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When in Rome! Complaint contagion effect in multi-actor service ecosystems

Abstract

This paper explores the process by which other customers' complaint behavior influences the focal customers' complaint intentions in response to a service failure affecting multiple customers. The authors use social information processing theory to argue that the other customers' complaint behavior has a positive effect on the focal customers' complaint intentions, which they refer to as '*complaint contagion effect'*. Next, they posit mediating role of anger and moderating effects of social identification with other customers, perceived credibility of the other customers, and the focal customers' prior relationship with the service provider in this process. Four experiments confirm the presence of complaint contagion effect and show that the complaint contagion effect is stronger for focal customers with high social identification with others, high perceived credibility of other customers and weak prior relationship of focal customers with the service providers. Besides extending current literature on customer complaint behavior in a multi-actor service ecosystem, these findings have important implications for services marketers.

Keywords: complaint contagion; complaint intention; interpersonal influence; multi-actor service ecosystem

1. Introduction

Service firms inevitably encounter service failure and customers complaints; hence, it is important for them to understand the reasons for customers' complaints to improve their service design and performance (Fornell & Westbrook, 1984). In a multi-actor ecosystem, a service encounter involves focal customers and service providers in addition to the other customers. When faced with a service failure in such an environment, customers' complaint behavior is not only driven by the nature and extent of the service failure and the recovery response of the service provider but also the behavior of other customers in the same service setting. For instance, when encountering a service delay (e.g., a flight), other customers' responses (complaining or otherwise) can affect focal customers' complaint behavior. Therefore, investigating the effect of other customers' complaints on focal customers' complaint behavior is of importance for service providers seeking to understand customers' complaint behavior in a multi-actor service ecosystem.

The topic of other customers' influence in a service ecosystem has drawn much attention in the literature. For example, some studies show significant effects of the presence and behavior of other customers in a servicescape on the focal customers' behaviors (e.g. Albrecht et al., 2017; Gursoy, Cai, & Anaya, 2017; Zhang, Beatty, & Mothersbaugh, 2010), while others find that the other customers' service failure and service recovery experience affects the focal customers' perceptions and behaviors in their regular service encounters (e.g., Baker & Kim, 2018; Huang & Wang, 2014; Mattila, Hanks, & Wang, 2014). However, there is limited research on other customers' influence on focal customers' complaining behavior after they encounter the same service failure, despite considerable anecdotal evidence. This is a major research gap addressed in this paper.

Past literature identifies several variables that affect customers' complaint behavior, such as perceived value of complaining (Fornell & Wernerfelt, 1987), demographics such as

gender and education (Singh, 1990), product importance and attitude toward complaining (Chebat, Davidow, & Codjovi, 2005), and attributions for service failure (Tojib & Khajehzadeh, 2014). However, all these factors are examined mostly from the perspective of customers or service providers, with little attention given to the influence of other customers' complaining behaviors on that of the focal customer after a service failure (e.g., Albrecht, Walsh, & Beatty, 2017; Du, Fan, & Feng, 2014; Huang et al., 2014). In particular, how other customers' complaint behavior affects focal customers' complaint responses remains largely under-explored. The authors address this research gap by using social information processing theory (Salancik & Pfeffer, 1978) to propose a *complaint contagion effect* wherein after a service failure affecting multiple customers (i.e., in-group service failure), other customers' complaint behavior has a positive effect on the focal customers' complaint intentions.

Specifically, this paper explores the influence of other customers' behavior in a service failure on the focal customers' own complaint intentions, unlike past studies that mostly focus on the differences between group and individual service failures, such as the presence of other customers in a group service failure (Albrecht et al., 2017b), interactions among customers after a service failure (Du et al., 2014), or the experiences of groups of acquaintances in a service failure (Huang et al., 2014). Hence, this paper extends our understanding of customer responses to service failures that affect multiple customers by showing the presence of a 'complaint contagion effect' in such contexts.

Next, the authors propose a mechanism to explain why other customers' responses to service failure affect the focal customers' intention to complain. Prior studies compare group service failure and individual service failure, finding that the attribution of blame toward the service provider in a group service failure increases the likelihood that focal customers will complain (Albrecht et al., 2017b). Du et al. (2014) show that the emotion transfer derived from a group interaction enhances customers' complaint intention. This paper extends these

findings by arguing that the focal customers' anger in response to a service failure may be influenced by observing other customers' complaint behavior, which is independent of focal customers' attribution of blame toward the service provider, and this in turn affects the focal customers' own complaint intentions.

Finally, this paper investigates some boundary conditions for this contagion complaint effect and argues that other customers' perceived characteristics, such as focal customers' identification with other customers, perceived credibility of other customers, and prior relationship between the focal customers and the service provider, moderate the effect of complaint contagion. The authors argue that other customers' complaint behavior has a stronger effect on focal customers' complaint intentions when other customers are closely identified with focal customers, when other customers have high credibility, and when focal customers have a weak prior relationship with the service provider.

The authors use four experimental studies to test all their hypotheses. Study 1 uses a one-factor between-subjects design to test the basic predictions (H1 and H2) about the contagion effect of other customers' complaint behavior and the mediating role of anger across two service categories. Study 2 tests the moderating effect of focal customers' social identification with other customers (H3). Studies 3 and 4 test the moderating effect of other customers' credibility and customers' prior relationship with the service provider (H4 and H5). The authors discuss the conceptual contribution and managerial implications of their findings, limitations of their research methodology and directions for future research.

2. Theoretical background and hypotheses development

2.1. Complaint behavior in a multi-actor service ecosystem

Complaint behavior is defined as the behavioral reactions of dissatisfied consumers due to a product and/or service failure. This definition incorporates an action taken by a customer to communicate something negative about a product and/or service to a firm and/or third-party

organization (Jacoby & Jaccard, 1981). Research into consumer complaining behavior derives from the research on consumer (dis)satisfaction. When actual product performance is lower than that expected, the level of consumer dissatisfaction increases (Oliver, 1987), triggering complaining behavior (Day, 1984; Singh & Pandya, 1991).

Complaint behavior includes at least three forms of responses, namely voice (directly complaining to the service provider), third party response (negative word of mouth), and private action (taking legal action) (Singh, 1988; Singh & Pandya, 1991). Two streams of literature investigate customer complaint behaviors. The first relates to voice, especially customer negative voice, as a proxy for customer complaint (e.g., Fan, Wu, & Mattila, 2016; Hui, Ho, & Wan, 2011; Min, Joireman, & Kim, 2019). The second takes negative word of mouth (WOM) as the focus of customer complaint because of the widespread availability and impact of the internet and electronic commerce (e.g., Chelminski & Coulter, 2011; Min, Lim, & Magnini, 2015). In this paper, the authors focus on customers' direct voice as a complaint behavior because although both voice and WOM responses may help service providers to understand customers' experience and gain insights into ways to improve product or service design, only voice provides the opportunity to redress service failure directly (e.g., Gelbrich & Roschk, 2011; Homburg & Fürst, 2005; Maxham & Netemeyer, 2002).

Prior research identifies many variables that determine the likelihood that dissatisfied customers will complain (defined as the complaint intention), including customer characteristics, such as personality traits (Fornell & Wernerfelt, 1987; Huang & Chang, 2008) and values (Rogers & Williams, 1990). However, very few studies explore the role of other customers in customer complaints in multi-actor service ecosystems (e.g., Albrecht et al., 2017b; Du et al., 2014; Huang et al., 2014). For example, Huang et al. (2014) reveal that, compared with customers who encounter service failure alone, being in the company of other complaining customers increases customers' complaint intentions, which is partially mediated

by the level of intimacy between focal customers and companion others.

Similarly, Du et al. (2014) find that after a group service failure (i.e., a service failure affecting multiple customers), the interaction among group members increases the anger of focal customers and their complaint intentions, and this process is moderated by group size and group familiarity. Albrecht et al. (2017b) show that customers' complaint intentions are higher in group service failure than in individual service failure (i.e., a service failure affecting single customer) and this process is mediated by the attribution of blame to the service provider. Consistent with this literature and others (e.g., Chelminski & Coulter, 2011; Dunn & Dahl, 2012; Shemwell, Yavas, & Bilgin, 1998), this paper uses complaint intention to capture focal customers' likelihood of complaining to service providers under the influence of other customers' complaining behavior in a multi-sector service ecosystem.

2.2. Contagion effect of other customers' complaint behavior

According to *social information processing theory* individuals obtain information from their social environments to understand events, form attitudes and opinions, determine normative expectations of their behavior, and evaluate implications (Salancik and Pfeffer, 1978). For example, employees depend on the social information of their surrounding work environments to form their job attitude and job performance (George, 1990; Liao & Chuang, 2004; Salancik & Pfeffer, 1978). This social information is acquired from one's social environment or through interactions with, or observation of, others (Ferguson & Barry, 2011). Other people can be an important factor in the social environment that affects people's perception and evaluation, with observation of others' behavior influencing how individuals shape their own behaviors. Prior research has found that a behavior initiated by a few individuals may result in a contagion beyond the original scope (Ferguson & Barry, 2011).

Consistent with social information processing theory, research into service marketing provides evidences that the behavior of employees or other customers in the servicescape

results in the similarity of customers' behaviors. Customers may behave according to their interactions with other employees and customers or observations of their behaviors (e.g., Albrecht et al., 2017a; Du et al., 2014; Yi, Gong, & Lee, 2013). Du et al. (2014) find that interactions with other customers about a service experience may contribute to customers' stronger emotional response toward the service provider. Customers' unfriendliness may increase when they observe the unfriendly behavior of employees or other customers (Albrecht et al., 2017a). Similarly, other customers' behavior may influence customers' citizenship behavior. When customers observe others demonstrate citizenship behavior, they are more likely to do so as well (Yi et al., 2013).

In group service failures, other customers' complaint behavior is part of the social environment from which the focal customers draw cues to understand the failure event and develop their own response. Hence, the focal customers' complaint intentions are likely to be affected by other customers' complaint responses to service failure, which the authors refer to as the 'complaint contagion effect' and offer the following hypothesis:

H1. Other customers' complaint behavior has a positive effect on the focal customers' complaint intentions for a group service failure.

2.3. Mediating role of anger in complaint contagion effect

Customers complaining behavior is aimed at expressing their dissatisfaction as a result of service failure. Reaction to a service failure depends not only on knowledge of the failure (Albrecht et al., 2017b; Folkes, 1984) but also on the negative emotions generated by the service failure (Bonifield & Cole, 2007; Gelbrich, 2010; Kowalski, 1996; Stephens & Gwinner, 1998). Anger is a key emotion likely to result from service failure that triggers complaint behavior (Bonifield & Cole, 2007; Bougie, Pieters, & Zeelenberg, 2003; McColl-Kennedy et al., 2009; Tronvoll, 2011). Customers make assessments about the

service failure situation, and anger is an emotion that is likely to underlie this process and mediate the effects of service failure on post-failure behavior (Bonifield & Cole, 2007). While negative emotions, especially the emotion of anger, as drivers of customers' complaining behavior have drawn significant research attention, how the emotion of anger may be derived from the observation of others' complaining behavior in a group service failure has not been specifically examined.

Given that social processing theory proposes that social information influences people's behavior by affecting their thoughts and emotions (Yi et al., 2013), other than the characteristics of the service failure examined in the literature that change customers' negative emotions, watching other customers complain may also affect the emotional response of focal customers to service failure. In this context, Du et al. (2014) find that in a group service failure, anger is higher if group members actively interact with each other and this leads to greater complaint intentions. Similarly, Albrecht et al. (2017b) identify a higher level of attribution of blame to the service provider in a group service failure, which elicits stronger anger that influences complaint intentions. Based on these findings, it may be argued that the other customers' reactions to a service failure would affect the level of anger felt by the focal customers, which in turn would affect their own complaint intentions. Therefore,

H2. Anger mediates the effect of other customers' complaint behavior on the focal customers' complaint intentions for a group service failure.

2.4. Moderating effect of social identification in complaint contagion effect

According to social identity theory, people tend to classify themselves and others into various social categories, such as organizational membership, gender, and age cohort (Henri and Turner, 1986). Social identification is "the perception of oneness with or belongingness to some human aggregate" (Ashforth & Mael, 1989, p.21). This social classification

establishes a systematic means of defining others and enables the individual to define him/herself in the social environment (Ashforth & Mael, 1989). Social identity theory proposes that the extent to which the individuals identify with a social group affects their intentions to behave as a group member. Recent studies suggest that social identification with other customers can occur in short-lived groups and even in the absence of a formal group (e.g., Fombelle et al., 2012). In fact, customers can influence each other either directly by specific interpersonal encounters or indirectly by being a part of the same environment (Huang, Lin, & Wen, 2010).

In this context, Yi et al. (2013) demonstrate that customers' social identification with other customers moderates the influence of the other customers' citizenship behavior on the focal customers' citizenship behavior. In a service failure affecting multiple customers, there is growing evidence that the presence and behavior of other customers affects the attitudes and behaviors of the focal customers (e.g., Albrecht et al., 2017b; Du et al., 2014; Huang et al., 2014). Hence, focal customers' identification with others may affect the contagion power of those others' complaint behavior. In other words, focal customers, who perceive themselves and the complaining others as belonging to the same category of people, are more likely to consider such complaint behavior consistent with their own social identity and respond similarly to service failure than in the absence of such social identification. Therefore,

H3. Focal customers' social identification with other customers has a positive moderating effect on the influence of the complaint behavior of other customers on the focal customers' own complaint intentions.

2.5. Moderating Effect of Other Customers' Credibility

According to the source credibility model (Ohanian, 1990), source credibility has three operational dimensions: attractiveness, trustworthiness, and expertise. Attractiveness is

defined as the degree to which customers perceive others having an attractive physical appearance (Ahearne, Gruen, & Jarvis, 1999). Trustworthiness represents customers' degree of confidence in, and level of acceptance of, other customers and their message (Ohanian, 1990). Expertise means the extent to which customers believe other customers to be a source of valid assertions (Ohanian, 1990). Hence, the credibility of other customers would be the extent to which focal customers consider others are attractive, trustworthy, and expert.

Source credibility moderates the effects of information on perception and behavior. For example, Xie et al. (2011) find a moderating effect of personal information, which affects perceived credibility of online reviews, on the negative influences on customers' purchasing intentions of ambivalent online reviews. Buda and Zhang (2000) show that the positive framing message of a product results in better customer product evaluation when source credibility is high than when it is low. Grewal, Gotlieb, and Marmorstein (1994) provide evidence that source credibility moderates the relationship between new product price and perceived performance risk. In a multi-actor service ecosystem, Yi et al. (2013) find that the credibility of other customers strengthens the positive effect of their citizenship behavior on the focal customers' citizenship behavior because the higher the perception of other customers' credibility, the more persuasive and influential the source is perceived.

After a group service failure affecting multiple customers, the credibility of complaining others would be perceived differently. According to the measurement of source credibility (Ohanian, 1990), the favorable or unfavorable appearance of complaining others affects focal customers' perception of their attractiveness. The trustworthiness of complaining others is perceived through observing their communication with the service provider after service failure or their past behavior in the service process before the service failure, that is, whether their past behavior or complaining communication is honest, reliable, and sincere. The expertise of complaining others is reflected in their verbal communication with the service

provider before or after encountering a service failure. Thus, this study proposes that the complaint contagion effect would be moderated by the credibility of other customers, with a greater contagion effect when other customers have high credibility and vice versa. Hence,

H4. Other customers' credibility has a positive moderating effect on the influence of the complaint behavior of those other customers on the focal customers' own complaint intentions.

2.6. Moderating effect of prior relationship with the service provider

Prior relationship with the service provider is defined as "the length of past patronage of a service provider" (Hui et al., 2011, p.60). A strong relationship can mitigate the negative impact of service failure and aid customer retention (Krasnikov, Jayachandran, and Kumar, 2009). Past studies find that customers' response to service failure is moderated by their relationships with the service provider (e.g., Hui et al., 2011; Mattila, 2001; Mittal, Huppertz, & Khare, 2008). For example, Mattila (2001) finds that service failure may not result in customers' switching behavior when the company has established a bond with customers through past transactions. Similarly, Mittal et al. (2008) identify an interaction effect between customers' information control and relationship strength on complaint intentions after service failure, wherein the negative relationship between relationship strength and complaint intentions occurs only when customers have high information control.

According to these studies, a prior relationship mitigates complaint intention because customers in a well-established relationship want to avoid direct confrontation with the service provider (Alicke et al., 1992). Similarly, Mattila (2001) shows that customers expect to receive desired recovery outcomes from the service provider when a prior relationship is present. Therefore, it may be argued that prior relationship may moderate the complaint contagion effect by changing the focal customers' judgement and attitude after service failure; wherein customers with a prior relationship with the service provider are less affected by

other customers' complaint behavior after encountering a service failure than those who have no prior relationship with the service provider. Therefore, as follows:

H5. The focal customer's prior relationship with the service provider has a negative moderating effect on the influence of the complaint behavior of other customers on the focal customers' own complaint intentions.

Figure 1 shows the conceptual model with all five hypotheses.

[Insert figure 1 about here]

3. Methodology

3.1. Study 1: Complaint contagion effect

Study 1 examines the main effect of other customers' complaint on focal customers' intention to complain, and also tests the mediating effect of anger. The authors predict that after encountering a service failure, focal customers are more likely to experience anger and have a higher intention to complain when there are other customers complaining to the service provider. The authors employed a local market research company in Central China to recruit respondents online. This company has its own research sample pool with over 1,000,000 respondents. All respondents can be reached through an email or a text message via mobile phone. The company recruited 166 Chinese customers (67.1% female, M_{age} = 33.4 years) through internet and mobile apps.

This study uses a 2 (complaint context: complaint vs. no complaint) by 2 (service category: retail vs. transport) between-subjects experimental design. All the participants were randomly assigned to one of the four experimental scenarios (see Appendix A). After reading the scenarios, all the participants completed the manipulation check and answered questions on complaint intentions, anger, and attribution. Attribution was included as a covariate to influence complaint intentions. Data were collected through the online scenario-based

questionnaire, with well-established measures, including complaint intentions (Wan, 2013) by using a 5-point Likert scale. The measures of anger and attribution of service failure were adapted from Du et al. (2014) and Gelbrich (2010) respectively, both using five-point Likert scales (1 = completely disagree and 5 = completely agree).

For both the scenarios the participants were asked "How many other customers do you think complained to the company?" on a 5-point Likert style scale, from 1 "no others" to 5 "several others". Of the 166 participants, in the 'complaint' condition, 91.8% correctly answered with the number 4 or 5 (7.1% answered with the number 3 and 1.1% answered with the number 2), and in the 'No complaint' condition, 93.8% correctly answered with the number 1 or 2 (6.2% answered with the number 3). The responses from the participants who incorrectly answered the manipulation check were dropped and the remaining 154 responses were used for the analysis. A *t*-test confirms significant differences across the two conditions (M_c for 'Complaint' and M_{nc} for 'No complaint') in both retail ($M_c = 4.81$ vs. $M_{nc} = 1$, $t(75) = 56.40$, $p < .001$) and transport ($M_c = 4{,}80$ vs. $M_{nc} = 1.14$, $t(75) = 42.22$, $p < .001$) scenarios.

To test the realism of the scenarios, the authors used an item "to what degree that you think the situation is realistic" using a 5-point sematic differential scale (1 = very unrealistic, 5 = very realistic). All the scenarios were found to be highly realistic (retail: $M = 4.39$ and transport: $M = 4.26$; complaint: $M = 4.40$ and no complaint: $M = 4.25$). Moreover, no significant difference exists between the two service categories ($t(75) = 1.13$, $p = .26$) or complaint conditions ($t(75) = 1.29$, $p = .20$). The scales for complaint intentions ($\alpha = .88$), anger ($\alpha = .89$), and attribution ($\alpha = .81$) show high reliability. Confirmatory factor analysis (CFA) reveals acceptable fit with the data (in retail scenario, $\chi^2/df = 1.73$, RMSEA = .09, GFI = .96, CFI = .98; in transport scenario, $\chi^2/df = 1.65$, RMSEA = .08, GFI = .96, CFI = .97). To minimize common method variance, the authors used the procedures suggested by Podsakoff et al. (2003) and the average score of each construct to test all the hypotheses.

[Insert tables 1 and 2 about here]

Table 1 lists the descriptives and correlations for both service categories. Table 2 shows the results of a multivariate analysis of variance (MANOVA) using complaint condition and service category as the independent variables and complaint intentions, anger, and attribution as the dependent variables. As shown in Table 2, focal customers exhibit significantly higher complaint intentions under complaint (vs. no complaint) condition (retail: M_c = 4.36 vs. M_{nc} = 3.86, $t(75) = 2.71$, $p < .01$; transport: M_c = 3.79 vs. M_{nc} = 3.06, $t(75) = 3.70$, $p < .001$), confirming the presence of the complaint contagion effect and supporting H1. Focal customers also show significantly more anger in the 'complaint' condition (retail: M_c = 3.84 vs. M_{nc} = 3.24, $t(75) = 2.82$, $p < .01$ and transport: M_c = 3.19 vs. M_{nc} = 2.49, $t(75) = 3.32$, $p < .001$). However, there is no significant difference in the attribution of blame towards the service provider between the two conditions. This means that others' complaint behavior or otherwise does not influence focal customers' attribution of blame.

[Insert table 3 about here]

The mediating effect of anger (H2) was tested using bootstrapping CIs with 10,000 iterations with PROCESS Macro (Model 4) by Hayes (2017). Others' complaint behavior is the antecedent, complaint intentions is the outcome, anger is the mediator, and the attribution of blame is the covariate in the model. Table 3 summarizes the results. In both the service categories, when regressed on anger, the effect of others' complaint behavior is significant (retail: $B = .48$, $SE = .20$, $t(74) = 2.44$, $p < .05$; transport: $B = .68$, $SE = .19$, $t(74) = 3.64$, $p < .001$). It means that others' complaining behavior increases the focal customers' emotion of anger. When regressed on complaint intentions, the effect of others' complaint behavior becomes less significant (transport: $B = .36$, $SE = .16$, $t(73) = 2.19$, $p < .05$) or non-significant (retail: $B = .09$, $SE = .12$, $t(73) = .74$, $p > .50$). A 10,000 resample bootstrap analysis confirms the mediating effect of anger in both retail (95% CI = .07, .64) and transport (95% CI

= .14, .63) categories as the confidence intervals excludes zero. The direct effect of others' complaining behavior is less significant in the transport scenarios (B = .36, SE = .16, p < .05, 95% CI = .03, .69), and not significant in the retail scenarios (B = .09, SE = .12, p > .10, 95% CI = –.15, .32). The results mean that anger plays a mediating role between other customers' complaint behavior and the focal customers' complaint intention. Therefore, H2 is supported.

Study 1 provides evidence of the contagion effect of others' complaint behavior on the focal customers' complain intentions in a group service failure. It also identifies the mediating role of anger in this process. These results extend the findings of Du et al. (2014) by showing that focal customers' anger may increase not only from intensive interaction with the other group members after a group service failure but by also merely watching other customers' complaint behavior. Study 1 also shows that other customers' complaint behavior does not make a difference to customers' attribution of blame after a group service failure. This result supports the finding of Albrecht et al. (2017b) that group service failure increases customers' attribution of blame to the service provider, but their behavior (complaint or otherwise) does not affect focal customers' attribution judgement. Study 1 did not control for customers' knowledge of different services; hence, the next three studies recruited participants with past experience in a specific service category.

3.2. Study 2: Moderating effect of social identification

Study 2 uses a 2 (complaint context: complain vs. no-complaint) by 2 (social identification: high vs. low) between-subject experimental design. To replicate the findings of Study 1 with a different sample profile, the authors used an online research platform (named wjx.com, similar to Amazon's MTurk) to recruit university students in China as participants for Study 2. This study controls for the differences in past experience by including only those students who had online group-buying experience. The final sample has 244 participants (45.1% male,

18.9% freshman, 34.0% sophomore, 28.3% junior). Participants were randomly assigned to one of the four conditions based on the same retail (group-buying) scenario as Study 1.

Participants were instructed to imagine themselves as a customer in a group-buying WeChat group. In the literature, university identity is used to elicit social identification behavior (e.g., Mael and Ashforth, 1992). As all participants were university students, this study manipulated social identification with other customers by providing different information about group members' social background. For the high social identification condition, participants read "all other group members are from the same place and they are all students of your university". For the low social identification condition, participants read "all other group members are from different cities and none of them is a university student". The complaint conditions were manipulated as in Study 1. After reading the scenario, participants rated the manipulation check of social identity and complaint conditions. Then they completed a questionnaire about complaint intentions, failure attribution, and anger.

The scales for complaint intentions (α = .91), anger (α = .83), and attribution (α = .89) are the same as in Study 1 and show high reliability. The CFA achieved an acceptable fit (Chi-square/df = 1.89, RMSEA = .06, GFI = .98, CFI = .99).

To check the manipulation on social identification, the participants were asked to answer two questions. The first question, adapted from Sen and Bhattacharya (2001), asked them to rank "Do you think that you and others in the WeChat group have the same social identity?" on a 5-point Likert like scale (1 = completely different, 5 = completely the same) and found a significant difference in the expected direction (M_{high} = 4.38, M_{low} = 2.28, $t(242) = 22.79$, $p < .001$). The second item adapted Bergami and Bagozzi's (2000) visual scale to assess participants' identification with others in the WeChat group. Participants chose a number from a series of overlapping pairs of circles (1 = "no overlap", 5 = "complete overlap") and again showed a significant difference in the expected direction (M_{high} = 3.80, M_{low} = 2.33,

$t(242) = 16.12$, $p < .001$). These checks confirm consistent differences in the participants' identification with other group members between the two social identification conditions.

Manipulation of participants' perceptions of others' complaint behavior was checked with the same scale as in Study 1, "how many other customers do you think complained to the company?" (1 = none, 5 = several). The results show a significant difference between the 'complaint' ($M = 4.86$, $SD = .35$) and 'no-complaint' ($M = 1.04$, $SD = .20$) conditions ($t(242) = 105.32$, $p < .001$). Perceived realism of the scenario is also high and similar across the two conditions ($M_c = 4.47$, $SD = .80$; $M_{nc} = 4.38$, $SD = .64$; $t(242) = .99$, $p > .30$). Hence, the manipulation of others' complaint behavior is also successful.

[Insert tables 4 and 5 about here]

Table 4 shows the descriptives and correlations for all the variables and Table 5 shows the MANOVA output with complaint context and social identification as the independent variables and complaint intentions, anger and attribution as dependent variables. Complaint context has a significant effect on focal customers' complaint intentions ($M_c = 4.21$ vs. $M_{nc} = 3.86$, $F(1,240) = 14.74$, $p < .001$), which supports H1. Other customers' complaining behavior increases the focal customers' complaint intentions. The main effects of complaint context on anger ($M_c = 3.62$ vs. $M_{nc} = 3.47$, $F(1,240) = 1.34$, $p > .10$) and attribution ($M_c = 4.10$ vs. $M_{nc} = 4.02$, $F(1,240) = .54$, $p > .40$) are not significant. The main effects of social identification on complaint intentions ($M_{high} = 4.05$ vs. $M_{low} = 4.02$, $F(1,240) = .09$, $p > .70$), anger ($M_{high} = 3.64$ vs. $M_{low} = 3.46$, $F(1,240) = 2.20$, $p > .10$), and attribution ($M_{high} = 4.13$ vs. $M_{low} = 4.00$, $F(1,240) = 1.43$, $p > .20$) are all not significant. Hence, social identification has no direct influence on complaint intentions, anger, and attribution of blame.

[Insert figure 2 about here]

Next, the interactive effects of complaint context and social identification are marginally significant for both anger ($F(1,240) = 3.65$, $p = .06$) and complaint intentions ($F(1,240) =$

3.66, $p = .06$). Figure 2 illustrates these results with the means of anger and complaint intentions across the four conditions. In the high social identification condition, when others complain to the service provider, focal customers have stronger emotion of anger ($M_c = 3.83$ vs. $M_{nc} = 3.45$, $t(118) = 2.39$, $p < .05$) and demonstrate higher complaint intentions ($M_c = 4.32$ vs. $M_{nc} = 3.79$, $t(118) = 4.26$, $p < .001$) than when others do not complain. In the low social identification condition, customers are not significantly affected by other customers' complaint behavior. Customers' anger is not different across complaint contexts ($M_c = 3.50$ vs. $M_{nc} = 3.42$, $t(122) = .44$, $p > .60$), nor are customers' complaint intentions significantly different ($M_c = 3.94$ vs. $M_{nc} = 4.11$, $t(122) = 1.31$, $p > .10$). These results mean that the complaint contagion effect is more salient when focal customers are socially identified with other customers who complain. Thus, H3 is supported.

The interactive effects of complaint context and social identification on attribution is not significant ($F(1,240) = 1.07$, $p > .30$). No matter whether social identification is high or low, attribution of blame to the service provider is not significantly different (in high social identification condition, $M_c = 4.22$ vs. $M_{nc} = 4.03$, $t(118) = 1.37$, $p > .10$; in low social identification condition, $M_c = 3.98$ vs. $M_{nc} = 4.02$, $t(122) = -.20$, $p > .80$). Thus, similar to Study 1, attribution of service failure cannot explain the complaint contagion effect.

[Insert Table 6 here]

For a more rigorous test of H2 (mediating role of anger) and H3 (moderating effect of social identification), the authors use a moderated-mediation analysis with PROCESS Macro (Model 8) and bootstrapping CIs with 10,000 iterations (Hayes, 2017). The model includes complaint context as the independent variable, complaint intentions as the outcome, social identification (high vs. low) as the moderator, anger as the mediator, and attribution as a covariate. Table 6 summarizes the results for Model 1 (DV = anger) and Model 2 (DV = complaint intentions). For Model 1, although the main effects of complaint context and social

identification are not significant ($p > .20$), their interaction is marginally significant ($B = .39$, $SE = .23$, $t = 1.69$, $p < .10$), consistent with MANOVA results. Thus, focal customers who have high social identification with other customers become more angry when other customers complain (vs. not complain). This effect is not evident in the low social identification condition. For Model 2, both complaint context ($B = .22$, $SE = .10$, $t = 2.10$, $p < .05$) and anger ($B = .43$, $SE = .04$, $t = 10.72$, $p < .001$) have significant effects on complaint intentions. However, the interaction between complaint context and social identification is not significant ($B = .13$, $SE = .15$, $t = .88$, $p > .50$). Hence, the impact of complaint context and social identification on complaint intention is partially mediated by anger, supporting H2.

The moderated-mediation bootstrapping results show that the indirect effect of complaint context is substantial when social identification is high. The 95% *CI* is [.01, .28], excluding the point of zero. When social identification is low, the indirect effect is not significant as the confidence interval (95% *CI* = −.14, .06) includes zero. The index of moderated mediation is .17 (95% *CI* = .04, .38). Thus, the moderating role of social identification (H3) is supported. Specifically, when social identification is high, others' complaint behavior enhances focal customers' perceived anger and finally increases their complaint intention. These effects are not significant when social identification is low.

Study 2 reveals that the contagion effect of other customers' complaint behavior is mediated by the focal customers' anger and moderated by their social identification with the other customers making complaints. In other words, the contagion effect of others' complaint behavior is salient when focal customers have high identification with other customers. These results are consistent with prior studies, which show that when customers and others have the same social identity, customers tend to behave like others (Yi et al., 2013).

3.3. Study 3: Moderating effect of other customers' perceived credibility

Study 3 uses a 2 (complaint context, others complaint vs. no-complaint) by 2 (perceived credibility of others: high vs. low) between-subject experimental design. Participants who had online group-buying experience were recruited by the same market research company as in Study 1. The final sample has 252 participants (40.5% male) with an average age of 33.8 years and 74.7% with monthly income higher than 5,000 RMB. Participants clicked on an online link and were randomly assigned to one of the four experimental scenarios.

Study 3 employs the same retail (group-buying) scenario as Study 1 and 2. As personal identity in an online environment highly correlates with source credibility (Filieri, 2016; Xie et al., 2011), the authors manipulated perceived credibility of others by varying the personal identity in the WeChat group. For the high credibility condition, at the end of the scenario, participants read "Note that these group members all used their real names as their nicknames. They often post useful messages about products in the group." For the low credibility condition, participants read "Note that these group members all used nicknames. They often post some useless messages in the group". After reading the scenarios, the participants completed a manipulation check and scales for all the relevant variables. All the measures are the same as those in Study 1 and 2. The scales for complaint intentions (α = .91), anger (α = .84), and attribution (α = .86) were found reliable. The CFA reveled an acceptable fit (Chi-square/df = 1.96, RMSEA = .07, GFI = .96, CFI = .97).

Manipulation of perceived credibility was checked by asking the participants "what do you think about those group members who posted product pictures in the WeChat group" on a scale from 1 to 5 (1 = untrustworthy, 5 = trustworthy). The differences between the two scenarios is consistent with the manipulation (M_{high} = 3.53 vs. M_{low} = 1.94, $t(250) = 12.88$, $p < .001$). The same scale as Study 1 was used to check the manipulation of participants' perception of others' complaint behavior. The result is consistent with the manipulation (M_c = 4.89 vs. M_{nc} = 1.08, $t(250) = 102.75$, $p < .001$). Perceived realism is not significantly different

across the conditions (M_c = 4.36 vs. M_{nc} = 4.49, $t(250) = .78$, $p > .40$). Hence, manipulation of other customers' perceived credibility and complaint behavior is effective.

[Insert tables 7 and 8 about here]

Table 7 shows the descriptives and correlations. Table 8 shows the MANOVA output. Main effect of complaint context is not significant for complaint intentions (M_c = 4.42 vs. M_{nc} = 4.29, $F(1,248) = 2.21$, $p > .10$) and for attribution (M_c = 4.34 vs. M_{nc} = 4.37, $F(1,248) = .08$, $p > .70$), but marginally significant for anger (M_c = 3.90 vs. M_{nc} = 3.67, $F(1,248) = 3.68$, $p = .06$). Main effects of perceived credibility on anger (M_{high} = 3.69 vs. M_{low} = 3.88, $F(1,248) = 2.51$, $p > .10$), complaint intentions (M_{high} = 4.30 vs. M_{low} = 4.41, $F(1,248) = 1.54$, $p > .20$), and attribution (M_{high} = 4.32 vs. M_{low} = 4.39, $F(1,248) = .56$, $p > .40$) are not significant. The interactive effects of complaint context and perceived credibility are significant on both anger ($F(1,248) = 6.11$, $p < .05$) and complaint intentions ($F(1,248) = 5.16$, $p < .05$), but not significant on attribution ($F(1,248) = .74$, $p > .30$). Again, these results exclude the possible explanation of attribution for the complaint contagion effect.

The means of anger and complaint intentions across four conditions are illustrated in Figure 3. When credibility is high, there are significant differences between complaint or no-complaint context in anger (M_c = 3.95 vs. M_{nc} = 3.43, $t(125) = 3.15$, $p < .01$) and complaint intentions (M_c = 4.47 vs. M_{nc} = 4.14, $t(125) = 2.53$, $p < .05$). Attribution is not significantly different across complaint context (M_c = 4.35 vs. M_{nc} = 4.30, $t(125) = .40$, $p > .60$). When credibility is low, customers' anger (M_c = 3.85 vs. M_{nc} = 3.91, $t(123) = -.39$, $p > .50$), complaint intentions (M_c = 4.38 vs. M_{nc} = 4.44, $t(125) = -.60$, $p > .50$), and attribution (M_c = 4.34 vs. M_{nc} = 4.44, $t(125) = -.84$, $p > .60$) are not significantly affected by other customers' complaint behavior. These results support the moderating role of perceived credibility (H4) with the contagion effect of others' complaint behavior more salient when other customers have high (vs. low) credibility.

[Insert figure 3 about here]

The authors followed the same procedures as those in Study 1 and 2 to conduct moderated mediation analysis. Table 9 shows the results. The results of Model 1 (DV=Anger) show that the main effect of complaint context on anger is not significant ($B = -.01$, $SE = .16$, $t(247) = -.09$, $p > .50$) and the main effect of perceived credibility on anger is significant ($B = -.41$, $SE = .16$, $t(247) = -2.63$, $p < .01$). It means that when other customers do not complain and have high perceived credibility, focal customers' emotion of anger decreases. The interaction between context and credibility is significant for anger ($B = .51$, $SE = .22$, $t = 2.31$, $p < .05$), which is consistent with the MANOVA results. Thus, focal customers who perceive other customers to be highly credible, may become more angry when those other customers complain but this effect is not significant under the low credibility condition (credibility = 0).

[Insert table 9 about here]

Further, the results of Model 2 (DV=Complaint Intentions) reveal that the direct effect of complaint context on complaint intentions is not significant ($B = -.03$, $SE = .11$, $t(246) = -.24$, $p > .50$). The coefficient of the mediator, anger, is significant ($B = .20$, $SE = .04$, $t(246) = 4.54$, $p < .001$). The interaction between complaint context and credibility on complaint intention is not significant ($B = .23$, $SE = .16$, $t(246) = 1.49$, $p > .10$). These results imply that the influences of complaint context and credibility on complaint intentions is mediated by anger. The moderated-mediation bootstrapping results show that the indirect effect of complaint context is significantly larger than zero when credibility is high (95% $CI = .02, .21$). However, 95% CI of the indirect effect is [−.07, .07] when credibility is low. The index of moderated mediation is .10 (95% $CI = .01, .24$). These results support the moderating role of perceived credibility on the complaint contagion effect (H4).

Study 3 reveals that the contagion effect of other customers' complaint behavior is via customers' perceived anger and moderated by perceived credibility of other customers. Thus,

the contagion effect of others' complaint behavior is stronger when focal customers perceive other customers as highly credible. These results extend past research by testing the relationship between other customers' credibility and the influence of their behaviors.

3.4. Study 4: Moderating effect of prior relationship with service provider

For this study, the authors recruited actual consumers of an air transport service using the services of a local market research company in North China. The company sent a link to the respondents in its database, that is, all customers who have purchased tickets from airline companies. As an incentive to participate, entry for ten randomly selected participants into a draw for a mobile phone recharge card valued at 50 RMB was offered. The final sample contains 249 participants (44.2% male, average age 35.2, 84.9% monthly income higher than 5,000 RMB). Study 4 uses a 2 (complaint context: complaint vs. no-complaint) by 2 (prior relationship: strong vs. weak) between-subject experimental design with the same transport scenario as in Study 1. Participants were asked to imagine themselves as a customer of an airline flight and were randomly assigned to one of the four experimental scenarios.

The prior relationship with the service provider was manipulated using different descriptions. For the strong prior relationship, participants read: "You have established a long-term relationship with this airline. You have taken its flights several times in the past few years." For the weak prior relationship, participants read: "This is your first time taking a flight with this airline. You have no previous relationship with it." Service failure was manipulated with a flight overbooking problem. The complaint context was manipulated as for Study 1. After reading the scenarios, participants completed the manipulation checks for prior relationship and complaint context followed by the scales for all the relevant constructs.

All the scales for complaint intention (α = .91), anger (α = .85), and attribution (α = .87) are the same as in the first three studies and are all found to be reliable. The CFA achieved an

acceptable fit (Chi-square/df = 1.17, RMSEA = .03, GFI = .98, CFI = .99). To check the manipulation of prior relationship, the participants were asked a question "how do you describe your relationship with the airline" on a bipolar scale (long/short term, old/new relationship, α = .97), adapted from Hui et al. (2011). The participants' rating across conditions is consistent with the manipulation (M_{strong} = 4.54 vs. M_{weak} = 1.15, $t(247) = 59.49$, $p < .001$). This study also used the same scale as Study 1 to check the manipulation of the participants' perception of others' complaint behavior. The results show significant differences between complaint and no-complaint conditions (M_c = 4.84 vs. M_{nc} = 1.08, $t(247) = 79.96$, $p < .001$). Perceived realism is not significantly different for the scenarios (M_c = 4.10 vs. M_{nc} = 3.89, $t(247) = 1.54$, $p > .10$). Hence, all the manipulations seem to have worked.

[Insert tables 10 and 11 about here]

Table 10 shows the descriptives and correlations. Table 11 shows the MANOVA results using complaint context (1 = 'complaint', 0 = 'No complaint') and prior relationship (1 = strong, 0 = weak) as independent variables with anger, complaint intention, and attribution as the dependent variables. The main effects of complaint context on anger (M_c = 3.33 vs. M_{nc} = 2.96, $F(1,245) = 9.90$, $p < .01$) and complaint intention (M_c = 3.87 vs. M_{nc} = 3.48, $F(1,245) = 12.97$, $p < .001$) are both significant. Complaint context has no significant main effect on attribution (M_c = 4.60 vs. M_{nc} = 4.46, $F(1,245) = 1.99$, $p > .10$). These results reveal that others' complaint behavior increases focal customers' perceived anger and complaint intentions (H1 is again supported). Prior relationship directly affects anger (M_{strong} = 2.87 vs. M_{weak} = 3.41, $F(1,245) = 22.03$, $p < .001$) and complaint intentions (M_{strong} = 3.45 vs. M_{weak} = 3.89, $F(1,245) = 16.85$, $p < .001$), but has no significant main effect on attribution (M_{strong} = 4.50 vs. M_{weak} = 4.55, $F(1,245) = .26$, $p > .60$). Participants who have established a strong relationship with the service provider perceive a lower level of anger and have a lower intention to complain than those who do not have an established relationship.

[Insert figure 4 about here]

Consistent with H5, the interaction between complaint context and prior relationship has a significant effect on complaint intentions ($F(1,244) = 4.10$, $p = .044$) and anger ($F(1,245) = 3.82$, $p = .052$). Figure 4 summarizes the interaction effects. When focal customers have a weak relationship with the service provider, their complaint intentions are more vulnerable to others' complaining behavior ($M_c = 4.19$ vs. $M_{nc} = 3.59$, $t(125) = 4.17$, $p < .001$) than those customers with a strong prior relationship ($M_c = 3.53$ vs. $M_{nc} = 3.37$, $t(120) = 1.06$, $p > .20$). Thus, H5 is also supported. Customers' complaint intentions are less likely influenced by other customers' complaint behavior under a stronger prior relationship. In other words, the complaint contagion effect is stronger for customers who have a weak prior relationship with the service provider. The interaction effect on anger has a similar pattern, wherein others' complaint behavior increases anger for customers who have a weak relationship ($M_c = 3.70$ vs. $M_{nc} = 3.12$, $t(125) = 3.79$, $p < .001$) compared with those who have a strong relationship ($M_c = 2.94$ vs. $M_{nc} = 2.80$, $t(120) = .80$, $p > .40$). The interactive effect of complaint context and prior relationship on attribution is not significant ($F(1,244) = 2.33$, $p > .10$). Complaint context has no significant effect on attribution across two conditions of prior relationship (for strong relationship, $M_c = 4.55$ vs. $M_{nc} = 4.45$, $t(120) = .68$, $p > .40$; for weak relationship, $M_c = 4.55$ vs. $M_{nc} = 4.56$, $t(125) = .06$, $p > .90$). Again, the complaint contagion effect is not affected by attribution of blame.

[Insert table 12 about here]

Table 12 summarizes the results of moderated mediation analysis. The results of Model 1 (DV=Anger) reveal that the direct effect of complaint context on anger is significant ($B = .59$, $SE = .16$, $t(244) = 3.79$, $p < .001$). Prior relationship has a partially significant negative effect on anger ($B = -.25$, $SE = .15$, $t(244) = -1.64$, $p = .09$). The interaction between complaint context and prior relationship significantly affects participants' emotion of anger ($B = -.54$,

SE = .22, *t* = −2.44, *p* < .05). Thus, focal customers who have a stronger prior relationship with the service provider show less anger in response to others' complaint behavior than when the prior relationship is weak. The results of Model 2 (DV=Complaint Intentions) show a significant direct effect of complaint context on complaint intentions (*B* = .19, *SE* = .09, *t*(243) = 2.06, *p* < .05). The coefficient of prior relationship is not significant (*B* = .02, *SE* = .09, *t*(243) = .26, *p* > .50). Interaction between complaint context and prior relationship is also not significant for complaint intentions (*B* = −.16, *SE* = .13, *t* = −1.21, *p* > .20).

Combining the results of Model 1, of which the main effect of complaint context and the interaction effect with prior relationship on anger are both significant, the effect of complaint context on complaint intentions is partially mediated by anger (H2 is again supported). The lower part of Table 12 offers an overview of the conditional indirect effects of complaint context on complaint intentions through anger. The moderated-mediation bootstrapping results show that the complaint context exerts an indirect effect on complaint intentions when the prior relationship is weak as the confidence interval (95% *CI* = .21, .63) does not include zero. No indirect effect was identified under the condition of strong prior relationship as the confidence internal (95% *CI* = −.20, .27) includes zero. The index of moderated mediation effect is –.38 (95% *CI* = –.69, –.08). Therefore, H5 is also supported. Prior relationship with the service provider moderates the influences of complaint context on anger and complaint intentions. When the prior relationship is weak, others' complaint behavior enhances focal customers' anger and finally increases their complaint intention. However, when the prior relationship is strong, other customers' complaining or otherwise made no difference to customers' anger and complaint intentions.

4. Discussion

All the four studies consistently confirm the presence of the *contagion effect* across two service categories. Drawing on social information processing theory and social identity theory, these four studies demonstrate that after encountering the same service failure as other customers, the complaint behavior of others increases focal customers' complaint intention, because watching others complain causes customers to feel more angry. H1 and H2 were supported. This contagion effect is moderated by focal customers' social identification with other customers, credibility of others, and prior relationship between focal customers and the service provider. Specifically, the contagion effect of others' complaint behavior on complaint intentions is stronger when focal customers have high identification with other customers, perceive other customers as credible, or have a weak prior relationship with the service provider. H3–H5 were also supported.

Besides testing all the hypotheses, this research has other findings worthy of discussion. The mediating role of anger varies across four studies. In the retail scenario of Study 1 and Study 3, the complaint contagion effect is fully mediated by the emotion of anger. In other studies, the emotion of anger partially mediates the effect of others' complaining behavior on the focal customers' complaint intention. This means that although anger is a dominant emotion factor behind complaint behavior, it cannot completely explain the complaint contagion effect. We believe that there could be other emotions derived from encountering a service failure influencing customers' complaint behavior, such as regret (Bonifield and Cole, 2007), fear, and sadness (Mattsson and McColl, 2004; Tronvoll, 2011).

The moderators influence the effect of other customers' complaint behavior on anger, which determines the focal customers' complaint intentions. According to the results of the moderating mediation analysis, both perceived credibility and prior relationship have a significant main effect on the emotion of anger. These results mean that the credibility of other customers positively influences focal customers. This effect exists whether other

customers complain or not. It is consistent with the findings of Yi et al. (2013) that identifies the main effect of other customers' credibility on the focal customers' citizen behavior.

The direct negative effect of prior relationship on anger provides support to previous studies in the literature that argue that a strong relationship with the service provider could mitigate complaining responses in relation to service failure (Mattila, 2001; Mittal et al., 2008). There are different reasons for this mitigating effect. A strong prior relationship makes customers hesitate to complain because they fear negative consequences for service employees (Mittal et al., 2008). A strong prior relationship increases customers' expectations of receiving desired recovery outcomes from the service provider (Mattila, 2001). Our findings provide another explanation, that is, a strong prior relationship makes customers less angry about the service failure.

4.1. Theoretical contributions

This paper makes several theoretical contributions. First, it contributes to the service failure and complaint behavior literature. Prior service failure research shows a difference in customers' complaint behavior between group service failure and individual service failure (Albrecht et al., 2017b; Du et al., 2014; Huang et al., 2014). This study extends these findings by showing that other customers' behavior in a multi-actor service setting may also affect the focal customers' complaint intentions; whereby, when others complain to the service provider, focal customers have higher complaint intentions than when others do not complain.

Second, this research shows that anger plays a mediating role in the contagion effect of complaint behavior. Past research identifies anger as a key factor highly associated with complaint behaviors (Albrecht et al., 2017b; Bougie et al., 2003; Du et al., 2014). The findings are consistent with this research and extend the literature by finding that anger is affected not only by the interaction with group members and the attribution of blame in a

group service failure, but also by the observation of others' complaint behavior, consistent with social information processing theory.

Third, this paper contributes to the research on customer interpersonal influence in customer complaints. For example, by exploring the moderating effects of other customers' characteristics, it extends the important contribution of Du et al. (2014), who investigate the moderating effect of group characteristics, such as group size and group members' familiarity. In addition, this paper introduces social identification between the other customers and the focal customer and the perceived credibility of the other customers as additional moderators. In this context, Yi et al. (2013) find a positive effect of social identification with other customers on perceptions of other customers' citizenship behavior. This paper replicates this effect in a service failure and complaint behavior context. The findings support the argument that social identification with other customers can occur in short-lived groups and even in the absence of a formal group (Fombelle et al., 2012). Complaint behavior of other customers with whom focal customers have high social identification makes the focal customers angrier resulting in an increase in their own complaint intentions.

Fourth, this research shows that perceived credibility of other customers also moderates the complaint contagion effect. The contagion effect is more likely to occur when other customers have high credibility than when their credibility is low. The results are consistent with the literature that high perceived credibility increases the power of a message on customers' attitude and behavior (e.g., Goldsmith, Lafferty, and Newell, 2000; Swan, Bowers, and Richardson, 1999; Xie et al., 2011). The findings also extend the effect of source credibility from research investigating its relationship with salespeople, advertising, public relations, and online reviews, to service failure and recovery, and provide a nuanced understanding of the contingencies of the contagion effect of others' complaint behavior.

Finally, this paper contributes to the literature on customer relationships and complaint behavior; wherein well-established customer relationships are a buffer that mitigates the contagion effect of others' complaint behavior. In Study 4, the total effect of prior relationship on complaint intentions is negative, which is consistent with the literature that relationship type or strength mitigates complaint intentions (e.g., Alicke et al., 1992; Mattila, 2001; Mittal et al., 2008). Our findings support this literature by identifying both the direct effect of prior relationship and the interactive influences of prior relationship and others' complaint behavior on anger. Thus, customers in an established relationship are less influenced by service failure and other customers' complaint behavior, and have a relatively lower level of anger, which results in lower complain intentions.

4.2. Practical implications

This research as several implications for service providers. First, the complaint contagion effect examined in our research increases the importance for service providers to distinguish between service failure and customers' complaint behavior. If the service problem encounter is not individual but experienced by multiple customers together, and customers' complaint behavior is exposed to other customers encountering the same service problem, service providers should be aware that there is an increased likelihood that more and more customers will complain. An increased volume of complaining customers may challenge an organization's recovery capacity and negatively affect the service experience of customers not encountering the service problem (Huang, 2010).

Second, this research has practical implications for service managers dealing with the complaint contagion effect. Based on our findings, focal customers' observation of other customers' complaint behavior results in their higher complaint intention. In order to reduce the complaint contagion effect, service providers should try to prevent the visibility of complaint behavior. Research into individual versus group service failure suggests that

service providers should “keep customers from perceiving a service failure as a group service failure” (Albrecht et al., 2017b, p.199). However, sometimes a service failure perceived as a group service failure is inevitable. For example, service providers cannot avoid announcing a flight delay or product recall. Under such circumstances, service providers should quickly deal with customers’ complaining to reduce the exposure of others to complaining customers. For managers, it is necessary to know that making complaints less visible to other customers can help keep other customers calm and improve the efficiency of service recovery. It does not mean that the service provider should hide the recovery outcome from other customers. Transparency of service recovery is essential for its success, especially online (Hogreve, Bilstein, and Mandl, 2017), so service providers should keep complaining customers separated from the customer group and deliver service recovery to all customers affected by service failure, regardless of whether they complain or not.

Third, the findings suggest that social identification among customers is an important contingent factor moderating the contagion effect of complaint behavior. This finding is helpful for service providers to evaluate the potential influence of customers’ complaints. When a service failure involves multiple customers with similar social identities, for example, a tour group of aged people or foreign tourists from the same country, the complaint contagion effect is more pronounced and service providers need to make more effort to deal with the service problems.

Fourth, service providers should evaluate the situation of customers complaining based on their credibility. Whether the complaining customers are perceived as trustworthy influences other customers’ complaint intentions. It requires service providers to have a good understanding of their customers’ influence. This is especially useful for online customer service. Customer credibility is relatively easier for either service providers or other customers to evaluate online because of people’s previous behavior and communications

recorded online and visible to others, so service providers should allocate more resources to deal with the complaint behavior of customers with high credibility. They can do so by differentiating their complaint handling efforts not only on the size of the customer group and familiarity among group members (Du et al., 2014), but by considering social identification among customers and their credibility.

Finally, service providers should be aware of their relationship with customers who are involved in a service failure. Customer relationship with the service provider changes the contagion effect of customers' complaint behavior. On the one hand, customers in a well-established relationship with the service provider are influenced less by service failure and others' complaint behavior. Therefore, improving customer relationship management and retaining a long-term relationship with customers helps to prevent customer complaints after service failure even when others complain, which could reduce the cost of handling customer complaints. On the other hand, the lower anger and complaint intentions of customers in an established relationship is based on their clear expectation of service recovery (Mattila, 2001) and reluctance to have a direct confrontation with the service provider (Alicke et al., 1992). Service providers should emphasize personal relationship development and maintenance. Appropriate recovery efforts should be provided to these customers to match their expectations even though they are less likely to complain.

5. Limitations and future research

This paper has some limitations that future research may address. First, this paper focuses on complaint intentions and not on negative WOM because its main purpose was to study the impact of other customers' complaint behavior on focal customers' complaint behavior. Moreover, negative WOM and complaint behavior are highly correlated in the literature (e.g., Albrecht et al., 2017b). Negative WOM may also generally take place after customers complain to the service provider. Another limitation is that complaint intentions may differ

from actual complaint behavior. Further research may include more outcome variables and examine the contagion effect on actual complaint behavior. More company-related outcomes, such as customers' satisfaction and repurchase intention or behavior should be included in order to understand the influences of complaint contagion effect on service providers.

Second, this paper uses imaginary scenarios of service failure in two service categories, which were found realistic by the participants; however, while our measures demonstrate acceptable fit of data, the scenario-based experiment inevitably suffers from potential threats of external validity. Future research could use other methods (e.g., field experiments) to test the complaint contagion effect in a real environment. Another limitation of the scenarios employed in this study is that only online group buying scenarios were included to test the contingent factors of the complaint contagion effect. Online individual buying scenarios and offline retailing situations are worthy of further exploration in future research.

Third, the authors examined the contagion effect of other customers' response at the service failure stage, which is not complete from the perspective of service experience. Future research should extend the research to the service recovery stage. How other customers' service recovery affects focal customers' evaluation of their own service recovery after a similar service failure should be examined in the future. Further, the authors examined the moderators of complaint contagion effect by considering the traits of other customers and the service provider; however, future research could also explore the influence of personality traits of the focal customers and the interactions among different actors in a multi-actor service ecosystem (focal customers, other customers, service providers, and bystanders) on the complaint contagion effect. Finally, future research could explore strategies to prevent complaint contagion, such as the effects of individual or private interaction between the service provider and complaining customers on complaint contagion.

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Table 1. Descriptives and Correlations (Study 1)

Variables	Retail Scenario				Transport Scenario			
	M	SD	1	2	M	SD	1	2
1. Complaint Intentions	4.14	.83			3.39	.94		
2. Anger	3.57	.97	.72**		2.81	.98	.69**	
3. Attribution	4.26	.83	.32**	.44**	4.12	.99	.42**	.46**

** $p < .01$; M = Mean; SD = Standard Deviation

Table 2. Multivariate Analysis of Variance (MANOVA) Output (Study 1)

Complaint Conditions	Outcomes					
	Retail Scenario			Transport Scenario		
	Complaint Intentions	Anger	Attribution	Complaint Intentions	Anger	Attribution
Complaint	4.36(.69)	3.84(.89)	4.37(.79)	3.79(.64)	3.19(.88)	4.14(1.00)
No complaint	3.86(.90)	3.24(.98)	4.12(.88)	3.06(1.02)	2.49(.95)	4.10(.98)
t-Value	2.71**	2.82**	1.33	3.70***	3.32***	.21

** $p < .01$, *** $p < .001$; Note: Figures in brackets represent stand deviation.

Table 3. Mediation Analysis (Study 1)

Antecedent	Retail Scenario								Transport Scenario							
	DV=Anger				DV=Complaint Intentions				DV=Anger				DV=Complaint Intentions			
	B	SE	t	p	B	SE	t	p	B	SE	t	p	B	SE	t	p
Constant	1.29	.51	2.55	< .05	1.83	.30	6.03	< .001	.68	.41	1.66	> .10	1.12	.34	3.32	< .01
X (complaint context)	.48	.20	2.44	< .05	.09	.12	.74	> .10	.68	.19	3.64	< .001	.36	.16	2.19	< .05
M (Anger)	–	–	–	–	.69	.07	9.83	< .001	–	–	–	–	.53	.09	5.6	< .001
Covariate (Attribution)	.47	.12	3.99	< .001	−.06	.07	−.74	> .10	.44	.09	4.68	< .001	.15	.09	1.73	< .10
Model Fit	R^2 = .26, $F(2,74)$ = 12.71, p < .001				R^2 = .67, $F(3,73)$ = 49.02, p < .001				R^2 = .33, $F(2,74)$ = 18.01, p < .001				R^2 = .52, $F(3,73)$ = 26.73, p < .001			
Indirect Effect	Coefficient = .34, bootSE = .14, 95% CI = [.07, .64]								Coefficient = .36, bootSE = 13, 95% CI = [.14, .63]							
Direct Effect	Coefficient = .09, bootSE = .12, 95% CI=[-.15, .32]								Coefficient = .36, bootSE = 16, 95% CI = [.03, .69]							

X = Independent Variable; M = Mediator; DV = Dependent Variable; B = Standardized Beta Coefficient; SE = Standard Error; t = *t*-value; p = *p*-value; bootSE = Bootstrapping Standard Error; CI = Confidence Interval

Table 4. Descriptives and Correlations (Study 2)

Variables	M	SD	1	2
1. Complaint Intentions	4.04	.74		
2. Anger	3.55	.95	.61**	
3. Attribution	4.06	.83	.27**	.28**

** $p < .01$; M = Mean; SD = Standard Deviation

Table 5. MANOVA Output (Study 2)

Complaint Context	Outcomes					
	Social Identification = Low			Social Identification = High		
	Complaint Intentions	Anger	Attribution	Complaint Intentions	Anger	Attribution
Complaint	4.11(.71)	3.41(.99)	3.98(.93)	4.32(.52)	3.83(.84)	4.22(.74)
No complaint	3.94(.79)	3.50(1.03)	4.02(.86)	3.79(.80)	3.45(.91)	4.03(.75)
t-Value	1.31	−.44	−.20	3.79***	2.39*	1.37

* $p < .05$, ** $p < .01$, *** $p < .001$; Note: Figures in brackets represent standard deviation.

Table 6. Moderated Mediation Analysis (Study 2)

Antecedents	Outcomes							
	DV = Anger				DV = Complaint Intentions			
	B	SE	t	p	B	SE	t	p
Constant	2.25	.31	7.30	< .001	2.03	.21	9.50	< .001
X (complaint context)	−.07	.16	−.43	> .10	.22	.10	2.10	< .05
M (Anger)	–	–	–	–	.43	.04	10.72	< .001
W (social identification)	−.06	.16	.35	> .10	−.13	.10	−1.24	> .10
X * W	.39	.23	1.69	< .10	.13	.15	.88	> .10
Covariate (Attribution)	.31	.07	4.35	< .001	.10	.05	2.07	< .05
Model Fit	$R^2 = .10$; $F(4,239) = 6.68$, $p < .001$				$R^2 = .42$; $F(5,238) = 34.07$, $p < .001$			
Social Identification	Coefficient		Boot SE		95% CI			
High = 1	.14		.07		[.01, .28]			
Low = 0	−.03		.08		[−.18, .12]			

Table 7. Descriptives and Correlations (Study 3)

Variables	M	SD	1	2
1. Complaint Intentions	4.36	.69		
2. Anger	3.78	.96	.41**	
3. Attribution	4.36	.73	.39**	.37**

** $p < .01$; M = Mean; SD = Standard Deviation

Table 8. MANOVA Output (Study 3)

Complaint Context	Outcomes					
	Perceived Credibility = Low			Perceived Credibility = High		
	Complaint Intentions	Anger	Attribution	Complaint Intentions	Anger	Attribution
Complaint	4.38(.58)	3.85(.96)	4.34(.83)	4.47(.57)	3.95(.62)	4.35(.65)
No complaint	4.44(.70)	3.91(.95)	4.44(.56)	4.14(.85)	3.43(1.16)	4.30(.83)
t-Value	−.60	−.39	−.84	2.53*	3.15**	.40

* $p < .05$, ** $p < .01$; Note: Figures in brackets represent stand deviation.

Table 9. Moderated Mediation Analysis (Study 3)

Antecedents	Outcomes							
	DV = Anger				DV = Complaint Intentions			
	B	SE	t	p	B	SE	t	p
Constant	1.76	.36	4.91	< .001	2.46	.26	9.44	< .001
X (complaint context)	−.01	.16	−.09	> .10	−.03	.11	−.24	> .10
W (credibility)	−.41	.16	−2.63	< .01	−.17	.11	−1.52	> .10
X * W	.51	.22	2.31	< .05	.23	.16	1.49	> .10
M (Anger)	–	–	–	–	.20	.04	4.54	< .001
Covariate (Attribution)	.48	.08	6.32	< .001	.10	.05	2.07	< .05
Model Fit	$R^2 = .18$; $F(4,247) = 13.58$, $p < .001$				$R^2 = .24$; $F(5,246) = 15.88$, $p < .001$			
Credibility	Coefficient			Boot SE	95% CI			
High = 1	.10			.05	[.02, .21]			
Low = 0	−.00			.03	[−.07, .07]			

Table 10. Descriptives and Correlations (Study 4)

Variable	M	SD	1	2
1. Complaint Intentions	3.67	.89		
2. Anger	3.15	.97	.79**	
3. Attribution	4.53	.79	.32**	.26**

** $p < .01$; M = Mean; SD = Standard Deviation

Table 11. MANOVA Output (Study 4)

Complaint Context	Outcomes					
	Prior Relationship = Weak			Prior Relationship = Strong		
	Complaint Intentions	Anger	Attribution	Complaint Intentions	Anger	Attribution
Complaint	4.19(.76)	3.70(.81)	4.55(.80)	3.53(.78)	2.94(.88)	4.55(.73)
No complaint	3.59(.86)	3.12(.93)	4.56(.78)	3.37(.95)	2.80(.99)	4.45(.91)
t-Value	4.17***	3.79***	.06	1.06	.80	.68

*** $p < .001$; Note: Figures in brackets represent standard deviation.

Table 12. Moderated Mediation Analysis (Study 4)

Antecedent	Outcomes							
	DV = Anger				DV = Complaint Intentions			
	B	SE	t	p	B	SE	t	p
M (Anger)	–	–	–	–	.69	.04	18.51	< .001
X (complaint context)	.59	.16	3.79	< .001	.19	.09	2.06	< .05
W (prior relationship)	−.25	.15	−1.64	< .10	.02	.09	.26	> .10
X * W	−.54	.22	−2.44	< .05	−.16	.13	−1.21	> .10
Covariate (Attribution)	.31	.07	4.37	< .001	.13	.04	3.09	< .01
Constant	1.70	.34	4.96	< .001	.81	.21	3.82	< .001
Model Fit	$R^2 = .19$; $F(4,244) = 14.52$, $p < .001$				$R^2 = .68$; $F(5,243) = 101.09$, $p < .001$			

Prior relationship	Coefficient	Boot SE	95% CI
Strong = 1	.03	.12	[−.20, .27]
Weak = 0	.41	.11	[.21, .63]

Figure 1. Theoretical Framework and Hypotheses

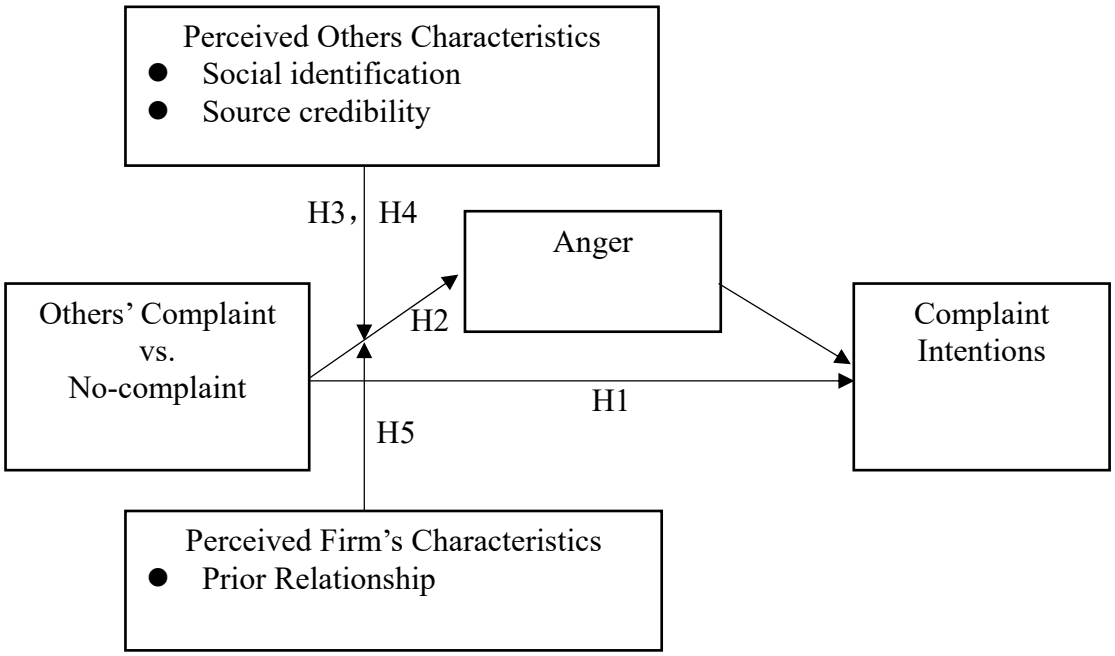
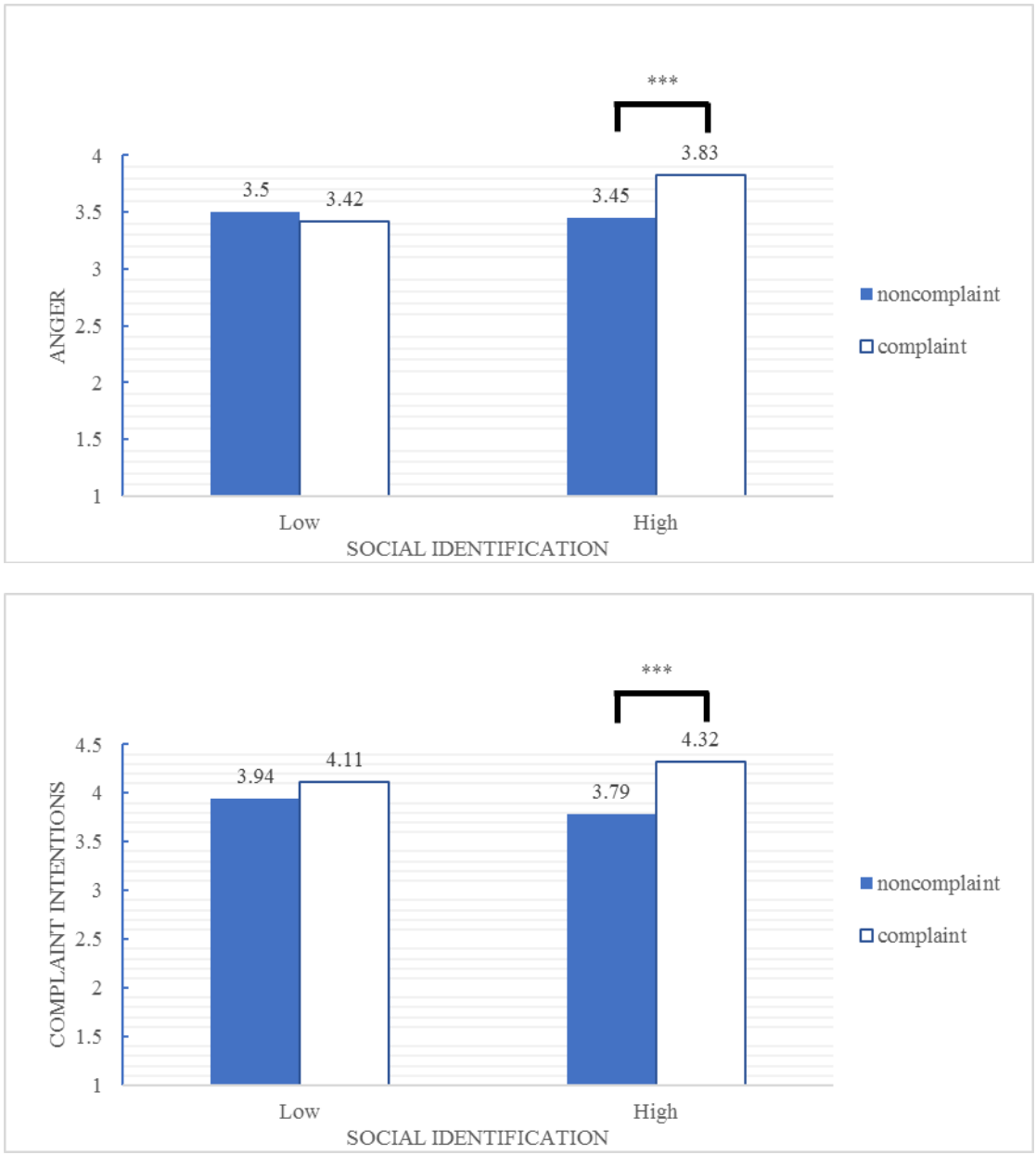
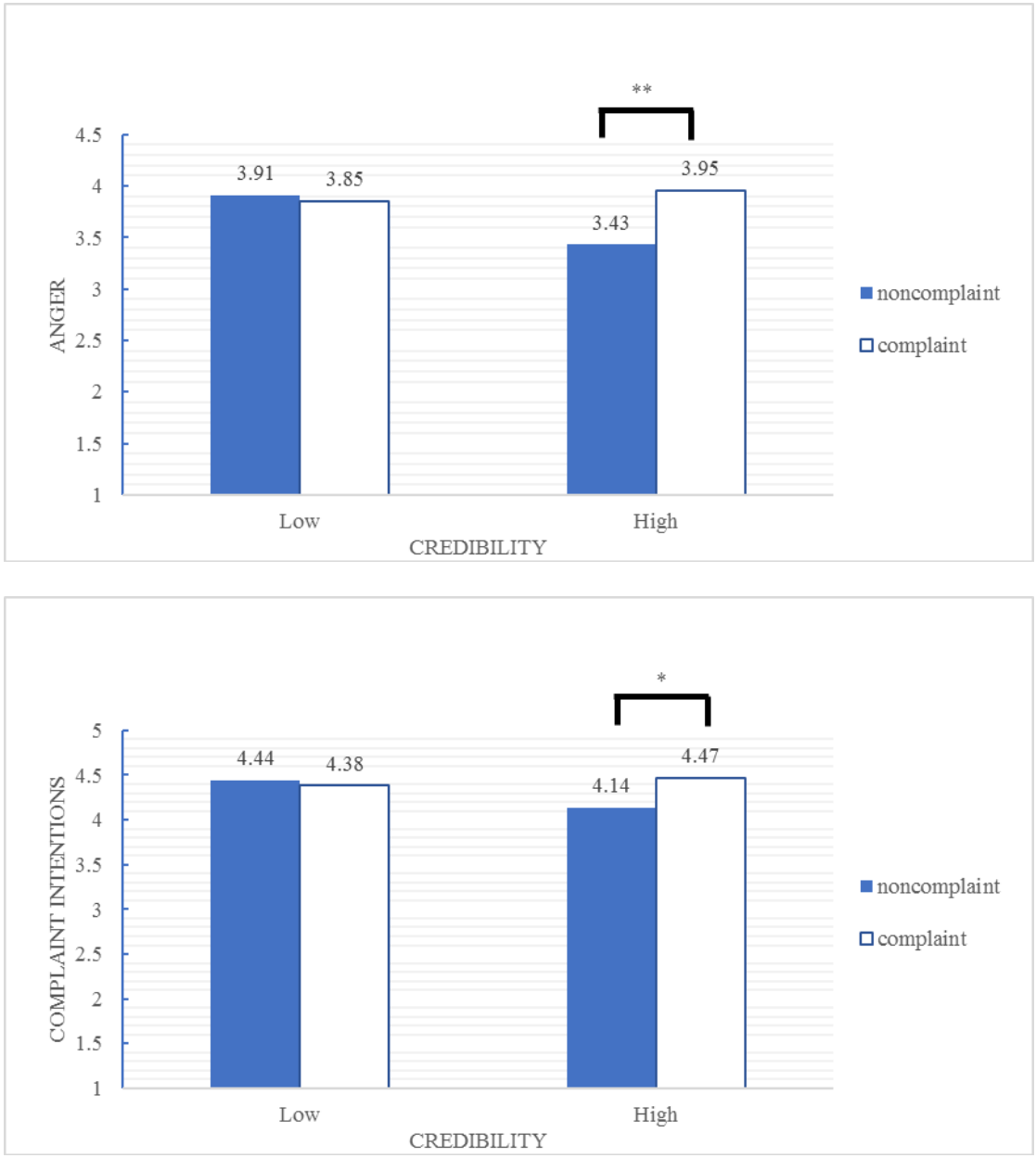


Figure 2. Moderating Effect of Social Identification (Study 2)



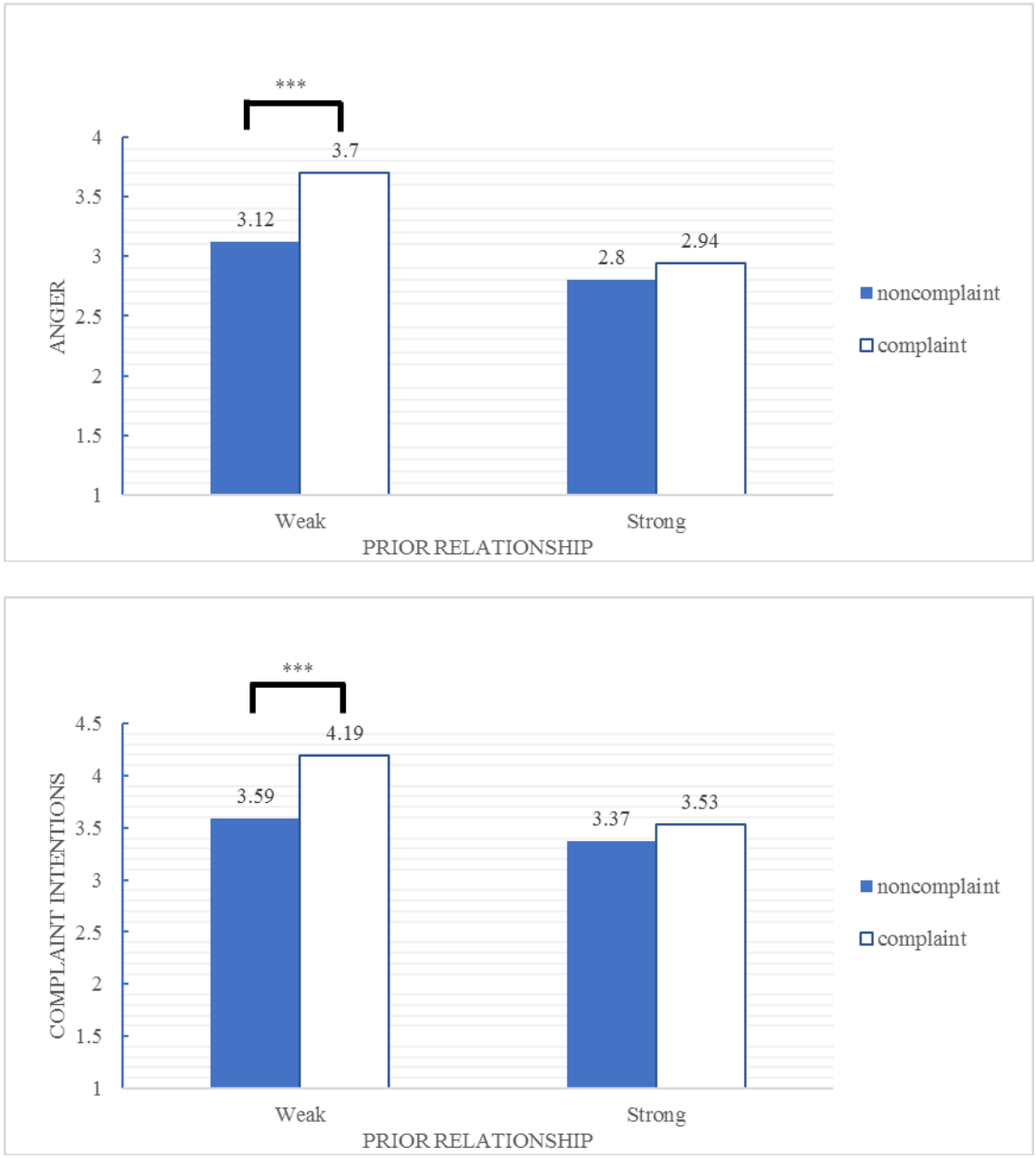
*** $p < .001$

Figure 3. Moderating Effect of Source Credibility (Study 3)



** $p < .01$; * $p < .05$

Figure 4. Moderating Effect of Prior Relationship (Study 4)



*** $p < .001$

Appendix A

A.1 Retail category in Study 1, 'complaint' context

You are in a group-buying WeChat group. This WeChat group regularly launches group-buying activities. You join in a group-buying activity to purchase a branded shampoo. After you submit your order and pay your bill, the shampoo is shipped to you in a short timeframe. You find that the product will expire within one month and you will not be able to use it all up before the expiration date. You notice that several other group members post pictures of their purchased shampoo with the same expiration date as yours. They complain in the WeChat group and ask the manager of the group purchase in the WeChat group to return the product and get their money back. ('No complaint' context: No one complained in the group and asked to return the product and get a refund.)

A.2 Transport category in Study 1, 'complaint' context

You purchase a flight for business travel. When you check in at the airport, you are told that your flight is over-booked and no seats are available. The employee of the airline company arranges for you to be transferred to another flight taking off an hour later than your original one. There are several other customers who booked the same flight and encountered the same problem as you. They have to be transferred to the same flight as well. These customers complain to the airline, express their dissatisfaction and ask for compensation. ('No complaint' context: No one complained to the airline and the other affected passengers accept its arrangement.)