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The Effects of Patient-Centered Communication: Exploring the Mediating Role of Trust in Healthcare Providers

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ABSTRACT

This study examined the effects of patient-centered communication (PCC) on two major outcomes: patients' trust in healthcare providers and their evaluation of the quality of healthcare received. Based on conceptual model regarding the impacts of PCC, the former is considered a proximal communication outcome and the latter an intermediate outcome. Both are known to be associated with ultimate health outcomes. Analyses conducted on a dataset of 3273 respondents from the 2012 Health Information National Trends Survey in the U.S. showed that PCC was positively associated with both patients' trust in healthcare providers and evaluation of healthcare quality. Moreover, trust was a significant mediator between PCC and patients' perceptions of the quality of healthcare, and stronger mediation of trust was observed as the frequency of hospital visits increased. Some theoretical and practical implications are discussed.

Introduction

The way in which patients and healthcare providers communicate is known to influence various positive outcomes related to patient health and healthcare. Previous studies have emphasized the role of patient participation in communication and the importance of patient-centered communication (PCC), which reflects the extent of healthcare providers' active listening to patients' concerns with empathy, explanation of medical terms through using definitions that laypersons can understand, and involving patients in decision-making (Hou & Shim, 2010; Stewart, 2001; Stewart et al., 2000). Studies have shown that PCC can encourage patients' compliance with physicians' recommendations and medication (Bauer et al., 2014; Bellet & Maloney, 1991) and this is directly related to successful medical treatment and subsequent health outcomes (Burgoon et al., 1987; Siminoff & Fetting, 1991).

Research has shown that in addition to benefiting direct health-related outcomes, PCC increases patients' overall satisfaction with their healthcare service by decreasing uncertainty and anxiety and providing emotional comfort – therefore improving the quality of the provider–patient relationship (Dutta-Bergman, 2005; Trummer, Mueller, Nowak, Stidl, & Pelikan, 2006; Wanzer, Booth-Butterfield, & Gruber, 2004). These studies show that patients with an active role in communication are likely to have greater opportunities to resolve their concerns through receiving empathic responses and clear explanations from their providers, which in turn increases their satisfaction with healthcare service. The patient satisfaction of healthcare service is directly associated with how they communicate with healthcare providers.

One of the reasons why communication becomes a critical criterion for satisfaction with, and the evaluation of, healthcare quality is that most patients do not possess detailed knowledge in healthcare and medicine and therefore are not be able to accurately evaluate the level of expertise or technical competence of their healthcare provider. Nevertheless, patients can critically evaluate the communication aspect and can put a great deal of value on it (Browne, Roseman, Shaller, & Edgman-Levitan, 2010). It makes sense that popular patient surveys, such as the Hospital Consumer Assessment of Healthcare Providers and Systems, ask patients to evaluate the quality of healthcare by rating their interpersonal communication experience with healthcare providers, including doctors, nurses, and hospital staff, and their responsiveness in addition to the hospital environment (e.g., cleanliness, quietness) (Browne et al., 2010; Manary, Boulding, Staelin, & Glickman, 2013; Siddiqui, Wu, Kurbanova, & Qayyum, 2014). Manary et al. (2013) also argued that patient surveys conducted in hospitals and medical institutions should focus more on the interactions between patients and providers.

Although there is a substantial amount of evidence about the positive impacts that PCC can bring, achieving PCC in clinical practice is not always feasible given the time constraints of medical consultation (Epstein et al., 2005) and limited training of communication skills for healthcare providers (Dean & Street, 2014; Lambert et al., 1997). It is perhaps then unsurprising that the majority of patients still report communication problems with their healthcare providers (for example, 56 out of 78 interviewees as reported by Mazor et al., 2012). It would be useful to

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systematically map out how PCC directly and indirectly affects the ultimate health of the patients so that both healthcare providers and patients can visualize how their quality communication transforms into actual benefits. However, a theoretical framework that integrates direct and indirect impact of PCC on different positive health outcomes has been rarely utilized in the studies. By applying Epstein and Street's (2007) conceptual model, the current study aimed to provide theoretical and empirical support for healthcare providers as well as patients for engaging in PCC by investigating the effects on two specific outcomes: quality of healthcare and trust in healthcare providers.

According to the model (Epstein & Street, 2007), both trust and the evaluation of healthcare quality are major outcomes of PCC, the former being "a proximal communication outcome" and the latter being "an intermediate one" (see Figure 1). As Figure 1 shows, in the multiple layers of PCC outcomes, proximal communication outcomes refer to the immediate outcomes derived from PCC, such as patient recalling physician recommendations, greater trust, and mutual understanding; intermediate outcomes (e.g., patient health behaviors, quality of care) mediate the link between proximal communication outcomes and ultimate health outcomes (e.g., survival, health-related quality of life). This study examined whether PCC helps build patients' trust in healthcare providers and consequently improves their perception of the healthcare services received. The following sections define and explain the three main variables in this study: PCC and the two outcomes of PCC (namely, trust in healthcare providers and quality of healthcare).

Patient-centered communication

PCC represents a variety of considerations of patients and their involvement in healthcare communications. Brown (1999) described PCC as "a group of communication strategies and behaviors that promote mutuality, shared understandings, and shared decision making in health care encounters" (p. 85). Stewart (2001) summarizes PCC as a holistic process that takes "into account the patient's desire for information and for sharing decision making and responding appropriately" (p. 445). This concept is in direct opposition to that of doctor-centered communication where doctors set the agenda, direct patients, and control the interaction (Smith, Dixon, Lam, & Lam, 1999).

Wanzer et al. (2004) defined PCC as "the array of communicative behaviors that can enhance the quality of the relationship between the health care provider and patient, or the patient's family" (p. 364). In addition, Wanzer et al. (2004) suggested that PCC behaviors should include (a) healthcare providers introducing themselves, (b) clear and direct explanations, (c) empathy with patients, (d) nonverbal immediacy (e.g., using facial expressions, physical distance), (e) careful listening, and (f) use of humor. The more the communication involves these activities, the more "patient-centered" it becomes (Hou & Shim, 2010). Similarly, Moore et al. (2004) note four aspects of PCC which had a positive impact on lowering treatment avoidance: (1) time spent with physicians; (2) respect shown by physicians; (3) physician confirmation of patients' understanding; and (4) physician listening to patients' concerns. According to Finney Rutten, Augustson, and Wanke (2006), the first two should be preconditions for the latter two. They argued that by spending enough time and showing respect to patients, a positive interpersonal relationship can be formed between physicians and patients which will complement the effect of not only the latter two, information exchange, and empathic listening but the shared decision-making aspect of PCC. Likewise, PCC studies have focused on the major aspects of PCC, such as explaining medical terms with layperson's definitions, listening to patients' concerns with high empathy, and involving patients in decision-making (Dutta-Bergman, 2005; Trummer et al., 2006; Wanzer et al., 2004).

For Epstein et al. (2005), PCC is about balancing two important needs of healthcare professionals: the need to diagnose and treat patients, and the need to understand and involve patients. These needs can, in turn, satisfy two types of needs of patients: informational needs and emotional needs. The informational needs can be met by using layperson terms, checking patients' degree of

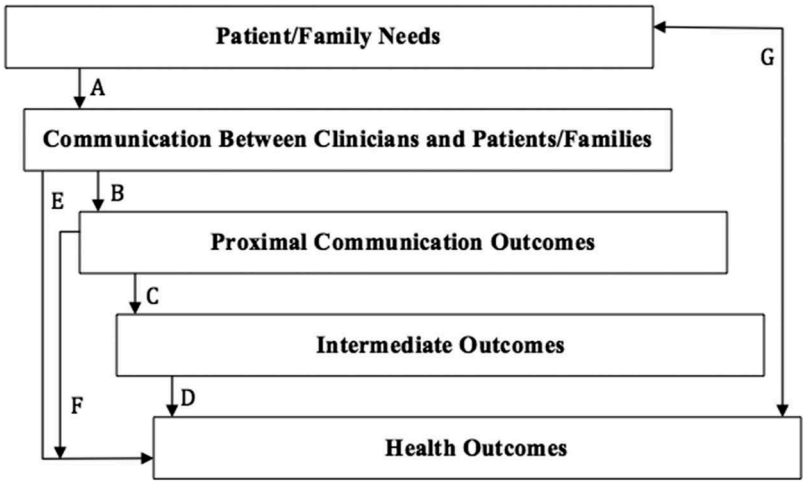

Figure 1. The conceptual model suggested by Epstein and Street (2007). Reprinted from Epstein and Street Jr., 2007, National Cancer Institute, NIH Publication No. 07-6225, p. 43.

understanding, and giving enough time and opportunity for questions, while emotional needs can be satisfied by showing empathy and other emotional support and by responding to a patient's emotional state. Shared decision-making is another important aspect that tries to meet both informational and emotional needs because patients are involved when they perceive that their concerns and choices are heard and respected by the healthcare professionals in medical consultation. Through shared decision-making, patients gain a sense of empowerment (Lambert et al., 1997). This is not to put decision-making responsibilities onto patients but to provide them with sufficient information and options, and to take their concerns into consideration. According to Saha and Beach (2011), in more extreme and high-risk health situations, empathic listening by physicians satisfies patients' emotional needs and improves their perceptions of shared decision-making as well as a sense of empowerment.

Although previous studies have paid less attention to patients' emotional needs than to informational needs (McCormack et al., 2011), helping patients deal with uncertainty is an important aspect of PCC. Regardless of the severity of an illness, patients visit a hospital because of an uncomfortable and/or distressing symptom of a cause that is unknown to the patient until it is diagnosed by a physician. The information then provided by a physician is often unfamiliar and/or threatening. By meeting patients' emotional needs through PCC, these uncertainty perceptions can be minimized (Wanzer et al., 2004).

In this study, PCC is considered a critical factor, indeed, the main variable enhancing patient–provider trusting relationships and overall positive evaluations of healthcare quality. It should be noted though that, here, PCC relates to how patients perceive PCC, not how healthcare providers practice PCC. Patients may not be able to medically assess overall medical quality, including diagnosis accuracy and treatment processes. However, in most cases, they are capable of accurately perceiving PCC – hence being the focus here. Ultimately, the way healthcare providers practice PCC should be sufficient and efficient enough to be recognized and appreciated by patients.

Consistent with previous research, our conceptual definition of PCC includes both verbal and nonverbal communication between patients and healthcare providers addressing patients' informational and emotional needs. Specifically, PCC is defined as patient–provider communication that enhances patients' comprehension (by explaining medical terms using layperson's terms and by giving patients sufficient opportunity to ask questions) and perceived empathy (by listening attentively to patients and responding appropriately), and the encouragement of patient involvement and empowerment (by involving patients in decision-making).

Outcomes of patient-centered communication

Previous studies have shown that having physicians and other health professionals who are capable of performing PCC is associated with better compliance among patients (Bauer et al., 2014; Roumie et al., 2011), fewer diagnostic tests (Clark et al., 1998; Epstein et al., 2005; Stewart et al., 2000), less likelihood of litigation (Beckman, Markakis, Suchman, & Frankel, 1994) and malpractice claims (Levinson, Roter, Mullooly, Dull, & Frankel, 1997), reduced treatment avoidance of patients (Moore et al., 2004), and a better clinical outcome, such as depression resolution (Clever et al., 2006). Based on these positive impacts, findings support that healthcare costs can be substantially reduced by promoting PCC.

Given the wide spectrum of positive PCC outcomes in healthcare, Epstein and Street's (2007) model provides a useful framework to structure different layers of PCC outcomes. The model, namely, a layered model of PCC outcomes, was developed in order to guide empirical research in PCC in a way that it is simple enough to understand yet complex enough to reflect healthcare reality (Epstein & Street, 2007). By incorporating literature that showed positive impacts of PCC in various medical encounters, they built a structured model involving seven pathways and proposed a list of possible mediators and moderators. Although the model was explored and introduced with respect to cancer care in their original work (Epstein & Street, 2007), the researchers contended that the model was grounded upon both cancer and non-cancer settings and applicable to non-cancer health conditions as well (Epstein & Street, 2007; Street, Makoul, Arora, & Epstein, 2009). The model has significant value in PCC research as it specifies the underlying mechanisms by which patient–provider communication affects health outcomes directly and indirectly. However, the model and proposed pathways have been empirically tested by only a handful of studies, such as Underhill and Kiviniemi (2012). Street et al. (2009) emphasized that further investigations are prudent to hypothesize and test specific pathways between and among PCC and other outcomes.

One major component of that model addresses how communication between healthcare providers and patients influences the ultimate goal of improving the patients' health (e.g., survival, health-related quality of life) directly and indirectly through other PCC outcomes. As Figure 1 illustrates, communication can lead to improved health outcomes directly (path E). For example, a patient can feel less anxious after having a consultation with a doctor. However, Epstein and Street (2007) argue that this simplified path does not reflect multi-layered process between a communication act and distal health outcomes and propose two levels of PCC outcomes related to indirect effects: proximal communication outcomes and intermediate outcomes. Proximal communication outcomes are immediate outcomes derived from PCC and they include patients recalling physician recommendations, greater trust and mutual understanding, and higher patient involvement in decision-making. Intermediate outcomes are the results of mediation between PCC and proximal communication outcomes, and they also mediate between proximal communication outcomes and ultimate health outcomes. Intermediate outcomes include changes in patient health behaviors, patient adherence to treatment, and quality of care, to name a few. Among different PCC outcomes, this study focused on trust as a proximal communication outcome and evaluation of healthcare quality as an intermediate outcome. The paths explored in this study are labeled as B and C in Figure 1.

Intermediate outcome: Patients' evaluation of healthcare

PCC leading to patient positive evaluation has been observed in many studies. Physicians who were perceived as friendly

and personable and who negotiated options with patients gained positive evaluations from patients (Flocke, Miller, & Crabtree, 2002). In these cases, patients rated the physicians' interpersonal communication skills positively and thought that the physicians had a good understanding of their medical history and good coordination of care by incorporating gained information into their current and future care. The physicians adopting PCC also gained higher reported satisfaction from the patients compared to those who did not. Other studies have shown similar results. When physicians discussed possible treatment options and were open to patients' agendas (Dutta-Bergman, 2005), when physicians conveyed enough information to patients (Williams, Weinman, & Dale, 1998) with verbal attentiveness (Ong, Visser, Lammes, & De Haes, 2000), and when they demonstrated empathy and listening skills (Bellet & Maloney, 1991), patients reported higher levels of satisfaction.

Wanzer et al. (2004) examined two types of satisfaction, satisfaction with communication and satisfaction with medical care. Physicians' immediacy, listening, and empathy led to higher reported satisfaction with communication and their clarity and listening led to higher satisfaction reported with regard to medical care. By applying uncertainty reduction theory (Berger, 1987), Wanzer et al. (2004) argued that the social interactions between physicians and patients where PCC approaches were adopted served to lower patients' anxiety and ambiguity and increase the level of satisfaction among patients. Based on the literature above, the first hypothesis posited that

H1: There will be a significant positive relationship between patient perceptions of PCC and quality of healthcare.

Proximal communication outcome: Trust in healthcare providers

Stewart (2001) stated that the ultimate goals of patient-centered care should include prevention, health promotion, and improving continuing relationships between patients and doctors. Physicians have three main purposes while interacting with patients. These are building good interpersonal relationships by increasing trust, facilitating information exchange, and involving patients in decision-making. To achieve these goals, physicians should listen carefully, spend enough time, show respect, and explain things clearly (Finney Rutten et al., 2006; Ong, De Haes, Hoos, & Lammes, 1995). Bellet and Maloney (1991) emphasized the role of PCC by noting that "when patients feel that their physicians understand their experiences, particularly their feelings, this enhances the patients' trust" (p. 1831). They advocated that empathy shown by doctors, which is one component of PCC, can inspire patients to better comply with doctors' advice and recommendations, which leads to positive medical outcomes.

All of the literature discussed above mentions relationship development by promoting trust and understanding between patients and doctors as a common possible goal of doctor–patient communication. However, as Pearson and Raeke (2000) and Chang, Chen, and Lan (2013) pointed out, research on trust in the patient–physician relationship, despite its central importance in medical encounters and in overall healthcare, has not been the focus of any significant investigation. There are only a handful of studies on how PCC can generate patient trust in healthcare providers (Fiscella et al., 2004; Thom, 2001). Fiscella et al. (2004) showed that the more PCC is practiced by physicians, the higher the trust reported by patients. The PCC practices found to strongly affect trust include responding to patient concerns, validating that their concerns are legitimate, and conducting further exploration by asking follow-up questions. In addition, patient trust has been found to be positively associated with physician age, longer physician–patient relationship, specialty in family practice, and length of consultation. Similar results were found by Thom (2001), who showed that patient trust was positively correlated with physician encouragement of asking questions and answering them, being comforting and caring, demonstrating competency, and depth of explaining.

In addition, patient trust, in turn, is known to influence patient satisfaction and other health-related behaviors. For example, Chang et al. (2013) showed that patient trust positively influences satisfaction. According to Hall, Camacho, Dugan, and Balkrishnan (2002), trust not only has a strong positive association with healthcare satisfaction but also with compliance with doctors' recommendations. They argued that trust is "a distinct attribute and may prove to be a fundamental force in shaping other attitudes, behaviors, and outcomes" (p. 1432). Altice, Mostashari, and Friedland (2001) also showed that such trust was highly correlated with patients' acceptance of the recommended therapy. The discussion above provides a strong argument for the second hypothesis which proposed a relationship between PCC and trust in healthcare providers, as follows:

H2: There will be a significant positive relationship between patient perceptions of PCC and trust in healthcare providers.

The first and second hypotheses proposed the direct influences of PCC: one on a proximal communication outcome (i.e., trust in healthcare providers) and the other on an intermediate outcome (i.e., the perceived quality of healthcare). According to Epstein and Street's (2007) model, a proximal communication outcome can mediate the effect of PCC on an intermediate outcome as shown in Figure 1 (paths B and C). In addition, previous studies have shown a significant influence of trust on service quality and patient satisfaction (Chang et al., 2013; Hall, Zheng et al., 2002). Thus, the mediating relationship between these variables is proposed in the next hypothesis, specifically, that trust in healthcare providers will mediate the effect of PCC on patients' evaluation of healthcare quality.

H3: The level of trust in healthcare providers will mediate the influence of PCC on quality of healthcare.

Only repeated interactions build onto interpersonal trust because the trust-building process involves adjusting and testing expectations in relationships (Pearson & Raeke, 2000). McWhinney (1993) argued that every consultation is a "small episode in a continuing relationship" between patients and physicians, and the relationship "needs time to grow" (p. 5). Patients trust their physicians when their relationship is long-lasting and

when visits are frequent in occurrence (Fiscella et al., 2004; Hall, Zheng et al., 2002; Kao, Green, Davis, Koplan, & Cleary, 1998). Epstein and Street (2007) and Street et al. (2009) also emphasized that the effects of PCC are recursive and cumulative over time.

As patient trust in healthcare providers is built through their repeated experiences with them (Duck & Perlman, 1985; Kao et al., 1998; Kramer & Tyler, 1996), the strength of the mediating relationship proposed in H3 may differ depending on the frequency of visits to healthcare providers. Particularly, it is likely that the mediation effect of trust between PCC and reported quality of healthcare will be greater when visits to healthcare providers are more frequent. Therefore, the last hypothesis proposed:

H4: The frequency of visits to healthcare providers will strengthen the mediation effect of trust between PCC and the quality of healthcare.

Method

Dataset description

The dataset was obtained from the 2012 Health Information National Trends Survey 4 (Cycle 1) by the U.S. Department of Health and Human Services (available at http://hints.cancer.gov). The survey was conducted between 25 October 2011, and 21 February 2012, via postal mail with a monetary incentive. A total number of 12385 addresses was randomly selected from a database compiled by Marketing Systems Group that contains all non-vacant addresses in the U.S. One adult per household was selected and three follow-up mailings were sent to nonresponding households to increase the response rate. A total of 3959 mailings were returned, with a response rate of 31.9%.

Measurements

The questionnaire was carefully reviewed to identify appropriate questions to meet the purpose of the current study, and the selected items are listed below.

Patient-centered communication

The measurement items we adopted from the HINTS dataset accurately reflect the multifaceted concept of provider–patient communication. They include the major dimensions, such as empathy and response to patients' emotion, information exchange, and shared decision-making, as suggested by previous studies (e.g., Cegala, McGee, & McNeilis, 1996; Dutta-Bergman, 2005; Finney Rutten et al., 2006; McCormack et al., 2011; Trummer et al., 2006; Wanzer et al., 2004).

Specifically, respondents rated the communication with healthcare professionals they met during the past 12 months using four-point options (4 = always, 3 = usually, 2 = sometimes, and 1 = never) to seven questions: "How often did they help you deal with feelings of uncertainty about your health or healthcare?" (PC1); "How often did they spend enough time with you?" (PC2); "How often did they explain things in a way you could understand?" (PC3); "How often did they make sure you understood the things you needed to do to take care of your health?" (PC4); "How often did they involve you in decisions about your healthcare as much as you wanted?" (PC5); "How often did they give the attention you needed to your feelings and emotions?" (PC6); and "How often did they give you the chance to ask all the health-related questions you had?" (PC7). These questions reflect the major dimensions of PCC: meeting informational needs (PC3 and PC4), meeting emotional needs (PC1 and PC6), and involving enough two-way interaction and shared decision-making (PC2, PC5, and PC7). Responses to the seven items were averaged, with greater scores denoting more PCC as opposed to provider-centered. A factor analysis found one underlying factor among the seven items (eigenvalue = 5.04; factor loading = .78 ~ .85), accounting for 67.3% of the total variance, and overall internal consistency was .933 as indicated by the Cronbach's alpha score. The seven items appeared to be statistically sound in measuring PCC as found by Finney Rutten et al. (2015) using the same HINTS dataset.

Trust in healthcare providers

Two items were averaged to measure the level of trust in healthcare providers. First, respondents were asked, in the past 12 months, how often they felt they could rely on their healthcare professionals to take care of their healthcare needs. This was rated on a four-point scale (1 = never; 2 = sometimes; 3 = usually; 4 = always). The second item asked respondents how much they trusted health/medical information from a doctor (1 = not at all; 2 = a little; 3 = some; 4 = all).

Quality of healthcare

Respondents rated the quality of healthcare they received in the past 12 months on a 5-point scale ranging from 1 (poor) to 5 (excellent).

The frequency of medical visits

Respondents were asked to indicate how many times they had gone to a doctor, nurse, or other health professional, in the past 12 months, other than emergency room visits (1 = once, 2 = twice, 3 = three times, 4 = four times, 5 = five to nine times, and 6 = 10 times or more). The vast majority (82.3%) had visited a medical professional at least once in the past year.

Results

Descriptive statistics

The analysis was performed with a set of 3273 respondents, namely, only those who had one or more experiences of visiting a healthcare provider (e.g., a doctor, nurse, or another health professional) for their own healthcare in the past 12 months. For group comparisons, they were divided into three comparable groups based on the overall distribution: (a) one to two visits (n = 1314, 40.1%), (b) three to four visits (n = 1041, 31.8%), and (c) five or more visits (n = 918, 28.0%).

Overall, female (59.4%) and married respondents (52.5%) outnumbered the other category groups. The vast majority of respondents were white (63.7%), followed by African-American (14.7%), Hispanic (10.2%), Asian (3.9%), and other minor and

multiple-race groups (2.4%). For educational status, 19.1% had completed high school, 19.5% had vocational training or some college experiences beyond high school, 24.0% had graduated from college, and 16.3% had postgraduate education.

Hypotheses testing

In order to test the proposed hypotheses, structural equation models were employed with maximum likelihood estimation using the AMOS program. First, the structural model shown in Figure 2, indicating the direct influence of PCC on the quality of healthcare (H1), was tested. Overall model fit indices did not show the best fit according to normed chi-square and RMSEA (χ^2/df = 53.085, $p < .001$; RMSEA = .126), but indices that compared the target model and the null model showed acceptable scores (NFI = .945; CFI = . 946) based on Hu and Bentler (1999).

As predicted by H1, the path between PCC and the quality of healthcare was statistically significant at $p < .001$ (B = .88, B SE = .02, Beta = .69) (see Table 1). PCC had a positive relationship with the reported quality of healthcare received, confirming the first hypothesis.

H2 and H3 were tested with the mediation model presented in Figure 3. With an acceptable model fit (χ^2/df = 34.881, $p < . 001$; RMSEA = .102; NFI = .949; CFI = . 951), the path between the PCC practices and the trust in healthcare providers was statistically significant at the $p < .001$ (B = .27, B SE = .01, Beta = .79), supporting H2. PCC had a significant positive influence on the perceived trust in healthcare providers.

As Figure 3 and Table 2 indicate, the mediation effect of trust was also significant between PCC and the quality of healthcare (standardized indirect effect = .329). The direct path coefficient from PCC to the quality of healthcare (H1) decreased remarkably from .69 ($p < .001$) to .10 ($p = .067$) when the mediator (i.e., trust in healthcare providers) was added to the model. Thus, H3 was supported, confirming the mediation effect of trust.

For the last hypothesis (H4), the proposed mediation model was retested with the three subgroups based on the number of medical visits. The size of the mediation effect varied with the number of medical visits, as Table 3 shows. For those who visited medical professionals once or twice during the past year, the mediation effect was the smallest (.497) and indicated partial mediation. For the low-visit group, the path coefficient (*c'*) was .21, and was still significant at $p < .001$, though it was significantly less than the direct path coefficient of .69 (path *c*). However, for the group with three or four visits and the group with five or more visits, the mediation effect was far greater (.713 and .684, respectively). The direct path after adding a mediator (*c'*) became negligible (–.04 and .01, respectively) and statistically insignificant, which indicates full mediation of trust in healthcare providers in the relationship. The results showed a full mediation of trust between PCC and reported quality of healthcare when medical visits are repeated more than three times. Thus, as proposed in H4, the mediation of trust in healthcare providers between PCC and quality of healthcare provided was moderated by the frequency of medical visits, with stronger mediation in higher frequency group(s).

Discussion

The major findings of this study correspond with those of previous studies, highlighting the impacts of PCC on positive patient–provider relationships and patient satisfaction with healthcare (Bakker, Fitch, Ross, Elaine, & Bennett, 2001; Bensing, 1991; Smith et al., 1999; Stewart et al., 2000; Wanzer et al., 2004). This study showed that PCC has a positive correlation with patients' trust in healthcare providers and their evaluation of healthcare quality; in addition, trust mediated the influence of PCC on patients' evaluation of healthcare quality. These findings are consistent with the model of Epstein and Street (2007), proposing pathways of the effects of patient–provider communication on health-related end results through a proximal communication outcome and an intermediate outcome. Among a diverse array of potential outcome variables proposed by Epstein and Street (2007), this study ascertained the role of (a) trust in healthcare provider as a proximal communication outcome and (b) the quality of healthcare as an intermediate outcome. With the

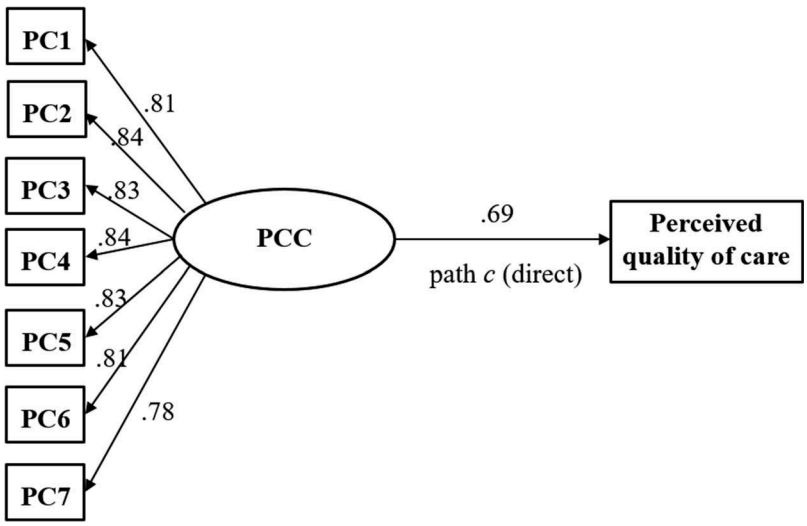

Figure 2. Direct influence of patient-centered communication on the perceived quality of healthcare (Model 1).

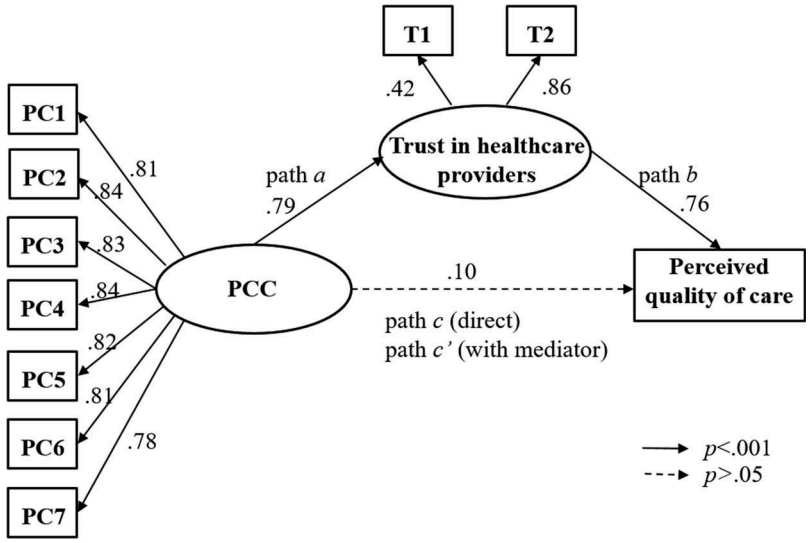

Figure 3. Mediation effects of trust in healthcare providers (Model 2).

Table 1. Path estimates of Model 1.

Path	B	SE	Beta
PC1← PCC	1.000		.811
PC2← PCC	.984 ***	.017	.843
PC3← PCC	.764 ***	.014	.829
PC4← PCC	.811 ***	.014	.842
PC5← PCC	.917 ***	.017	.825
PC6← PCC	.946 ***	.018	.808
PC7← PCC	.769 ***	.015	.779
Healthcare quality← PCC	.875 ***	.020	.693

***$p < .001$.

Table 2. Path estimates of Model 2.

Path	B	S.E.	Beta
Trust← PCC	.266 ***	.013	.785
PC1← PCC	1.000		.812
PC2← PCC	.983 ***	.017	.844
PC3← PCC	.761 ***	.014	.828
PC4← PCC	.808 ***	.014	.842
PC5← PCC	.914 ***	.017	.824
PC6← PCC	.943 ***	.018	.807
PC7← PCC	.769 ***	.015	.780
T1←Trust	1.000		.419
T2←Trust	2.424 ***	.109	.855
Healthcare quality←Trust	2.830 ***	.236	.761
Healthcare quality← PCC	.121	.066	.096

***$p < .001$.

Table 3. Path estimates in the group comparisons.

Number of medical visits	Path *a*	Path *b*	Path *c*	Std. indirect effect
1 or 2 (n = 1314)	.75***	.67***	.21***	.497
3 or 4 (n = 1041)	.81***	.88***	–.04	.713
5 or more (n = 918)	.82***	.83***	.01	.684
Total (n = 3273)	.79***	.76***	.10	.598

***$p< .001$.

identified lack of research testing the Epstein and Street (2007) model (Street et al., 2009), this study contributed to the model testing and provided empirical support for the model.

Moreover, the strength of mediation increased as patients visited the hospital more often. Specifically, the mediating power of trust in healthcare providers was higher among those who had had medical visits three or more times than those who had had fewer visits, which implies that repeated experiences of PCC reinforce the level of trust toward healthcare providers over time. This makes sense because "trust" is not built on only one incident or episode but develops over time in the building of relationships (Duck & Perlman, 1985; Hall, Zheng et al., 2002; Kao et al., 1998; Kramer & Tyler, 1996). The finding also well corresponds to the recursive and accumulative feature of Epstein and Street (2007)'s model.

Although a reverse relationship between PCC and trust can be proposed as in Bohnert, Zivin, Welsh, and Kilbourne (2011), assuming that individuals with greater trust in healthcare providers may participate in medical settings more actively by asking questions and making decisions, this study ascertains such trust is an effect of PCC rather than a cause, by showing that the mediation through trust became stronger as patients had more medical visits over time. This study also confirms that a trusting relationship between a patient and a provider, built on PCC, is a significant factor in the patient evaluation of healthcare quality. Thus, it is reasonable to argue that hospitals and medical institutions need to take communication into account when they try to identify patients' demands and to improve their experience and satisfaction with healthcare service (Chang et al., 2013). Therefore, for the hospitals that wish to pursue an increase in patient retention and loyalty, positive word-of-mouth reports, and referral/recommendation to others, it seems that encouraging PCC among their employees would be a good starting point.

Notably, PCC requires consistent effort and practice by healthcare providers because it is not internalized or obtained automatically from textbooks. Moreover, implementing PCC in the current healthcare system can be costly, because healthcare providers should be regularly and properly trained in how to practice PCC flexibly with diverse types of patients (e.g., skeptical, uncooperative, elderly, and so on) in many challenging scenarios (e.g., telling bad news or explaining complex treatments). Since PCC involves paying attention and listening more to patients, it can

increase the average consultation time per patient, especially in initial visits (Epstein et al., 2005; Flocke et al., 2002; McWhinney, 1993). Prolonged consultation time can become a penalty for physicians if they do not receive additional compensation or reward (Epstein et al., 2005). Therefore, it is imperative that hospitals and medical institutions, as well as health systems and policy-making bodies, should support a PCC-friendly environment to encourage PCC among healthcare providers while also considering these barriers.

Although the benefits of PCC have been discussed mostly from the patients' perspective (e.g., desirable health outcomes), providers can also enjoy the benefits of enhanced trust. Not only can providers enjoy trusting relationships with their patients, but they can expect patients to better comply with their suggested medication and treatments, which results in greater success for patients' cures. Providers' job satisfaction can be improved substantially by this sense of fulfillment. In addition, by gaining trust from patients, healthcare providers can potentially prevent possible lawsuits, since it is known that unsatisfied patients are more likely to pursue litigation against doctors and hospitals (Beckman et al., 1994). Physicians perform defensive medicine – overprescribing diagnostic tests and medications – when they are in a fear of facing lawsuits (He, 2014), therefore, increased trust between patients and doctors can reduce the overall cost of the healthcare system by discouraging defensive medical practices.

Once patients lose trust in healthcare providers, they tend to become more dependent on non-expert online sources (Hesse et al., 2005). People are more likely to use online sources to get information and emotional support when they perceive less patient-centeredness in their communication with health professionals (Hou & Shim, 2010). By embracing PCC, healthcare professionals can invite patients to talk about what they learned online, and thus have a chance to correct inappropriate information and guide the patients to more appropriate sources of information. In this way, PCC can lead to better outcomes for both healthcare providers and patients.

Limitations and suggestions for future research

Despite the contributions of this study to the theoretical and clinical literature, there are some limitations which should be considered. First, because the study relied on a secondary dataset, a small number of measurement items were not fully conceptualized and operationalized. For example, Hall, Camacho et al. (2002) identified trust in a specific physician with whom a patient has a relationship as having multiple dimensions, such as fidelity (i.e., pursuing the patient's interests and welfare), competence (i.e., professional skills), and honesty (i.e., truth-telling). However, our study could not capture such a multifaceted nature of trust in healthcare providers. Also, only one single item from a secondary dataset was used to measure patients' perceived quality of care. Although a single-item measure can be valid and reliable for unambiguous global constructs, such as satisfaction and quality of life, as much as multiple items can be (e.g., Dolbier, Webster, McCalister, Mallon, & Steinhardt, 2005), the results of the current analyses should be interpreted with caution, and the benefits of a more solid multiple-item measure should be considered in future studies.

Wanzer et al. (2004) showed that patients' satisfaction with communication was influenced by different types of PCC from different types of healthcare providers (i.e., physicians, nurses, and other staff members). Specifically, patients' satisfaction was influenced by immediacy, listening, and empathy skills of physicians, making introductions and empathy skills of nurses, and immediacy and clarity aspects of PCC of staff members. Thus, it would be interesting and meaningful for a future study to examine patients' expectations of PCC from different types of healthcare providers and how it is related to the sub-dimensions of trust (e.g., fidelity, competence, honesty) in each type, and evaluation of healthcare service in the long term.

Finally, Epstein and Street (2007) proposed a large number of moderators that have potential influence on the link between/among patient–provider communication and its outcomes, including disease-related factors (e.g., type, stage), social and cultural factors (e.g., social support, cultural belief), healthcare delivery factors (e.g., accessibility, environment), and demographic factors (e.g., age, gender, race), to list only a few. According to Matusitz and Spear (2015), PCC is not very popular nor familiar to patients in some Asian cultures, such as Pakistan, Japan, and Thailand, where a paternalistic view of the physician–patient relationship is the norm and respect toward authority figures such as doctors has a greater value than patient empowerment or involvement in healthcare settings. A future study would be meaningful and valuable if it examines whether the mediating relationship found in the current study is still valid in these countries. By doing so, this line of research could extend the benefits to healthcare providers, policy-makers, and patients into different cultural settings.

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