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Trust in technology-mediated collaborative health encounters: Constructing trust in active and passive user interactions with technologies

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Abstract

The present study investigated factors that explain patient trust in health technology and the relationship between patient trust in technology and trust in their care provider. Sociotechnical systems theory states that changes in one part of the system are likely related to other parts of the system. Therefore, attitudes about technologies, like trust, are likely related to other aspects of the system. Contributing to appropriate trust at the technological, interpersonal, and system levels can potentially lead to positive health outcomes. The study described in this manuscript used data collected from 101 patients with a Trust in Medical Technology instrument. The instrument measured patients' trust in 1) their providers, 2) the technology, and 3) how their providers used the technology. Measure 3 was positively associated with measures 1 and 2, while measures 1 and 2 were not positively or negatively associated with one another.. These results may indicate that patient assessments of the trustworthiness of care providers and technologies are based on their observations of how providers use technologies.

Practitioner Summary—Though patients are not active users of technologies in health care, the results of this study show that their perceptions of how providers use technology are related to their trust in both technology and the care provider. Study findings have implications for how trust is conceptualized and measured in interpersonal relationships and in technologies.

Keywords

trust; sociotechnical systems; health care; health technology

1. Introduction

A technology-mediated collaborative health encounter is an interaction between two or more individuals in a health setting that involves a technology. These encounters include interactions with health technologies used in face-to-face interactions and through technologies (e.g. telehealth and digital records).

The study described in this paper is a preliminary exploration of trust relationships in technology-mediated collaborative health encounters. The purpose of this study is to understand the relationship between patient trust in technologies used in their care, by care providers, and patient trust in their care provider. Previous research has indicated that user trust in technology can result in appropriate use, inappropriate use or rejection of the technology. This is particularly important as, though patients do not physically use health technologies, they may exhibit trust related use behaviors. For example, when patient trust a

technology, they can request technologies that may not be recommended by their care provider and are costly or risky. When patient distrust a technology, they may refuse to have technologies used in their care. Additionally, patients may seek providers or organizations that will use the technologies they desire or do not use technologies that they find untrustworthy. Furthermore, patient trust in care provider is related to a variety of important health system variables such as adherence, health status and care seeking (Pearson and Raeke 2003). Developing, maintaining and sustaining patient trust in the care provider is important, but little is known about how patient provider trust is affected by provider technology use. Typically, patients are passive users of technologies, meaning that they have limited experience with and control over the technologies being used in their care. There is little empirical research on passive user experience of technologies in general (Inbar and Tractinsky 2009) and even less related to patient passive user experiences of technologies. Patient decisions to trust health technologies may be based on a variety cues from the environment that are typically not considered in the design of systems and devices. As passive users of health technologies, patients' trust in the technology is likely to be heavily associated with their trust in their care provider, the design of the technology, and the quality of the interactions that they observe the care provider having with the technology. Finally, problematic interactions may affect patient relationships with system elements. When patients see the care provider struggling to use a technology, they could blame either the provider, the technology or the entire system for the problem. Therefore, a bad interaction could be associated with, decreased trust in the provider, decreased trust in the technology, or both. This decreased trust could reduce the patients' willingness to adhere to medical advice, return to care, or even health status. Understanding patient trust in health technologies, the potential effects of health technologies on systems outcomes, such as patient trust in provider, are important for enhancing our scientific understanding of trust as a system construct and for designing better health care systems.

To date, our understandings of the construct trust have been limited to exploring trust as either an interpersonal or team measure or as an individual's trust in a particular technology. These metrics may not be effective when exploring dynamic and intersecting relationships between humans and technologies in health care systems. Finally, little research has explored patients' perceptions of different aspects of the health care systems and the resultant impact of their impressions on system outcomes. Patient experiences with care providers and health technologies and the effect on system outcomes will be more important as patients become more active in managing their own care and as health system increase their use of technologies and are designed for use by patients. Furthermore, there is little research on passive user experiences of technologies in general (Inbar and Tractinsky 2009). A first step towards understanding patient trust in health technologies is understanding the dimensions that are associated with the construct.

Sinclair (2007) states that "understanding trust between individuals and between operators and their equipment" is an important ergonomic issue in future work systems. This work seeks to contribute to the understanding of trust in technologies in work systems. Studies that explore trust in sociotechnical systems tend to focus on trust between individuals or a singular individual's trust in a technology or automated system. In trust critical environments, such as health care, trust between individuals is integral to a functioning system. Trusting or distrusting attitudes about technologies have the potential to affect interpersonal relationships between doctors and patients and vice versa. However, there has been little research in the health care domain to explore trusting attitudes about technologies and little research to explore the effects of interpersonal trust on trust in technologies. There has also been little work to examine patients' attitudes about technologies used in their care. The research described in this paper offers some empirical insight into the relationship between these constructs and suggests that there are likely contributing factors between

different types of trust (interpersonal and technology) and that these relationships must be understood to develop effective measures of trust and interventions for trust calibration. Future work in this area will contribute to the design of technologies that facilitate, rather than inhibit, appropriate trust between individuals. This work will be integral to system design in health care and other systems where trust is critical and technologies are used.

1.1. Trust in health care systems

Interpersonal trust describes relationships between individuals and technological trust describes relationships between one or more individuals and tools or devices (see Table 1). This phenomenon is particularly important for the study of trust in health care work systems; for both patients and care providers. First, interpersonal trust is a fundamental aspect of the care provider-patient relationship and related to positive patient health and system outcomes (Pearson and Raeke 2000). Second, trust in technology is related to technology use outcomes such as appropriate use, misuse or abuse (Parasuraman and Riley 1997). Specifically, trust in technology is related to how care providers and patients use technologies appropriately, inappropriately or whether or not they decide not to use the technologies. However, the relationship between interpersonal trust and trust in technology is not well understood.

Patients' trust in their care providers is associated with patient health outcomes such as satisfaction, sustained enrollment in health plans, utilization of preventive services, adherence to medical advice, malpractice litigation, health status and health service seeking behaviors (Thom and Campbell 1997, Kao *et al.* 1998). Patient trust is also related to organizational and economic factors such as the possibility of a patient leaving a care provider's practice and withdrawing from a health plan (Thom *et al.* 1999, Zheng *et al.* 2002). These outcomes make patient trust an important variable to consider in health care work systems. Additionally, if technologies are associated with interpersonal trust, the relationship between technologies and trust outcomes should be considered in the design and implementation of technologies used in care and in the measurement of interpersonal trust.

Technologies in health care are unique because the perspective of the patient is unique. Patients as users can behave as different entities in a system, such as collaborators, consumers, and products of the system. Individually, patients may have different goals (Epstein and Peters 2009), which means that care providers may have to switch or adjust their perspectives to maintain the type of relationship desired by the patient, e.g., collaborative or service-oriented. Technologies in health care are also unique because they can have a relationship to a patient's health and bodily functions. Technologies can monitor a bodily function, e.g. heart rate monitor or blood glucose meter; alter or control a bodily function, e.g. pace maker; or augment the capabilities of the care provider. At the same time, care providers often act as controllers of the technology. The care provider, or active user, determines which technologies should be used and how. The care provider frequently has specialized knowledge about interpreting feedback from the technology, which further confounds the relationship. In collaborative encounters between doctors and patients, the balance of power regarding technology use is skewed. Despite this, patients continue to make decisions about how they prefer to receive care.

1.2 Active and passive users in health care systems

In complex work systems multiple individuals may have different ways of interacting with technologies. In some cases an active user uses a technology or tool, while a passive user observes the active user with the technology. Collaborative uses of technologies have been studied, but few studies have looked at users that might have different ways of interacting with technologies and the resultant effects on perceptions of the technology and system

functioning. Active users often have specialized knowledge and experiences with a technology that influence their perceptions of the technology. Passive users may not have specialized training or knowledge about the technology and they may also lack contextual and work system knowledge about the system that the technology is used in. Therefore, active user perceptions of technologies are often based on personal experience, time and contextual factors while passive users' perceptions are based on short periods of time and experiences related to the technology. Passive user trust in technologies can be characterized as swift trust, or trust that is developed quickly (Meyerson *et al.* 1996). In encounters where passive users must develop swift trust, they may make decisions based on limited or inaccurate information sources. For example, they may use prior experiences with the work system or the active user to determine if a technology is trustworthy or not. During the encounter, passive users may also try to learn about the tool's trustworthiness from cues exhibited by the active user of the tool. Additionally, cues from the interaction between the active user and the technology may influence the passive users' interpersonal trust in the active user. For example, an active user may express frustration with a technology; the cues of stress and frustration may be visible to the passive user, which may influence their perception of the active user and the tool.

The study described is a case study to test a concept related to passive user trust in technologies, using obstetric patient trust in electronic fetal monitoring technologies as an example. The purpose of this study was to conceptually understand the contribution of interpersonal trust relationships to patients' ratings of trust in the technology. Additionally, the relationship between a passive user's trust in technology and their interpersonal relationship with the person providing care was examined. Key questions are: If patients do not trust their care providers, do they over trust technologies or distrust the tools used by providers? Second, if patients are highly trusting of technologies used in their care, are they more likely to trust or distrust the operators of the technologies? This study provides insight into understanding what happens when care providers and patients have differing opinions of the technologies, i.e. patient trusts and care provider does not trust the technology.

This study uses the Trust in Medical Technology (TMT) instrument (Montague 2010), a validated instrument which measures patients' trust in technologies used in their care across three dimensions (technology, care provider and how the provider uses the technology). Using data from the TMT, the relationship between interpersonal trust and trust in the technology can be examined. For example, how might a patient's relationship with their care provider be associated with their trust in technology? This is particularly important as attitudes about technologies might have negative effects on interpersonal trust relationships between doctors and patients. Finally, how trust in the technology is associated with interpersonal trust can be evaluated, for example if a patient trusts or distrusts a technology that is used by a care provider, how is this related to their trust in their care provider? These relationships are illustrated using the concept of active and passive users.

1.3 Trust in health technology model

The trust in health technology model hypothesizes that trust in technology in complex sociotechnical work systems involving multiple individuals is derived from trustworthy characteristics of the technology, trust in the care provider or active user, and trust in how the care provider uses the technology (see figure 2). This model differs from existing models in two ways:

First, other interpersonal trust models of patient-care provider relationships do not include dimensions to account for care providers' use of tools or technologies (Anderson and Dedrick 1990, Thom and Campbell 1997, Kao *et al.* 1998, Thom *et al.* 1999, Zheng *et al.* 2002).

Secondly, previous measures of trust in technology tend to focus on the characteristics and functioning of the tool and do not include dimensions of use such as attitudes about the active user and perceptions of how the active user uses the technology (Muir 1994, Parasuraman and Riley 1997, Merritt and Ilgen 2008, Spain *et al.* 2008).

The trust in health technology model also assumes that the passive user's (or patient) trust in the active user (or care provider) is likely associated with the patient's trust in the technology and their perception of how the active user interacts with the technology. This aspect of the model arises from the hypothesis that the technology's utility affects not only the active user's experience, but can also affect passive users who witness the active user's successful or failed interactions. This study tested hypotheses related to the model of trust in medical technology using multiple regression analyses. The first hypothesis was that patient trust in health technology was positively associated with factors of trust in care provider and how the provider used the technology. The second hypothesis was that the variable patient trust in care provider was positively associated with factors related to patient trust in technology and how the provider used the technology. The results of the hypotheses will provide some insight into the relationship between these trust related variables, which has the potential to affect how trust in health care systems is conceptualized and measured. Secondly, the results of the hypotheses will provide support for the trust in health technology conceptual model.

Participants for this study were women who had recently given birth as obstetrics represents an ideal domain for a study of trust in medical technology. First, obstetrics is a high-impact health domain; 99% of women who give birth in the United States will do so in a hospital using technologies. For many people (women and their partners), the obstetrics work system is their first interaction with inpatient care. This may mean that positive experiences in this system are particularly important in shaping attitudes about the health care system and thus future experiences. Second, women in this study had low risk births and were therefore not ill, which reduces the confounding variable of illness from the study sample. As patients experience varying levels of illness, their perceptions of trust in aspects of the system may change as they consider risks and benefits associated with treatments. Finally, obstetric patients often have direct relationships with medical technologies and are actively aware of the technology's functioning and associated recommendations. In this study patients were asked about their experiences with electronic fetal heart monitors.

Electronic fetal heart monitors are devices attached to the abdomen during childbirth to assess fetal heart rate and contractions associated with labor. In the past, fetal stethoscopes and nurses acquired this information; however, with the availability of electronic monitors, an automatic paper read out containing graphical representations of the fetal heart rate and mother's contractions became available. In more recent years, the paper readout has been augmented or replaced by a digital readout on the monitor which is visible to the mother and others attending the birth such as partners, family and care providers. In addition to the display in the room, there are often multiple displays in a space designated for care providers that allow them to monitor information from several patients at once.

Care providers use fetal monitoring technology to make judgments and decisions about how the parturient is progressing. Signs of fetal distress may warrant additional interventions ranging from inducing birth to a Cesarean section. For patients and their partners the monitor can act as a measure of how the birth is progressing. It provides visual and sometimes audio representations of the baby's heartbeat and the mother's contractions. The audio is sometimes presented as a simulated heartbeat that can be heard by everyone in the room. The monitor also provides information about when contractions are going to occur and the level of intensity of the contraction. The information on the monitor in addition to

the audio feedback can create a shared experience between patients and others attending the birth.

In addition to experiences with technologies, obstetric patients typically develop relationships with their care providers over time through prenatal care. A typical component of the birth process is the creation of a birth plan, where care providers and patients describe expectations for the birth event. This plan can include specific details such as which technologies will be used and the location and time of the birth. The importance of interpersonal relationships to the obstetrics work system makes obstetrics an ideal domain to study patient trust in technologies.

2. Methods

2.1 Sample

Participants were all obstetrics patients who used the electronic fetal monitor while giving birth. One hundred and one participants completed the instrument. Participants had an average of 1.78 children. Eighty-four women reported having insurance, 16 women did not have health insurance, and 1 declined to respond to the question. The average age of the participants was 25.28, and the average years of education was 14.53. Participants identified their primary care provider as a midwife (n=41), physician they had a prior relationship with (n=36), physician they had no prior relationship with (n=16), registered nurse (n=5) or doula (n=3), however, multiple providers likely provided care. Participants identified as White or Caucasian (n=82), African, Black, African American or Caribbean (n=8), Asian (n=3), and Hispanic (n=1).

2.2 Procedure

Mothers were invited to complete the instrument through an email database of women with children. Additionally, an advertisement was placed in an online community for new mothers. Mothers who agreed to participate were sent a link to complete the survey online. Data was not collected to determine whether or not each of the women emailed, who did not participate in the study, received or viewed the invitation to participate.

2.3 Survey items

The TMT instrument included 80 questions related to participants' trust in the technology used during their birth experience, their care provider, and how their provider used the technology. Participants were instructed to respond based on their interactions with their primary care provider, which could have been a nurse, midwife, or physician. To control for potential common method bias (Podsakoff *et al.* 2003), participants' identities were protected to minimize evaluation apprehension and extensive analyses were conducted to improve items in validation studies (Montague 2010).

Example items included:

- My health care provider was knowledgeable about the technology.
- My health care provider was honest.
- The technology was reliable.

2.4 Analysis

To identify single factor effects that may contribute to common method bias (Podsakoff *et al.* 2003), factor analyses were conducted in validation studies (Montague 2010) and no single factor emerged in validation studies. Mean patient ratings of trust for various

participant subgroups defined by socio-demographic and health care access variables were evaluated for trends. Pearson correlations were conducted between ratings of health care providers' use of technology and trust in technology measures. A forward stepwise regression was conducted to explore the factors associated with patient trust in medical technology and patient trust in care provider. Finally, multiple linear regression analyses were conducted to examine the association of trust ratings for each type of trust (interpersonal and technological). Finally, linear regression analyses were conducted to examine the association of trust ratings for each type of trust (interpersonal and technological). Two models were created; trust in technology and trust in care provider. Regression analyses provided a measure of overall fit and made adjustments for interrelationship among the predictors.

3. Results

3.1 Model one: trust in technology

Bivariate correlations shown in Table 2 reveal two predictor variables that were significantly related to *patient trust in technology*, *trust in care provider* ($r=0.34$), and *how the provider used the technology* ($r=.46$). All correlations are significant at $p<.01$, and all are in the expected direction.

Using multiple regression, trust in technology scores were then regressed on the linear combination ratings for trust in care provider and how the provider uses the technology. The equation containing these variables accounted for 21% of observed variance in trust in technology, $F(2,98)= 13.12$, $p<.05$, adjusted $R^2=.20$.

Beta weights (standardized multiple regression coefficient) were reviewed to assess the relative importance of the two variables in the prediction of trust in technology (Table 3).

Only provider use of technology displays significant indices. The unique contribution of provider use of technology was significant $F(2, 98)= 12.96$ $p<.0001$, while trust in care provider was not $F(2, 98)= .36$ $p<.05$.

3.2 Model two: trust in care provider

In the second model, the outcome variable was trust in care provider and results were analyzed using bivariate correlation and multiple regression. Means standard deviations and Pearson correlations appear in Table 2. The bivariate correlations reveal two predictor variables that were significantly related to patient trust in care provider: trust in technology ($r=0.34$); and how the provider used the technology ($r=.64$). All correlations are significant at $p<.01$, and are in the expected direction.

Using multiple regression, trust in care provider scores were analyzed for the linear combination of trust in technology and how the provider uses the technology. The equation containing these variables accounted for 41% of observed variance in trust in care provider, $F(2,98)= 34.3$, $p<.05$, adjusted $R^2=.40$.

Beta weights were reviewed to assess the relative importance of the two variables in the prediction of trust in care provider (Table 4).

Findings show that only provider use of technology displays significant indices. The unique contribution of provider use of technology was significant $F(2, 98)= 49.57$ $p<.0001$, while trust in technology was not $F(2, 98)= .36$ $p<.05$.

4. Discussion and conclusion

The results of the forward stepwise regression patient trust in technology showed that factors from the provider, the technology and how the provider used the technology were related to patient trust in the technology. This provides support the notion that patients' trust in technology encompasses characteristics of the technology, the active user and how the active user uses the technology.

However, in the regression models patient trust in technology is largely influenced by how the provider uses the technology rather than trust in the provider. Patient trust in provider is influenced by how the provider uses the technology rather than patient trust in the technology. This may mean that patients (passive users) are making decisions about the trustworthiness of individuals and technologies based on their observations of active users with technologies.

These findings open up interesting possibilities for measuring trust relationships with multiple individuals, different types of users (active and passive) and technologies. Though it is not always the case that the provider is the active user and the patient is the passive user, this is primarily true for inpatient and primary care situations. These findings also support the idea that it is essential for care providers to have usable technologies (Jun et al. 2010). Having providers use technologies ineffectively in front of patients can contribute to patient distrust in care providers and may possibly associated with other health and system outcomes such as adherence to medical advice, and continuity of care. Work systems should help care providers by integrating technologies that they are able to use effectively in front of other users; otherwise quality outcomes may be negatively affected. There is some evidence that aesthetics are related to perceptions of usability and possibly trust (Norman 2004), but the results of this study show that it is likely a combination of functionality, aesthetics and other system factors such as how other individuals use the technology and an individuals relationship with the active user.

Inbar and Tractinsky (2009) define users who do not actively use technologies but are invested in the outcomes of the technology as 'incidental users' and argue that their needs are important to the success of service systems. In their work, they use cash registers that show customers their entire order as an example of how interfaces that include incidental user needs can improve transparency in service systems and potentially instill trust. In their conceptual work, they also describe incidental users as customers who depend on an active user to use a technology correctly. They argue that designing for the incidental or passive user is of growing concern as the service industry grows. Similar findings were identified in research with patients and care providers; researchers found that patients, though passive users of the technologies had user experiences with the technologies (Montague 2008). These experiences were both positive and negative and shaped how patients viewed their health care experiences regardless of having positive health outcomes. This research provides support for the notion that the passive user's perspective of the system is associated with system functioning and quality outcomes such as trust.

This study used data from a sample of participants that held the same perspective of the work system, patients. This perspective was sufficient in that participants in the sample all had an experience with the same type of technology, without the confounding variable of a high-risk medical encounter or illness. Participants were instructed to respond to the instrument based on their experiences with their primary care provider during their birth experiences (i.e. an obstetrician, nurse practitioner, or nurse midwife). Data regarding patients' past experiences with the technology, understanding of the technology, propensity to trust and health literacy were not collected. These variables should be explored in future

studies. In health care systems, multiple individuals provide care and handoffs may also occur. Interactions between multiple workers might also effect patients' perceptions of care providers. Future studies could combine self-report instruments with observational methods and include assessment of non-primary care providers such as nurses and other clinical staff.

A potential limitation of this study was that we were unable to accurately calculate response rate. The survey was sent to an email database of women who had recently given birth. Unfortunately, it could not be determined which addresses were active or current, which potential participants accessed the survey and declined to participate or did not receive or access the survey. Additionally, the survey was closed after 100 participants were recruited. Institutional information, such as type of institution and size was not collected and should be considered in future studies. In addition, some researchers have argued that common rater bias occurs when the predictors and criterion variables are obtained from the same respondent (Podsakoff *et al.* 2003). To mitigate this potential bias, procedural and statistical analyses were conducted in validation studies such as confirmatory factor analysis, participant anonymity and improvements to instruments items. Test and data based validation measures related to items and instrument dissemination are detailed in a separate publication on instrument development and validation (Montague 2010). While the test and data based validation measures (Montague 2010) provided remedies for common method bias, we conducted additional statistical analyses following the guidelines of Podsakoff, et al. (2003). Particularly, we conducted Harmon's single factor test and did not find any indications of common method bias. In future studies additional methods, such as counterbalancing question order and single common method factor approaches, should be used to reduce potential bias (Podsakoff *et al.* 2003).

Future work in the study of trust in health systems should explore the research questions with a larger sample of participants with varied experiences with technologies. Future studies of interpersonal trust between care providers and patients should explore the use of tools and technologies by care providers. Identifying low trust in care provider use of technologies can introduce practical interventions that may help restore the relationships. For example, additional training about technology use might be effective, as might alternative approaches to technology implementation. Additionally, patient perception of provider use of technology may be a confounding variable in many patient-physician trust measures and should be evaluated in future research. Qualitative methods may be well suited for future exploration of these variables (Hignett 2003).

More work is also needed to explore the multi-level and system effects of a variable such as trust; little is known about how a patient's trust effects systems outcomes. For example, a patient's refusal to have a technology or tool used in their care because of distrust can lead to problems in systems efficiency and workflow. Additionally, a patient's request to use a technology in their care that the care provider does not deem necessary can also lead to patient-initiated interruptions in care where the patient and provider must negotiate use of the tool.

The research described in this study provides a framework for exploring future questions related to trust in multi user systems where technology is used. Future work in this area has the potential to transform the way we think of trust in complex sociotechnical systems and might lead to practical improvements in health care work systems where trust is critical.

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Figure 1.

Figure 2.

Figure 3.

Figure 4.

Table 1

Types of Trust and Examples in Health Care

Type of trust	Definition	Example	Importance
Interpersonal	A person's belief that another person will not fail them.	A patient's trust in their care provider.	If patients lose trust in their care provider they may not adhere to medical advice or seek care when they need it.
Technological	A person's belief that a tool or technology will not fail.	A patient's trust that device used in their care will not fail.	If patients distrust technologies they may refuse to have them used in their care. If they over-trust technologies they may request technologies that their doctor believes to be unnecessary.

Table 2

Means, Standard Deviations, Correlations, and Alpha Reliability Estimates

	M (SD)	Correlations		
		1 Prov	2 Tech	3 P&T
1. Trust in prov	73.33 (8.00)	(.65)	.34 **	.64 **
2. Trust in tech	75.54 (14.9)	.34 **	(.78)	.49 **
3. Prov use of tech	63.87 (7.88)	.64 **	.49 **	(.51)

N=101.

*
p<.05,**
p<.01.

Cronbach's alpha reliability estimates appear on the diagonal above correlation coefficients.

Table 3

Nonstandardized Estimates (b Weights), and Beta Weights, and from Multiple Regression analyses for Model 1 Trust in Technology

Predictor	<i>b</i> Weight	SE <i>b</i> Weight	Std Beta	<i>t</i>
Intercept	13.84	12.70	0	1.09
Trust in prov	.09	.22	.05	0.44
Prov use of tech	.86	.22	.45	3.95**

*
p<.05,

**
p<.0001.

$R^2=0.24$, $F(2, 98)= 15.29$

Table 4

Nonstandardized Estimates (b Weights), and Beta Weights, and from Multiple Regression analyses for Model 2 Trust in Care Provider

Predictor	<i>b</i> Weight	SE <i>b</i> Weight	Std Beta	<i>t</i>
Intercept	31.36	5.13	0	6.12
Trust in tech	.02	.05	.04	0.44
Prov use of tech	.63	.09	.62	7.02**

*
p<.05,

**
p<.0001.

$R^2=0.41$, $F(2, 98)= 14.70$