Title: Realising the potential of Q methodology in nursing research

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ABSTRACT

Background: Mixed methods research designs are becoming increasingly popular in nursing to explore complex clinical issues and to generate knowledge useful to improve the quality of nursing practice and clients' health outcomes. Q methodology is one such research design that combines the strengths of both qualitative and quantitative approaches to examine scientifically peoples' subjectivity towards a subject area. **Aim:** This paper aim to provide nurses with an introduction to Q methodology and outlines the steps taken when conducting research on clinical issues. **Methods:** A clinical example of nurses caring for clients with a risk for aggression is used to illustrate how Q methodoloy was used to examine this subject area. The five sequential phases of Q-methodology integrate both approaches in a continuous interaction in a single study design, enabling researchers to explore the breadth and depth of factors that influence participants' responses towards the topic under investigation. **Findings:** Q methodology is a unique mixed methods design as it does not require the researcher to spend time to triangulate two or more research approaches into one single study or to conduct a qualitative and a quantitative study separately. The unique characteristics of Q methodology can be advantageous for nurses who have complex clinical workloads but also want to conduct research. Moreover, Q methodology does not require a large sample size, hence it is resource- and cost-effective. **Discussion:** Q methodology allows both nurse clinicians and nurse academics to explore new dimensions of staff and clients' subjectivity which is important for the development of evidence based practice. **Conclusion:** Adding Q methodology to the nursing research repertoire can facilitate nurse researchers to expand clinical research opportunities, to improve client care and to build capacity in early career nurse researchers.

Issue
- Many nurses are conducting research on top of their clinical roles and responsibilities to address complex issues of health care delivery.
- Mixed methods approaches are increasingly becoming popular in nursing research to tackle the limited time and resources allocated to conduct research in the clinical setting.

What is already known
- Nurses are triangulating or combining qualitative and quantitative research approaches to conduct mixed method research.

- Q methodology is an effective mixed method research approach that is ready-to-use for examining human subjectivity.
- Q methodology is not well-represented in nursing research.

What this paper adds
- This paper provides nurses with increased awareness of the potential of Q methodology to explore emerging nursing issues.
- This paper provides nurses with the understanding of how to conduct a study using Q methodology

INTRODUCTION AND BACKGROUND

The increasing complexity of health care, along with the importance of advancing innovations in nursing practice, has led nurses to conduct research while balancing their clinical roles and responsibilities (Chiang-Hanisko et al., 2016; Siedlecki & Albert, 2017). The need for nurses to conduct research is driven by the fact that nurses are well-positioned in the clinical settings to identify clinical problems in need of solution (Siedlecki & Albert, 2017). For this reason, mixed methods research approaches are appealing, as they allow nurses to generate knowledge that captures the multi-faceted dimensions of a particular clinical issue, and broaden their understanding of its impact on both the profession and client outcomes (Chiang-Hanisko et al., 2016).

Q methodology is a ready-to-use mixed methods research approach that nurses can use to conduct both professional and client focused research. Q methodology was developed by psychologist William Stephenson in 1935 (Roberts et al., 2015), and is an inverted technique of the prevailing R methodology, which is a generic name for methods that use 'by-variable' factor analysis (Watts & Stenner, 2012a). As such, the participants is transposed as the 'units of analysis' and their variables as the 'samples', so that a 'by-person' factor analysis can be performed to quantify the similarities and differences of the subjectivity in a group of people (McKeown & Thomas, 2013; Ramlo & Newman, 2011; Watts & Stenner, 2012a, 2012b). The term 'subjectivity' is used in Q methodology, and refers to the internal human qualities of a person, for example beliefs, attitudes, knowledge, and skills that can influence one's behaviour or response in a particular clinical situation (Onwuegbuzie, 2012; Watts & Stenner, 2005).

Unlike most mixed methods approaches used in nursing that require the researchers to triangulate or conduct at least two or more studies, Q methodology intertwines both

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qualitative and quantitative methods in a continuous iterative process to statistically reveal participants' subjectivity (Onwuegbuzie, 2012; Shinebourne, 2009; Simons, 2013; Watts & Stenner, 2005). For this reason, Q methodology is a more time and cost-effective approach for nurses to use for generating knowledge about participants' subjectivity when compared to other mixed method approaches (Akhtar-Danesh et al., 2008; Greenwood & Terry, 2012).

Q methodology has the potential to be very useful for nurses to examine complex clinical issues and contribute to the development of evidence-based, consistent and sustainable high-quality nursing practice. However, the use of this research method is not well-represented in nursing research, with a search of existing nursing literature revealing that Q methodology has not been widely used by the profession. Therefore, the aim of this paper is to increase nurses' awareness of the potential of Q methodology to explore emerging nursing issues. A clinical example of using Q methodology to examine nurses' subjectivity when working with clients who may become aggressive is provided. The example delineates the steps taken in the research process to identify the beliefs and attitudes of nurses caring for this group of clients.

A clinical example of using Q methodology

Nurses are more likely than other health professionals to be present when a client displays aggression due to their ongoing presence in the clinical setting (Jonker et al., 2008; Llor-Esteban et al., 2017). Aggression is a range of behaviours that clients may present with, that includes, shouting, screaming, throwing or hitting objects, and/or being physically abusive or threatening another person (Bowers et al., 2008; Stone & Hazelton, 2008). Aggression in the workplace can leave nurses feeling frightened and unsafe. It can also lead to the increased use of interventions such as Pro Re Nata (PRN) medications and in some circumstances sedative medications or physical restraint (Fletcher et al., 2018; Muir-Cochrane et al., 2018).

Nurses' responses to clients who are at risk for aggression is influenced by their beliefs and attitudes regarding the causes of aggression, along with their level of knowledge and skills to use a range of interventions to reduce the risk (Edward et al., 2014; Happell & Koehn, 2011; Jeffery & Fuller, 2016; Lim, 2010; Muir-Cochrane et al., 2018). For example, nurses with positive beliefs and attitudes are more likely to use therapeutic interpersonal communications to encourage clients to self-regulate their behaviours (Bowers, 2014; Lim et al., 2017). For this reason, the researchers used Q methodology to explore this issue. Hereafter this work is referred to as the "aggression study" as the reader is provided with examples of how Q methodology can be used clinically.

STEPS IN Q METHODOLOGY

There are five sequential steps in Q methodology and they are: 1) the preparation of the data collection tool; 2) recruitment of participants; 3) data collection; 4) factor analysis; and 5) factor interpretation.

Step 1: Preparation of data collection tool

Research using Q methodology commences with the preparation of the data collection tool. Firstly, a concourse (Brown, 1996), which is a broad list of general statements that communicate the area being researched can be generated through conversations, commentary, and discourse of everyday life with people experienced in the topic, and reviews of relevant literature, media reports, newspaper, and books (Van Exel & de Graaf, 2005). As the aggression study was a large study, the list of statements was generated using both qualitative and quantitative information obtained in earlier phases of the research (Watts & Stenner, 2012a). This allowed the findings of a scoping literature review on aggression (Lim et al., 2017), interviews with nurses (Lim et al., 2019a) and clients (Lim et al., 2019b) about the causes and management of aggression to be included in generating the concourse. The generated list used to form the concourse was checked by all members of the research team until consensus was reached, that statements were relevant to the identified participant population and study objectives (Akhtar-Danesh et al., 2008; Ha, 2018).

After that, 40 statements were selected from the concourse to be used in the data collection tool. The number of selected statements was based on the recommendation of Q methodology, that only 40-80 statements which best represent the topic being researched should be used in the data collection tool (Watts & Stenner, 2012a). Narrowing the number of statements used ensures that each statement communicates a different meaning about the topic being researched (Coogan & Herrington, 2011; Van Exel & de Graaf, 2005). In the aggression study, the 40 statements were checked and agreed upon by the research team, and thereafter rephrased into equal numbers of strong positive or strong negative stance about the topic. Table 1 illustrates the 40 statements used in the data collection tool of the aggression study.

Table 1. Selected statements from the concourse that communicate nurses' beliefs and attitudes caring for clients with risk for aggression

Positive statements about beliefs

1. Clients should be involved in the planning their own care and treatment to reduce aggression
2. Every client endeavour to achieve recovery when admitted to hospital
3. Clients who achieved personal recovery have lower risk for aggression
4. It is important to display positive attitudes when intervening to reduce their potential for aggression
5. It is empowering to support clients to self-manage their own behaviour
6. Clients usually have a reason for displaying aggression in the acute mental health settings
7. Aggression is triggered by the client's negative experience in the hospital
8. Nurses need to put themselves in the client's shoes when intervening to manage aggression
9. Clients can learn about their own strengths and weaknesses to self-manage their own risk for aggression
10. Risk of aggression is reduced when clients understand their own strengths and vulnerabilities

Negative statements about beliefs
11. Distressed clients should never display dysregulated behaviour such as aggression in the hospital
12. Providing recovery-focused care is not suitable for clients with an acute mental illness
13. Clients with an acute mental illness cannot control their own behaviour in the hospital
14. Nurses need to exercise control over all clients in the hospital
15. Clients with an acute mental illness are too unwell to collaborate in their care and treatment
16. Clients are aggressive if they have an acute mental illness and/or drug and alcohol abuse
17. Aggression is not allowed in the hospital regardless of the client's lived experience
18. Clients who are admitted to hospital do not have resources and/or family and carers to support their recovery journey
19. Clients who are non-compliant with care and treatment have higher risk for aggression
20. It is impossible to build a therapeutic relationship with clients with a higher risk for aggression

Positive statements about attitudes
21. It is important to respect client's feelings and thoughts when reducing their level of risk for aggression
22. It is important to listen to peoples' reason for being aggressive before responding
23. Being attentive to the client's lived experience can reduce their level of risk for aggression
24. It is imperative to support clients to self-regulate their own level of risk for aggression
25. It is important to meet the client's needs when they are experiencing a personal and/or mental health crisis
26. Nurses should see each client's episode of aggression as an individual experience
27. Clients should be supported to express their negative emotions in the hospital
28. Clients' aggression can be a response to their negative lived experience
29. Nurses should encourage clients to take responsibility for their own behaviour
30. Nurses should display optimism and offer choices for clients to self-regulate their own behaviour to reduce their potential for aggression

Negative statements about attitudes
31. Clients should not interfere with the clinical decisions about their own care and treatment
32. It is not possible to facilitate both therapeutic and restrictive care at the same time

33. Nurses do not need to get to know the client personally to identify their triggers for aggression
34. Clients have too many requests when they are in the hospital
35. There is nothing that clients can offer to their treatment and care when they are in the hospital
36. It is difficult to trust clients to use their own strengths and abilities to reduce aggression
37. It is impossible to support clients to achieve their recovery goals in the hospital
38. It is irrelevant to explore the client's strengths and life achievements when they are in the hospital
39. It is difficult to assess the client's triggers for aggression
40. Clients with a higher risk for aggression should not be in the hospital

Once the statements were confirmed, a sorting grid was developed (see Figure 1). The sorting grid represented a quasi-normal distribution with a pre-determined range from (-4) 'mostly disagree' to (+4) 'mostly agree' (Dziopa & Ahern, 2011; Van Exel & de Graaf, 2005). The sorting grid contained the same number of boxes as the number of selected statements, for example, in the aggression study 40 boxes for 40 statements so that participants had to sort and rank all the statements (Jang & Wang, 2017; Paige, 2014).

Figure 1. An example of the Q sort table used in the aggression study

Step 2: Recruitment of participants

Recruiting participants with rich and diverse knowledge and/or experience about the topic is an important consideration when using Q methodology (McKeown & Thomas, 2013; Van Exel & de Graaf, 2005). Unlike studies that use R methodology that require a relatively large sample of participants to generalise the finding to a much wider population of people, studies that use Q methdology need less participants to quantify their subjectivity related to the topic.

As such, around 40 to 60 participants with varying degrees of experience is deemed adequate (Akhtar-Danesh et al., 2008; Simons, 2013; Watts & Stenner, 2012a).

In the aggression study, nurses were recruited through the Australian College of Mental Health Nurses. Literature showed that mental health nurses play a central role in the provision of care for clients with risk for aggression (Jeffery & Fuller, 2016; Muir-Cochrane et al., 2018), hence they were an appropriate participant population for the research.

Step 3: Data collection

Data can be collected from participants using either a hardcopy version of the data collection tool or a softcopy version using FlashQ (Hackert & Braehler, 2007) a computer program that is free to download from http://www.hackert.biz/flashq/home/. Data collection in Q methodology is qualitative in nature and requires participants to read and sort the 40-80 selected statements according to their personal feelings and beliefs about the provided statements (Watts & Stenner, 2012a).

In the aggression study, we chose to use FlashQ for data collection. Using this computer program, participants were asked to sort each of the 40 statements into three different categorical piles based on: a) statements they disagreed with; b) statements they felt neutral about; and c) statements they agreed with (Van Exel & de Graaf, 2005). Asking participants to divide the statements into three categorical piles assisted them to gain an initial impression of the positions of the statements before placing them on the sorting grid (Akhtar-Danesh et al., 2008; Watts & Stenner, 2012a).

Next, participants were asked to place the statements which they strongly disagreed from the left of the sorting grid towards the center until all of the statements in the first categorical pile were finished. Following that, the participants were asked to repeat this process with the third categorical pile (agree with) from the right of the table towards the center, and the second categorical pile (felt neutral about) onto the remaining boxes in the center of the sorting grid (Shinebourne, 2009). The process of participants' sorting the statements onto the sorting grid is known as a Q sort (see Figure 2)

Figure 2. An example of a Q sort for the Aggression study

Step 4: Factor analysis

Factor analysis in Q methodology is a quantitative step and can be accomplished using specific tailored programs or using the Statistical Package for the Social Sciences (SPSS) (Watts & Stenner, 2012a). In the aggression study, SPSS was used for convenience.

In order to achieve a by-person factor analysis that correlates each participant's Q sort with other participants and measure their subjectivity, participants were entered as variable and the 40 statements as sample onto the SPSS spreadsheet (Figure 3 is an example of data entry onto the SPSS spreadsheet) (Gabor, 2013; McKeown & Thomas, 2013; Watts & Stenner, 2012a; Webler et al., 2009). After that, factor analysis was completed using the SPSS function: Principle Component Analysis with a varimax method of orthogonal rotation. Varimax rotation of orthogonal rotation was chosen as it is based on the simplest mathematical solution for correlating the statements into unique factors (McKeown & Thomas, 2013; Watts & Stenner, 2012a). This method of rotation maintained the purity of saturation of as many Q sorts as possible to extract the factors when compared to judgemental or theoretical rotations (McKeown & Thomas, 2013; Salkind, 2010).

Figure 3. Example of data entry onto the SPSS spreadsheet

Variable					
Sample	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
1	2	3	2	2	1
2	0	-1	-1	-1	0
3	2	2	2	1	-1
4	4	1	1	2	1
5	1	1	0	3	4
6	2	0	0	2	3
7	2	2	0	0	-2
8	2	1	1	3	2
9	1	4	1	1	1
10	0	2	0	2	3

In the aggression study, the SPSS factor analysis yielded a results table that showed the extracted factors and their total Eigenvalues (EV) (see Figure 4).

Figure 4. An example of the result table and factors that are statistically significant

Factors Component	Eigenvalues Total	Initial Eigenvalues % of Variance	Cumulative %	
1	31.225	53.836	53.836	
2	2.834	4.885	58.722	
3	2.431	4.191	62.913	
4	2.010	3.466	66.380	
5	1.750	3.017	69.397	Factors retained for a statistical rotation
6	1.660	2.863	72.260	
7	1.448	2.497	74.757	
8	1.314	2.265	77.022	
9	1.221	2.106	79.128	
10	1.097	1.891	81.019	
11	.999	1.722	82.740	
12	.928	1.600	84.340	
13	.814	1.403	85.743	Factors excluded for a statistical rotation
14	.796	1.372	87.115	
15	.740	1.275	88.390	

Generally, all factors with an EV of ≥1.0 are considered to be statistically significant and will be retained for factor interpretation in studies using R methodology to achieve empirical generalisation of the findings (Akhtar-Danesh & Mirza, 2017; Watts & Stenner, 2012a). However, studies using Q methodology are interested to reveal the patterns a group of individuals, rather than to identify their numerical distribution, hence retain factors if are deemed to have potential explanatory power (Akhtar-Danesh & Mirza, 2017). As such, a scree plot test (Figure 5) can be used to identify factors which are meaningful by analysing EVs that contribute to the downward slope of the EV line graph. Typically, only EVs that contribute to the gradient before the 'elbow' of the slope are retained for factor interpretation, for example factors 1 and 2 in Figure 5 (Watts & Stenner, 2012a). However, factors that are excluded based on the scree plot test may also be included for factor interpretation if the researcher deem them to be theoretically or substantively important to the study (Dziopa & Ahern, 2011). In the aggression study, five factors were retained for factor analysis to expand the breadth and width of knowledge about the topic.

Figure 5. A scree plot test
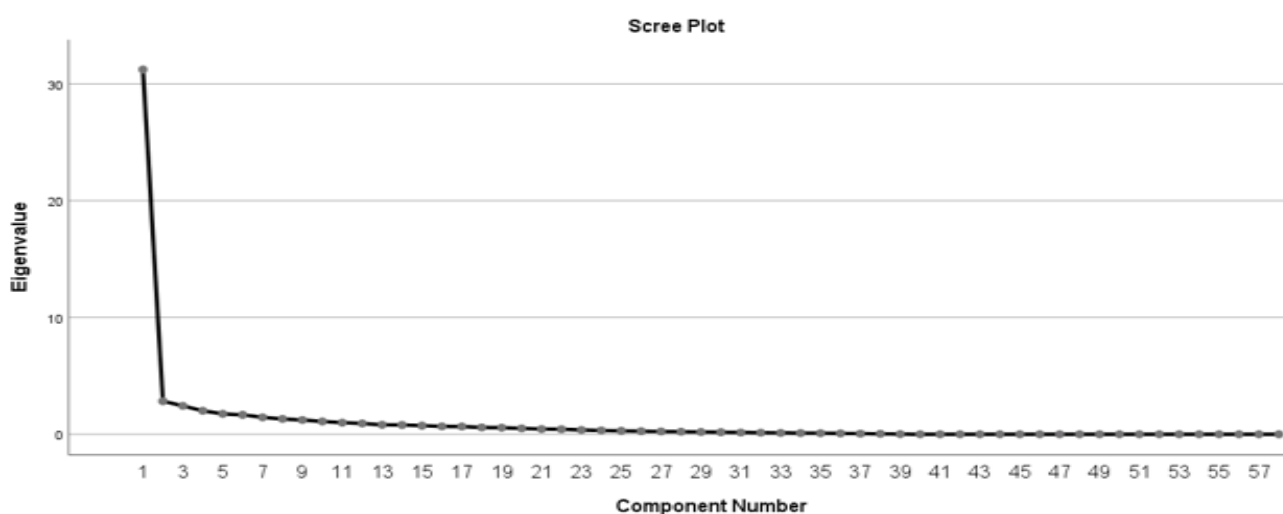
Next, the scores of the 40 statements generated by SPSS for each of the retained factor were downloaded onto the Microsoft Excel spreadsheet and sorted from the highest to the lowest score. Following that, the pre-determined range of distribution (-4 to +4) used in the sorting grid of the data collection tool were paired to rotated statements, and the product of this is known as factor arrays. The factor arrays provided the research team with the Q sorts of all the retained factors which will be used for factor interpretation (McKeown & Thomas, 2013; Watts & Stenner, 2012a). Figure 6 shows the scores of the statements generated by SPSS for one of the retained factor, the rotated position of the statements, and the attachment

of the pre-determined range of distribution of the sorting grid used in the data collection tool to create its factor array.

Figure 6. The process of creating a factor array for a retained factor

Unrotated statement scores			Rotated statement scores (highest to lowest)			Rotated statement scores and array		
Statement	**Factor 1**		**Statement**	**Factor 1**		**Statement**	**Factor 1**	**Array**
S1	0.87404		17	1.41893		17	1.41893	4
S2	0.37214		28	1.40194		28	1.40194	4
S3	0.1811		24	1.29221		24	1.29221	3
S4	-1.2251		26	1.25667		26	1.25667	3
S5	0.29264		7	1.20129		7	1.20129	3
S6	-0.3375		8	1.16799		8	1.16799	2
S7	1.20129		23	0.91522		23	0.91522	2
S8	1.16799		13	0.89906		13	0.89906	2
S9	0.81354		25	0.89719		25	0.89719	2
S10	0.58137		1	0.87404		1	0.87404	2
S11	0.36652		22	0.86229		22	0.86229	1
S12	-1.7898		16	0.84854		16	0.84854	1
S13	0.89906		9	0.81354		9	0.81354	1
S14	-0.451		10	0.58137		10	0.58137	1
S15	-1.5101		36	0.50898		36	0.50898	1
S16	0.84854		33	0.43842		33	0.43842	1
S17	1.41893		21	0.43443		21	0.43443	0
S18	-0.714		2	0.37214		2	0.37214	0
S19	-1.1086		11	0.36652		11	0.36652	0
S20	-0.5963		5	0.29264		5	0.29264	0
S21	0.43443		31	0.21158		31	0.21158	0
S22	0.86229		3	0.1811		3	0.1811	0
S23	0.91522		29	-0.0346		29	-0.0346	0
S24	1.29221		30	-0.14447		30	-0.14447	0
S25	0.89719		27	-0.29375		27	-0.29375	-1
S26	1.25667		6	-0.33754		6	-0.33754	-1
S27	-0.2938		14	-0.45101		14	-0.45101	-1
S28	1.40194		20	-0.59625		20	-0.59625	-1
S29	-0.0346		18	-0.71404		18	-0.71404	-1
S30	-0.1445		35	-0.77923		35	-0.77923	-1
S31	0.21158		40	-0.86619		40	-0.86619	-2
S32	-1.672		34	-1.04414		34	-1.04414	-2
S33	0.43842		19	-1.1086		19	-1.1086	-2
S34	-1.0441		4	-1.22513		4	-1.22513	-2
S35	-0.7792		38	-1.31495		38	-1.31495	-2
S36	0.50898		39	-1.44508		39	-1.44508	-3
S37	-1.9093		15	-1.51013		15	-1.51013	-3
S38	-1.315		32	-1.67195		32	-1.67195	-3
S39	-1.4451		12	-1.78975		12	-1.78975	-4
S40	-0.8662		37	-1.9093		37	-1.9093	-4

In the aggression study, statements with score of ±3 and ±4 in the factor array of each retained factor were considered as important and were retained for factor interpretation. To identify statements which scored lower in the factor array but were also important to a retained factor, all the factor arrays were placed side-by-side for comparisons (Figure 6. illustrated the scores of the statements in the factor arrays and X marked the statements which were considered as important to a particular retained factor). A statement is considered as important to a particular retained factor if it scored the highest or lowest when compared to its own scores in the other retained factors. As noted in Figure 7, statement 1 scored +1 in the array of factor 5, yet was considered as important to this particular factor when compared to its importance to the other retained factors and will be included for factor interpretation.

Figure 7. Comparison of the loading of statements in the arrays of retained factors

Statement	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	2	2	2	**4X**	**1X**
2	0	**-3X**	-2	**3X**	0
3	0	0	**2X**	0	**-2X**
4	**-2X**	**3X**	**4X**	**4X**	**-2X**
5	0	**-2X**	-1	2	**3X**

X marks the statements that are included for factor interpretation

Step 5: Factor interpretation

Factor interpretation in Q methodology is qualitative in nature and involves comparing and contrasting the statements that are important to every retained factors to allow meanings to emerge (Dziopa & Ahern, 2011; McKeown & Thomas, 2013; Paige, 2015). In the aggression study, statements with scores of ±4 in a retained factor were used first for comparison with all the other statements to build categories, as they carried the strongest sense of agreement or disagreement shared by the participants who loaded onto the factor. This process was repeated with the remaining statements, and those that did not fit into any of the constructed categories are used as connecting sentences when writing up the findings. Through this process, we constructed categories and allowed the meaning of the retained factor to emerge and this faciliated the writing up the findings. Figure 8 provided an example of the process that we completed to constructed categories and write up of the finding in the aggression study.

Figure 8. An example of the identified statements, constructed categories, and finding

Statements loaded significantly to this factor
1   Aggression is not allowed in the hospital regardless of the client's lived experience +4
7   Clients are upset rather than being aggressive when displaying dysregulated behaviour
2   +4
8
7   Aggression is triggered by the client's negative experience in the hospital +3
2   It is imperative to support clients to self-regulate their own level of risk for aggression
4   +3
1   Clients with an acute mental illness are too unwell to collaborate in their care and
5   treatment -3
     It is not possible to facilitate both therapeutic and restrictive care at the same time -3
3
2

1 2	Providing recovery-focused care is not suitable for clients with an acute mental illness -4	
	It is impossible to support clients to achieve their recovery goals in the hospital -4	
3		
7		

Constructed categories:

Finding:

While the participants strongly believed that aggression is not allowed in the hospital (+4), their response for statements 12, 15, 24, 32, 37 revealed that they are positive about helping clients achieve their recovery goals to reduce aggression. This is supported by their response for statements 7 and 28 that clients are upset with their negative experience in hospital when displaying dysregulated behaviour.

DISCUSSION

Mixed methods research approaches allow nurses to explore professional, client and other health care-related issues that are difficult to address by traditional single research methods (Andrew et al., 2009). However, designing and conducting mixed method studies can be challenging for nurses who also have a clinical role as they do not have the time or resources to integrate or triangulate qualitative and quantative research approaches (Akerjordet et al., 2012; Onwuegbuzie, 2012).

This paper aimed to provide nurses with improved knowledge and awareness of Q methodology and its application to nursing clinical and academic settings. Five sequential

steps of Q methodology using the aggression study were outlined to highlight that this methodology is easy-to-use, yet effective for generating scientific evidence about peoples' subjectivity of the topic being researched (Greenwood & Terry, 2012). This research approach allows nurses to explore the complexity and dimensions of the research topic and how their subjectivities can impact on nursing practice and the profession (Hensel, 2016; Watts & Stenner, 2012b).

Moreover, it was illustrated in this paper that the use of Q methdology equips nurses with an unique way to generate a higher level of research evidence about complex clinical issues. In the aggression study, rich and in-depth subjective data were collected from participants using the sorting process, and through factor analysis an accurate measurement of the patterns of similarities and differences of nurses' beliefs and attitudes caring for clients with risk for aggression obtained. For example, the finding as shown in Figure 7. revealed nurses were able to maintain positive attitudes for clients with risk of aggression even when they are practising in clinical settings that adopted a zero-tolerance policy towards aggression. This level of evidence is more accurate and descriptive about nurses' responses toward a clinical issue, hence is more transferable clinically to develop evidence-based practice. Moreover, this level of evidence is useful for clinical leadership and stakeholders to understand the factors impacting nursing practice and support policy change or modification to enable nurses to deliver consistent and sustainable high-quality care.

CONCLUSION

Globally, there is an expectation that nurses should examine complex clinical issues to develop evidence-based practice and fuel continuous improvements in the delivery of nursing care (Polit & Beck, 2010; Wynaden et al., 2014). As nurses are the largest group of health professionals, it is important that they have the ability to generate in-depth and accurate evidence that can lead to positive changes and improvements to the profession. This ensures that clients receive high quality, safe evidence-based care. Research assists, for example, to reduce the number of hospital errors and costs associated with the provision of care (Curtis et al., 2017). It allows nurses to expand practices and develop new models of care that have benefits to clients, the profession and the healthcare system (Andrew et al., 2009). This paper highlights how Q methodology can assist nurses in this process. It is a time and cost-effective method to conduct research in clinical and academic settings to generate nursing knowledge.

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