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The Impact of Cost Conversations on the Patient-Physician Relationship

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Abstract

Previous research has suggested that fear of harm to the patient–physician relationship is an important barrier to conversations about cost of care. However, few experimental studies have investigated the effects of cost of care conversations on the patient–physician relationship, particularly from the patient’s perspective. In the current research, we take an experimental approach to investigate patients’ attitudes and preferences for a hypothetical physician who discusses cost versus one who does not. Across three studies, using data from both the general population and cancer patients, we find that people prefer a hypothetical physician who discusses cost over one who does not (Pilot Study, Studies 1 and 2). In addition, we find that people use cost information to inform their hypothetical treatment decisions without changing their attitudes toward the physician who includes this information (Study 1). Finally, we examine how and when cost information compares to more traditional medical information (e.g., side effects; Study 2). We discuss the implications of this research for cost communications and the patient–physician relationship, highlighting that cost conversations may not be as harmful as previously thought.

Over the past decade, patients in the USA are being asked to bear a greater percentage of their healthcare costs with an increasing number of insurance plans carrying either high deductibles or high co-pays, and sometimes both. Consequently, medical costs in the USA are rapidly increasing, with patients incurring much of the financial burden (Claxton et al., 2015). Some estimates suggest that as many as one in three Americans have difficulty paying medical bills (Collins, Rasmussen, Doty, & Beutel, 2015; Richman & Brodie, 2014). While many individuals may assume that insurance will cover all their medical costs, this is rarely the case; research has found that 70% of Americans with medical debt actually have health insurance (Pollitz, Cox, Lucia, & Keith, 2014). Out-of-pocket medical costs can not only deplete financial savings but can also negatively affect quality of life and a variety of

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Notes

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health outcomes (Cook, Dranove, & Sfekas, 2010; Himmelstein, Thorne, Warren, & Woolhandler, 2009; Zafar & Abernethy, 2013).

Because of the possible burden of out-of-pocket healthcare expenses, cost is one important type of information that physicians could potentially provide to patients to help guide their healthcare choices. Patients often rely on their physicians to provide them with information when making treatment decisions (e.g., Clarke et al., 2015). Unfortunately, more often than not, physicians do not discuss cost of care with patients (Alexander, Casalino, & Meltzer, 2003; Alexander, Casalino, Tseng, Mcfadden, & Meltzer, 2004). Previous research has identified several barriers to cost conversations, including discomfort, lack of time, and uncertainty as to whether cost conversations are part of the physician's role (Alexander et al., 2004; Schrag & Hanger, 2007). In the present research, we focus on another important barrier: physicians' fear that cost discussions will be viewed negatively by patients and subsequently damage their relationships with patients (Alexander et al., 2004; Hofstatter, 2010; McFarlane, Riggins, & Smith, 2008; Schrag & Hanger, 2007).

Why might physicians be afraid of damaging the patient–physician relationship by discussing cost of care? Social relational theory (Fiske, 1992) provides a helpful theoretical framework with which to examine this fear. Historically, the patient–physician relationship has been viewed as operating under communal norms (McGraw, Schwartz, & Tetlock, 2012), in which physicians contribute to the relationship for the sake of the other person and the relationship itself (Clark & Mills, 1979; Fiske, 1992). In these types of relationships, individuals are not concerned with the exact amount of benefit they receive or that the benefit received be equal to the one given. Rather, individuals are concerned about the welfare of the other (Clark & Mills, 1979). Within these types of communal relationships, the price of a benefit is generally not discussed. For example, an individual would remove the price tag of an item before giving it as a gift to a friend for his/her birthday. Or, a man may propose to his partner without explicitly discussing the cost of the engagement ring. These norms exist because values of goods that are viewed as having infinite or transcendental significance are considered “sacred” (Fiske & Tetlock, 1997). Mixing of the sacred, or items that have transcendental significance, with the profane, such as money, constitutes a “taboo trade-off” (McGraw, Tetlock, & Kristel, 2003). An example of a taboo trade-off would be if a church were to start charging for admittance to Mass. Charging a fee to receive a sacred service violates expected communal norms. Taboo trade-offs are cognitively taxing and can be emotionally unpleasant because the decisions they represent involve difficult calculations and valuations (Luce, Bettman, & Payne, 1997; Tetlock, Kristel, Elson, Green, & Lerner, 2000). Like religion, healthcare has traditionally been considered a sacred domain, and correspondingly, individuals may believe that healthcare providers or organizations should behave according to communal norms (McGraw et al., 2012). Accordingly, patients may view the patient–physician relationship as one in which the physician's primary goal should be to act in the best interests of the patient, and therefore, cost should not be discussed.

In contrast to a communal relationship, an exchange relationship is one in which individuals give and take according to a utility metric, typically money (Fiske, 1992; McGraw et al., 2012), without regard to the welfare of the other person. When physicians discuss money or

cost of care, it may signal a shift from a communal relationship to an exchange relationship. As a result, patients may perceive that the physician is no longer acting in their best interest and that the relationship itself is no longer of primary importance. Furthermore, research has shown that by discussing cost, physicians are afraid it may appear that they are suggesting a less aggressive approach to treatment or compromised quality (Alexander et al., 2004), which could again signal a lack of concern about the patients' welfare, thereby damaging the patient-physician relationship.

Despite the importance of this topic, limited empirical research has investigated the effects of cost of care conversations on the patient-physician relationship, particularly from the perspective of the patient. In other words, does discussing cost of care actually harm the patient-physician relationship? In one descriptive study, the vast majority of patients reported that they did not feel negatively toward their physicians when they discussed cost (Kelly et al., 2015), suggesting that, contrary to prior research on taboo trade-offs (McGraw & Tetlock, 2005; Tetlock et al., 2000), physicians need not be as concerned about damaging the patient-physician relationship by discussing cost. Although interesting and informative, the conclusions that can be drawn from this survey are some-what limited due to its lack of an experimental approach. An experimental approach allows researchers to draw causal inferences by holding many factors constant and testing only the specific variable or causal factor of interest. Further, experimental designs use randomization, which is the process of assigning participants to different conditions by chance rather than choice. This method helps to reduce, and often eliminate, biases in subject samples. The goal of the present research, therefore, is to experimentally examine patients' attitudes toward a physician who discusses cost information compared to one who does not, in order to better understand the potential impact of cost conversations on the patient-physician relationship. By employing an experimental approach, we are able to isolate the effects of discussing cost information on attitudes toward a physician, thereby taking a novel approach to investigate this important and consequential topic and contributing to the health communication literature. Furthermore, across three studies, we examine whether different clinical contexts, such as illness severity and magnitude of financial impact, moderate these effects. By doing so, we contribute a more nuanced understanding of the impact of cost conversations on the patient-physician relationship.

In a pilot study, we first investigated how a small number of patients actively undergoing cancer treatment feel toward a hypothetical physician who discusses cost information (versus one who does not). We also examined the reasoning behind patients' attitudes. We chose cancer patients for our pilot study because these individuals are facing a serious illness and the outcome of their actual treatment could affect their life expectancy. Previous research has suggested that cost discussions may be particularly distressing and harmful for the patient-physician relationship in this context, where the trade-off between life expectancy and cost is especially pronounced (Hofstatter, 2010; Schrag & Hanger, 2007). Here, in the case of serious illness, the effect of cost conversations may be particularly powerful, even if hypothetical. Therefore, if cost conversations are indeed harmful to the patient-physician relationship, then this particular context, in which the trade-off between life expectancy and cost is highly salient, would be one in which the effect is most likely to occur (H1).

In Study 1, we expanded the sample to include participants from a healthy population. Previous research has found that as decisions become more difficult, for example, they have more attributes to evaluate and trade-off, individuals demonstrate greater avoidance of these types of decisions and report greater negative emotion as a result of having to make these choices (Luce et al., 1997; Luce, Payne, & Bettman, 1999; Tetlock et al., 2000). Merely including cost information could make the decision more difficult because individuals must perform additional calculations and valuations to determine the best outcome. Furthermore, difficult decisions are often characterized as those that involve uncertainty, risk, or fear (Murdach, 2009), which suggests that patients' attitudes toward a physician who includes cost information may vary depending upon illness severity. When an illness is severe, the risk associated with making a "wrong" treatment choice is higher, and fear and uncertainty greater, than when an illness is mild or moderate. Therefore, in this study we also varied the clinical context to investigate whether there were differences in attitudes toward a physician who included cost information depending upon the severity of the hypothetical illness. Because the decision difficulty regarding which treatment to select, and subsequent negative emotions, should increase as the illness becomes more severe and cost information is included, we hypothesized that participants would have the least positive attitudes for the physician who includes cost information when the illness was severe (H2).

In our final study, we investigated whether attitudes toward a physician who discusses cost vary as a function of the severity of the trade-off between life expectancy and cost. Specifically, in Study 2, all participants were faced with a hypothetical life-threatening illness, but we varied the magnitude of the impact of the out-of-pocket cost of treatment (minimal, moderate, or substantial). Because the trade-off between life expectancy and cost would be the greatest when the out-of-pocket cost of treatment was substantial, and the decision therefore more difficult, we hypothesized that participants in this condition would have the most negative attitudes toward a physician who discusses cost compared with the other conditions (H3a). In this study, we also examined patient attitudes toward a physician who included cost information compared to attitudes toward a physician who included other, more traditional types of medical information, namely side effect information, to see if all additional information is treated equally. Because juxtaposing cost information with treatment efficacy (and therefore life expectancy) is more likely to constitute a taboo-trade-off than including side effect information, we hypothesized that individuals would prefer a physician who includes side effect information over one who include costs information (H3b).

All data were collected in compliance with the APA's ethical standards and have received the explicit approval of the Duke University Institutional Review Boards (IRB). The Pilot Study received approval from the Duke University Medical IRB and the Duke University Cancer Institute. Studies 1 and 2 received approval from the Duke University Human Subjects IRB. All participants indicated consent before participating. In the consent letter, they were also told that they could stop participating in the survey at any point and any incomplete responses would not be recorded.

Pilot study

For cancer patients, not only are the stakes of treatment often quite high, but the cost of treatment can be quite high as well. New cancer drugs typically cost more than \$100,000 for a course of treatment and may only extend life for a few months on average (Bach, 2014). If patients face coinsurance rates of 10–20%, they would be responsible for \$10,000–\$20,000 of the cost of these treatments. In these situations, discussing cost of care can have important, and consequential, ramifications for patients. In order to explore how patients who are actively undergoing treatment feel about discussing cost of care with a physician, we partnered with four oncologists at Duke University.

Method

Participants—Participants were 18 cancer patients (eight men, one did not identify; $M_{\text{age}} = 58.5$ years, $SD = 12.1$; 76% White, 18% Black/African American, 6% Other/Mixed, and one did not identify) recruited either during routine clinic hours (11 patients; all approached agreed to participate) or by sending a mailed letter to patients' homes (seven out of 52 surveys were returned). Eighty-nine percent of participants indicated they had at least a high school diploma (one failed to answer), of those, 22% indicated they were college graduates and 33% of patients had an advanced degree. All participants indicated they had some form of health insurance.

Procedure—Patients recruited from the clinic were first approached by their physician and asked if they would like to learn more about participating in a hypothetical, anonymous research survey. Patients were explicitly told that their decision to participate and any responses would not affect treatment or treatment decisions. If clinic patients agreed, they were approached by a member of the research team. All 11 patients who were approached in clinic agreed to participate. Of the 52 patients recruited by mailing a letter to their home address, seven patients returned their surveys, which constituted a 13% response rate. Although this mailed-survey response rate is low, we did not offer any remuneration or reward for completing the survey; we merely asked them to participate in a letter sent to their home address. Please note all participants were told that they could skip questions if they wished, therefore we are missing data for some responses. Any incomplete or missing data are noted in the results.

After providing consent, all patients were asked to read a scenario in which they were told to imagine that they had been diagnosed with a cancer that had spread to other parts of their body. They imagined going to see two different doctors, Dr. Adams and Dr. Banks. Both doctors provided the same information about two possible treatment options:

I am sorry to say this, but your illness is very serious. You have two possible treatment alternatives. You can receive standard chemotherapy with a drug called **Vericanxane**. Or you can try a new drug, **Coloxanthin**, which specifically targets the colon cancer cells.

A recent research study tested treatments in patients whose colon cancer was very similar to your cancer in terms of location and survival rates. In this group, patients who chose to receive **Vericanxane** lived for an average of **7 months after**

diagnosis. On the other hand, patients who chose to receive the new drug, **Coloxanthin**, lived **2 months longer (than Vericanxane)** after diagnosis. Both drugs have similar side effects.

Patients were told that in addition to the above information, Dr. Banks also told them the following:

Patients who choose to receive the older drug, **Vericanxane**, usually pay **\$500** out-of-pocket for the treatment, to cover part of the costs not reimbursed by insurance.

By contrast, patients who choose to receive the new drug, **Coloxanthin**, can pay up to **\$20,000** out-of-pocket.

Patients then indicated: which doctor they liked better (1 = “Definitely Dr. Adams”, 7 = “Definitely Dr. Banks”) and why; which doctor they trusted more (1 = “Definitely Dr. Adams”, 7 = “Definitely Dr. Banks”) and why; which treatment they would choose and why; and which doctor they would choose to see for a follow-up visit and why. In addition, patients completed demographic items modified from the Kaiser Family Foundation Health Insurance Survey (October 2004).

Results and discussion

On average, patients liked Dr. Banks (the doctor who discussed cost) significantly more than Dr. Adams, $t(17) = 3.99$, $p < 0.001$. The mean score for liking was 5.56 ($SD = 1.65$) out of a 7-point scale, where 4 indicated neutrality between the two physicians and higher scores indicate a greater liking for Dr. Banks. Further, whereas only one patient liked Dr. Adams more than Dr. Banks, 72% of patients (13 out of the 18 patients) liked Dr. Banks more than Dr. Adams. The majority of these patients indicated that the reason they liked Dr. Banks more was because he provided cost information. Some patients noted that they would want to incorporate cost information into their treatment choices. For example, one patient wrote, “He understands what is the biggest factor in our treatment - cost!” while another wrote, “It [the cost] might even help me decide.” Other patients highlighted an “ethic of information,” in which physicians have a duty to provide cost information. For example, one patient indicated that “the patient has a right to know (the cost)” and that including cost information was “honest.” (Please see Table 1 for all open-ended comments in response to which doctor patients liked more.) Patients also indicated that they trusted Dr. Banks significantly more than Dr. Adams as the mean score for trust was 4.88 ($SD = 1.50$), $t(16) = 2.43$, $p = 0.027$. In terms of who they would prefer to see for their follow-up visit, 86% (12 out of the 14 patients who provided a response for this item) chose to see Dr. Banks. Finally, 63% (10 out of the 16 participants who provided a response) indicated that they preferred the older, less expensive drug compared with the newer, more expensive treatment option (five indicated they preferred the newer drug and one said “neutral”).

The results from this Pilot Study suggest that, on average, cancer patients who are actively undergoing cancer treatment want to know about cost and prefer a physician who includes this information.

Study 1

In our next two studies, we expand upon the findings of the Pilot Study to investigate whether people from the general population prefer a hypothetical physician who discusses cost information over one who does not depending upon the specific context. In Study 1, we explored whether varying illness severity changes attitudes toward a physician who discusses cost (over one who does not). Because the contrast between the patient's well-being and the cost of treatment would be most pronounced when the illness was severe, and the decision therefore the most difficult, we hypothesized that participants would have the least positive attitudes toward the physician who discusses cost in this condition (H2).

Method

Participants—We recruited participants from Amazon's Mechanical Turk. Three hundred twenty participants (192 men; 78% White, 6% Black/African American, 8% Asian, and 8% Other) completed the study in exchange for financial compensation. Participants ranged in age from 18–75 years old and had an average age of 33.9 years ($SD = 11.0$). Ninety-eight percent of participants indicated they had at least a high school diploma, of those, 43% had a college diploma and 9% had an advanced degree. Twenty-five percent of participants did not currently have health insurance; of those who indicated they were uninsured, 66% said they had been uninsured for 2 years or more.¹

Procedure—This study had a three cell (illness severity: mild, moderate, or severe) between-subjects design. After indicating consent, all participants were told to imagine that they were going to a visit at their doctor's office because they had a tumor on their arm that was "dark, slightly raised, and about the size of a quarter". They were concerned, so they had their tumor evaluated separately by two different doctors. Both doctors told them the same thing about the clinical details of the tumor; however, across conditions we varied the clinical details of the tumor depending upon illness severity condition (mild, moderate, or severe). Specifically, participants were randomized to one of the following conditions:

Mild illness. "You have a non-cancerous tumor – meaning that it is harmless. If left untreated, it will not grow any larger over time, but it will not go away. There are treatment options available. If you treat the tumor, it will go away and most likely not return."

Moderate illness. "You have a precancerous tumor – meaning that it is not life-threatening. If left untreated, it will not spread to other parts of your body, but it will grow larger over time. There are treatment options available. If you treat the tumor, it will go away and most likely not return."

Severe illness. "You have a cancerous tumor – meaning that it is life threatening. If left untreated, it will grow larger over time and spread beyond its current location to other parts of your body. There are treatment options available. If you treat the tumor, it will go away and most likely not return."

¹Please note that we repeated the analyses with insurance status included as a covariate and all results remained the same.

Participants were told that both doctors then described two treatment options:

“There are two possible treatment alternatives. The first treatment option is a drug called **Macderma**. **Macderma** is very effective at completely eliminating the tumor, but has been shown to have a risk of severe side effects. The other drug, **Vinskin**, is not as effective, but does not have the side effect risk.” Both doctors also tell you that there is no right or wrong choice, and many people make different choices depending on their personal situations. The doctors tell you that the decision is entirely up to you.

Finally, participants were told that Dr. Banks also informed them about the cost of the medications:

Imagine that in addition to the above information, **Dr. Banks** also tells you the following: “**Macderma** has a **high out-of-pocket cost** that you would be responsible for paying. The **total out-of-pocket cost** of **Vinskin** is much less.”

Measures.: Six items explored participants’ attitudes toward the hypothetical physicians (“Which doctor do you feel more positively about?”, “Which doctor do you like more?”, “Which doctor is more knowledgeable?”, “Which doctor is more competent?”, “Which doctor was more concerned with your quality of life?”, and “Which doctor had your best interests in mind?”). Each item was rated on a 7-point bipolar Likert scale, anchored with “*Definitely Dr. Adams*” and “*Definitely Dr. Banks*.” Note that scores below the midpoint (<4) indicate preference for the physician who did not provide cost information (Dr. Adams), scores at the mid-point (=4) indicate equal attitude toward both physicians, and scores above the midpoint (>4) indicate preference for the physician who provided cost information (Dr. Banks). The items were combined to form one overall scale ($\alpha = 0.92$), with higher scores indicating a greater preference for Dr. Banks.

Participants were asked to indicate which of the two physicians they would prefer to see for a follow-up visit. Finally, participants were told to imagine they now had to make a decision between the two drugs and asked to indicate which of the two treatment drugs they thought was best for them on a seven-point scale (1 = *Definitely MacDerma*, 7 = *Definitely Vinskin*). We included this information to see if participants were incorporating cost information into their treatment decisions. Finally, participants completed demographic items.

Results and discussion

Contrary to our hypothesis (H2), an ANOVA revealed that patient attitudes toward the physicians did not vary as a function of illness severity ($M_{\text{mild}} = 4.54$, $SD = 0.99$; $M_{\text{moderate}} = 4.44$, $SD = 0.88$; $M_{\text{severe}} = 4.48$, $SD = 0.97$), $F(2, 317) = 0.32$, $p > 0.25$. Rather, regardless of illness severity, patients preferred the physician who provided cost information – the average rating was significantly above the mid-point of the scale ($M = 4.49$, $SD = 0.94$), $t(319) = 9.21$, $p < 0.001$.

Similarly, patients’ preference for their follow-up physician did not vary as a function of illness severity, $\chi^2(2, N = 320) = 3.18$, $p > 0.25$. Seventy-two percent of participants preferred to follow-up with the physician who included cost information.

Participants differed in their treatment preferences depending on illness severity, $F(2, 317) = 31.74, p < 0.001$ (Figure 1). Planned comparisons indicated that each of the conditions significantly differed from one another in the expected order: people told they had a mild illness preferred the less expensive treatment ($M = 5.91, SD = 1.5$) compared with those told they had a moderate illness ($M = 5.41, SD = 1.7$), $t(317) = 2.05, p = 0.041$, and those told they had a severe illness ($M_{\text{severe}} = 4.03, SD = 2.1$), $t(317) = 7.69, p < 0.001$. People told they had a moderate illness also preferred the less expensive treatment compared with those told they had a severe illness, $t(317) = 7.69, p < 0.001$.

The majority of participants preferred the hypothetical physician who discussed cost of treatment and also had more favorable attitudes toward this physician. Contrary to our hypothesis, we did not find a difference in terms of attitudes and preference for the physician as a function of illness severity. Interestingly, we did find a significant difference in terms of treatment preference. These findings indicate that participants are using cost information to inform their treatment decisions without affecting their attitudes toward the physician who provides this information. This study suggests that, regardless of the severity of an illness, individuals seem to prefer a physician who includes cost information over one who does not.

Study 2

In our final study, we investigated how the magnitude of out-of-pocket treatment cost influenced attitudes toward a physician who included this information. We hypothesized that participants will have the least positive attitudes toward a physician who includes cost information when the out-of-pocket treatment cost is substantial (H3a). In this study, we also compare attitudes toward a physician who includes cost information with attitudes toward a physician who includes medical side effect information. Because financial toxicity can burden patients akin to side effects (Himmelstein et al., 2009; Zafar et al., 2013), some experts propose that cost should be treated like more typical medical side effects, particularly in terms of its inclusion in patient–physician conversations (Ubel, Abernethy, & Zafar, 2013). However, it is unknown whether patients view cost information provided by physicians in the same manner as they view medical side effect information. Including cost information along with treatment efficacy is more likely to constitute a taboo-trade-off than including side effect information along with treatment efficacy; we, therefore, hypothesized that individuals would prefer the doctor who includes side effect information to the one who include costs information (H3b).

Method

Participants—We recruited participants from Amazon’s Mechanical Turk. Three hundred seventy participants (186 men; 79% White, 9% Black/African American, 7% Asian, and 5% Other) completed the study in exchange for financial compensation. Participants ranged in age from 18 to 70 years and had an average age of 33.6 years ($SD = 12.0$). Similar to Study 1, almost all participants (98%) had at least a high school diploma; of those, 35% had a college diploma and 9% had an advanced degree. Twenty-two percent of participants did not currently have health insurance; of those who indicated they were uninsured, 59% said they had been uninsured for 2 years or more.²

Measures and procedure—This study had a 2 (type of additional information: cost vs. medical) x 3 (magnitude of impact: minimal, moderate, substantial) between-subjects design. All participants were told that they had been diagnosed with colon cancer and that it had spread to nearby organs.³ They were told that they went to see “Dr. A” to learn about their treatment options. All participants were told that there were two drug treatment options: a standard chemotherapy drug that the physicians had a lot of experience giving to patients, or a new chemotherapy drug that specifically targets the colon cancer cells and increased life expectancy by 2 months.

Participants were then told that they went to see another doctor for a second opinion, Dr. B. All participants were told that Dr. B said the same thing as Dr. A, but Dr. B also included additional information. Depending upon randomized condition, this additional information pertained to *either* cost or medical side effects. In other words, for half of the participants Dr. B gave cost information as the additional information and for the other half of participants Dr. B gave medical side effect information as the additional information. Furthermore, we randomized the severity of the impact of the cost/side effects depending upon experimental condition (i.e., the impact was either minimal, moderate, or substantial). Specifically, participants were told that Dr. B said the following [cost condition in brackets]:

The two drugs have minimal/moderate/substantial side effects [cost that you will have to pay out-of-pocket]. He continues to explain that the side effects [cost] will likely have a small/medium/large impact on your lifestyle.

Similar to the previous study, participants indicated their attitudes toward the physicians on three 7-point Likert scales (1 = Definitely Doctor A, 7 = Definitely Doctor B). The items were “Which doctor do you feel more positively about,” “Which doctor do you like more,” and “Which doctor would you prefer to see for a follow-up visit.” We averaged all items into one overall index of attitude toward the physicians ($\alpha = 0.93$), where higher scores indicate a stronger preference for Dr. B. Finally, participants provided demographic information.

Results and discussion

A 2 (type of additional information: cost vs. medical side effect) x 3 (magnitude of impact: minimal, moderate, substantial) ANOVA on attitudes toward physician revealed a significant main effect for type of additional information, $F(1, 364) = 9.89, p = 0.0018$, whereby participants preferred the physician who provided additional information about medical side effects ($M = 5.41, SD = 1.94$) versus cost ($M = 4.96, SD = 1.96$). These results support H3b. Notably, however, participants in both groups preferred the physician who provided additional information compared to the one who did not, regardless of whether that information was about cost or a medical side effect ($M_{\text{cost}} = 4.93, SD = 1.43, t(182) = 8.85, p < 0.001, (M_{\text{medical}} = 5.38, SD = 1.34), t(186) = 14.10, p < 0.001$, as the average score was above the midpoint of the scale for each of the conditions. There was no main effect for severity of impact, $F(2, 364) = 1.00, p > 0.25$).

²Please note, as in the previous study, we repeated the analyses with insurance status as a covariate and results remained the same.

³The scenario is available from the corresponding author.

The main effect of type of additional information was qualified by a significant interaction, $F(2, 364) = 3.94, p = 0.020$, (Figure 2). Within the cost conditions, planned comparisons revealed that people in the moderate out-of-pocket cost condition had marginally significantly more positive attitudes toward the doctor who provided cost information ($M = 5.29, SD = 3.69$) than people in the substantial out-of-pocket cost condition ($M = 4.83, SD = 3.17$), $t(364) = 1.83, p = 0.069$ and significantly more positive attitudes toward the doctor who provided cost information than people in the minimal out-of-pocket cost condition ($M = 4.75, SD = 3.33$), $t(364) = 2.10, p = 0.037$. In other words, although in general participants had more positive attitudes toward the physician who included cost information over the one who did not, they preferred this physician to the greatest extent when the out-of-pocket cost was moderate (as opposed to minimal or substantial). These findings are somewhat contrary to our pre-dictions (H3a), but illustrate when cost conversations may be most appreciated – when the potential out-of-pocket cost is moderate. In fact, there was not a significant difference between the moderate out-of-pocket cost condition with any of the side effect conditions (planned comparisons, p 's > 0.13). In other words, when the impact of the cost was moderate, individuals preferred the physician who included cost information as much as they preferred the physician who included side effect information.

Discussion

Using hypothetical medical scenarios, we found preliminary evidence that people prefer physicians who include cost information to those who do not, regardless of the severity of the hypothetical illness or the potential impact of the cost. Previous research has suggested that patients react negatively to putting a price tag on health (e.g., a taboo trade-off, McGraw & Tetlock, 2005). Individuals, including physicians, believe that this negativity bias might extend to physicians who make these types of trade-offs salient by discussing cost and worry that it could potentially harm the patient–physician relationship (Schrag & Hanger, 2007). Further, social relational theory (Fiske, 1992) suggests that discussing cost in a healthcare setting would violate communal norms, which could negatively affect the patient–physician relationship. Our findings, however, indicate that patients may be more comfortable with discussing cost information than the literature suggests. Perhaps because high out-of-pocket healthcare costs can become a burden to patients, patients may view discussing cost as the physician having the patients' best interests in mind. Indeed, some of the free responses from the patients in the Pilot Study suggest that this may be the case. Discussing cost of treatment may therefore not violate communal norms, but rather reinforce them. Out-of-pocket cost conversations between a patient and physician may be an instance in which combining the sacred (e.g., healthcare and someone's life) with the profane (e.g., money) does not constitute a taboo trade-off, contrary to prior research (e.g., McGraw et al., 2012).

The current findings also highlight the importance of price transparency in healthcare settings. In Study 1, we found that people incorporated cost information into their hypothetical treatment decisions, suggesting that cost is an important attribute patients consider when making treatment decisions and highlighting the importance of including this information during clinical visits. Healthcare is moving to a more consumer-focused domain and patients are facing higher and higher out-of-pocket costs (Kaiser, 2016). These out-of-pocket medical costs can negatively affect quality of life, treatment adherence, and other

health outcomes for the patient (Cook et al., 2010; Himmelstein et al., 2009). In addition, out-of-pocket costs can also burden family members (Zafar & Abernethy, 2013). Discussions with physicians about cost can help improve health-care decisions and increase treatment adherence seemingly without harming the patient–physician relationship.

In our studies, we asked participants to compare two physicians directly using a bipolar scale rather than using two unipolar scales (i.e., one for each physician). We chose this method for two reasons. First, patients consistently show a positivity bias when reporting doctor satisfaction in surveys (Peterson & Wilson, 1992), and therefore, two unipolar scales may have suffered from a ceiling effect (regardless of whether within or between subjects). Second, it is hard to rate how much one likes a physician without context. Comparing attitudes toward the two physicians in the same survey from the same participant allowed us to more accurately assess preferences for a physician who discusses cost versus one who does not than a between-subjects design would.

One of the strengths of the current research is that we used an experimental approach to study this important topic. However, a limitation is that all studies were hypothetical. Future research could experimentally investigate cost conversations during actual physician-patient interactions. For example, after indicating consent, patients could be randomized to either a condition where the physician explicitly mentions cost when discussing treatment options or one where the physician does not. Researchers could then measure patient attitudes toward the physician after the specific interaction to examine how patients feel about receiving cost information. Future research could also use a quasi-experimental design to explore whether patients rate the same, or perhaps different, physicians more or less positively after receiving cost information (versus no cost information) during a doctor visit. A more ambitious area for future research would be a longitudinal study examining cost of care conversations over time and attitudes toward the physician. This research could investigate how often cost conversations occur and whether patient attitudes toward the physician fluctuate as a result of these conversations. It would be especially interesting to examine these conversations in a longitudinal setting with cancer patients who are facing regular treatments and difficult decisions. Some previous research has suggested that oncology patients may be least likely to want to discuss cost of care (Hofstatter, 2010). However, our data (albeit it in a pilot study) suggest that cancer patients, like the general population, still preferred the physician who included this information. Of course, any future research in this area must include human subjects' protections as cost conversations raise ethical concerns, particularly as it relates to experimental research.

The current research focused on patient attitudes toward a physician after physician-initiated cost conversations. Future research could explore the effect of patient-initiated cost conversations on the patient–physician relationship. Other potential areas of future research include intervention studies in which patients are given handouts or checklists for initiating cost of care conversations with their physician. In general, additional research on cost of care conversations could help encourage patients to discuss and consider cost, which could ultimately improve medical decision-making.

Fear of harming the patient–physician relationship has been cited as one of the main barriers to cost conversations (Alexander et al., 2004). In the current research, we examine whether norms surrounding cost of care conversations are shifting. We find that people largely prefer a physician who discusses cost over one who does not, although usually not to the same extent as people prefer a physician who discusses side effects over one who does not. This suggests that despite the argument that cost should be treated as any other side effect (Ubel et al., 2013), patients may not yet have fully embraced this idea and may still see medical side effect information as more important to include than cost information. Importantly, however, including cost information helped (not hurt) patients' attitudes toward their physicians. Finally, we found initial evidence that there may be certain clinical circumstances (e.g., when the impact of the information is moderate) in which physicians who provide cost information are viewed equally positively as ones who provide medical side effect information. The current findings open the door to additional research in this area and provide initial evidence that cost conversations should occur in practice more frequently.

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Figure 1.

Difference in preference for treatment as a function of illness severity. Study 1. Note. Higher values indicate a greater preference for the less expensive, less effective treatment option.

Figure 2.

Attitudes toward physician depending upon magnitude of impact of additional information. Study 2. Note. Higher scores indicate a greater preference for the physician who included additional information over the one who did not.

Table 1.

Pilot study: open-ended responses for which doctor patients liked more.

Physician liked more	Reason
Dr. Banks	Like to know the cost. It might even help me decide
Neutral	Presented information equally except for cost which I would have asked about
Dr. Banks	It is important to have all the information
Dr. Banks	He gives me options pertaining drug effectiveness as well as cost option
Dr. Banks	Because he was very informative to give me the cost. (No hidden cost)
Neutral	Both gave same info except Banks gave cost
Neutral	
Dr. Banks	I want to live no matter the cost.
Neutral	Both were direct with what is to be expected and what outcomes will come about and allows the patient and family to prepare financially
Dr. Banks	I like to know what costs are involved
Dr. Banks	For just 2 additional months Dr. Banks lets you know up front of these expensive charges
Dr. Banks	Dr. Banks seems to be telling more of the story – especially about out-of-pocket costs.
Dr. Adams	Just gives you the facts of life
Dr. Banks	I like all info up front so I can make an informed decision
Dr. Banks	More info is better than less so you can make your own decisions
Dr. Banks	He's aware that there is a cost associated with treatment
Dr. Banks	Honesty re: cost
Dr. Banks	He understands what is the biggest factor in our treatment – cost!