to the result for social risk, it does not influence consumers' attitudes towards generic brands of OTC medicines because the social risk of using generic brands of OTC medicines is relatively very low as Australian consumers are individualists. These results contradict the findings from past studies (Abzakh, Ling, and Alkilani 2013; Mason and Bearden 1980; Stone and Mason 1995).

The finding for psychological risk confirms that the psychological risk of using generic brands of OTC medicines will negatively affect consumers' attitudes towards generic brands of OTC medicines. This result supports the findings from past studies (Abzakh, Ling, and Alkilani 2013; Mason and Bearden 1980; Stone and Mason 1995).

**Hypothesis 3b: Performance risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the intention to buy generic brands of OTC medicines.**

Insignificant relationships were found between four types of perceived risk (performance, financial, physical, and social) and the intention to buy generic brands of OTC medicines. However, psychological risk has a significant influence on the intention to buy generic brands of OTC medicines. Hence, H3b is accepted.

The result for performance risk shows that it does not play an important role in affecting the intention to buy generic brands of OTC medicines; the justification for this finding is similar to that for Hypothesis 3a. According to the result for financial risk, it is clear that it is too low to affect consumers' intention to buy generic brands of OTC medicines. Consumers do not mind the financial loss from using generic brands of OTC medicines since their cost is not a substantial amount from the consumers' perspectives. Regarding the physical risk outcome,

consumers are not afraid of the physical risk involved in consuming generic brands of OTC medicines because they believe that an issue with the generic brands of OTC medicines will not lead to a fatal medical condition. The result for social risk shows that it does not affect consumers' intention to buy generic brands of OTC medicines because buying generic brands of OTC medicines will not damage consumers' self-esteem since Australian consumers are individualists and they do not pay much attention to what others are buying. These results contradict the findings from past studies (Abzakh, Ling, and Alkilani 2013; Mason and Bearden 1980; Stone and Mason 1995).

From the finding for psychological risk, it is clear that it plays an important role in negatively influencing consumers' intention to buy generic brands of OTC medicines. This result supports the findings from past studies (Abzakh, Ling, and Alkilani 2013; Mason and Bearden 1980; Stone and Mason 1995).

**Hypothesis 4a: Consumers' trust in generic brands of OTC medicines has a positive influence on their attitudes towards generic brands of OTC medicines.**

A significant relationship was recorded between consumers' trust in generic brands of OTC medicines and their attitudes towards generic brands of OTC medicines. Hence, H4a is accepted. It is clear that consumers' trust in generic brands of OTC medicines plays an important role in positively influencing their attitudes towards generic brands of OTC medicines. This result reinforces the findings from past studies (Bulsara et al. 2010; Palagyi and Lassanova 2008; Quintal and Mendes 2012).

**Hypothesis 4b: Consumers' trust in generic brands of OTC medicines has a positive influence on their intention to buy generic brands of OTC medicines.**

A significant relationship was reported between consumers' trust in generic brands of OTC medicines and their intention to buy generic brands of OTC medicines. Thus, H4b is accepted. It is clear that consumers' trust in generic brands of OTC medicines plays an important role in creating a positive impact on their intention to buy generic brands of OTC medicines. This result reinforces the findings from past studies (Bulsara et al. 2010; Palagyi and Lissanova 2008; Quintal and Mendes 2012).

**Hypothesis 5a: Social factors have a positive influence on the attitudes towards generic brands of OTC medicines.**

A significant relationship was found between social factors and attitudes towards generic brands of OTC medicines. Thus, H5a is accepted. It is apparent that social factors are an important external variable providing a positive impact on consumers' attitudes towards generic brands of OTC medicines. This result supports the findings from past studies (Chong et al. 2011; Feldman and Lobo 2013; McCarthy 2010).

**Hypothesis 5b: Social factors have a positive influence on the intention to buy generic brands of OTC medicines.**

A significant relationship was recorded between social factors and the intention to buy generic brands of OTC medicines. Hence, H5b is accepted. This indicates that social factors are an essential external element to influence consumers' intention to buy generic brands of OTC medicines positively. This result strengthens the findings from past studies (Chong et al. 2011; Feldman and Lobo 2013; McCarthy 2010).

**Hypothesis 6a: Interpersonal influence has a positive influence on the attitudes towards generic brands of OTC medicines.**

An insignificant relationship was reported between interpersonal influence and attitudes towards generic brands of OTC medicines. Thus, H6a is rejected. This finding shows that information from medical experts will be treated as information only and it will not influence their attitudes towards generic brands of OTC medicines. Even though consumers seek information about generic brands of OTC medicines when they need to buy them, it does not affect their attitudes towards generic brands of OTC medicines. In addition, it is clear that consumers do not follow what others are buying when they want to purchase generic brands of OTC medicines, which explains why normative influence has no relationship with consumers' attitudes towards generic brands of OTC medicines. Generic brands of OTC medicines also do not have a prestigious value that can affect other consumers. These results provide crucial new findings for future reference.

**Hypothesis 6b: Interpersonal influence has a positive influence on the intention to buy generic brands of OTC medicines.**

An insignificant relationship was reported between interpersonal influence and the intention to buy generic brands of OTC medicines. Thus, H6b is rejected. This indicates that getting information from medical experts is just to gain information without influencing them to buy generic brands of OTC medicines. In addition, it shows that consumers will not follow what others are buying when they need to buy generic brands of OTC medicines because it does not offer a prestigious value to the consumers; hence, it justifies why there is no significant relationship between the intention to buy generic brands of OTC medicines and interpersonal influence. These results provide new contributions to the understanding of consumer behaviour in purchasing generic brands of OTC medicines.

**Hypothesis 7a: Facilitating conditions have a positive influence on the intention to buy generic brands of OTC medicines.**

An insignificant relationship was reported between facilitating conditions and the intention to buy generic brands of OTC medicines. Thus, H7a is rejected. It is clear that facilitating conditions do not play an important role in exerting a significant impact on consumers' intention to buy generic brands of OTC medicines because consumers can access generic brands of OTC medicines without the support from facilitating conditions since the majority of generic brands of OTC medicines are available in any stores in Australia. In addition, the intention to buy generic brands of OTC medicines will be enhanced when the consumers need medications for their bad health conditions. This finding provides a new insight into the relationship between facilitating conditions and the intention to buy generic brands of OTC medicines.

**Hypothesis 7b: Facilitating conditions have a positive influence on the actual purchase.**

An insignificant relationship was reported between facilitating conditions and the actual purchase. Thus, H7b is rejected. This indicates that facilitating conditions are not the key factor that leads consumers to perform the actual purchase of generic brands of OTC medicines because it can be internal motives that lead consumers to engage in purchasing generic brands of OTC medicines, such as the need to cure a disease or to buy medicines that are cheaper than branded medicines. This finding provides a new insight into the relationship between facilitating conditions and actual purchase behaviour.

**Hypothesis 8: Attitudes towards generic brands of OTC medicines have a positive influence on the intention to buy generic brands of OTC medicines.**

A significant relationship was found between attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines. Hence, H8 is accepted. It shows that consumers with positive attitudes towards generic brands of OTC medicines will have a greater intention to buy generic brands of OTC medicines, as supported by the TPB (Ajzen 1985). This result reinforces the findings from past studies; however, it is not specifically between attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines (Babar et al. 2010; Heikkila, Mantyselka, and Ahonen 2011; Hensler et al. 2013; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; Palagyi and Lassanova 2008; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011). This finding provides a new contribution with a robust measurement for future reference.

**Hypothesis 9: The intention to buy generic brands of OTC medicines has a positive influence on the actual purchase behaviour.**

An insignificant relationship was recorded between the intention to buy generic brands of OTC medicines and the actual purchase behaviour. Thus, H9 is rejected. It is logical that consumers who have a high intention to buy generic brands of OTC medicines do not indicate that they will actually purchase the generic brands of OTC medicines because consumers only purchase generic brands of OTC medicines when they are needed. This result provides a new contribution to the literature on the relationship between the intention to buy generic brands of OTC medicines and the actual purchase behaviour.

**Table 6-6: Summary of the results for H1–9 based on the final SEM model (Figure 6-1)**

| <b>Hypothesis</b>   | <b>Standardized beta</b> | <b>Conclusion</b> |
|---|--------------------------|-------------------|
| H1a: Consumer concern about counterfeit medicines → Attitudes towards generic brands of OTC medicine  | 0.10**                   | Reject            |
| H3d: Psychological risk → Attitudes towards generic brands of OTC medicines   | -0.26**                  | Accept            |
| H3i: Psychological risk → Intention to buy generic brands of OTC medicines  | -0.12**                  | Accept            |
| H4a: Consumer trust in generic brands of OTC medicines → Attitudes towards generic brands of OTC medicines  | 0.67**                   | Accept            |
| H4b: Consumer trust in generic brands of OTC medicines → Intention to buy generic brands of OTC medicines   | 0.16**                   | Accept            |
| H5a: Social factors → Attitudes towards generic brands of OTC medicines   | 0.12**                   | Accept            |
| H5b: Social factors → Intention to buy generic brands of OTC medicines  | 0.18**                   | Accept            |
| H8: Attitudes towards generic brands of OTC medicines → Intention to buy generic brands of OTC medicines  | 0.57**                   | Accept            |
| <b>Goodness of fit indices</b>  |                          |                   |
| <b>Chi-square</b>   | 365.312                  |                   |
| <b>DF</b>   | 142                      |                   |
| <b>Ratio chi-square/df</b>  | 2.573                    |                   |
| <b>P</b>  | .000                     |                   |
| <b>RMSEA</b>  | .057                     |                   |
| <b>AGFI</b>   | .905                     |                   |
| <b>GFI</b>  | .929                     |                   |
| <b>CFI</b>  | .980                     |                   |
| <b>N</b>  | 484                      |                   |
| DF = degree of freedom; P = significance; RMSEA = root mean square error of approximation; AGFI = adjusted goodness of fit index; CFI = comparative fit index.<br>** p < 0.01 |                          |                   |

### 6.5.3. Hierarchical Moderated Regression for Hypothesis 10

| <b>Independent variables</b>   | <b>Adj. R<sup>2</sup></b> | <b>F</b> | <b>df</b> | <b>ΔR<sup>2</sup></b> | <b>F change</b> | <b>Df</b> | <b>β</b> | <b>Sig.</b> |
|--|---------------------------|----------|-----------|-----------------------|-----------------|-----------|----------|-------------|
| Attitudes towards generic brands of OTC medicines  | .611                      | 760.997  | 1         | .612                  | 760.997         | 482       | .459     | .000        |
| Attitudes towards generic brands of OTC medicines + Price differential                                   | .710                      | 592.435  | 1         | .099                  | 164.979         | 481       | .622     | .000        |
| Attitudes towards generic brands of OTC medicines + Price differential + (Attitude × Price differential) | .710                      | 394.301  | 1         | .000                  | .143            | 480       | .045     | .705        |

\* Dependent variable: Intention to buy generic brands of medicines

Hierarchical moderated regression analysis was used to analyse the price differential variable that moderates the relationship between “attitudes towards generic brands of OTC medicines” and “intention to buy generic brands of OTC medicines”. Moderated regression analysis seeks to determine the change in R<sup>2</sup> that results during a hierarchical test of three regression equations (Aiken and West 1991; Caruana, Money, and Berthon 2000). In the first regression, the attitudes towards generic brands of OTC medicines were regressed against the intention to buy generic brands of OTC medicines. The results indicate a significant R<sup>2</sup> of 0.611 (based on Table 6-7, row 1). This was followed by a second regression of the attitudes towards generic brands of OTC medicines and the price differential against the intention to buy generic brands of OTC medicines. The results shown in Table 6-7, row 2 indicate a higher R<sup>2</sup> of 0.710. In the third regression, the cross-product term of the attitudes towards generic brands of OTC medicines and the price differential is added to the variables of the second regression on the intention to buy generic brands of OTC medicines. This result is a steady R<sup>2</sup> of 0.710 (Table 6-7, row 3). The increase in R<sup>2</sup> from 0.611 to 0.710 is statistically not

significant;  $F = 165.122$ ;  $p > 0.001$ . Therefore, there is no significant influence when the price differential (moderation variable) is added to the attitudes towards generic brands of OTC medicines (independent variable) because there is no significant change in  $R^2$ . Thus, **H10 is rejected.**

#### **6.5.4. Results and Discussion of Hypothesis 10**

The result in Table 6-7 indicates that the price differential does not moderate the relationship between attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines. Hence, H10 is rejected. It is clear that the price differential between generic brands of OTC medicines and branded OTC medicines will not enhance consumers' attitudes towards generic brands of OTC medicines resulting in a higher intention to buy generic brands of OTC medicines. It is logical that price differential is not an important element to enhance consumers' intention to buy generic brands of OTC medicines because it will not be effective when they do not need it. This finding provides a new insight that can be used as a reference for future studies.

### **6.5.5. Additional Findings Based on the Research Question on Mediating Effects**

**Research Question:** What is the mediating role of attitudes towards generic brands of OTC medicines between six variables (consumer concern, consumer knowledge, perceived risk, consumer trust in generic brands of OTC medicines, social factors, and interpersonal influence) and the intention to buy generic brands of OTC medicines?

Based on the research question in section 3.5.11 and the SEM model fit in Figure 6-1, there are three mediation relationships that need to be tested.

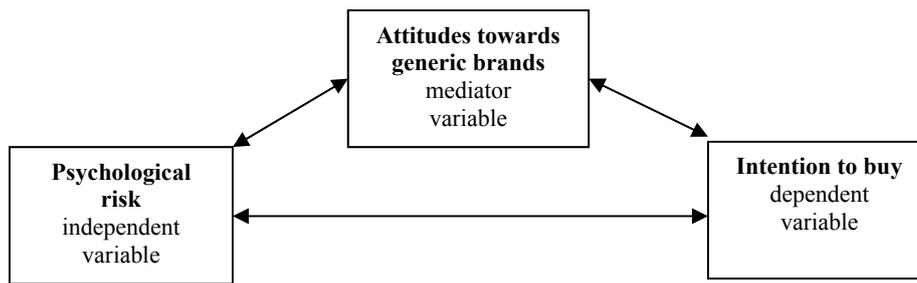
- **Moderation One** (psychological risk → attitudes towards generic brands of OTC medicines → intention to buy generic brands of medicines)
- **Mediation Two** (consumer trust in generic brands of OTC medicines → attitudes towards generic brands of OTC medicines → intention to buy generic brands of medicines)
- **Mediation Three** (social factors → attitudes towards generic brands of OTC medicines → intention to buy generic brands of medicines)

As such, these three mediating effects will be tested with Baron and Kenny's (1986) four-step method and the Sobel test.

**Testing for Mediation One: Perceived risk (psychological only) → attitude towards generic brands of OTC medicines → intention to buy generic brands of OTC medicines**

Mediation One examines the mediating effects of attitudes towards generic brands of OTC medicines on perceived risk (psychological only) and the intention to buy generic brands of OTC medicines. A summary of these results can be seen in Table 6-8. The results of the analysis will be discussed in conjunction with the research objectives.

**Diagram 6.13a Mediation One (Steps 1–4)**



| <b>Independent variable</b>  | <b>Dependent variable</b>                         | <b>B</b> | <b>S.E.</b> | <b>Beta</b> | <b>t-value</b> | <b>Adj. R<sup>2</sup></b> | <b>Sig.</b> |
|--|---|----------|-------------|-------------|----------------|---------------------------|-------------|
| Psychological risk   | Intention to buy generic brands of OTC medicines  | -.469    | .148        | -.444       | -10.865        | .195                      | .000        |
| Psychological risk   | Attitudes towards generic brands of OTC medicines | -.388    | .034        | -.464       | -11.496        | .214                      | .000        |
| Attitudes towards generic brands of OTC medicines                                  | Intention to buy generic brands of OTC medicines  | .991     | .036        | .782        | 27.586         | .611                      | .000        |
| Psychological risk   | Intention to buy generic brands of OTC medicines  | -.109    | .034        | -.103       | -3.238         | .619                      | .001        |
| Attitudes towards generic brands of OTC medicines                                  |   | .930     | .040        | .735        | 23.176         |                           | .000        |
| <b>Sobel test:</b> Test statistics = -10.542, standard error = 0.036, sig. = 0.000 |   |          |             |             |                |                           |             |

**Step 1**

A single regression was carried out whereby psychological risk was analysed as the independent variable, with the intention to buy generic brands of OTC medicines as the dependent variable. The analysis displayed a significant relationship (sig. = 0.000, beta = -.444, t = -10.865) at the 0.05 level. In addition, this component had an adjusted R<sup>2</sup> of 0.195, which equates to 19.5% of the intention to buy generic brands of OTC medicines being explained by psychological risk.

**Step 2**

A single regression was conducted between psychological risk as the independent variable and attitudes towards generic brands of OTC medicines as the dependent variable. The

regression of psychological risk showed that it was highly significantly related to attitudes towards generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = -.464, t = -11.496). The adjusted R<sup>2</sup> shows that 21.4% of attitudes towards generic brands of OTC medicines are explained by psychological risk.

### **Step 3**

The regression analysis of attitudes towards generic brands of OTC medicines against the intention to buy generic brands of OTC medicines found that the attitudes towards generic brands of OTC medicines were significantly related to the intention to buy generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .782, t = 27.586). Furthermore, this component had the highest adjusted R<sup>2</sup> of .611, which equates to 61.1% of the intention to buy generic brands of OTC medicines being explained by attitudes towards generic brands of OTC medicines.

### **Step 4**

Psychological risk and attitudes towards generic brands of OTC medicines were regressed against the intention to buy generic brands of OTC medicines as the dependent variable. The regression with the dependent variable intention to buy generic brands of OTC medicines indicated that psychological risk is significant (sig. = 0.001, beta = -.103, t = -3.238). Similarly, the regression of attitudes towards generic brands of OTC medicines showed that it was significantly related to the intention to buy generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .735, t = 23.176). The adjusted R<sup>2</sup> indicates that 61.9% of the intention to buy generic brands of OTC medicines is explained by psychological risk and attitudes towards generic brands of OTC medicines. Based on the results, it can be observed that the relationship between psychological risk and the intention to buy generic brands of OTC medicines is partially mediated by attitudes towards generic brands of OTC medicines.

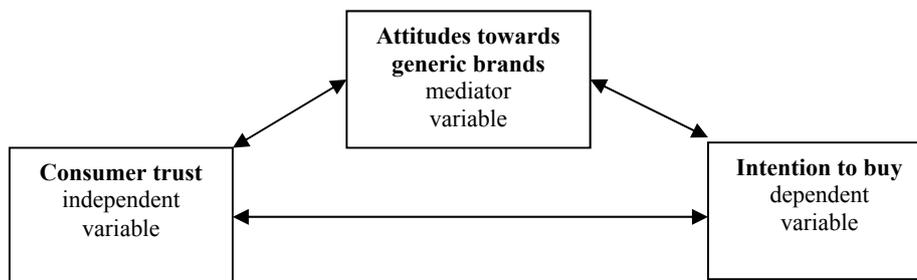
### **Sobel test**

The Sobel test was conducted on the single psychological risk equation from the model. To conduct the Sobel test, the unstandardized regression coefficients and standard error from Step 2 and Step 3 were used. The result of the Sobel test confirmed that the relationship between psychological risk and the intention to buy generic brands of OTC medicines is partially mediated by attitudes towards generic brands of OTC medicines.

**Testing for Mediation Two: Consumer trust in generic brands of OTC medicines → attitude towards generic brands of OTC medicines → intention to buy generic brands of OTC medicines**

Mediation Two examines the mediating effects of attitudes towards generic brands of OTC medicines on consumer trust in generic brands of OTC medicines and the intention to buy generic brands of OTC medicines. A summary of these results can be seen in Table 6-9. The results of the analysis will be discussed in conjunction with the research objectives.

**Diagram 6.13b Mediation Two (Steps 1–4)**



| <b>Independent variable</b>   | <b>Dependent variable</b>                         | <b>B</b> | <b>S.E.</b> | <b>Beta</b> | <b>t-value</b> | <b>Adj. R<sup>2</sup></b> | <b>Sig.</b> |
|---|---|----------|-------------|-------------|----------------|---------------------------|-------------|
| Consumer trust in generic brands of OTC medicines                                 | Intention to buy generic brands of OTC medicines  | .865     | .043        | .673        | 19.974         | .452                      | .000        |
| Consumer trust in generic brands of OTC medicines                                 | Attitudes towards generic brands of OTC medicines | .728     | .032        | .717        | 22.598         | .513                      | .000        |
| Attitudes towards generic brands of OTC medicines                                 | Intention to buy generic brands of OTC medicines  | .991     | .036        | .782        | 27.586         | .611                      | .000        |
| Consumer trust in generic brands of OTC medicines                                 | Intention to buy generic brands of OTC medicines  | .296     | .051        | .230        | 5.845          | .636                      | .000        |
| Attitudes towards generic brands of OTC medicines                                 |   | .782     | .050        | .617        | 15.680         |                           | .000        |
| <b>Sobel test:</b> Test statistics = 17.536, standard error = 0.041, sig. = 0.000 |   |          |             |             |                |                           |             |

### **Step 1**

A single regression was carried out whereby consumer trust in generic brands of OTC medicines was analysed as the independent variable, with the intention to buy generic brands of OTC medicines as the dependent variable. The analysis displayed a significant relationship (sig. = 0.000, beta = .673, t = 19.974) at the 0.05 level. In addition, this component had an adjusted R<sup>2</sup> of 0.452, which equates to 45.2% of the intention to buy generic brands of OTC medicines being explained by consumer trust in generic brands of OTC medicines.

### **Step 2**

A single regression was conducted between consumer trust in generic brands of OTC medicines as the independent variable and attitudes towards generic brands of OTC medicines as the dependent variable. The regression of consumer trust in generic brands of OTC medicines showed that it was highly significantly related to attitudes towards generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .717, t = 22.598). The adjusted R<sup>2</sup> shows that 51.3% of attitudes towards generic brands of OTC medicines are explained by consumer trust in generic brands of OTC medicines.

### **Step 3**

The regression analysis of attitudes towards generic brands of OTC medicines against the intention to buy generic brands of OTC medicines found that attitudes towards generic brands of OTC medicines were significantly related to the intention to buy generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .782, t = 27.586). Furthermore, this component had the highest adjusted R<sup>2</sup> of .611, which equates to 61.1% of the intention to buy generic brands of OTC medicines being explained by attitudes towards generic brands of OTC medicines.

#### **Step 4**

Consumer trust in generic brands of OTC medicines and attitudes towards generic brands of OTC medicines were regressed against the intention to buy generic brands of OTC medicines as the dependent variable. The regression with the dependent variable intention to buy generic brands of OTC medicines indicated that consumer trust in generic brands of OTC medicines is significant (sig. = 0.000, beta = .230, t = 5.845). Similarly, the regression of attitudes towards generic brands of OTC medicines showed that it was significantly related to the intention to buy generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .617, t = 15.680). The adjusted R<sup>2</sup> indicates that 63.6% of the intention to buy generic brands of OTC medicines is explained by consumer trust in generic brands of OTC medicines and attitudes towards generic brands of OTC medicines. Based on the results, it can be observed that the relationship between consumer trust in generic brands of OTC medicines and the intention to buy generic brands of OTC medicines is partially mediated by attitudes towards generic brands of OTC medicines.

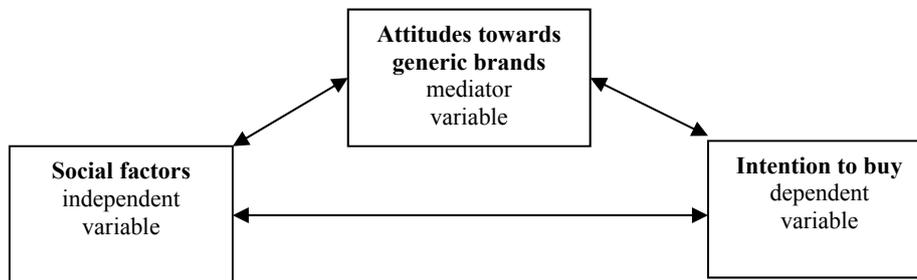
#### **Sobel test**

The Sobel test was conducted over the single consumer trust in generic brands of OTC medicines equation from the model. To conduct the Sobel test, the unstandardized regression coefficients and standard error from Step 2 and Step 3 were used. The results of the Sobel test confirmed that the relationship between consumer trust in generic brands of OTC medicines and the intention to buy generic brands of OTC medicines is partially mediated by attitudes towards generic brands of OTC medicines.

**Testing for Mediation Three: Social factors → attitude towards generic brands of OTC medicines → intention to buy generic brands of OTC medicines**

Mediation Three examines the mediating effects of attitudes towards generic brands of OTC medicines on social factors and the intention to buy generic brands of OTC medicines. A summary of these results can be seen in Table 6-10. The results of the analysis will be discussed in conjunction with the research objectives.

**Diagram 6.13c Mediation Three (Steps 1–4)**



| <b>Table 6-10: Mediation Three analysis</b>                                      |   |          |             |             |                |                           |             |
|--|---|----------|-------------|-------------|----------------|---------------------------|-------------|
| <b>Independent variable</b>  | <b>Dependent variable</b>                         | <b>B</b> | <b>S.E.</b> | <b>Beta</b> | <b>t-value</b> | <b>Adj. R<sup>2</sup></b> | <b>Sig.</b> |
| Social factors   | Intention to buy generic brands of OTC medicines  | .606     | .047        | .510        | 13.016         | .259                      | .000        |
| Social factors   | Attitudes towards generic brands of OTC medicines | .391     | .039        | .417        | 10.060         | .172                      | .000        |
| Attitudes towards generic brands of OTC medicines                                | Intention to buy generic brands of OTC medicines  | .991     | .036        | .782        | 27.586         | .611                      | .000        |
| Social factors   | Intention to buy generic brands of OTC medicines  | .265     | .035        | .223        | 7.539          | .652                      | .000        |
| Attitudes towards generic brands of OTC medicines                                |   | .873     | .037        | .690        | 23.351         |                           | .000        |
| <b>Sobel test:</b> Test statistics = 9.420, standard error = 0.041, sig. = 0.000 |   |          |             |             |                |                           |             |

### **Step 1**

A single regression was carried out whereby social factors were analysed as the independent variable, with the intention to buy generic brands of OTC medicines as the dependent variable. The analysis displayed a significant relationship (sig. = 0.000, beta = .510, t = 13.016) at the 0.05 level. In addition, this component had an adjusted R<sup>2</sup> of 0.259, which equates to 25.9% of the intention to buy generic brands of OTC medicines being explained by social factors.

### **Step 2**

A single regression was conducted between social factors as the independent variable and attitudes towards generic brands of OTC medicines as the dependent variable. The regression of social factors showed that they were highly significantly related to attitudes towards generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .417, t = 10.060). The adjusted R<sup>2</sup> showed that 17.2% of attitudes towards generic brands of OTC medicines are explained by social factors.

### **Step 3**

The regression analysis of attitudes towards generic brands of OTC medicines against the intention to buy generic brands of OTC medicines found that the attitudes towards generic brands of OTC medicines were significantly related to the intention to buy generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .782, t = 27.586). Furthermore, this component had the highest adjusted R<sup>2</sup> of .611, which equates to 61.1% of the intention to buy generic brands of OTC medicines being explained by attitudes towards generic brands of OTC medicines.

#### Step 4

Social factors and attitudes towards generic brands of OTC medicines were regressed against the intention to buy generic brands of OTC medicines as the dependent variable. The regression with the dependent variable intention to buy generic brands of OTC medicines indicated that social factors are significant (sig. = 0.000, beta = .223, t = 7.539). Similarly, the regression of attitudes towards generic brands of OTC medicines showed that they were significantly related to the intention to buy generic brands of OTC medicines at the 0.05 level (sig. = 0.000, beta = .690, t = 23.351). The adjusted R<sup>2</sup> indicates that 65.2% of the intention to buy generic brands of OTC medicines is explained by social factors and attitudes towards generic brands of OTC medicines. Based on the results, it can be observed that the relationship between attitudes, social factors, and the intention to buy generic brands of OTC medicines is **partially mediated** by attitudes towards generic brands of OTC medicines.

#### Sobel test

The Sobel test was conducted over the single social factors equation from the model. To conduct the Sobel test, the unstandardized regression coefficients and standard error from Step 2 and Step 3 were used. The result of the Sobel test confirmed that the relationship between social factors and the intention to buy generic brands of OTC medicines is partially mediated by attitudes towards generic brands of OTC medicines.

#### 6.5.6. Results and Discussion of Additional Findings on Mediating Effects

According to Figure 6-1, Mediation One (psychological risk → attitudes towards generic brands of OTC medicines → intention to buy generic brands of medicines), Mediation Two (consumer trust in generic brands of OTC medicines → attitudes towards generic brands of OTC medicines → intention to buy generic brands of medicines), and Mediation Three (social factors → attitudes towards generic brands of OTC medicines → intention to buy generic brands of medicines) were formed to test the mediation effects. The results from

Mediations One, Two, and Three confirmed that social factors, psychological risk, and consumer trust in generic brands of OTC medicines as independent variables and the intention to buy generic brands of OTC medicines as the dependent variable are partially mediated by attitudes towards generic brands of OTC medicines. These findings provide new insights since no past study measures the mediating effect in the area of generic medicines. These findings also achieved outcomes that fulfilled the research question in section 3.5.11 concerning mediating effects.

## 6.6. Summary of the Findings

| <b>Table 6-11: Summary of the results</b> |   |                                      |
|---|---|--------------------------------------|
|   | <b>HYPOTHESES</b>   | <b>Accept/reject</b>                 |
| <b>H1a</b>                                | Consumers' concern about counterfeit OTC medicines has a negative influence on their attitudes towards generic brands of OTC medicines.   | <i>Rejected</i>                      |
| <b>H1b</b>                                | Consumers' concern about generic brands of OTC medicines has a negative influence on their attitudes towards generic brands of OTC medicines.   | <i>Rejected</i>                      |
| <b>H1c</b>                                | Consumers' concern about counterfeit OTC medicines has a negative influence on their intention to buy generic brands of OTC medicines.  | <i>Rejected</i>                      |
| <b>H1d</b>                                | Consumers' concern about generic brands of OTC medicines has a negative influence on their intention to buy generic brands of OTC medicines.  | <i>Rejected</i>                      |
| <b>H2a</b>                                | Consumer knowledge about counterfeit OTC medicines has a positive influence on attitudes towards generic brands of OTC medicines.   | <i>Rejected</i>                      |
| <b>H2b</b>                                | Consumer knowledge about generic brands of OTC medicines has a positive influence on attitudes towards generic brands of OTC medicines.   | <i>Rejected</i>                      |
| <b>H2c</b>                                | Consumer knowledge about counterfeit OTC medicines has a positive influence on the intention to buy generic brands of OTC medicines.  | <i>Rejected</i>                      |
| <b>H2d</b>                                | Consumer knowledge about generic brands of OTC medicines has a positive influence on the intention to buy generic brands of OTC medicines.  | <i>Rejected</i>                      |
| <b>H3a</b>                                | Perceived risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the attitudes towards generic brands of OTC medicines.   | <b>Accepted (psychological only)</b> |
| <b>H3b</b>                                | Perceived risk [(i) performance, (ii) financial, (iii) physical, (iv) psychological, and (v) social] has a negative influence on the intention to buy generic brands of OTC medicines.  | <b>Accepted (psychological only)</b> |
| <b>H4a</b>                                | Consumers' trust in generic brands of OTC medicines has a positive influence on their attitudes towards generic brands of OTC medicines.  | <b>Accepted</b>                      |
| <b>H4b</b>                                | Consumers' trust in generic brands of OTC medicines has a positive influence on their intention to buy generic brands of OTC medicines.   | <b>Accepted</b>                      |
| <b>H5a</b>                                | Social factors have a positive influence on the attitudes towards generic brands of OTC medicines.  | <b>Accepted</b>                      |
| <b>H5b</b>                                | Social factors have a positive influence on the intention to buy generic brands of OTC medicines.   | <b>Accepted</b>                      |
| <b>H6a</b>                                | Interpersonal influence has a positive influence on the attitudes towards generic brands of OTC medicines.  | <i>Rejected</i>                      |
| <b>H6b</b>                                | Interpersonal influence has a positive influence on the intention to buy generic brands of OTC medicines.   | <i>Rejected</i>                      |
| <b>H7a</b>                                | Facilitating conditions have a positive influence on the intention to buy generic brands of OTC medicines.  | <i>Rejected</i>                      |
| <b>H7b</b>                                | Facilitating conditions have a positive influence on the actual purchase behaviour.   | <i>Rejected</i>                      |
| <b>H8</b>                                 | Attitudes towards generic brands of OTC medicines have a positive influence on the intention to buy generic brands of OTC medicines.  | <b>Accepted</b>                      |
| <b>H9</b>                                 | The intention to buy generic brands of OTC medicines has a positive influence on the actual purchase behaviour.   | <i>Rejected</i>                      |
| <b>Moderation effects:</b>                |   |                                      |
| <b>H10</b>                                | The price differential between generic brands of OTC medicines and branded OTC medicines will moderate the relationship between attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines. | <i>Rejected</i>                      |
| <b>Mediation effects:</b>                 |   |                                      |
| <b>M1</b>                                 | Attitudes towards generic brands of OTC medicines will mediate the relationship between the perceived [performance, financial, physical, psychological, and social] risk and the intention to buy generic brands of OTC medicines.          | <b>Accepted (psychological only)</b> |
| <b>M2</b>                                 | Attitudes towards generic brands of OTC medicines will mediate the relationship between consumer trust in generic medicines and the intention to buy generic brands of OTC medicines.   | <b>Accepted</b>                      |
| <b>M3</b>                                 | Attitudes towards generic brands of OTC medicines will mediate the relationship between social factors and the intention to buy generic brands of OTC medicines.  | <b>Accepted</b>                      |

Based on the overall findings in this chapter, only four factors, namely consumer concern about counterfeit medicines, psychological risk, consumer trust, and social factors, can influence consumers' decision-making process on purchasing generic brands of OTC medicines. In addition, psychological risk, consumer trust, and social factors as the independent variables are partially mediated by attitudes towards generic brands of OTC medicines with the intention to buy generic brands of OTC medicines as the dependent variable. It is clear that consumers in Australia will have positive attitudes towards generic brands of OTC medicines and a high intention to buy generic brands of OTC medicines if they trust generic brands of OTC medicines and they are recommended by family members, colleagues, or friends; however, they still have a feeling of anxiety about using generic brands of OTC medicines. As the conclusion of these key findings, "attitudes towards generic brands of OTC medicines" is the key construct to understand consumer behaviour in purchasing generic brands of OTC medicines.

### **6.7. Concluding Comments for Chapter Six**

This chapter presented the results for each hypothesis and discussed each finding based on the past studies or substantiated with sound arguments. Table 6-11 provides a summary of the hypotheses and results for this study. While there are hypotheses that had to be rejected, they are still considered as essential findings. Some of these may, in fact, warrant further insights for the current literature. Understanding consumer behaviour towards generic brands of OTC medicines will assist the pharmaceutical industry in evaluating its own fit assessments and developing potentially successful leveraging strategies in a globalized environment.

The next chapter presents the conclusion of the thesis. Chapter 7 will provide a review of the research objectives and detail how the objectives have been achieved through this study. These will be followed by a discussion on the theoretical, methodological, and managerial

contributions. The limitations and the future direction for this study are presented at the end of the chapter.

## **Chapter 7**

### **Conclusion**

#### **7.1. Introduction**

This chapter starts by providing a review of the research objectives and a short summary of how each of the objectives has been achieved. Next, a general discussion of the conceptual, methodological, and managerial contributions is presented to show the significance of this study. Finally, the limitations of the current study are presented, followed by the justifications for the existence of these limitations within the research. The chapter concludes with the avenues for future research uncovered both during the commission of the current study and as a result of its findings.

#### **7.2. Review of the Research Objectives**

This study has three research objectives based on its overarching aim. The following is a detailed summary of the achievements thus far:

**Objective 1:** To develop a conceptual framework underpinned by the theory of planned behaviour in the context of generic OTC medicine study. This incorporates key constructs including consumer concern, consumer knowledge, perceived risk, consumer trust, social factors, interpersonal influences, and facilitating conditions. Attitudes towards generic brands of OTC medicines, intention to buy generic brands of OTC medicines, and actual purchase behaviour are the outcome variables (Gap 2, 3, 4, and 5)

This research has fulfilled research objective 1 (Gaps 2, 3, 4, and 5):

A conceptual model testing consumer behaviour towards generic brands of OTC medicines was developed in Chapter 3 and tested in Chapter 6. The theoretical foundation to justify the conceptual framework is included in section 3.3. Therefore, this study has bridged Research Gap 2.

As explained in Chapter 4, the data were collected from the general population in Australia through an online survey to test the conceptual framework based on consumers' perspectives. Even though collecting data through online surveys has its own weaknesses and strengths, this research successfully gained data from a wide range of demographic profiles to represent the general population in Australia, as discussed in section 6.4 (profile of the respondents). Therefore, this study has bridged Research Gap 3.

The conceptual framework was established to test consumer behaviour in the context of generic brands of OTC medicines with visual stimuli support. Therefore, this study has bridged Research Gap 4.

As discussed in Chapter 3, a number of factors have been identified as having direct or indirect influences on the attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines. These factors are consumer concern, consumer knowledge, perceived risk, consumer trust, social factors, interpersonal influence, and facilitating conditions. These causal relationships were tested with the structural equation modelling analysis technique and the result is presented in Chapter 6. Therefore, this study has bridged Research Gap 5.

Based on the research question in section 3.5.11 and the SEM model fit in Figure 6-1, there were three mediation relationships that needed to be tested with Baron and Kenny's (1986) four-step method and the Sobel test. The results indicated that attitudes towards generic brands of OTC medicines partially mediate the relationship between the three independent

variables (psychological risk, consumer trust, and social factors) and the intention to buy generic brands of OTC medicines as the dependent variable. Therefore, this study has bridged Research Gap 2.

**Objective 2:** To develop a scale to measure consumers' attitudes towards generic brands. The scale developed will be used and adapted to the context of generic OTC medicines (Gaps 1 and 4).

This research has achieved outcomes in order to fulfil research objective 2 (Gaps 1 and 4):

The “attitudes towards generic brands” scale was successfully developed and validated through a four-stage procedure as presented in Chapter 5 (scale development). The outcome resulted in a unidimensional five-item scale. The scale was further validated in the final main study of this thesis. The scale developed is an essential element of this thesis because it is the key construct in the theoretical framework. Therefore, this study has bridged Research Gap 1.

The effectiveness of the scale developed was examined specifically in the context of generic over-the-counter (OTC) medicine. The results from the structural equation modelling (SEM) tests showed its effectiveness in the context of generic OTC medicines. In addition, it successfully mediates three independent variables (psychological risk, consumer trust in generic brands of OTC medicines, and social factors) with the intention to buy generic brands of OTC medicines as the dependent variable. As such, this developed scale can assist any generic industry, including the pharmaceutical industry, to pre-test its generic brands to gain insights into their acceptance based on consumers' perspectives. Therefore, this study has bridged Research Gap 4.

**Objective 3:** To investigate the moderating relationship (i.e. price differential) between attitudes towards generic brands of medicines and the intention to buy generic brands of medicines (Gap 5).

This research has fulfilled research objective 3 (Gap 5):

As discussed in Chapter 3, it was predicted that the “price differential” would be a moderation variable between attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines. The moderating effect was tested and the result is discussed in Chapter 6. Therefore, this study has bridged Research Gap 5.

### **7.3. Contributions and Implications**

As a result of the research undertaken in this study, a number of conceptual, methodological, and managerial contributions are made. These include support of, and in some cases contradictions to, previous works, as well as the provision of information that was previously unknown or empirically underexplored. The specifics of each contribution are delineated in the following sections. The specific details of the results are presented in Chapter 6.

#### **7.3.1. Conceptual Contributions**

The focus of this study is on understanding consumer attitudes towards generic brands in the context of OTC medicine. This research pioneers the generic brand study with a robust measurement supported by the theory of planned behaviour, neutralization theory, and social cognitive theory as the underpinning theories. This research and the theoretical foundation on which it is conducted hold valuable implications for the growing literature on attitude formation and purchase behavioural tendencies, which itself is an essential individual-level construct for the better understanding of generic brands’ attributes in marketing dynamics. The research contributes substantively by depicting the specific theoretical implication and

role that each studied construct shows. The following is evidence of the theoretical contribution of this study:

(a) The study examined consumer behaviour in general towards generic brands in pharmaceutical products, specifically over-the-counter medicines, and it provided the much needed expansion of our knowledge of consumer behaviour towards generic brands in the pharmaceutical industry, as well as any other generic industries (Research Gaps 2, 3, 4, and 5, Objective 1). The need for cheaper alternatives for consumer choice in any product category has driven the popularity of generic brands (Alrasheedy et al. 2014; Moutinho 1987; Neidell, Boone, and Cagley 1985) and some scholars have shown that generic brands are frequently bought by consumers who wish to pay less for a similar product quality and overcome the perception of price being equal to quality (Alrasheedy et al. 2014; Chiou and Chao 2011; Drozdowska and Hermanowski 2015; Moutinho 1987). However, the study of consumer behaviour towards generic brands in a non-grocery product category is relatively biased. Thus, this study provides a new conceptual understanding as it is the first empirical research to show that consumer behaviour towards generic brands can be explored in the pharmaceutical industry, especially in the context of over-the-counter medicines (H1–9).

(b) This study developed a theoretically driven model to examine the causal relationship among variables that could have direct and indirect influences on the attitudes towards generic brands of OTC medicine and the intention to buy generic brands of OTC medicines (Research Gaps 2, 4, and 5, Objectives 1 and 3). The research model is supported by the theory of planned behaviour, neutralization theory, and social cognitive theory as the underpinning theories. The current studies only focus on qualitative study or only utilise descriptive statistical analysis to discuss their findings without a robust measurement with theoretical support (Alrasheedy et al. 2014; Bulsara et al. 2010; Chong et al. 2011; Chua et al. 2010; Gill et al. 2010; Hassali et al. 2009; Hassali, Kong, and Stewart 2005; Muirhead 1994;

Piccholiya et al. 2015; Sharrad and Hassali 2011; Shepherd 1988; Toverud et al. 2011; Yousefi et al. 2015). This study is one of the first to investigate the direct and indirect variables that influence attitudes towards generic brands and the intention to buy generic brands. Past studies have identified the importance of these variables to generic brands (Alrasheedy et al. 2014; Babar et al. 2010; Heikkila, Mantyselka, and Ahonen 2011; Hensler et al. 2013; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; Palagyi and Lassanova 2008; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011) and some variables have been tested as a new approach to gain new insights into consumer behaviour concerning generic brands. This study takes the first steps in understanding how all these variables directly and indirectly influence the attitudes towards generic brands and the intention to buy generic brands in the context of over-the-counter medicines, as delineated in H1–9. This is a significant conceptual contribution since the results show that four variables have significant influences on attitudes towards generic brands of OTC medicines and three variables have a significant impact on the intention to buy generic brands of OTC medicines. All the insignificant variables are also important findings that give new insights into consumer behaviour towards generic brands.

(c) This study satisfies the gap in the literature regarding the price differential as a moderator in the research model (Research Gap 5, Objective 3). Even though the result shows that the price differential is not a moderation variable between attitudes towards generic brands of OTC medicines and the intention to buy generic brands of OTC medicines, this finding is still considered a new contribution to the current literature since there is no moderation test in the area of generic brands, especially in the context of generic OTC medicines.

(d) This study also found three mediation relationships in the final SEM model, as shown in Figure 6-1 (Research Gap 5, Objective 1). The results indicate that psychological risk, consumer trust, and social factors as the independent variables are partially mediated by

attitudes towards generic brands of OTC medicines with the intention to buy generic brands of OTC medicines as the dependent variable. These findings are a new contribution to the current literature since no study of generic brands measures the mediation relationship, especially in the context of OTC medicines.

(e) This study has also extended and compiled three different underpinning theories that complement each other to justify the conceptual framework for measuring consumer behaviour towards generic brands in the context of OTC medicines (Research Gap 2, Objective 1). Neutralization theory and social cognitive theory complement the theory of planned behaviour in explaining the research model entirely. Neutralization theory nullifies consumer acts on purchasing generic brands, while social cognitive theory justifies consumer behaviour based on dynamic changes in the external environment that in return influence consumers internally. Both theories complement the theory of planned behaviour in justifying dynamic changing consumer behaviour after receiving new information or being influenced by the external environment because the theory of planned behaviour determines that consumers have pre-planned their behaviour before they act it out, which is the weakness of the TPB. Therefore, these three underpinning theories have been integrated and extended into a new perspective in the current literature. As such, these three underpinning theories can be used in another context of study (e.g. luxury consumption, digital piracy or other consumer behaviour studies) to measure the factors that influence the attitudes towards a particular product or service that lead to higher intention to buy a particular product or service.

### **7.3.2. Methodological Contributions**

A number of methodological contributions have emerged from this research, as follows:

(a) The most significant methodological contribution is the development and validation of the scale of “attitudes towards generic brands” (Research Gap 1, Objective 2). The whole process

of scale development is discussed in Chapter 5 and entailed 4 stages and 2374 respondents, resulting in a unidimensional 5-item scale for the measurement of “attitudes towards generic brands”. This scale filled a substantial gap in the current literature regarding the measurement of consumer attitudes towards generic brands (Babar et al. 2010; Heikkila, Mantyselka, and Ahonen 2011; Hensler et al. 2013; Himmel et al. 2005; Kjoenniksen, Lindbaek, and Granas 2006; Kobayashi et al. 2011; Lebanova, Manolov, and Getov 2012; McEnally and Hawes 1984; Moutinho 1987; Neidell, Boone, and Cagley 1985; Palagyi and Lassanova 2008; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011) as this scale is the first to be specifically designed and validated to test consumer attitudes towards generic brands in general. The review of the literature highlighted that previous studies have not developed an appropriate scale to measure consumer attitudes towards generic brands. Most of the past studies do not follow a proper procedure to develop the attitudes towards generic brands scale appropriately (McEnally and Hawes 1984; Neidell, Boone, and Cagley 1985) and some past studies just create their own scales for temporary use to measure consumers’ attitudes towards generic brands for their own study (Himmel et al. 2005; Lebanova, Manolov, and Getov 2012; Rathe et al. 2013; Roman 2009; Toklu et al. 2012; Toverud et al. 2011). Thus, filling this gap in the literature is a major step. This scale can assist future researchers to examine consumers’ attitudes towards generic brands in any product category. It is also essential in extending our knowledge of consumer behaviour towards generic brands as it has been shown that consumers react differently to different product categories (Himmel et al. 2005; Rathe et al. 2013; Roman 2009).

(b) The development of the “attitudes towards generic brands” scale followed strict guidelines from previous researchers (Chen and Wells 1999; Churchill 1979; DeVellis 2003; Wells, Leavitt, and McConville 1971) (Research Gap 1, Objective 2). Most of the past studies create their own scale based on their qualitative findings or previous findings (Babar et al.

2010; Hensler et al. 2013; Kobayashi et al. 2011; McEnally and Hawes 1984; Moutinho 1987; Neidell, Boone, and Cagley 1985; Rathe et al. 2013). The development of the “attitudes towards generic brands” scale is very different from other methods as the scale items are generated from previous attitudes towards generic brands scales and visual stimuli are used to capture the essence and the characteristics of consumers’ attitudes towards generic brands of a specific product category (Research Gap 1, Objective 1). By following a proper method suggested by previous researchers (Chen and Wells 1999; Churchill 1979; Li, Edwards, and Lee 2002; Wells, Leavitt, and McConville 1971), a literature review, thesaurus searches, and experience surveys were conducted to generate the scale items. However, the scale development in this study used visual stimuli to generate and test the validity of the “attitudes towards generic brands” scale items, which can be considered as a new approach to developing a scale compared with the traditional method.

(c) Using visual stimuli from a real-life marketing example can enhance the validity and generalizability of the scale to the industry (Research Gap 1, Objective 2). In addition, using real-life marketing brands can improve the ecological validity of the study (Hornik and Ellis 1988). The survey instrument was purposely designed with the addition of visual stimuli for the respondents to choose between generic brands and brand names. This approach is considered to be an effective survey method to evaluate consumer decision making when a generic version of an established brand is shown together with its established brand (Hensler et al. 2013; Lebanova, Manolov, and Getov 2012; Moutinho 1987; Neidell, Boone, and Cagley 1985).

### **7.3.3. Managerial Contributions**

A number of managerial implications also emerged from this research. To ease the discussion of the managerial implications, they will be documented based on the structure of the hypotheses. They are as follows:

(a) The findings of H1 indicate that consumer concern about counterfeit OTC medicines and generic brands of OTC medicines are not the key factors that influence consumer decision making on purchasing generic brands of OTC medicines. Surprisingly, the finding indicates that when consumers are concerned about counterfeit OTC medicines, it enhances their attitudes towards generic brands of OTC medicines. This shows that the pharmaceutical industry and policymakers should not worry about any implications to reduce consumer concerns about generic brands of OTC medicines and counterfeit OTC medicines because they do not have any negative effects on the consumer perspective of generic brands of OTC medicines. Even consumers who have concerns about counterfeit OTC medicines develop positive attitudes towards generic brands of OTC medicines (Marcketti and Shelley 2009; Yousefi et al. 2015).

(b) The results of H2 indicate that consumer knowledge about counterfeit OTC medicines and generic brands of OTC medicines are not the essential factors that affect consumer decision making on purchasing generic brands of OTC medicines. This result shows that policymakers and the pharmaceutical industry do not need to provide intensive education campaigns about generic brands of OTC medicines since they do not have any effect on consumers' attitudes towards generic brands of OTC medicines and their intention to buy generic brands of OTC medicines. This finding also confirms that the existence of generic medicines in Australia has reached its mature stage since being introduced in 1984 (Kumar et al. 2015). It also verifies that the Australian Government's effort to provide educational campaigns to the public has reached its climax stage as well, because the knowledge of generic brands of OTC medicine or counterfeit OTC medicines does not have any effect on consumers' decision making on purchasing generic brands of OTC medicines (Hassali et al. 2010).

(c) The findings of H3 indicate that only psychological risk from the five types of perceived risk has a significant influence on consumers' attitude towards and intention to buy generic brands of OTC medicines. It is clear that consumers are not afraid that if generic brands of OTC medicines do not perform well they will lead to financial loss and side effects on the body because most OTC medicines are for less serious medical conditions. It also will not hurt consumers' self-esteem because OTC medicines are common medicines that can be found in any stores. However, consumers feel anxiety when they use generic brands of OTC medicines. As such, medical practitioners and the pharmaceutical industry should advise consumers to obtain accurate information or seek advice from medical experts before consuming generic brands of OTC medicines to reduce their anxiety regarding their consumption (Kumar et al. 2015).

(d) The results of H4 indicate that consumer trust in generic brands of OTC medicines is the key element of their attitudes and intention to buy generic brands of OTC medicines. Therefore, medical practitioners and the pharmaceutical industry should develop trust relationships with consumers by maintaining good quality and assuring consumers that it is safe to consume generic brands of OTC medicines. In addition, positive testimonials from generic users can be used to build trust in new potential consumers to enhance their attitudes towards and intention to buy generic brands of OTC medicines (Rather et al. 2015).

(e) The findings of H5 show that social factors are the essential external factor that affects consumers' attitudes towards generic brands of OTC medicines and their intention to buy generic brands of OTC medicines. It is clear that communication skill is an important element in influencing consumers to purchase generic brands of OTC medicines. Based on the results in Figure 6-1, family members, friends, and colleagues are the individuals who can convince others to purchase generic brands of OTC medicines based on their recommendations. As such, the pharmaceutical industry should provide a point system or a voucher system for

referring new consumers in which the points can be used to purchase medicines or alternative gifts. This point system will enhance existing consumers' assistance of the pharmaceutical industry by recommending generic brands of OTC medicines to their friends, family members, and colleagues (Hassali et al. 2010).

(f) The results of H6 indicate that interpersonal influence as an external factor has no influence on consumer decision making regarding purchasing generic brands of OTC medicines. It is clear that consumers do not need to seek advice or information from medical experts or see what others are buying if they need to buy generic brands of OTC medicines. This confirms that consumers have shifted from passive consumers to active consumers when they want to buy generic brands of OTC medicines. As such, the pharmaceutical industry should assist these active consumers by providing more information on the labels of generic brands of OTC medicines, such as proper instructions on how to consume generic brands of OTC medicines or informing the consumers that they contain ingredients that may have allergic side effects for the consumers (Drozdowska and Hermanowski, 2015).

(g) The findings of H7 show that the support from external environments does not enhance consumer decision making on purchasing generic brands of OTC medicines since generic brands of OTC medicines can be easily accessed in any stores, such as supermarkets, and not only in pharmacy stores or chemists. As such, the pharmaceutical industry should provide more access by selling generic brands of OTC medicines in more accessible stores, such as local grocery stores (Hassali et al. 2010; Limayem, Khalifa, and Chin 2004).

(h) The result of H8 indicates that attitudes towards generic brands of OTC medicines are the key factor that affects consumers' intention to buy generic brands of OTC medicines. As such, medical practitioners and the pharmaceutical industry should collaborate with the Government's need to enhance consumers' attitudes towards generic brands of OTC

medicines by providing many benefits to consumers if they buy generic brands of OTC medicines, such as tax benefit or membership discount for buying generic brands of OTC medicines (Albadr and Khan 2015).

(i) The result of H9 shows that the intention to buy generic brands of OTC medicine will not lead to actual purchase behaviour. It would be better for medical practitioners and the pharmaceutical industry to focus on enhancing consumers' attitudes towards generic brands of OTC medicines, as discussed above (Albadr and Khan 2015).

(j) The result of H10 indicates that the price differential between generic brands of OTC medicines and branded OTC medicines is not the key element in enhancing consumers' attitudes towards generic brands of OTC medicines to lead to a higher intention to buy generic brands of OTC medicines. It verifies that the pharmaceutical industry should not modify its price strategy since it has no effect on existing consumers and attracting new consumers. It would be better for the pharmaceutical industry to focus more on other strategies to enhance consumers' attitudes towards generic brands of OTC medicines, such as a logistic strategy by providing greater access or a packaging strategy to improve their user friendliness (Alrasheedy et al. 2014).

(k) The results of the mediation relationship shown in Figure 6-1 can give better insights to the pharmaceutical industry and the Government that attitudes towards generic brands of OTC medicines are the essential factor that partially mediates the relationship between psychological risk, consumer trust in generic brands of OTC medicines, and social factors as independent variables and the intention to buy generic brands of OTC medicines as the dependent variable. As such, this result emphasizes again that the pharmaceutical industry and the Government should focus more on enhancing consumers' attitudes towards generic

brands of OTC medicines to maintain the existing consumers and attract new potential consumers to buy generic brands of OTC medicines.

As a summary of the managerial contributions that were established from the hypothesis testing in the previous section, the next section provides a more structured overview of the significance of the study under each heading.

(1) **Policymakers** – This study indicates that policymakers should restrict the availability of branded over-the-counter (OTC) medicines to encourage consumers to switch to generic medications. In addition, policymakers need to restrain the logistics and distribution of generic OTC medicines from outside Australia to protect consumers from the existence of counterfeit OTC medicines. Policymakers need to provide more benefits to generic OTC medicine users to encourage repeat generic prescribing, such as subsidizing the cost of generic OTC medicines, tax benefits, or the deduction of a check-up service for using generic OTC medicines (Harrison 2015; Pichholiya et al. 2015). Even though the benefits of education campaigns to the public are not optimal, it is still essential to continue them to provide useful information for new consumers. In addition, policymakers need to renew the policy to increase the standard and safety of generic OTC medicines to ensure that the standard quality of generic OTC medicines is achieved as the increasing demands for generic OTC medicines may affect their quality during production in the future (Alrasheedy et al. 2014). In addition, policymakers should undertake random inspections of the pharmaceutical industry to ensure the safety and effectiveness of generic OTC medicines. Policymakers also need to abolish the red tape for generic medicines' approval to assist the generic industry to sell its generic OTC medicines more cheaply and to provide more varieties of generic brands of OTC medicines in the market (Drozdowska and Hermanowski 2015).

(2) **Pharmaceutical industry** – Based on the findings of this study, the generic OTC medicines market in Australia has reached its mature stage. As such, the pharmaceutical industry should strategize its OTC medicines in new directions, such as creating more user-friendly packaging, creating new product lines (i.e. premium brands), or increasing the effectiveness of generic OTC medicines (Bulsara et al. 2010). The pharmaceutical industry also needs to introduce a point system for referring new consumers to encourage existing consumers to provide positive word of mouth or make recommendations to their friends, colleagues, and family members to use generic OTC medicines (Hassali et al. 2010). In addition, the pharmaceutical industry needs to provide more information on the labels of generic brands of OTC medicines to reduce consumers' anxiety towards generic OTC medicines, such as possible side effects after consumption, or to inform the consumers that they contain ingredients that may have allergic side effects (Kumar et al. 2015). The pharmaceutical industry should provide greater access by selling generic brands of OTC medicines in more accessible stores, such as local grocery stores or secure online stores (Yousefi et al. 2015).

(3) **Medical practitioners** – The study indicates that medical practitioners play an important role in assisting the Government and the pharmaceutical industry to encourage consumers to switch to generic medications. Policymakers and the pharmaceutical industry need to provide medical practitioners with compulsory training or seminars to enhance their knowledge and their customer service skills (Hassali et al. 2010; Yousefi et al. 2015). Hence, medical practitioners will be equipped with adequate knowledge of generic OTC medicines and customer service skills to engage consumers in switching to generic medications. In addition, medical practitioners need to enlighten each consumer that buying generic OTC medicines can assist the Government to save a massive amount of medical expenses and that it can provide a better health-care industry in the future (Bulsara et al. 2010; Kumar et al. 2015).

(4) **Advertising industry** – Even though generic medicines are advertised to maintain their low cost, there is a need to change this traditional concept to enhance consumer awareness about generic OTC medicines. The advertisements need to show the essential elements or attributes of generic OTC medicines that attract existing consumers and new potential consumers to use generic OTC medicines, such as the physical similarities of the packaging and the benefits of using generic medicines compared with branded medicines (Alrasheedy et al. 2014; Yousefi et al. 2015).

#### **7.4. Limitations and Future Research Directions**

A number of limitations exist for this research. Subsequent research opportunities for further research have also been delineated. The key limitations are as follows:

(1) The study is limited to consumer behaviour towards generic brands in the context of over-the-counter medicines only, thus there is a need to extend this study to other product categories of pharmaceutical products, such as supplements (i.e. fish oil, krill oil, or whey powder). This study also did not emphasize chronic or acute medical conditions when the respondents completed the survey because this study is limited to consumer perspectives about generic brands of OTC medicines in general. As such, there is a need to compare types of generic brands of pharmaceutical products (**chronic** versus **acute**) because chronic conditions involve more risk in taking generic brands of pharmaceutical products than acute conditions.

(2) This study only focuses on offline buying behaviour. As such, there is a need to extend this study to online buying behaviour in which the probability of obtaining counterfeit medicine is higher and less controlled by the authorities.

(3) This study is limited to generic brands of OTC medicines that can be bought in legitimate drug stores. Therefore, there is a need to compare consumer trust and perceived risks in

purchasing generic brands of pharmaceutical products on the Internet or in illegitimate drug stores because there are possibilities that there are different perspectives on purchasing generic brands of pharmaceutical products from two different sources (the Internet and illegitimate drug stores).

(4) This study only uses one visual stimulus, in which paracetamol is the generic version of Panadol. Thus, there is a need to test different brands in similar product categories to gain a better insight into the comparison between different brands. In addition, there is a need to conduct cross-experiments between different brands and different product categories in the study of generic brands.

(5) This study focuses on consumers in Australia only. Accordingly, there is a need to conduct a cross-country study between developed countries and developing countries.

(6) This study focuses on the general population in Australia as the target sample and there is no comparison test between different demographic profiles in this study. As such, there is a need to compare the perspectives of different demographic profiles, such as the young generation and the elderly population, on generic brands.

## **7.5. Concluding Comments for Chapter Seven**

This chapter provided a review of the research objective of this study to ensure that each research gap is filled. Next, a number of conceptual, methodological, and managerial contributions were listed and discussed in detail. The outlining of the limitations of the study highlighted the scope for the generalizability of these results, and the presentation of avenues for future research into the area provided a sound platform upon which to develop and extend the work embarked on in this research.

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## Appendix A: Survey Instrument for Main Study (Chapter 4)

Dear Respondent,

The study investigates consumers' attitudes towards **generic brands of over-the-counter (OTC) medicines** in Australia. It also examines the intention to buy and willingness to recommend **generic brands of over-the-counter (OTC) medicines**. Results of the study will be published in international marketing journals and conference proceedings. This study will benefit managerial, practitioners and policymakers in the future. The summary of the results will be made available to interested participants upon request.

Please answer all the questions in the enclosed questionnaire; it will only take 20 to 25 minutes of your valuable time. There are no right or wrong answers for any of the questions. Your participation is strictly voluntary. Your response to the questionnaire will be kept confidential and will only be used for academic purposes. Your name will in no way be connected to the study. The data will be destroyed after five years. If you have any questions, please do not hesitate to contact me or my supervisor through the telephone numbers/ emails provided.

In addition, the Curtin University Ethics Committee has cleared the survey instrument in line with the Curtin University policy on research with low risk involving human participants. The approval registration number is SOM2013026.

Thank you very much in advance for your support and time.

Best regards,  
Johan Liang

*Note: Over-the counter (OTC) medicine is medicine that sold legally without a doctor's prescription and it usually can be found in any local stores (Coles or Woolsworth) or clinics.*

Please **OBSERVE** the following  
**Over-The-Counter (OTC) Medicine**

**PANADOL (BRAND-NAME/ESTABLISHED BRAND)**



How **FAMILIAR** are you with PANADOL brand (established brand)?

| <i>Not Familiar at all</i> |   |   |   |   |   |   |   |   | <i>Very Familiar</i> |  |
|----------------------------|---|---|---|---|---|---|---|---|----------------------|--|
| 1                          | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10                   |  |

Please **OBSERVE** the following  
**Over-The-Counter (OTC) Medicine**

**PARACETAMOL (GENERIC VERSION OF *PANADOL*)**



How **FAMILIAR** are you with **PARACETAMOL** brand (generic version of **PANADOL** brand)?

| <i>Not Familiar at all</i> |   |   |   |   |   |   |   |   |    | <i>Very Familiar</i> |   |   |   |   |   |   |   |   |    |
|----------------------------|---|---|---|---|---|---|---|---|----|----------------------|---|---|---|---|---|---|---|---|----|
| 1                          | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1                    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| <b>For the following questions, please place a tick (✓) in the box next to the relevant response.</b>  |  |
|--|--|
| <b>1</b>   | <b>Do you take <u>over-the-counter (OTC) medicines</u>?</b>  |
| (a) Yes <input type="checkbox"/> (b) No <input type="checkbox"/>   |  |
| <b>2</b>   | <b>Have you <u>bought</u> generic over-the-counter (OTC) medicines before?</b>   |
| (a) Yes <input type="checkbox"/> (b) No <input type="checkbox"/>   |  |
| <b>3</b>   | <b>Have you <u>used or consumed</u> generic over-the-counter (OTC) medicines before?</b>   |
| (a) Yes <input type="checkbox"/> (b) No <input type="checkbox"/>   |  |
| <b>4</b>   | <b>Where do you usually <u>buy</u> generic over-the-counter (OTC) medicines? (You can tick more than one)</b>                              |
| <input type="checkbox"/> Internet (online purchase)<br><input type="checkbox"/> Legitimate drug store (i.e. My Chemist, Discount Drug Store, Pharmacy 777)<br><input type="checkbox"/> Hospital and clinic<br><input type="checkbox"/> Others, please specify: _____   |  |
| <b>5</b>   | <b>Do you suffer from some medical conditions (i.e. cancer, asthma, diabetes, cardiovascular disease) that require regular medication?</b> |
| (a) Yes <input type="checkbox"/> (b) No <input type="checkbox"/>   |  |
| <b>6</b>   | <b>On average, how <u>often</u> do you purchase over-the-counter (OTC) medicines?</b>  |
| <input type="checkbox"/> Never purchased before<br><input type="checkbox"/> 1 or 2 purchases in a year<br><input type="checkbox"/> 3 or 4 purchases in a year<br><input type="checkbox"/> Between 5 and 9 purchases in a year<br><input type="checkbox"/> Between 10 and 19 purchases in a year<br><input type="checkbox"/> 20 purchases or more |  |
| <b>6</b>   | <b>On average, what is your total value of purchasing over-the-counter medicines (OTC) in a year?</b>                                      |
| <input type="checkbox"/> =< AU\$100<br><input type="checkbox"/> Between AU\$101 and AU\$250<br><input type="checkbox"/> Between AU\$251 and AU\$500<br><input type="checkbox"/> Between AU\$501 and AU\$1000<br><input type="checkbox"/> > AU\$1000  |  |

|   |   |  |
|---|---|--|
| <b>A</b>  | <b>For the following demographic questions, please place a tick (✓) in the box next to the relevant response.</b> |  |
| <b>1. What is your gender?</b>  |   |  |
| <input type="checkbox"/> Female   | <input type="checkbox"/> Male   |  |
| <b>2. What is your age?</b>   |   |  |
| <input type="checkbox"/> 18 - 25  | <input type="checkbox"/> 46 - 55  |  |
| <input type="checkbox"/> 26 - 35  | <input type="checkbox"/> 56 - 65  |  |
| <input type="checkbox"/> 36 - 45  | <input type="checkbox"/> 66+  |  |
| <b>3. What is the highest level of education you have completed?</b>                |   |  |
| <input type="checkbox"/> Primary School   | <input type="checkbox"/> Diploma/Associate Diploma  |  |
| <input type="checkbox"/> School Certificate, or the equivalent of Year 10 now       | <input type="checkbox"/> Bachelor Degree  |  |
| <input type="checkbox"/> Higher School Certificate or the equivalent of Year 12 now | <input type="checkbox"/> Honours Degree   |  |
| <input type="checkbox"/> TAFE/Trade/Certificate/Apprentice Course                   | <input type="checkbox"/> Master Degree / Doctorate (PhD) or higher  |  |
| <b>4. What is your household's annual combined income before tax in AUD?</b>        |   |  |
| <input type="checkbox"/> Under AUD 20,000   | <input type="checkbox"/> AUD 100,001 – 120,000  |  |
| <input type="checkbox"/> AUD 20,001 – 40,000  | <input type="checkbox"/> AUD 120,001 – 140,000  |  |
| <input type="checkbox"/> AUD 40,001 – 60,000  | <input type="checkbox"/> AUD 140,001 – 160,000  |  |
| <input type="checkbox"/> AUD 60,001 – 80,000  | <input type="checkbox"/> AUD 160,000 or more  |  |
| <input type="checkbox"/> AUD 80,001 – 100,000                                       |   |  |
| <b>5. Which state of Australia are you living in currently?</b>                     |   |  |
| <input type="checkbox"/> Australia Capital Territory                                | <input type="checkbox"/> South Australia  |  |
| <input type="checkbox"/> New South Wales  | <input type="checkbox"/> Tasmania   |  |
| <input type="checkbox"/> Northern Territory   | <input type="checkbox"/> Victoria   |  |
| <input type="checkbox"/> Queensland   | <input type="checkbox"/> Western Australia  |  |
| <b>6. What is your country of origin?</b>   |   |  |
| Please state: _____   |   |  |

## Section B

The following questions examine your **CONCERN** about **COUNTERFEIT MEDICINES**.

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly<br>Disagree  | Disagree              | Somewhat<br>Disagree  | Neither<br>Agree<br>nor<br>Disagree | Somewhat<br>Agree     | Agree                 | Strongly<br>Agree     |
|---|-----------------------|-----------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|-----------------------|
| I am concerned about over-the-counter (OTC) medicines in pharmaceutical industry like counterfeiting. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned about the counterfeiting of OTC medicines.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned about the source of OTC medicines.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned about the production of OTC medicines.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned about the effects of counterfeit OTC medicines when making purchases.                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned about the dangers of consuming counterfeit OTC medicines.                              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section C

The following questions examine your **CONCERN** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly<br>Disagree  | Disagree              | Somewhat<br>Disagree  | Neither<br>Agree<br>nor<br>Disagree | Somewhat<br>Agree     | Agree                 | Strongly<br>Agree     |
|--|-----------------------|-----------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|-----------------------|
| I am concerned of the side-effects of consuming generic brands of OTC medicines.                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned about the similarity of generic brands of OTC medicines compared to brand-name OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I prefer the doctors to decide my generic brands of OTC medicines substitution rather than myself.           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned that generic brands of OTC medicines have different names from my brand-name OTC medicines.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned to use generic brands of OTC medicines since my friends have warned me about it.              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned that generic brands of OTC medicines look different from my brand-name OTC medicines.         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned that generic brands of OTC medicines are not tested in combination with my medication.        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section D

The following questions examine your **KNOWLEDGE** about **COUNTERFEIT MEDICINES**.

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly<br>Disagree  | Disagree              | Somewhat<br>Disagree  | Neither<br>Agree<br>nor<br>Disagree | Somewhat<br>Agree     | Agree                 | Strongly<br>Agree     |
|---|-----------------------|-----------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|-----------------------|
| I am familiar with counterfeiting of over-the-counter (OTC) medicines.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am familiar with the efforts to stop counterfeiting of OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am knowledgeable about counterfeiting of OTC medicines.               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section E

The following questions examine your **KNOWLEDGE** about **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| I am familiar with generic brands of OTC medicines.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I know the differences between generic brands of OTC medicines and brand-name OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I know the advantages of using generic brands of OTC medicines.                              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am knowledgeable about generic brands of OTC medicines.                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section F

The following questions examine your **PERCEIVED PERFORMANCE RISK** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| As I consider the purchase of generic brands of OTC medicines for my own use, I worry whether about the product will really perform as well as it is supposed to.                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I were to purchase generic brands of OTC medicines for my own use, I become concerned that the generic brands of OTC medicines will not provide the level of benefits that I would be expecting. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The thought of purchasing generic brands of OTC medicines for my own use causes me to be concerned for how really dependable and reliable that product will be.                                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section G

The following questions examine your **PERCEIVED FINANCIAL RISK** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| Purchasing generic brands of OTC medicines for my own use would be a bad way to spend my money.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I bought generic brands of OTC medicines for my own use, I would be concerned that the financial spending that I make would not be wise.      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I bought generic brands of OTC medicines for my own use, I would be concerned that I really would not get my money's worth from this product. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section H

The following questions examine your **PERCEIVED PHYSICAL RISK** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| One concern I have about purchasing generic brands of OTC medicines for my own use is that it would not cure my diseases.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My purchase of generic brands of OTC medicines for my own use leads to concern about whether the product could lead to healing my diseases.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Because generic brands of OTC medicines may not be completely safe when I contemplate purchasing generic brands of OTC medicines for my own use, I become concerned about potential physical risks associated with this product. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section I

The following questions examine your **PERCEIVED PSYCHOLOGICAL RISK** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| The thought of buying generic brands of OTC medicines give me an unwanted feeling of anxiety.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am concerned that I will regret my purchase of generic brands of OTC medicines.               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel psychologically uncomfortable when considering buying generic brands of OTC medicines.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I experience unnecessary tension when I think about purchasing generic brands of OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section J

The following questions examine your **PERCEIVED SOCIAL RISK** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| If I were to purchase generic brands of OTC medicines within the next 12 months, I would be concerned that the esteem that my family and friends have for me would drop. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am afraid that consuming generic brands of OTC medicines would negatively affect what others think of me.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I were to buy generic brands of OTC medicines for myself within the next 12 months, I would be concerned that others would not see me the way I want them to.         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am worried that consuming generic brands of OTC medicines would make others look down upon me.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section K

The following questions examine your **TRUST** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| The quality of generic brands of OTC medicines guarantees satisfaction.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Generic brands of OTC medicines are products that meets my expectations. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident in the quality of generic brands of OTC medicines.      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I could rely on the generic brands of OTC medicines.                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section L

The following questions examine **SOCIAL INFLUENCES** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| My family members suggest that I buy generic brands of OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My friends suggest that I buy generic brands of OTC medicines.        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My colleagues suggest that I buy generic brands of OTC medicines.     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My doctors suggest that I buy generic brands of OTC medicines.        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My nurses suggest that I buy generic brands of OTC medicines.         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My pharmacists suggest that I buy generic brands of OTC medicines.    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section M

The following questions examine **INFORMATIONAL SUSCEPTIBILITY** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| To make sure I buy the right generic brands of OTC medicines. I often observe what others are buying and using.                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I have little experience with generic brands of OTC medicines. I often ask my friends about the product.                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I often consult other people to help choose the best alternative available from a product class of generic brands of OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I frequently gather information from friends or family about generic brands of OTC medicines before I buy them.                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section N

The following questions examine **NORMATIVE SUSCEPTIBILITY** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| I rarely purchase the newest generic brands of OTC medicines until I am sure my friends approve of them.            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is important that others like the generic brands of OTC medicines that I buy.                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| When buying generic brands of OTC medicines, I generally purchase those brands that I think others will approve of. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If other people can see me using generic brands of OTC medicines, I often purchase the brand they expect me to buy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I like to know what generic brands of OTC medicines that make a good impression on others.                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I achieve a sense of belonging by purchasing the same generic brands of OTC medicines that others purchase.         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If I want to be like someone, I often try to buy the same generic brands of OTC medicines that they buy.            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I often identify with other people by purchasing the same generic brands of OTC medicines they purchase.            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

### Section O

The following questions examine **FACILITATING CONDITIONS** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)

(Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| There is a lack of education campaign about generic brands of OTC medicines in Australia.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Generic brands of OTC medicines are always available in every legitimate drug store in Australia.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I know pharmacists or general practitioners who would recommend me to purchase generic brands of OTC medicines instead of brand-name OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I know how to get access to generic brands of OTC medicines in Australia.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Appropriate anti-counterfeit medicines measures in Australia make me feel safe to purchase generic brands of OTC medicines.                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section P

The following questions examine your **ATTITUDES** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)  
 (Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| I feel that generic brands of OTC medicines are reliable.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that generic brands of OTC medicines are good.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that generic brands of OTC medicines can be trusted.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that generic brands of OTC medicines are effective.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that generic brands of OTC medicines are safe.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that using generic brands of OTC medicines provide similar benefits to the brand-name OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section Q

The following questions examine your **INTENTION** to buy **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)  
 (Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|  | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| I intend to buy generic brands of OTC medicines in the future.                                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All things considered, it is likely that I will buy generic brands of OTC medicines in the future. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| All things considered, I expect to buy generic brands of OTC medicines in the future.              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I will buy generic brands of OTC medicines in the future.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section R

The following questions examine **PRICE DIFFERENTIAL** towards **GENERIC BRAND of Over-The-Counter (OTC) MEDICINES**. (e.g. PARACETAMOL)  
 (Please **choose** one available options for each statement which reflects your *level of agreement* with that statement)

|   | Strongly Disagree     | Disagree              | Somewhat Disagree     | Neither Agree nor Disagree | Somewhat Agree        | Agree                 | Strongly Agree        |
|---|-----------------------|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-----------------------|
| If there is a significant price difference between generic brands of OTC medicines and brand-name OTC medicines, it would lead me to purchase generic brands of OTC medicines.          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In my opinion, generic brands of OTC medicines will be the best choice if there is a significant price difference between generic brands of OTC medicines and brand-name OTC medicines. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I will use generic brands of OTC medicines because there is a significant price difference between generic brands of OTC medicines and brand-name OTC medicines.                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## Section S

The following questions examine your **WILLINGNESS TO RECOMMEND** generic brands of **Over-The-Counter (OTC) medicines**.  
 (Please **choose** one available options for each statement which reflects your level of agreement with that statement)

|   | Unlikely at all       | Very Unlikely         | Somewhat Unlikely     | Unlikely              | Undecided             | Likely                | Somewhat Likely       | Very Likely           | Extremely Likely      |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Will you recommend generic brands of OTC medicines to friends and associates? | <input type="radio"/> |

**Appendix B: Ethics Approval/Clearance from HREC Curtin University (SOM2013026)  
(Chapter 4)**



**Form C**

**Application for Approval of Research with Low Risk  
(Ethical Requirements)**

SOM2013026

Office Use Only: Date Added to Database: \_\_\_\_\_ Application No: \_\_\_\_\_

This form should be completed by students/staff undertaking research involving humans with low risk, defined as research where participants have the potential to suffer no harm, but where there is potential to suffer only inconvenience or discomfort". Research may not commence without written notification of approval. This form must be submitted along with the checklist in the [Application Guidelines](#). Please complete this document electronically save it, print it, and have it signed, then submit it.

Please note that if your application involving humans is not classed as low risk you will need to complete a Form A "Application for Ethical Approval of Human Research" <http://research.curtin.edu.au/ethics/human.cfm#application>

**SECTION 1 TO BE COMPLETED BY APPLICANT**

1. **Investigator Name(s)** Johan Liang **ID Number** 13300133  
**Supervisor Name** Professor Ian Phau **ID Number** \_\_\_\_\_  
(if applicable)  
**Telephone** 0421716142 **Email** j.liang@cbs.curtin.edu.au  
**Mailing Address** 25 Northampton Street, East Victoria Park, WA 6101  
**School/Department** School of Marketing
2. **Project Title** Attitude towards Generic Brands (over-the-counter medicines)

3. **Plain English summary of Project** (maximum 100 words)

The study consumers' attitudes towards generic brands of over-the-counter (OTC) medicines in Australia. It also examines the intention to buy and willingness to recommend generic brands of over-the-counter (OTC) medicines. Structural Equation Modelling will be used to analyze the data and prove each hypothesis.

4. **Aims of Project** (maximum 100 words)

This research aims to examine consumer perspectives towards generic brand of over-the-counter (OTC) medicines in general. Specifically, perceived risk, concern, knowledge, trust, attitude, interpersonal influence, social factor and facilitating condition are the factors that affect consumer intention to buy generic brands of over-the-counter (OTC) medicines. Price differential is a moderation variable between intention and actual purchase. Theory of Planned Behaviour and Neutralization Theory are the main theory to explain this phenomenon.

**Appendix C: Questionnaire Format for Reviewers (83 Items) (Chapter 5, Stage One: Study Three)**

**Attitudes towards Generic Brands Study**

|                        |  |
|------------------------|--|
| <b>Expert Reviewer</b> |  |
| <b>Date</b>            |  |

I am a PhD student of Marketing, supervised by Professor Ian Phau at Curtin University. I would like to kindly seek your participation in the expert opinion which is part of my study. The study focuses on developing scale to measure “attitudes towards generic brands”. The scale for each construct is in Likert scale from 1 = “Strongly Disagree” to 7 = “Strongly Agree”. The context of this study focuses on health supplement and generic medicines but it is to be generalized to all generic brands.

The definition of “**attitudes towards generic brands**” is:

*“Person’s belief and feeling towards a distributor’s brand that does not include a traditional brand name on its label”* (McEnally and Hawes, 1994)

*“Person’s belief and feeling towards a plainly packaged, less expensive version of a product, such as paper towels, canned fruits, potato chips and coffee filters”* (Moutinho, 1987)

*“Person’s belief and feeling towards products characterized by little or no advertising, absence of brand names, and plain, strack, black-and-white labels”* (Neidell, Boone, and Cagley, 1985)

Thank you very much in advance for your support and time.

Best regards,

Johan Liang

Correspondence:

Johan Liang

Johan.liang@student.curtin.edu.au

Tel. 0421 716 142

Supervisor:

Prof. Ian Phau

ian.phau@cbs.curtin.edu.au

Tel. 08 9266 4014

As an expert in the area of generic brands as well as in scale development, please think back to your past experiences with generic brands and rate each statement based on the extent to which you believe each statement best explains the concepts of attitudes towards generic brands. The definition of the concept provided on the previous page should be used to help you with your assessment.

**INSTRUCTIONS**

- Carefully read the **DEFINITIONS** of the concepts or constructs of the scale on the previous page.
- Evaluate the **EXTENT** to which the statements tap into the definition of the concept on each page. All statements will employ a seven point Likert scale, ranging from “strongly disagree” to “strongly agree”.
- However, for each statement, please circle/highlight one of the boxes in the right hand column and the following response scale are:

**X1** = not representative at all  
**X4** = somewhat representative  
**X7** = clearly representative

For example, the table below indicates that you have rated the first statement as “somewhat representative” and the second statement as “clearly representative”.

| A | Questionnaires                                      | Not representative at all |    |    | Clearly representative |    |    |
|---|---|---------------------------|----|----|------------------------|----|----|
|   |   | X1                        | X4 | X7 | X1                     | X4 | X7 |
| 1 | Someone who buys generic brands is a smart shopper. | X1                        | X4 | X7 | X1                     | X4 | X7 |
| 2 | Generic brands are for poor families.               | X1                        | X4 | X7 | X1                     | X4 | X7 |

- If you believe any of the statements are **DUPLICATED** or very similar, please identify the two statements and indicate which one of the two statements you would delete. Please give your comments on duplicated and deleted statements in the “comments” box at the end of each statement.  
Please read and rate all of the statements, being careful not to omit or skip any. If you have **ANY OTHER** comments, please also provide them in the “comments” box at the end of each statement.

| <b>The following statements examine various aspects of consumers' attitudes towards generic brands</b> |   |                                  |                               |           |
|--|---|----------------------------------|-------------------------------|-----------|
| <b>A</b>   | <b>Questionnaires</b>   | <i>Not representative at all</i> | <i>Clearly representative</i> |           |
| <b>1</b>   | Someone who buys generic brands is a smart shopper.                                   | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>2</b>   | People would not like friends to know that they buy generic brands. (r)               | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>3</b>   | Generic brands are just as good as other brands available.                            | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>4</b>   | Generic brands can be trusted to be as good as other brands.                          | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>5</b>   | It would be embarrassing if my neighbour saw my shopping bags full of generic brands. | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>6</b>   | Generic brands are for poor families.   | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>7</b>   | Generic brands are a lot cheaper than other brands.                                   | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>8</b>   | Generic brands are made from cheap materials/ingredients.                             | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>9</b>   | Buying generic brands makes me feel good.   | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>10</b>  | I love it when generic brands are available for the product categories I purchase.    | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>11</b>  | For most product categories, the best buy is usually the generic brands.              | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>12</b>  | In general, generic brands are poor-quality products. (r)                             | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>13</b>  | Considering the value for money, I prefer generic brands.                             | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>14</b>  | When I buy a generic brand, I always feel that I am getting a good deal.              | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>15</b>  | Generic brands are as reliable as the established brands.                             | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>16</b>  | Generic brands have similar quality to the established brands.                        | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>17</b>  | Generic brands provide similar function to the established brands.                    | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>18</b>  | Generic brands damage interest and rights of the branded manufacturer.                | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>19</b>  | Generic brands will hurt the branded industry.  | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |

|                 |  |    |    |    |
|-----------------|--|----|----|----|
| <b>Comment:</b> |  |    |    |    |
| 20              | Generic brands infringe intellectual property.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 21              | Generic brands are illegal.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 22              | Generic brands are unethical.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 23              | Without generic brands, many people will not be able to purchase (products category).                        | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 24              | Generic brands are inferior brands.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 25              | Buying generic brands are good value for money.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 26              | I am satisfied with the quality of generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 27              | It is convenient to buy generic brands.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 28              | Generic brands look appealing.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 29              | I am familiar with generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 30              | Generic brands are popular among my friends.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 31              | I feel confident to use generic brands.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 32              | I will re-purchase generic brands after I have tried once.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 33              | I will be loyal to generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 34              | Generic brands lack variety in product categories.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 35              | Generic brands lack variety in package size.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 36              | Generic brands have attractive packages. (r)   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 37              | I am aware of my friends' opinion of generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 38              | Generic brands are alternative choices for consumers.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 39              | Generic brands change my lifestyle.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 40              | Generic brands must pass government testing to show that they contain the same amount of established brands. | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 41              | I believe generic brands are for lower-income groups.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 42              | I like generic brands.   | X1 | X4 | X7 |

|                 |  |    |    |    |
|-----------------|--|----|----|----|
| <b>Comment:</b> |  |    |    |    |
| 43              | I am fond of generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 44              | It is safe to use generic brands.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 45              | I believe generic brands are safe to be consumed.                                    | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 46              | Purchasing generic brands is a good idea.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 47              | Low-income consumers will always buy generic brands.                                 | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 48              | Generic brands target low-income consumers.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 49              | I encourage other people to buy generic brands.                                      | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 50              | I recommend generic brands to other people.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 51              | Purchasing generic brands is a wise idea.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 52              | I do not like the idea of purchasing generic brands.                                 | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 53              | Purchasing generic brands lowers my social status.                                   | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 54              | I believe purchasing generic brands will save money.                                 | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 55              | Generic brands are alternative brands for low-income consumers.                      | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 56              | It is risky to purchase generic brands.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 57              | Purchasing generic brands are pleasant.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 58              | I am satisfied that generic brands must pass government testing to ensure my safety. | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 59              | Generic brands have dull packaging.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 60              | Generic brands are hard to be recognized.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 61              | Generic brands have lower quality than established brands.                           | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 62              | Using generic brands will have a negative impact to my health in the long run.       | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 63              | Generic brands look dull to me.  | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 64              | Generic brands do not meet the standard of safety. (r)                               | X1 | X4 | X7 |
| <b>Comment:</b> |  |    |    |    |
| 65              | Generic brands do not meet the standard of efficacy. (r)                             | X1 | X4 | X7 |

|                 |   |    |    |    |
|-----------------|---|----|----|----|
| <b>Comment:</b> |   |    |    |    |
| 66              | Generic brands have a negative image in my perspective. (r)                         | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 67              | Generic brands are not attractive to me. (r)  | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 68              | I would feel more comfortable using established brands than the generic brands.     | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 69              | Generic brands are for innovative consumers.  | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 70              | Generic brands are for consumers who like to try new brands.                        | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 71              | It is easy for me to accept generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 72              | It is common for me to purchase generic brands.                                     | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 73              | I like shopping for generic brands.   | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 74              | Buying generic brands generally brands the consumer.                                | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 75              | There is nothing wrong with purchasing generic brands.                              | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 76              | Generally speaking, buying generic brands is a better choice.                       | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 77              | I am aware that there are many generic brands available.                            | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 78              | I am comfortable using generic brands generally.                                    | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 79              | Generic brands give a negative image to my self-esteem.                             | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 80              | I do not think that generic brands would be as effective as established brands. (r) | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 81              | I do not think that generic brands would be as safe as established brands. (r)      | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 82              | Generic brands save money.  | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |
| 83              | It is worth paying more for generic brands. (r)                                     | X1 | X4 | X7 |
| <b>Comment:</b> |   |    |    |    |



**Appendix D: Questionnaire Format for Reviewers (39 Items) (Chapter 5, Stage One: Study Five)**

**Attitudes towards Generic Brands Study**

|                        |  |
|------------------------|--|
| <b>Expert Reviewer</b> |  |
| <b>Date</b>            |  |

I am a PhD student of Marketing, supervised by Professor Ian Phau at Curtin University. I would like to kindly seek your participation in the expert opinion which is part of my study. The study focuses on developing scale to measure “attitudes towards generic brands”. The scale for each construct is in Likert scale from 1 = “Strongly Disagree” to 7 = “Strongly Agree”. The context of this study focuses on **health supplement and generic medicines** but it is to be generalized to all generic brands.

The definition of “**attitudes towards generic brands**” is:

*“Person’s belief and feeling towards a **distributor’s brand** that does not include a **traditional brand name on its label**” (McEnally and Hawes, 1994)*

*“Person’s belief and feeling towards a **plainly packaged, less expensive version of a product, such as paper towels, canned fruits, potato chips and coffee filters**” (Moutinho, 1987)*

*“Person’s belief and feeling towards products characterized by **little or no advertising, absence of brand names, and plain, strack, black-and-white labels**” (Neidell, Boone, and Cagley, 1985)*

*“Person’s belief and feeling towards brands that **mimic parent or famous brands with different label, lower prices, similar function and equal quality.**” (COMPOSITE DEFINITION)*

Thank you very much in advance for your support and time.

Best regards,

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As an expert in the area of generic brands (**generic medicines or health supplements**) as well as in scale development, please think back to your past experiences with generic brands (**generic medicines or health supplements**) and rate each statement based on the extent to which you believe each statement best explains the concepts of attitudes towards generic brands. The definition of the concept provided on the previous page should be used to help you with your assessment.

**INSTRUCTIONS**

- Carefully read the **DEFINITIONS** of the concepts or constructs of the scale on the previous page.
- Evaluate the **EXTENT** to which the statements tap into the definition of the concept on each page. All statements will employ a seven point Likert scale, ranging from “strongly disagree” to “strongly agree”.
- However, for each statement, please circle/highlight one of the boxes in the right hand column and the following response scale are:

**X1** = not representative at all  
**X4** = somewhat representative  
**X7** = clearly representative

For example, the table below indicates that you have rated the first statement as “somewhat representative” and the second statement as “clearly representative”.

| A | Questionnaires                                      | Not representative at all |    |    | Clearly representative |    |    |
|---|---|---------------------------|----|----|------------------------|----|----|
|   |   | X1                        | X4 | X7 | X1                     | X4 | X7 |
| 1 | Someone who buys generic brands is a smart shopper. | X1                        | X4 | X7 | X1                     | X4 | X7 |
| 2 | Generic brands are for poor families.               | X1                        | X4 | X7 | X1                     | X4 | X7 |

- If you believe any of the statements are **DUPLICATED** or very similar, please identify the two statements and indicate which one of the two statements you would delete. Please give your comments on duplicated and deleted statements in the “comments” box at the end of each statement.  
Please read and rate all of the statements, being careful not to omit or skip any. If you have **ANY OTHER** comments, please also provide them in the “comments” box at the end of each statement.

| <b>The following statements examine various aspects of consumers' attitudes towards generic brands</b> |   |                                  |                               |           |
|--|---|----------------------------------|-------------------------------|-----------|
| <b>A</b>   | <b>Questionnaires</b>   | <i>Not representative at all</i> | <i>Clearly representative</i> |           |
| <b>1</b>   | I feel good when I buy generic brands.  | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>2</b>   | I feel that buying generic brands makes me become an unethical person.            | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>3</b>   | I feel that generic brands are the best option to buy in most product categories. | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>4</b>   | I feel that generic brands are not well-known. [r]                                | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>5</b>   | I feel that generic brands are not attractive to me. [r]                          | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>6</b>   | I would feel comfortable using established brands than the generic brands. [r]    | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>7</b>   | I feel that using generic brands lowers my self-esteem.                           | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>8</b>   | I feel that it is unethical to buy generic brands.                                | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>9</b>   | I feel that generic brands are for low-income groups.                             | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>10</b>  | I feel that generic brands are as effective as established brands.                | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>11</b>  | I feel that generic brands are as reliable as established brands.                 | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>12</b>  | I feel that generic brands have similar quality to established brands.            | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>13</b>  | I feel that generic brands provide similar benefits to the established brands.    | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>14</b>  | I am convinced that generic brands are just as good as established brands.        | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>15</b>  | I trust generic brands.   | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>16</b>  | I like the quality of generic brands.   | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>17</b>  | I feel that generic brands are safe.  | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>18</b>  | I feel that generic brands are made from cheaper ingredients. [r]                 | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |
| <b>19</b>  | I feel that only unethical people buy generic brands.                             | <b>X1</b>                        | <b>X4</b>                     | <b>X7</b> |
| <b>Comment:</b>  |   |                                  |                               |           |

|                       |  |    |    |    |
|-----------------------|--|----|----|----|
| 20                    | I feel that generic brands are inferior to established brands. [r]                       | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 21                    | I feel that generic brands have lower quality than established brands. [r]               | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 22                    | I feel that using generic brands will have a negative impact on my health. [r]           | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 23                    | I feel that generic brands are less expensive than established brands.                   | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 24                    | I feel that buying generic brands saves money.   | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 25                    | I feel that generic brands are good value for money.                                     | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 26                    | Generic brands damage the interest and rights of the manufacturer of established brands. | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 27                    | I feel that generic brands damage the established brands.                                | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 28                    | I feel that generic brands are unethical. [r]  | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 29                    | I feel that generic brands are poor-quality products. [r]                                | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 30                    | I feel that using generic brands lowers my social status.                                | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 31                    | I feel that only low-income consumers buy generic brands.                                | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 32                    | Generic brands can be trusted.   | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 33                    | I do not like the idea of purchasing generic brands. [r]                                 | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 34                    | I like generic brands that I am familiar with.   | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 35                    | I like generic brands better when they are popular among my friends.                     | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 36                    | I feel that there is nothing wrong with purchasing generic brands.                       | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 37                    | I feel that generic brands provide alternative choices for consumers.                    | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 38                    | I like it when generic brands are available for the product categories I purchase.       | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| 39                    | I feel that generic brands are as safe as established brands.                            | X1 | X4 | X7 |
| <b>Comment:</b>       |  |    |    |    |
| *[r] = reversed score |  |    |    |    |



## **Appendix E: The Existing Scales and Developed Scale for Validity Test (Chapter 5, Stage Three)**

### ***Intention to buy generic brands (Limayem, Khalifa, and Chin 2004) (Criterion validity)***

1. I intend to buy generic brands of over-the-counter (OTC) medicines in the future.
2. All things considered, it is likely that I will buy generic brands of OTC medicines in the future.
3. All things considered, I expect to buy generic brands of OTC medicines in the future.
4. I will buy generic brands of OTC medicines in the future.

### ***Attitudes towards generic medicines (Figueiras et al. 2009) (Nomological validity)***

1. Generic brands of OTC medicines are the same as brand -name ones.
2. Generic brands of OTC medicines have a similar taste as brand-name OTC medicines.
3. Generic brands of OTC medicines have the same side effects as brand-name OTC medicines.
4. Generic brands of OTC medicines have a different packaging from brand-name OTC medicines
5. The use of generic brands of OTC medicines is similar to brand -name ones.
6. Generic brands of OTC medicines are exactly the same as brand-name OTC medicines.

### ***Attitudes towards private label brands (Burton et al. 1998) (Convergent validity)***

1. Buying generic brands of OTC medicines makes me feel good.
2. For most product categories, the best buy is usually the generic brands of OTC medicines.
3. In general, generic brands of OTC medicines are poor-quality products. (reverse coded)
4. Considering the value for the money, I prefer generic brands of OTC medicines than established brands of OTC medicines.
5. When I buy a generic brand of OTC medicine, I always feel that I am getting a good deal.

### ***Attitudes towards pirated brands (Ang et al. 2003) (Discriminant validity)***

1. Generic brands of OTC medicines help the pharmaceutical industry.
2. Generic brands of OTC medicines benefit society.
3. Without generic brands of OTC medicines, many people will not be able to purchase medicines.

### ***Attitudes towards generic brands (DEVELOPED SCALE)***

1. I feel that generic brands of OTC medicines are reliable.
2. I feel that generic brands of OTC medicines are good.
3. I feel that generic brands of OTC medicines can be trusted.
4. I feel that generic brands of OTC medicines are effective.
5. I feel that generic brands of OTC medicines are safe.
6. I feel that using generic brands of OTC medicines provide similar benefits to the established brands.

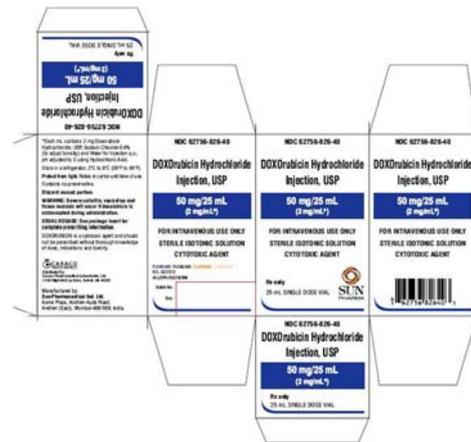
## Appendix F: Visual Stimuli of Each Product Category for Generalizability Test (Chapter 5, Stage Four)

### Category A (prescription medicines for chronic condition, e.g. cancer)

**Doxil (established brand) *VERSUS* Doxorubicin (generic version of Doxil)**



VS



### Category B (prescription medicines for acute conditions, e.g. cold or influenza)

**Panadol Osteo (established brand) *VERSUS* Panamax (generic version of Panadol Osteo)**



VS



**Category C (over-the-counter medicine)**

**Panadol (established brand) *VERSUS* Paracetamol (generic version of Panadol)**



**VS**



**Category D (fish oil supplement)**

**Nutrigold (established brand) *VERSUS* Kirkland (generic version of Nutrigold)**



**VS**

