

Management of Customer Interactions as an Innovative Source for Improving Customer Perceptions of Service Quality

Jiyoung Kim ^{a,1}, Sunmee Choi ^{b,*}

^a Ph.D. Candidate, School of Business, Yonsei University, Seoul, Korea, , 50 Yonsei-Ro, Seodaemun-Gu, Seoul, Republic of Korea 120-749

^b Professor, School of Business, Yonsei University, Seoul, Korea, , 50 Yonsei-Ro, Seodaemun-Gu, Seoul, Republic of Korea 120-749

*Corresponding author: Tel: +82-2-2123-5479, Fax: +82-2-364-7828.
E-mail address: sc128@yonsei.ac.kr

¹ E-mail address: jiyoung.kim@yonsei.ac.kr

Management of Customer Interactions as an Innovative Source for Improving Customer Perceptions of Service Quality

ABSTRACT

The influential role other customers play in forming a customer's service experience has gained growing academic and managerial attention recently. We intend to extend this stream of the research by examining the effect of a customer's interactions with other customers (C2C interactions) in the service process on that customer's quality perception of the services provided by the service firm. The ultimate goal of our research is to explore the importance of other customers as a human factor, beyond service personnel, influential on customer perceptions of service quality, and as a result propose the managerial needs to manage other customers as an innovative source for improving service quality perceptions. Specifically, we propose that a customer's perceived quality of his/her interactions with other customers affect his/her perceptions of social-emotional support, which in turn affect his/her perceived "assurance" and "empathy" quality of the services provided by the service provider. Further, we propose that the former effect is moderated by the customer type (reactive vs. proactive tendency in giving and receiving help). In order to extend the stream of research on C2C interactions beyond experiential service settings, on which previous research on C2C interactions has mostly focused, we chose a service setting where functional benefits are more valued (i.e., healthcare services). Our study findings will help service managers realize the importance of managing C2C interactions in general and which aspects of C2C interactions to manage in particular.

Keywords: service innovation, customer-to-customer interactions, perceived service quality,

social-emotional support, customer type, assurance, empathy

1. Introduction

Customers have long been recognized as a valued source of innovative ideas and motivation for innovation. Customers play instrumental roles throughout the new product development process by exchanging information with and providing feedback to the development team (Fang, 2008; Noordhoff et al., 2011; Ramaswami et al., 2009). Accordingly, firms actively pursue customer contributions for their new product development opportunities (Penrose, 1959).

The role of customers in the firms' innovation endeavors has gained more attention recently with the emergence of the open innovation paradigm, according to which innovation is the result of a process that couples a firm with partners, such as suppliers and customers (Chesbrough, 2003; Von Hippel, 1986). While the contrasting paradigm of closed innovation views that firms should develop and commercialize their internal ideas and knowledge, the open innovation paradigm views that "firms can and should use external ideas as well as internal ideas" (Chesbrough, 2003). For this reason, customers and users are regarded as important external partners of innovation (Boger et al., 2010).

The role of customers for a firm has expanded in other areas as well. According to the recently emerging service-dominant logic (S-D logic), customers are considered as an operant resource active in co-production (Vargo & Lusch, 2004). Customers provide their own knowledge and skills in order to acquire the full benefits of the specialized competences or services of the service providers. Eventually, these knowledge and skills become operant resources for the firm. Furthermore, in the process of co-producing the services they purchase, ultimately the value is determined by the customers. Thus, it is proposed that firms do not produce value "for" but rather "with" the customers (Vargo & Lusch, 2004).

The "service delivery" innovation is one of four approaches to service innovation (Bettencourt, 2010). In this approach customer roles can be considered not only from the

"for-them" perspective but also from the "by-them" perspective because while customers co-produce services for themselves, they are likely to influence other customers who are present in the service delivery process at the same time. According to the customer participation theory, customers are considered as partial employees (Bowen, 1986; Mills & Morris, 1986; Namasisivayam & Hinkin, 2003) and viewed as performing significant roles in shaping the quality of services they receive. Therefore, changes in what customers do consciously and unconsciously during the service delivery can trigger changes in the way other customers perceive the service. In other words, service delivery innovation can be triggered by what customers do during the delivery process.

Thus, we propose in this study that other customers can serve as a source of service delivery innovation for improving customer perceptions of service quality. Just as the open innovation paradigm looks beyond the boundary of the organization for ideas of innovation, we suggest that service firms should look beyond the service personnel and consider other customers as a human element influential on customer perceptions of service quality.

Taken together, we put forward that the quality of interactions of a customer with other customers influences the customer's quality perceptions of the services provided by the service personnel or by the service firm. We argue that service firms should consider other customers as an operant resource and actively design and manage their roles in forming positive customer-to-customer (C2C) interactions. Moreover, considering the manifestation that true service innovation is accomplished when the focus is shifted from offering "solutions" to truly understanding the needs of customers (Bettencourt, 2010), we need to closely examine what types of interactions occur among them during the service delivery process.

In service settings where customers are present in the delivery process, interactions with other customers are an indispensable part of the consumption experience (Grove & Fisk,

1997; Huang & Hsu, 2010). Thus, the effect of C2C interactions on several customer outcomes, such as customer experience, satisfaction, and loyalty, has been well studied (Huang & Hsu, 2010; Kim & Lee, 2012; Moore et al., 2005; Wu, 2008; Yoo et al., 2012). Yet, the effect on customer perceptions of service quality has not received much attention. Through the current research, we intend to fill this gap in research on C2C interactions.

Since the primary customer response variables of interest in the C2C interactions research have been customer experience, satisfaction and loyalty, the service settings chosen for research have mostly been hedonic services in which experiential (as opposed to functional) benefits are more valued by customers (i.e., restaurant services). The importance of managing C2C interactions in the utilitarian service settings in which functional benefits are more valued (i.e., healthcare services) has not received as much scholarly attention. Hence, we plan to extend the research in C2C interactions to the field of functional services by using healthcare services as our study setting.

The remainder of this paper is composed as follows: We first identify the key components of C2C interactions through a review of the literature on C2C interactions across service industries and in the healthcare setting in particular. We then develop hypotheses on the effect of perceived quality of C2C interactions on perceived social-emotional support and on the effect of the perceived social-emotional support on the "assurance" and "empathy" dimensions of perceived service quality. Further, acknowledging that it is each individual's personal meaning that determines his/her perceived value in the experience space (Prahalad & Ramaswamy, 2003), we propose the moderating effect of the customer type for the perceived quality of C2C interactions on perceived social-emotional support. We then present our research methodology, which is followed by our hypotheses test results. We conclude with discussions on our study findings.

2. Theoretical Background on Customer-to-Customer Interactions

As summarized in Table 1, studies on other customers can be divided largely into two streams. One stream focuses on the customer perceptions and evaluations of other customers present in the same service delivery place, while the other focuses on customer interactions with other customers, such as exchanges or dialogues and actions. The former stream of research can be further divided into two branches depending on whether other customers are approached from the service environment factor aspect or from the compatibility aspect. The latter stream can also be divided into two branches depending on whether the C2C interactions of interest are limited mostly to conversations or are more comprehensive, including diverse types of actions between customers.

Customers can be viewed as a factor composing the overall service environment (Belk, 1975). Since production and consumption occur simultaneously in services, customers cannot be separated from the overall service delivery process (Bateson, 1985) and therefore are a crucial element of the service setting (Baker, 1987). Consequently, customers inevitably directly or indirectly affect other customers who are present in the same service setting (Baker, 1987; Bitner, 1992). The indirect effect of other customers through crowding or density on customers' overall service satisfaction is contextual and therefore can be negative (Hui & Bateson, 1991) or positive (Eroglu et al., 2005). Tombs and McColl-Kennedy (2003) refined the stream of research in this regard by proposing the concept of social-servicescape. They suggested that other customers act as one of the social factors in the servicescape and influence a customer's emotional and cognitive responses, which in turn influence the customer's satisfaction and repurchase intention. Brocato et al. (2012) took this a step further and suggested a scale to measure customer perceptions of other customers; the proposed three key dimensions of "other customer perceptions" were similarity, physical appearance, and displayed behaviors.

Another stream of research on the presence of other customers paid particular attention to the compatibility of other customers and showed that perceived compatibility influences customer satisfaction and service experience evaluation. The studies by Martin and Pranter (1989) and by Pranter and Martin (1991) emphasized the influence of other customers on a customer's service experience and devised the concept of "compatibility management." They suggested that higher customer compatibility can be accomplished by customer homogeneity, especially when customers spend a long time at the service place, when customers must stay close to each other in proximity due to the nature of the service, or when it is inevitable that they need to share space and time.

Research interest on other customers has evolved from the mere "presence of" to the "interaction with" other customers. Research on conversations among customers has examined how customers interact verbally with one another during the service delivery process (Harris et al., 1995). The influence of conversations with strangers during railway travel using market-oriented ethnography showed that such conversations have a stabilizing effect by reducing anxiety among customers (Harris & Baron, 2004). A more specific study on the role of conversations with other customers suggested that the content and structure of verbal interactions may render a positive value in the overall servuction (service production) model (Davies et al., 1999). Specifically, customers may acquire more genuine opinions and knowledge of the product through conversations with other customers rather than conversations with the service provider.

Some researchers have looked at more direct interactions between customers in consideration of diverse customer activities beyond verbal interactions. McGrath and Otnes (1995), for example, examined how unacquainted customers interacted with each other and found these customers influenced each other both overtly and covertly. They suggested that customer roles in these interactions can be categorized largely into influencers and recipients.

As a nice complement to this study, Parker & Ward (2000) empirically examined the frequency and propensity of direct interactions between customers and developed customers' typical role typologies and scripts (i.e., reactive help-seeker, proactive help-seeker, reactive helper, and proactive helper).

The customer effect of C2C interactions has been examined in various service settings. In personal service settings, such as a hair salon, positive C2C interactions bring positive service satisfaction (Moore et al., 2005). Even watching positive interactions between customers can enhance customer experience or service satisfaction and even loyalty (Wu, 2008). C2C interactions have an instrumental influence on customers, especially when customers have to stay in close proximity with one another, such as on a cruise trip, (Huang & Hsu, 2010). Zhang et al. (2010) categorized diverse forms of interactions between customers using a critical incident technique (CIT) across a variety of service settings. Using the criteria of positive vs. negative and direct vs. indirect, they proposed detailed and comprehensive dimensions of C2C interactions and showed that positive C2C interactions contribute to positive service satisfaction.

Our review of the literature on C2C interactions revealed that C2C interactions have been actively researched in diverse service settings and that the crucial customer effect of C2C interactions has been demonstrated. However, their customer effect has been mostly centered around customer experience and service satisfaction. We would like to take a step back and examine whether C2C interactions affect customer perceptions of service quality, which is known to influence customer experience and service satisfaction (Huang & Hsu, 2010; Moore et al., 2005; Wu, 2008). Noting that most existing studies on C2C interactions used the hedonic (experiential) services settings, we used the functional (utilitarian) services setting as our study context to contribute to the extension of research on C2C interactions in the field of functional services. Most existing studies on C2C interactions tend to be

exploratory in nature using approaches such as CIT, in-depth interviews, and observations. We conducted an empirical examination to test our C2C interactions scales and hypotheses developed from existing studies.

Insert Table 1 about here.

3. Hypotheses Development

3.1. Quality of C2C interactions and perceived social-emotional support

C2C interactions have been studied from diverse perspectives. Goodwin (1996) paid attention to the role of other customers in C2C interactions and categorized this role into strangers, friends, and quasi-family members. When other customers play the role of friends or quasi-family members, they can be supportive enough to be substitutes for actual friends or family members. Through the time spent together and conversations carried out with each other, even unfamiliar customers can alleviate another customer's anxiety and worries related particularly to using the service (Harris & Baron, 2004). Service customers can also play the role of partial employees and provide help and support for other customers. Further, customers can feel less bored through these C2C interactions (Arnould & Price, 1993). In summary, customers can assist and support each other through interactions with each other. Through these positive outcomes of C2C interactions, customers can perceive higher social-emotional support during the service process.

When people behave in supportive ways in a social environment, they are considered to be socially supportive (Fyrand et al., 2002; Helgeson, 2003). Social support in social relationships can be grouped largely into three categories: emotional support, instrumental support, and companionship (Fyrand et al., 2002; Helgeson, 2003). Emotional support makes

people feel that others are listening to them, taking care of them, sympathizing with them, and reassuring them. Instrumental support is providing tangible assistance, such as helping with house chores, lending money, and running errands. Companionship refers to the support gained from friendships. Companionship and emotional support can be combined into a single dimension—social-emotional support (Suurmeijer et al., 1995)—which has been shown to significantly affect the receivers' quality of life, especially when they are in a high-stress situation (Helgeson, 2003; Rosenbaum, 2008; Rosenbaum & Massiah, 2007), and health (Sorkin et al. 2002). In our study, we focused on perceived social-emotional support as the primary customer response to the quality of C2C interactions. We propose that positive C2C interactions with other customers in service settings can make a customer feel sympathized and taken care of and therefore perceive strong social-emotional support. Thus, we propose the following:

H1. The quality of C2C interactions will affect a customer's perceived social-emotional support.

3.2. Perceived social-emotional support and perceived service quality

SERVQUAL is a widely accepted measure of service quality as perceived by customers (Parasuraman et al., 1988). Of the five dimensions of SERVQUAL, the dimensions of assurance and empathy, tend to be more difficult for customers to evaluate in functional service settings, such as healthcare settings (Dagger et al., 2013). In the case of assurance quality, customers have considerably less knowledge than service providers and therefore find it difficult to evaluate whether the amount of the assurance they receive is adequate. Customers are sometimes unsure of the outcome quality even after the completion of service delivery. In the case of empathy quality, it is not easy for customers to evaluate interpersonal

skills and quality of the service providers because providers have much more authority and control than customers throughout the service delivery process. Customers do not even feel comfortable to evaluate the interpersonal aspects of the service providers in healthcare settings. Customers tend to seek clues and help from other related aspects in making an assessment of the attributes that are hard to evaluate (Beckwith et al., 1978; Fisicaro & Lance, 1990; Wirtz, 2003). We propose in the following two sections that perceived social-emotional supports through C2C interactions positively affect customer perception of the assurance and empathy quality services.

3.2.1. The effect of social-emotional support on the assurance quality of services

In a service setting, a customer's perceived social-emotional support through interactions with other customers can bring diverse positive effects. It can enhance the quality of life, especially in a high-stress situation (Helgeson, 2003), enhance a customer's well-being (Rosenbaum, 2008), and trigger a customer's voluntary performance (Rosenbaum & Massiah, 2007). Perceived social-emotional support can lessen stress or despondency while strengthening personal well-being (Rosenbaum, 2008). The lessened sense of stress or despondency can be explained by the stabilizing effect (Harris & Baron, 2004; McGrath & Otnes, 1995), which relieves vague anxiety and uncertainty related to service usage and enhances perception of assurance regarding the service. Because of the intangible aspect of services, customers tend to be uncertain about the actual quality of the service before and even while experiencing it and as a result feel stressed. When this type of stress is relieved by the social-emotional support gained through interactions with other customers, customer perceptions of the assurance quality of services can be enhanced. Particularly with functional services, such as healthcare services, it is common that customers feel vulnerable to this uncertainty (Berry & Bendaupudi, 2007). In these circumstances, perceived social-emotional

support gained through positive interactions with other customers can help a customer feel more assured of the service they receive. Hence, we propose the following:

H2. Perceived social-emotional support through C2C interactions will improve customer perceptions of the assurance quality of services.

3.2.2. The effect of social-emotional support on the empathy quality of services

Dagger et al. (2013) demonstrated the selective halo effect of interpersonal quality of frontline employees on the difficult-to-evaluate attributes of services, such as the technical and outcome quality of healthcare employees. They showed that customer perceptions of the interpersonal skills of frontline employees spill over to their perceptions of other service quality attributes. We conjecture that customer perceptions of the interactions with other customers could have a similar effect on customer perceptions of the difficult-to-evaluate empathy quality of services. Although the empathy quality of services is delivered by service employees while social support is perceived through interactions with other customers, both service employees and other customers are human elements that customers interact with through the service delivery process. Hence, the quality assessment of interactions with other customers and its consequences can be smoothly spilled over to the assessment of the empathy quality of service employees.

Further, perceived social-emotional support can enhance customer perceptions of empathy by motivating customers to better understand others and to show benevolent behavior. Perceived social-emotional support makes people feel cared for and have empathetic concerns (Rosenbaum, 2008; Rosenbaum & Massiah, 2007). These empathetic concerns motivate people to understand, help, and forgive others in a social exchange (Penner et al., 2005) and increase mutual adaptation on both parts of employees and customers in

service encounters (Varadarajan & Rajaratnam, 1986). Accordingly, the perceived social-emotional support gained through C2C interactions may motivate customers to better understand service employees' feelings and thoughts and take their point of views and as a result become more generous in their assessment of the empathy quality of services provided by the service employees. Thus, we propose the following:

H3. Perceived social-emotional support through C2C interactions will improve customer perceptions of the empathy quality of services.

3.3. The moderation effect of the customer type

People tend to play different roles when they interact with others. A person's role in C2C interactions with regard to help can be categorized into four types; reactive help-seekers, proactive help-seekers, reactive helpers, and proactive helpers (Parker and Ward, 2000). Reactive helpers and help-seekers do not initiate interactions with others, while proactive helpers and help-seekers like to initiate interactions. Helpers like to share their knowledge and experience with people around them, while help-seekers enjoy other people sharing knowledge and experience with them. This customer role typology was shown to moderate the relationship between C2C interactions and customer satisfaction (Wu, 2008). Accordingly, we posit that the customer tendency to initiate interactions with others (reactive vs. proactive) could also moderate the relationship between C2C interactions and perceptions of social-emotional support. Thus, we propose the following:

H4. The effect of C2C interactions on perceived social-emotional support will depend on the customer type (reactive vs. proactive).

Taken together, our proposed research model and hypotheses are as shown in Figure 1.

Insert Figure 1 about here.

4. Methodology

4.1. Data collection

Among various functional services, we chose the healthcare service as our research context since customers of healthcare services (patients) tend to be sensitive to and therefore rather easily affected by other customers. Further, compared to other utilitarian service contexts, such as banking or public services, C2C interactions are frequently observed in the healthcare services settings. One of the plausible reasons may be that healthcare customers feel that they are in similar situations and therefore empathize with each other, which helps them to more readily and willingly interact with each other.

We chose inpatients (as opposed to outpatients) as our study subjects since inpatients are more likely to have opportunities to interact with other customers (patients and their companions) during the relatively long duration of time they spend in the healthcare facility. We included the companions (care givers) of the inpatients as our study subjects since they are also customers of healthcare services and will interact with other customers (patients and their companions) while looking after the patient.

In order to identify the most appropriate healthcare department for our study, we consulted a small select group of nurses and doctors of a major university hospital in Seoul, Korea. They recommended the neurosurgery department for several reasons. First, inpatients in this department are not suffering from potentially life-threatening illness and therefore are likely to participate in the study when requested. Second, patients and companions in this

department tend to be interested in interacting with other patients and companions to gain useful information on the treatment options and approaches and on daily life tips on quick recovery. Third, inpatients in this department have to stay at least three days in the hospital for the treatment and therefore are likely to have chances to interact with others.

We limited our data collection site only to this neurosurgery department in order to minimize variations in the level of the subjects' stress and risk perceptions due to different diseases they were suffering from. We also limited participants only to those who spent at least two days in the clinic in order to ensure that subjects had some time to interact with other patients or companions. For the most part, we conducted a self-administered survey using a written questionnaire; on a few occasions we conducted face-to-face interviews using the questionnaire with those who were in temporarily disabled states, which made it difficult for them to complete the questionnaire on their own.

On a daily basis, nurses provided us a list of inpatients who qualified to participate in our study. We obtained patient consent to participate and then administered the survey, which took approximately 10 minutes for most participants to complete. Data were collected over a period of 15 weeks.

We administered a total of 244 surveys and obtained 231 usable responses. A slightly higher percentage of participants were female (62% vs. 38% male) and companions (55% vs. 45% patients). A series of one-way analyses of variance and cross tabulations revealed no significant difference between the gender groups or among the participant type groups in responses related to C2C interactions.

4.2. Measurements

4.2.1. C2C interactions scale

C2C interactions have been classified by various criteria such as overall evaluations

(Moore et al., 2005; Yoo et al., 2012), incidents (Wu, 2008), and quantity and quality (Huang & Hsu, 2010). The overall evaluation of the quality of C2C interactions was measured by four items (Moore et al., 2005; Yoo et al., 2012): two items on developing friendships with others and two items on having an enjoyable time with others. Wu (2008) focused on C2C interaction incidents and used 21-items drawn from Martin's study (1996) using Likert scale as well as the frequency of occurrence of incidents. These items were classified into six factors: protocol and sociability, violent, grungy, malcontent, crude and inconsiderable. Using the cruise vacation context, Huang and Hsu (2010) tried to measure the quantity and quality of C2C interactions by adopting and modifying scales that are typically used in psychology to measure interpersonal relationships; this seemed appropriate for the cruise vacation context since during a cruise, customers tend to spend an extensive periods with other customers and develop relationships. Zhang et al. (2010) suggested the most comprehensive dimensions of C2C interactions across diverse service contexts by using a CIT to classify C2C interactions into nine dimensions. However, these dimensions were not empirically tested. These were first divided by positive vs. negative interactions and then were further divided by direct vs. indirect interactions.

We adopted the most recent and comprehensive dimensions of C2C interactions as proposed by Zhang et al. (2010) and modified them to fit our research context (healthcare). In order to confirm Zhang et al.'s (2010) dimensions were appropriate for our research, we first observed C2C interactions in a real healthcare service context, conducted in-depth interviews with healthcare staffs, and then conducted focus group interviews with six people who had experienced healthcare services in the 6 months preceding the interview. Using the classification frame proposed by Zhang et al. (2010) and considering the findings from our interviews, we developed measurement items that were balanced between direct vs. indirect and positive vs. negative dimensions of C2C interactions. The C2C interactions scale we used

is presented in Table 2.

A total 25 items were included in the four dimensions of C2C interactions: positive-direct, positive-indirect, negative-direct, and negative-indirect. Both the positive-direct dimension and negative-indirect dimension had a subdimension.

4.2.2. Social-emotional support

Measures for social-emotional support were adapted from Rosenbaum and Massiah (2007) who adapted the Social Support Questionnaire for Transactions (Doeglas et al., 1996; Suurmeijer et al., 1995) to fit commercial settings. They labeled one factor as “social-emotional support” and the other as “instrumental support.” In our study, we adopted only social-emotional support in line with our research objective. The social-emotional support questionnaire asks respondents how often they receive each type of social support, anchored by seldom and frequently. The contexts used for the study by Rosenbaum and Massiah (2007) were a gym and a video arcade that customers typically visit for a certain extended period of time through a membership. The healthcare service setting, which was our study context, differed from these two settings in terms of the frequency and duration of service use. Thus, we adapted the scales to better fit our study context and asked respondents how strongly they agreed to each statement on a seven-point Likert scale.

4.2.3. Perceived service quality: assurance and empathy dimensions

In order to measure customer perceptions of the empathy and assurance quality of services, we used the measurement items developed specifically for the healthcare setting by Dagger et al. (2013) instead of using the original SERVQUAL items. We used the items of the empathy under the interpersonal quality dimension to measure the empathy quality of services while using the items of expertise and technical quality to measure the assurance

quality of services.

4.2.4. Customer type

Measures for customer types were adapted from Parker and Ward (2000). They created typical role scripts of customers as four types: reactive help-seekers, proactive help-seekers, reactive helpers, and proactive helpers. This role typology was related to whether or not customers liked to interact and whether or not they tended to initiate interactions with other customers. We found the customer tendency to initiate interactions with others as more relevant to our study objective and therefore developed two metrics to measure a participant's tendency to initiate interactions in helping or seeking help. These two items were measured on an even (six-) point Likert scale (1 = strongly do not, 6 = strongly do) in order to clearly split respondents into two types of customers: reactive vs. proactive. Those whose responses were 3 or below for both questions were grouped as reactive customers and 4 or above as proactive customers.

4.3. Data analysis

We analyzed data in multiple stages. We first conducted an exploratory factor analysis (EFA) in order to check the dimensionality of C2C interactions measures. We then conducted a confirmatory factor analysis (CFA) to test the goodness of the C2C interaction scale. After the confirmation of the C2C interactions scale, we conducted structural equation modeling analyses to test hypotheses. Lastly, multi-group structural equation modeling was used to test the moderating effect of customer type on the link between C2C interactions and perceived social-emotional support.

5. Results

5.1. The validity test of the C2C interactions scale

Our measurement for C2C interactions was developed following a structural empirical scale development procedure (Churchill, 1979; Gerbing & Anderson, 1998). An exploratory factor analysis was first conducted to verify the dimensional structure of the C2C interactions with a factor analysis. We subjected the total 25 items to a principal component analysis (Varimax rotation). The result retained all items in a five-factor solution, which accounted for 77.8% of the variance. Factor loading with an absolute value more than .5 was used as the cut-off point for item retention, and items on cross-loadings with more than .4 points were deleted. The removal of items resulted in a 16-item scale. Adopting Zhang et al. (2010), we labeled the dimensions as follows: positive-direction, positive-indirection, negative-direction, negative-indirection (loudness), and negative-indirection (rudeness). Table 2 shows the outcome of the EFA together with the statement for each item.

Insert table 2 about here.

In order to confirm the properties of the C2C interactions scale generated from the purification process, CFA was conducted. To test this structure, we assessed the dimensionality of the first-order dimensions in a five-factor model. We ensured that items were not cross-loaded on other factors. We used modification indices to achieve a better model fit, following recommendations by Schermellen-Engel et al. (2003) and Hair et al. (2006). The fit indices for the final corrected model showed an acceptable fit ($\chi^2 = 105.465$, $df = 39$, $GFI = .931$, $CFI = .967$, $RMSEA = .086$). A total of 12 items remained as the final measurement for the quality of C2C interactions. The final scale items, descriptive statistics, and factor loadings are presented in Table 3.

Insert table 3 about here.

The validity of constructs was tested through standardized regression weights in the CFA and was found acceptable at 0.5 or higher (Aluja et al., 2006) (Table 4). Construct reliability was assessed using Cronbach's alpha and was found acceptable at 0.8 or higher (Nunnally, 1978) (Table 4). Discriminant validity was tested by comparing AVE to the squared correlations between dimensions and was acceptable (Table 4).

Insert table 4 about here.

5.2. Measurement model analysis and CFA results

Measurement properties and hypotheses were tested using the structural equation modeling analysis with IBM SPSS Amos 21 software. The measurement model for each latent construct was first validated before testing the structural model. On the component structure, the EFA results of social-emotional support, perceived assurance quality, and perceived empathy quality showed more than 70% of the variance for each. These results were in good agreement with the literature that we adopted. We then conducted a CFA for the measurement model. The finalized confirmatory factor model fit was acceptable ($\chi^2 = 389.136$, $df = 153$, $GFI = .872$, $CFI = .953$, $NFI = .925$, $RMSEA = .082$). The measurement model in this study consisted of eight correlated latent variables. Table 5 shows the number of items, factor loadings, Cronbach's alphas, composite reliability values, and average shared variance estimates.

Insert table 5 about here.

Insert table 6 about here.

5.3. Structural model and hypotheses test

We used structural equation modeling analysis to estimate the theoretical model depicted in Figure. 1. The fit for the corrected model was acceptable ($\chi^2 = 432.362$, $df = 162$, CFI = .946, GFI = .864, NFI = .917, RMSEA = .085). The proposed hypotheses were evaluated by the estimated path coefficients (Table 7). When testing the effect of C2C interactions on perceived social-emotional support, we tested the effect of each dimension in order to understand the effect of C2C interactions by their dimensions. Results showed that the effect of positive C2C interactions on perceived social-emotional support was significant while the effect of negative C2C interactions was not. The impact of the positive direct interactions was strongest ($\beta = .53$, $p < .01$). The effect of social-emotional support on both the assurance and empathy quality was significant at $p < .01$. Consequently, hypotheses 1, 2, and 3 are supported (Table 7).

Insert table 7 about here.

5.4. The moderating effect of customer type

Moderator variables could be made discrete by using theoretically appealing cut points (Baron & Kenny, 1986; James & Brett, 1984). In such cases, multi-group analysis is recommended (Baron & Kenny, 1986). Tests of discrete moderator variable effects can be executed by using the moderator to divide the sample into groups and then implementing a chi-square test of the significance of the difference between appointed structural parameters across groups (Sauer & Dick, 1993). Thus, to test the moderation effect of the customer type using multi-group analysis, we categorized the respondents into one of the two types of

customers, reactive vs. proactive as we explained in section 4.2.4. As a result, 23 responses were deleted from the total 231 responses due to their mixed tendency. An additional 13 responses were deleted due to their missing responses to the customer type-related questions. The total number of responses used for the moderating effect of customer type was 190. The size of the reactive group was larger ($n = 62$, 33%), than the proactive group ($n = 128$, 67%). We then examined the effect of C2C interactions dimensions for each group by using multi-group analysis and found that there were differences between groups, as seen in Table 8. However, in comparing the free model and the constrained model, when the degree of freedom change was 4, the chi-square change was 4.517, indicating that it did not meet the standard at $p < .05$. Therefore, H4 is rejected. That is, the moderation effect is not supported.

Insert table 8 about here.

We can summarize our findings as follows: positive C2C interactions enhanced perceived social-emotional support, while the effect of negative C2C interactions was not significant. The effect of positive direct C2C interactions was strongest. The moderation effect of the customer type was not supported. We assume that C2C interactions influence perceived social-emotional support regardless of customer type. Lastly, the perceived social-emotional support increased perceived assurance and empathy quality of service. In other words, C2C interactions influenced perceived service quality through perceived social-emotional support.

6. Discussions

6.1. Discussions of findings

There are five key findings in our study. First, as we proposed through the literature review, C2C interactions are composed of five factors: positive-direction (getting along), positive-indirection (observing and overhearing), negative-direction (fighting and others), negative-indirection (loudness), and negative-indirection (rudeness). Second, C2C interactions indirectly affect perceived assurance and empathy service quality. In other words, the importance of C2C interactions as an innovative factor for improving customer perceptions of service quality was demonstrated. Third, perceived social-emotional support affects perceived assurance and empathy service quality. We proposed the structural model of the relationship between the perceived social-emotional support and perceived service quality, and the relationship was empirically confirmed. We proved that the positive outcomes of the perceived social-emotional support, such as relieving vague anxiety and motivating to have empathic concern, affect the customer's cognitive evaluation process. Fourth, we showed that the impact of C2C interaction differs by its dimension. The impact of positive-direct C2C interactions was strongest while the effect of negative interactions was not significant. We speculate that one of the reasons why the effect of negative interactions was not significant in our study might be because in our study context (hospital rooms of the neurosurgery department in a leading university hospital), negative interactions (i.e., fighting) rarely occur. Last, the moderation effect of the customer type was insignificant, implying that the impact of C2C interactions exists regardless of the customer type.

6.2. Theoretical contributions and managerial implications

Our research makes four meaningful theoretical contributions. First, we extended the research stream in the C2C interactions by proposing and empirically testing their effect on customer perceptions of service quality (as opposed to customer experience or satisfaction) using the utilitarian services context (as opposed to the hedonic services context). Second, we

proposed a comprehensive scale for measuring the quality of C2C interactions. Prior to this study, there was no empirically tested and comprehensive scale to measure C2C interactions in service settings. Through a literature review, we proposed and empirically validated the scale for C2C interactions. Third, we proposed and tested the role of social-emotional support perceptions in customers' cognitive evaluation process. So far, social-emotional support has been discussed mainly through the emotion and affect aspects of customers. Last, we demonstrated the influence of social interactions in the service delivery process. Nicholls (2010) pointed out that there has been less discussion on on-site C2C interactions (during the service delivery process) than off-site C2C interactions (i.e., word-of-mouth). Hence, our study makes a meaningful contribution in this regard by empirically confirming the effect of on-site C2C interactions on customer responses.

Managerially, our study results demonstrate the importance of C2C interactions and as a result advise managers on the need to pay attention to and better manage C2C interactions. Our findings suggest that service firms should view other customers as another human factor and as an innovative source for improving customer perceptions of service quality and should therefore actively design and manage C2C interactions. Further, we showed specifically which types of C2C interactions are influential on customer perceptions of service quality and therefore are important to manage.

6.3. Limitations and future research suggestions

The findings of our study should be interpreted with caution due to the following limitations. First, our study was conducted only in a single service context (healthcare) in a single cultural setting (Korea). Thus, findings may not be generalizable to other services and cultural settings. Second, data collection was done only in one of the leading hospitals in Korea. Depending on the type and status of the hospital, customer profile (i.e., expectations

of service quality) might differ as well. This difference might influence customer expectations on how other customers should behave or how much they are willing to interact with other customers. As a result, findings could be affected. Further, our study was limited to patients and companions of only one medical department. Thus, our findings might not be applicable to other medical departments that have a considerably different level of patient stress (i.e., the case of patients with cancer). Accordingly, future research can address these limitations and conduct studies in different settings in terms of medical departments, types of hospitals, services settings, or cultural settings.

References

- Aluja, A., Rossier, J., García, L.F., Angleitner, A., Kuhlman, M., & Zuckerman, M. (2006). A cross-cultural shortened form of the ZKPQ (ZKPQ-50-cc) adapted to English, French, German, and Spanish languages. *Personality and Individual Differences*, 41(4), 619-28.
- Arnould, E.J., & Price, L.L. (1993). River magic: extraordinary experience and the extended service encounter. *Journal of consumer Research*, 20(1), 24-45.
- Baker, J. (1987). The role of the environment in marketing services: the consumer perspective. In: Czepiel, J.A., Congram, C.A., & Shanahan, J. (ed.). *The Service Challenge: integrating for Competitive Advantage*. American Marketing Association: Chicago, IL, 79-84.
- Baron, R.M., & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173-82.
- Bateson, J. (1985). *Perceived control and the service encounter*. In J. Czepiel, M.R. Solomon, & C. Surprenant (Eds.), *The Service Encounter*. Lexington, MA: Lexington Books.
- Beckwith, N.E., Kassarian, H.H., & Lehmann, D.R. (1978). Halo effects in marketing research: review and prognosis. *Advances in consumer research*, 5(1), 465-7.
- Belk, R.W. (1975). Situational variables and consumer behavior. *Journal of Consumer Research*, 2, 157-64.
- Berry, L.L., & Bendapudi, N. (2007). A fertile field for service research. *Journal of Service Research*, 10(2), 111-22.
- Bettencourt, L. (2010). *Service innovation: How to go from customer needs to breakthrough services*. London: McGraw-Hill.
- Bitner, M.J. (1992). Servicescapes: The impact of physical surroundings on customers and

- employees. *Journal of Marketing*, 56(2), 57–71.
- Bogers, M., Afuah, A., & Bastian, B. (2010). Users as innovators: a review, critique, and future research directions. *Journal of Management*, 26(January), 36-57.
- Bowen, D.E. (1986). Managing customers as human resources in service organizations. *Human Resource Management*, 25, 371-83.
- Brocato, E.D., Voorhees, C.M., & Baker, J. (2012). Understanding the influence of cues from other customers in the service experience: a scale development and validation. *Journal of Retailing*, 88(3), 384-98.
- Chesbrough, H. (2003). The era of open innovation. *MIT Sloan Management Review*, 44, 35–41.
- Churchill, G.A., Jr. (1979). A paradigm for developing better measures of marketing constructs. *Journal of marketing research*, 26(February), 64-73.
- Dagger, T.S., Danaher, P.J., Sweeney, J.C., & McColl-Kennedy, J.R. (2013). Selective halo effects arising from improving the interpersonal skills of frontline employees. *Journal of Service Research*, 16(4), 488-502.
- Davies, B., Baron, S., & Harris, K. (1999). Observable oral participation in the servuction system: toward a content and process model. *Journal of Business Research*, 44(1), 47-53.
- Doeglas, D., Suurmeijer, T., Briancon, S., Moum, T., Krol, B., Bjelle, A., Sanderman, R., & Van Den Heuvel, W. (1996). An international study on measuring social support: interactions and satisfaction. *Social Science Medicine*, 43(9), 1389-97.
- Eroglu, S.A., Machleit, K., & Barr, T.F. (2005). Perceived retail crowding and shopping satisfaction: the role of shopping values. *Journal of Business Research*, 58(8), 1146–53.
- Fang, E. (2008). Customer participation and the trade-off between new product

- innovativeness and speed to market. *Journal of Marketing*, 72(October), 90-104.
- Fisicaro, S.A., & Lance, C.E. (1990). Implications of three causal models for the measurement of halo error. *Applied Psychological Measurement*, 14(4), 419-29.
- Fyrand, L., Moum, T., Finset, A., & Glennas, A. (2002). The impact of disability and disease duration on social support of women with Rheumatoid Arthritis. *Journal of Behavioral Medicine*, 25(June), 251-68.
- Gerbing, D.W., & Anderson, J.C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing research*, 25(2), 186-92.
- Goodwin, C. (1996). Commuality as a dimension of service relationships. *Journal of Consumer Psychology*, 5(4), 387-415.
- Grove, S.J., & Fisk, R.P. (1997) The impact of other customers on service experiences: a critical incident examination of getting along. *Journal of Retailing*, 73(1), 63-85.
- Hair, J.F., Tatham, R.L., Anderson, R.E., & Black, W. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.
- Harris, K., & Baron, S. (2004). Consumer-to-consumer conversations in service settings. *Journal of Service Research*, 6(3), 287-303.
- Harris, K., & Baron, S. & Ratcliffe, J. (1995). Customers as oral participants in a service setting. *Journal of Services Marketing*, 9(4), 64-76.
- Helgeson, V.S. (2003). Social support and quality of life. *Quality of Life Research*, 12(May), 25-31.
- Huang, J., & Hsu, C.H.C. (2010). The impact of customer-to-customer interaction on cruise experience and vacation satisfaction. *Journal of Travel Research*, 49(1), 79-92.
- Hui, M.K., & Bateson, J.E.G. (1991). Perceived control and the effects of crowding and consumer choice on the service experience. *Journal of Consumer Research*, 18(2), 174-

- James, L.R., & Brett, J.M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology*, 69(2), 307.
- Kim, N., & Lee, M. (2012). Other customers in a service encounter: examining the effect in a restaurant setting. *Journal of Services Marketing*, 26(1), 27-40.
- Lehtinen, U., & Lehtinen, J.R. (1991). Two approaches to service quality dimensions. *Service Industries Journal*, 11(3), 287-303.
- Martin, C.L. (1996). Consumer-to-Consumer Relationships: Satisfaction with Other Consumers' Public Behavior. *Journal of Consumer Affairs*, 30(1), 146-69.
- Martin, C.L., & Pranter, C.A. (1989). Compatibility management: customer-to-customer relationships in service environments. *Journal of Services Marketing*, 3(3), 5-15.
- McGrath, M.A., & Otnes, C. (1995). Unacquainted influencers: when strangers interact in the retail setting. *Journal of Business Research*, 32(3), 261-71.
- Mills, P.K., & Morris, J.H. (1986). Clients as “partial” employees of service organizations: role development in client participation. *Academy of Management Review*, 11, 726-35.
- Moore, R., Moore, M.L., & Capella, M. (2005). The impact of customer-to-customer interactions in a high personal contact service setting. *Journal of Services Marketing*, 19(7), 482-91.
- Namasivayam, K., & Hinkin, T.R. (2003). The customer’s role in the service encounter: the effects of control and fairness. *Cornell Hotel and Restaurant Administration Quarterly*, 44(3), 26-36.
- Noordhoff, C.S., Kyriakopoulos, K., Moorman, C., Pauwels, P., & Dellaert, B.G. (2011). The bright side and dark side of embedded ties in business-to-business innovation. *Journal of Marketing*, 75(5), 34-52.
- Nunnally, J.C. (1978). *Psychometric Theory*. New York: McGraw-Hill.

- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perception of service quality. *Journal of Retailing*, 64(1), 12-40.
- Parker, C., & Ward, P. (2000). An analysis of role adoptions and scripts during customer-to-customer encounters. *European Journal of Marketing*, 34(3), 341-59.
- Penner, L.A., Dovidio, J.F., Piliavin, J.A., & Schroeder, D.A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychology*, 56(1), 365-92.
- Penrose, E.T. (1959). *The Theory of the Growth of the Firm*. London: Basil Blackwell. 1959.
- Prahalad, C.K., & Ramaswamy, V. (2003). The new frontier of experience innovation. *MIT Sloan Management Review*, 44(4).
- Pranter, C.A., & Martin, C.L. (1991). Compatibility management: Roles in service performers. *Journal of Services Marketing*, 5(2), 43-53.
- Ramaswami, S.N., Rajendra, K.S., & Mukesh, B. (2009). Market-Based Capabilities and Financial performance of firms: insights into marketing's contribution to firm value. *Journal of the Academy of Marketing Science*, 37(2), 97-116.
- Rosenbaum, M.S. (2008). Return on community for consumers and service establishments. *Journal of Service Research*, 11(2), 179-96.
- Rosenbaum, M.S., & Massiah, C.A. (2007). When customers receive support from other customers: Exploring the influence of intercustomer social support on customer voluntary performance. *Journal of Service Research*, 9(3), 257-70.
- Sauer, P.L., & Dick, A. (1993). Using moderator variables in structural equation models. *Advances in consumer research*, 20(1), 637-40.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online*, 8(2), 23-74.

- Sorkin, D., Rook, K.S., & Lu, J.L. (2002). Loneliness, lack of emotional support, lack of companionship, and the likelihood of having a heart condition in an elderly sample. *Annals of Behavioral Medicine*, 24(4), 290-8.
- Suurmeijer, T.P., Doeglas, D.M., Briançon, S., Krijnen, W.P., Krol, B., Sanderman, R., & Van Den Heuvel, W.J. (1995). The measurement of social support in the 'European Research on Incapacitating Diseases and Social Support': the development of the Social Support Questionnaire for Transactions (SSQT). *Social science & medicine*, 40(9), 1221-9.
- Tombs, A., & McColl-Kennedy J.R. (2003). Social-servicescape conceptual model. *Marketing Theory*, 3(4), 447-75.
- Varadarajan, P. "Rajan" & Rajaratnam, D. (1986). Symbiotic marketing revisited. *Journal of marketing*, 50(January), 7-17.
- Vargo, S.L., & Lusch, R.F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(January), 1-17.
- Von Hippel, E. (1986). Lead users: A source of novel product concepts. *Management Science*, 32 (July), 791-805.
- Wirtz, J. (2003). Halo in customer satisfaction measures: The role of purpose of rating, number of attributes and customer involvement. *International Journal of Service Industry Management*, 14(1), 96-119.
- Wu, C.H. (2008). The influence of customer-to-customer interactions and role typology on customer reaction. *The Service Industries Journal*, 28(10), 1501-13.
- Yoo, J., Arnold, T.J., & Frankwick, G.L. (2012). Effects of positive customer-to-customer service interaction. *Journal of Business Research*, 65, 1313-20.
- Zhang, J., Beatty, S.E., & Mothersbaugh, D. (2010). A CIT investigation of other customers' influence in services. *Journal of Services Marketing*, 24(5), 389-99.

Figure 1. The proposed research model and hypotheses

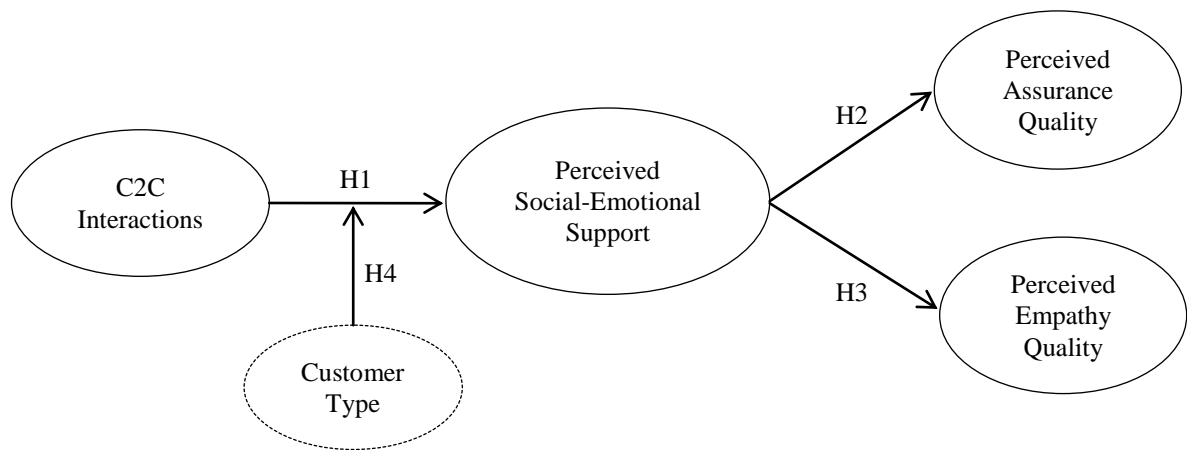


Table 1. Summary of studies on the effect of other customers

Focus	Theory (or Theme)	Author (s)	Key Findings
Perceptions of other customers	Social factors in service environment	Belk (1975)	Customers are a factor composing social surroundings.
		Bateson (1985)	Customers are one of characteristics in service delivery process.
		Baker (1987)	Customers may be a part of the service environment.
		Hui & Bateson (1991)	Customer density or crowding negatively affects service experience.
		Tombs & McColl-Kennedy (2003)	Other customers act as one of the social factors in servicescape.
		Eroglu et al. (2005)	Human crowding positively affects shopping satisfaction.
		Brocato et al. (2012)	The scale to assess individuals' perceptions of other customers.
	Compatibility management	Martin & Pranter (1989)	Customers are more satisfied when they are more compatible with other customers in the service settings.
		Pranter & Martin (1991)	
		Lehtinen & Lehtinen (1991)	The presence and behaviors of other customers have stronger impact the perception of service quality.
		Martin (1996)	The positive effect of other customers' public behaviors on service experience.
		Grove & Fisk (1997)	Other customers' public behaviors lead to higher customers' satisfaction and loyalty.
Interactions with other customers	Conversations among customers	Harris et al. (1995)	The positive observable C2C oral participation positively affects perceived service quality.
		Davies et al. (1999)	The positive impact of the C2C oral participation in servuncion model.
		Harris & Baron (2004)	The nature, scope, and significance of conversations between strangers.
	Customer to customer	McGrath & Otnes (1995)	The role typology among customers in service contexts.

interactions	Parker & Ward (2000)	The role adoptions and scripts during C2C encounters.
	Moore et al. (2005)	Positive C2C interactions bring positive service satisfaction.
	Wu (2008)	Positive effects of tourist C2C interactions incidents on customer satisfaction and loyalty.
	Huang & Hsu (2010)	The positive impact of C2C interactions on cruise experience and vacation satisfaction.
	Zhang et al. (2010)	To propose the categorization of other customers' influence in various service settings through CIT.

Table 2. EFA Results of C2C interactions items

Dimensions	Measurement Items	F1.	F2.	F3.	F4.	F5.
Positive direct - getting along	While being with other patients and their companions, several times I ...					
	... had enjoyable conversations with them .	.803	.308	-.007	-.216	.084
	... shared helpful information through conversations with them .	.793	.354	.011	-.073	.015
	... shared mutual comfort with each other with them .	.871	.268	.034	-.078	.137
	... got along well with them.	.907	.287	-.010	-.052	.042
	... shared understanding for each other with them.	.897	.264	-.130	-.003	-.009
Positive direct - helping	... shared cheering for each other with them.	.869	.273	-.125	.016	.019
	... helped them.	.286	.572	.297	-.187	.097
	... received their help .	.498	.603	.205	-.105	.020
Positive indirect - observing & overhearing	When I observed other patients and their companions, I observed that...					
	... they looked after each other in good manners.	.448	.725	-.148	-.121	.118
	... they helped each other.	.420	.795	-.135	-.051	.061
	... they shared pleasant conversations with each other.	.315	.866	-.173	-.089	.100
	... they shared helpful information with each other.	.239	.910	-.047	-.035	.000
Negative direct - fighting & others	... they cheered each other through encouraging conversations.	.318	.857	.031	-.114	-.043
	While being with other patients and their companions, several times I ...					
	... fought with them.	-.005	-.029	-.016	.797	.120
	... had unpleasant conversations with them.	-.065	-.146	.353	.725	.185
	... had to carry unwanted conversations with them.	.046	-.016	.220	.739	.241
	While being with other patients and their companions, I experienced several times that they ...					
	... behaved rudely to me.	-.091	.023	.464	.748	.088
	... behaved carelessly to me.	-.175	-.064	.643	.464	-.056
	... did not accept my request for favor.	-.162	-.053	.538	.609	.108
	When I observed other patients and their companions, I observed several times that...					
Negative indirect - loudness	... they talked loudly .	.089	.056	.146	.143	.878
	... they made noise .	.062	.055	.182	.271	.867
Negative indirect - rudeness	... they were rude to each other .	.071	.078	.513	.332	.551
	... they treated each other carelessly .	-.012	-.031	.747	.097	.478
	... they behaved in disorder .	-.087	-.228	.824	.139	.142
	... they stayed in messy states .	.017	-.172	.883	.225	.116

Note: KMO .843, sig. .000

Table 3. Measurement items, descriptive statistics, and factor loadings of C2C interactions

Dimensions	Items	Standard Factor Loading	Range	Mean	S.D.
Positive	While being with other patients and their companions, several times I ...				
direct - getting along	... had enjoyable conversations with them .	.884	6	4.857	1.835
	... shared mutual comfort with each other with them .	.921	6	4.881	1.903
	... got along well with them.	.933	6	5.131	1.733
indirect - observing & overhearing	When I observed other patients and their companions, I observed several times that...				
	... they shared helpful information with each other.	.898	6	4.943	1.52
	... they cheered each other through encouraging conversations.	.946	6	5.081	1.54
Negative	While being with other patients and their companions, several times I ...				
direct - fighting & others	... fought with them several times.	.672	5	1.361	.889
	... had unpleasant conversations with them several times.	.951	4	1.343	.766
	... had to carry unwanted conversations with them several times.	.693	5	1.713	1.199
indirect - loudness	When I observed other patients and their companions, I observed several times that...				
	... they talked loudly .	.793	6	2.537	1.742
	... they made noise .	.994	5	2.471	1.681
indirect - rudeness	... they behaved in disorder .	.929	6	1.966	1.391
	... they stayed in messy states .	.943	6	2.022	1.331

Table 4. Results of measurement items assessment

	Cronbach's α	C.R.	AVE	Correlations				
				1	2	3	4	5
1. Positive direct - getting along	.931	.937	.833	(.833)	.312	.009	.030	.063
2. Positive indirect - observing & overhearing	.929	.919	.851	.559	(.851)	.025	.001	.078
3. Negative direct - fighting & others	.787	.822	.612	-.096	-.159	(.612)	.187	.350
4. Negative indirect - loudness	.878	.893	.808	.172	.033	.433	(.808)	.131
5. Negative indirect - rudeness	.928	.934	.876	-.251	-.279	.592	.362	(.876)

Note: () = AVE. Values below the diagonal are correlation estimates and values above the diagonal are squared correlations.

Table 5. Results of the overall measurement model

Dimensions	Items	Standard Factor Loading	t-Value	Cronbach's α	C.R.	AVE
Positive direct C2C interactions	While being with other patients and their companions, several times I ...					
	... had enjoyable conversations with them .	.923		.931	.932	.819
	... shared mutual comfort with each other with them .	.911	22.649			
	... got along well with them.	.881	20.917			
Positive indirect C2C interactions	When I observed other patients and their companions, I observed several times that...					
	... they shared helpful information with each other.	.919		.930	.930	.870
	... they cheered each other through encouraging conversations.	.946	18.529			
Negative direct C2C interactions	While being with other patients and their companions, several times I ...					
	... fought with them several times.	.633		.787	.819	.615
	... had unpleasant conversations with them several times.	1.017	9.878			
	... had to carry unwanted conversations with them several times.	.640	9.760			
Negative indirect C2C interactions (Loudness)	When I observed other patients and their companions, I observed several times that...					
	... they talked loudly .	.939		.878	.878	.783
	... they made noise .	.827	10.595			
Negative indirect C2C interactions (Rudeness)	... they behaved in disorder .	.958		.930	.931	.870
	... they stayed in messy states .	.907	18.934			
Social- emotional support	Others show their understanding to me.	.899		.957	.958	.884
	Others sympathize with me.	.967	26.510			

	Others give me information or advice.	.954	26.033		
Perceived assurance quality	I leave the clinic feeling encouraged about my treatments.	.902		.802	.964 .900
	Coming to the clinic has increased my chances of improving my health.	.976	27.841		
	I believe my future health will improve as a result of attending the clinic.	.966	26.983		
Perceived empathy quality	The way in which I am treated by employees makes me feel respected by the clinic.	.936		.937	.953 .871
	The actions of employees demonstrate that they understand my situation.	.953	28.455		
	I believe employees try to imagine how they would feel if they were in my place.	.911	24.639		

Note: $p < .05$

Table 6. AVE and standardized correlation matrix for the overall measurement model

	PD	PI	ND	NID 1	NID2	Support	Assurance	Empathy
Positive direct	(.819)	.316	.015	.037	.050	.533	.136	.022
Positive indirect	.562	(.870)	.028	.002	.064	.428	.086	.064
Negative direct	-.121	-.166	(.615)	.152	.029	.335	.029	.132
Negative indirect (Loudness)	.193	.039	.390	(.783)	.126	.004	.001	.003
Negative indirect (Rudeness)	-.223	-.252	.579	.355	(.870)	.088	.016	.052
Social-emotional support	.730	.654	-.171	.061	-.297	(.884)	.158	.081
Perceived assurance quality	.369	.293	-.363	.038	-.127	.398	(.900)	.419
Perceived empathy quality	.148	.252	-.216	-.059	-.229	.285	.647	(.871)

Note: ()=AVE. Values below the diagonal are correlation estimates and values above the diagonal are squared correlations. ($p < .05$, all are significant.)

Table 7. Hypotheses test results

		Standardized Estimate	<i>t</i> -Value	<i>p</i> - Value	Result
H1 - a	Positive direct C2C interactions -> Social-emotional support	.531	8.479	***	supported
H1 - b	Positive indirect C2C interactions -> Social-emotional support	.341	5.761	***	supported
H1 - c	Negative direct C2C interactions -> Social-emotional support	-.002	-.028	.978	rejected
H1 - d	Negative indirect C2C interactions (Loudness) -> Social-emotional support	-.031	-.571	.568	rejected
H1 - e	Negative indirect C2C interactions (Rudeness) -> Social-emotional support	-.063	-1.039	.298	rejected
H2	Social-emotional support -> Perceived assurance quality	.401	6.189	***	supported
H3	Social Emotional Support -> Perceived empathy quality	.286	4.299	***	supported

Note: p < .01

Table 8. Moderation effect analysis results

Model Comparison				
	χ^2	<i>df</i>	χ^2 change	<i>df</i> change
free	1407.925	278	4.517	4
constraint	1412.442	282		

Note: $p < .05$

Reactive Customers

			Standardized estimate	Estimate	S.E.	C.R.	P
support	<---	positive direct	.614	.473	.088	5.356	***
support	<---	positive indirect	.277	.257	.097	2.647	.008*

Proactive Customers

			Standardized estimate	Estimate	S.E.	C.R.	P
support	<---	positive direct	.266	.289	.106	2.734	.006*
support	<---	positive indirect	.434	.424	.088	4.840	***

Note: $p < .05$