

Do You Trust Doctors?

Framing and Blame Attribution in Medical News Stories

By

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Abstract

Doctors have become victims of medical mistakes as people often attribute most of responsibilities to them. This undermines doctor-patient relationships and influences doctors' performances, so this study is interested in knowing whether including blame in news reportings will change people's perceptions of doctors. This study examines the relationship between blame attribution framing in one medical news story and people's perceptions (trust, satisfaction, willingness to visit, perceived expertise and perceived reputation) of doctors by conducting a survey experiment with 316 participants recruited from Mechanical-Turk. Results from ANOVA and regression analysis indicate that, while no significant relationship is found between blame attribution types and people's perceptions of doctors, attributing blame on doctors or health systems in medical-mistakes-related news stories leads to high degrees of anger, fear and disappointment in participants.

Introduction and Background

Doctor-patient relationships have been an important component of patients' experiences of visiting a doctor and of doctors' daily practices. According to interviews with patients in one study, five among seven categories of physicians' practices which affect patients' trust of doctors were related to interpersonal relationships, indicating that patients value relationships with doctors more than their professional competence (Thom, & Campbell, 1997).

However, malpractice often devastates doctor-patient relationships dramatically. By convention, the practice of medicine has been seen as an "error ridden activity." (Paget, M. A., 1988) Patients perceive doctors as infallible and medical error is considered as anomaly in hospitals (Wu, 2000). However, doctors are not the only source of medical mistakes and the responsibility should not be solely blamed on them. An error can result from many causes, including incomplete or erroneous knowledge base, failure of medical technology, problematic routines, procedural inaccuracies, and tendency of cognitive bias (Christensen, J.F., & Levinson, W., 1992; Wu, 2000). Because of the multiple dimensions of causes, medical mistakes are inevitable (Christensen, J.F., & Levinson, W., 1992). In a study on the impact of perceptions of their mistakes on physicians, researchers found that physicians who admitted having made a mistake went through significant emotional distress and dysphoric feelings (Christensen, J.F., & Levinson, W., 1992). Some emotional reactions, such as fear, guilt, anger, embarrassment and humiliation, even lasted for months or a year (Christensen, J.F., & Levinson, W., 1992). The public rarely pay attention to the severe harm done to doctors psychologically. After patients became the first victim of medical error who attract most of public attention, doctors became the "second victim" (Wu, 2000) of the same mistake without people's understanding.

It is notable that the stressful and hurt feelings generated in doctors can impact their performances in turn, thus resulting in negative consequences on patients. In one study, it was found that stressed and dissatisfied physicians were more likely to make mistakes and had more frequent instances of suboptimal patient care, compared to physicians who worked in a more satisfied and positive environment (Williams, Manwell, Konrad, & Linzer, 2007). It indicates that a positive working environment is critical for high quality health care. One important and direct measure of a positive working environment is other patients' feedbacks of doctors. Because doctors interact with patients every day, their perception of doctors influence working atmosphere a lot. Therefore, it is meaningful to examine other patients' perception of doctors after medical mistakes occur.

On the other hand, news coverage on medical mistakes often blame the faults on doctors. The researcher is interested in how the blame attribution in the news coverage on medical mistakes affect public perception of doctors. More specifically, how do the ways news coverage frame medical mistakes affect people's satisfaction in, trust of, willingness to visit, and perceived expertise of a doctor?

This paper aims to answer this question by conducting a survey experiment in which participants read a news story involving medical mistakes with one of following frames: blame attribution towards doctors, blame attribution towards the health system which includes hospital and health administration, and no blame to any party. Then, participants are asked to fill out a survey which measures their satisfaction of, trust in, willingness to visit, and perceived expertise of doctors in general, and their emotions after reading the news article. Demographic information including gender, race, age, and partisanship are also recorded as potential control variables.

This study will expand the framing research to news coverage on medical mistakes, which is a new angle from most previous framing studies. Moreover, this study suggests that the effects of news frames on public perception of doctors can be a new factor influencing the doctor-patient relationships, which may inform the decision-making process of health policy-makers.

Literature Review

In order to study the effects of blame attribution in the medical safety news on public perception of doctor, we need to examine literatures on two major concepts first: blame attribution and framing.

- **Blame Attribution in News**

When negative events happen in the society, people demand explanations via finding people who are answerable for the occurrence, and the process of epistemic search for accountability is called blame attribution (Shaver, K. G., 1985, P.1, p.4). Since medical safety incidents are events with negative consequences, people tend to seek a party to blame, either doctor, nurses or the hospital system. In the book, Shaver quoted the model of blame assignment from the criminal justice system (P.165-166), which demonstrated the sequential stages and factors involved in the process of blame attribution. In the model, two important procedures need to be conducted before the final determination of blameworthiness: attribution of causality and attribution of responsibility. It is meaningful to make a distinction between these two concepts: causality and responsibility. Causes are the antecedents that are sufficient for the happening of the consequence, which can be environmental, like natural disasters, or involving human agency (p.35). Responsibility assignment is a moral judgement towards another individual, and contradict to causes which exist in physical form, responsibility only exists in social reality (p.87). When medical safety news fails to distinguish these two concepts, the blame attribution tends to be biased since the process leads to the blame deviates from the model, thus triggering more errors than judgements that strictly follow the stages in the model (p.167).

In addition, multiple causes can account for a negative event, and apart from causality, there are many other dimensions of responsibility (p.156). For example, a patient can die from multiple causes including late discovery of the disease, delays in commuting to the hospital, nurses' negligence and slight overdose of medicine prescribed by the doctor, but who should hold responsibility for the problem requires further complex and detailed analysis. The model suggests us to examine multiple dimensions of responsibility, including level of causality, knowledge of the issue, intention of the behavior and capacity to appreciate the wrongness. Apparently, causality is only one of the several factors to consider. Moreover, message perceivers' personal values and motives should not be neglected – cognitive heuristics, fundamental attribution error and defensive attribution may all affect the judgement responsibility attribution (p.167).

- **Framing Studies**

The term “framing” only became widely used in the communication studies when Entman published an article about “framing as a fractured paradigm” in 1993 (Vliegenthart, R. & Van Zoonen, L., 2011). According to Entman (1993, p52), “to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described”. From this description, the point is clear that framing involves four functions: defining the actors in a problem, identifying the causes, making moral judgement and providing treatment for a problem. It suggests that framing is intrinsically connect to the causality and treatment of a problem.

Framing theory is very essential to this study because it produces common effects on a large portion of information receivers (Entman, 1993, p52), and the consequence can be negative. Most frames are not only defined by what they include, but also what they omit, and the effects of the omission of certain problem definitions, causes, judgements and remedies can be as critical as the effects of the inclusion on the audience (1993, p54). Through omitting some key causes and factors in the medical safety incidents news, and selecting and calling attention to whom to attribute blame to, framing guides audience to view doctor in certain ways, which may damage the doctor-patient relationship and influence the effects of treatment.

News can utilize various kinds of frames to promote a certain perspective, and some issue-specific frames are problematic because its limited presentation allows little generalizability and comparison (De Vreese, 2005). Therefore, choosing primary and prevalent frames that are generalizable in the field of this study is essential and meaningful. Since this study is about medical safety news and public perception of doctor, literatures in the field of political communication as well as health communication are considered highly relevant. Further examination of related literatures in the field of political and health communication studies is conducted below.

- **Attribution of Blame Frame**

One such study looking at the common frames used, and dimension of responsibility attribution (personal and organizational) in the crisis news coverage in 2006 found that 95.1% of crisis news articles (235) included at least one dimension of the attribution of blame frame, and other frames such as economic frame, human interest frame, conflict frame and morality frame

are used significantly less (An, S.K. & Gower, K.K., 2009). Due to the analogy of the concept of the independent variable of interest – blame attribution towards doctors, with the attribution of blame frame, this frame is identified as the theoretical buttress for this study.

Personal Responsibility and Social Responsibility Dimensions

In a study about the news on obesity in terms of responsibility framing, Kim and Willis (2007) incorporated the idea of personal responsibility and societal responsibility from Wikler (2002). Personal responsibility is attributed when people believe that a health problem results from individual mistakes, while social responsibility applies to the case when social problem originates from flaws in the broader environment (Kim and Willis, 2007, p360). In the crisis news study mentioned in the last paragraph, it was found that individual-level responsibility was more likely to be used in the attribution of responsibility frame than the organizational level-responsibility (An, S.K. & Gower, K.K., 2009).

In fact, it is more often to see attribution of blame towards individuals than society in news coverage in general. According to Kim and Willis (2007, p.361), news media largely ignored social responsibilities, while individual responsibilities are repeatedly presented. This finding is supported by several studies. In a study on the controversy over measles, mumps, and rubella (MMR) vaccination with autism, researchers examined blame attribution in the news coverage and found that Wakefield, who was the author of the problematic paper on MMR vaccination and autism, was most frequently blamed (Holton, A., Weberling, B., Clarke, C.E., & Smith, M.J., 2012). Societal level blame was 12% less likely to be presented in the MMR with autism news (p.695). In the study on obesity, researchers found that personal responsibility appears more frequently than social responsibility in overall news coverage (Kim and Willis,

2007, p367). It is also supported that television news presented frame of personal solutions more often than news articles (Kim and Willis, 2007, p372).

This last finding corresponds with the findings in a remarkable work on framing theory by Iyengar, who is an important scholar in the field of framing studies on political issues. Iyengar concluded that episodic framing occupied television news coverage on political issues extensively compared to thematic framing (1991). It was found that over two thirds of news coverage on poverty between 1980 and 1986 featured a particular individual; around three fourth of stories on terrorism focus on some specific terrorist act or people instead of telling stories in a larger context (Iyengar, 1991). It is reasonable to align personal responsibility frame with episodic frame and parallel social responsibility frame with thematic frame because episodic frames present stories using individual experiences or a specific case, while thematic frames give emphasis to the broader context of a specific event, and the coverage is impersonal and more abstract (Iyengar, 1990, p22). These two pairs of concepts are analogous to each other in the way that they select similar scopes to frame the stories, whether in terms of individual cases or a broad social perspective.

The concepts of blame attribution in terms of personal responsibility and social responsibility apply to this study in the way that when medical news assign blames of malpractice to doctors, it apparently adopts the personal responsibility frame; when medical news attribute responsibility of malpractice to health system, it uses social responsibility frame.

Review on Methodology

It is notable that all the studies above on blame attribution frame in the news coverage used qualitative method, specifically content analysis. For those studies which adopted experimental design, blame attribution is mainly treated as a dependent variable, and the primary independent variable of interest is different kinds of news frames. For instance, in the study of the public's response to hurricane Katrina, Malhotra and Kuo (2008) examined how framing of government officials – clarifying official titles or party cues, affects the public blame attribution to these officials. It is found that presenting information about the officials' titles and responsibilities reduces blames compared to only providing partisanship of the officials. In another study on public affairs, Haider-Markel, D. P. and Joslyn, M. R. (2001) studied how individual-rights frame and public-safety frame influence public opinions on handgun policy. Iyengar also used experimental design to investigate how the framings of television news stories on poverty issues affect people's assignment of responsibility for poverty, and he found that when poverty is framed thematically, people tend to assign responsibility to the society as a whole; when poverty is framed episodically, responsibility is attributed to the individuals (Iyengar, 1990, p19).

There are few studies focusing on the consequent effects of blame attribution frame on people. Also, no literatures have been found studying the framing in medical safety news. Thus, my study will fill in the gap between the blame attribution frame and its empirical effects on public perception towards doctor in the context of medical safety news.

- **Public Perception of Doctors**

Studies on public perception of doctor mainly focus on the doctor-patient relationship, and the primary factors of interest include satisfaction towards doctor and trust in doctor.

Trust in Doctor

Trust in doctors is one dimension which previous literatures frequently examined on. In an exploratory study, researchers conducted interviews with patients to investigate their self-reported trust in their physicians (Thom, & Campbell, 1997). Patient participants addressed seven categories of physician's behaviors which influence their trust of the physicians, among which five involved interpersonal communication and relationships and only two were primarily related to technical competence (Thom, & Campbell, 1997). This study showed that patients value interpersonal relationships with doctors a lot when they consider their trust towards doctors, and this relationship was perceived as more important than doctors' professional skills.

In order to measure trust in doctors, the researcher adopted the Trust in Physician Scale developed by Anderson and Dedrick (1990) because its validation and reliability had been further tested by another study (Thom, D.H., Ribisl, K.M., Stewart, A.L., Luke, D.A., & The Stanford Trust Study Physicians, 1999).

Another study looked at the process in which patients developed loyalty to their doctors, and it was found that the higher commitment towards their doctors, the more loyal they were, and the commitment was determined by the level of trust which was determined by patient satisfaction (Torres, E., Vasquez-Parraga, A. Z. & Barra, C., 2009). The result reveals the trust and satisfaction are two important factors for patients in forming loyalty towards their doctors, which will improve doctor-patient relationships.

Satisfaction towards Doctor

One study on the doctor-patient relationship takes a reversed perspective by looking at how negative working environment influence doctors' performances with patients (Williams, Manwell, Konrad, & Linzer, 2007). It was found that stressed and dissatisfied physicians had higher likelihood of making mistakes and more frequent instances of suboptimal patient care, compared to physicians who worked in a more satisfied and positive environment (Williams, Manwell, Konrad, & Linzer, 2007, p.209). The result draws attention to the importance of a positive working atmosphere for doctors, specifically, doctors' perceived satisfaction, which manifests that patients' satisfaction towards doctors is critical to the quality of doctors' performances. Therefore, satisfaction towards doctor is a factor of interest in this study.

The Medical Interview Satisfaction Scale measures patients' satisfaction towards physicians with whom they encountered before, and its reliability has been tested (Wolf, Putnam, James, & Stiles, 1978). This study chooses 10 questions from the scale and adapt them so that the questions refer to doctors in general instead of a particular physician encountered previously.

Emotional Response

Emotional response is a variable frequently present in studies on framing and blame attribution. In Gross's study, he emphasized the power of emotional appeal in persuasive message and explored the effects of framing on emotional response and policy opinion (2008). It was found that episodic framing generates more empathetic emotions (pity and sympathy) relative to thematic framing; and overall thematic framing is more persuasive in changing political opinions (decreased support for minimum sentencing) than episodic framing (p178-179). This finding indicates the emotional reaction generated by a stimulus have moderation effects on the relationship between framing and public opinion. Another study

conducted by Lene (2011, p. 215, 220) obtained similar results on the moderation effects of emotional response: when the emotional reactions (compassion, pity, anger and disgust) are intense, the strength of episodic frames is higher than thematic frames; whereas thematic frames are stronger when there are no or weak emotional reactions. These findings provide evidence that emotional reaction can play an important role in the relationship between framing and blame attribution. This study will also examine the emotional responses of participants after they read news stories with different frames. Although previous studies find moderation effects of emotional reaction, this study proposes that emotion reaction acts as a mediator between attribution of blame frame and people's perceptions of doctor.

Hypotheses and Research Question

Based on the above literature review, this study proposes following hypotheses and research question of interest:

1. In general, medical news with blame attribution tend to **reduce** people's trust in, satisfaction of, willingness to visit, perceived expertise in and perceived reputation of a doctor, compared to medical news without blame attribution.

2. Medical news which **attribute blames to doctor** will **lower** trust in, satisfaction of, willingness to visit, perceived expertise in and perceived reputation of a doctor, compared to medical news which attribute blames to the health system.

3. How does emotion, including anger, fear and disappointment, **mediate** the relationship between blame attribution and perceptions of (satisfaction with, trust in, willingness to visit, perceived expertise in and perceived reputation of a doctor,) a doctor?

Method

- **Research Design**

This study used a survey experiment with 316 adult participants recruited from Amazon Mechanical Turk online platform. Participants were randomly assigned to three conditions to read medical mistakes-related news articles of three different content: one attributed blame to doctors, one attributed blame to the hospital, and the other one served as a control group which only told a human-interest story without any blame attribution frame. After reading the medical news, participants were asked to complete a survey questionnaire which measured their levels of trust, degrees of satisfaction, the extent to which they were willing to see a doctor when they were sick, their perceived expertise and perceived reputation of doctors in general, and emotions after reading the news article. In addition, demographic information including gender, age, race, partisanship and education levels were recorded.

More specifically, one news article was selected from New York Times and it told a story about a medical safety incident which led to a young woman's unexpected death. This news story was selected based on the criteria that it included some level of blame attribution to both doctors and the hospital. Then the news story was adapted into three versions with different blame attributions. They were also edited to contain an appropriate and equivalent word length for people to complete reading in between three to five minutes to ensure adequate exposure to the story and avoid distraction and reading fatigue.

- **Data**

Data was collected from 316 respondents in total, however, 20 of them did not give any response or failed the attention check question. These 20 data points were removed, thus leaving

296 observations in total. The sampled respondents had a diverse demographic backgrounds. The majority of the respondents were from the young and middle-aged group, with 38.33% within 18-30 and 31.33% within 31-40. Around 16.67% of the respondents were 41-50 and 13.67% was above 50. Gender was divided pretty evenly, with 45.67% female, 53% male and 2 respondents identified as the category others. In terms of race, 73.33% were caucasian, and the rest respondents included Black or African American (9%), Asian or Pacific Islander (8.67%), Hispanic or Latino (5%), Native American or American Indian (1.67%) and other (2.3%). This ratio is pretty representative compared to the national population components, according to the USA Census Bureau (2017). Around half of the respondents' highest degree was undergraduate, followed by high school (22.67%), trade/technical/vocational training (16.67%), and graduate degree (13%).

- **Measures**

Public perceptions were measured in five dimensions in this study: trust in a doctor, satisfaction of doctor, willingness to visit a doctor, perceived expertise of a doctor and perceived reputation of a doctor.

Trust

To measure the trust in doctors, five questions from an 11-item trust-in-doctor scale developed by Anderson and Dedrick (1990) was used. All of the five questions were positively worded. An example of the question was: "If my doctor tells me something is so, then it must be true". The Likert five point response options were adopted and the response options ranged from "strongly disagree" to "strongly agree", which were latter coded as score 1 to 5. This particular scale was adopted because previous researchers had assessed the validity and reliability of the

trust-in-doctor scale, and concluded with high internal validity and good 1-month test-retest reliability (Anderson & Dedrick, 1990; Thom, Ribisl, Stewart & Luke, 1999).

The total score of trust in doctors is calculated by taking average over a respondent's answers to the five questions. To check the internal consistency within the variable, we ran Cronbach's alpha to determine the reliability. The result showed that the trust variable has good reliability with $\alpha = 0.8345598$, which is above the acceptable level of $\alpha = 0.75$.

Satisfaction

The degrees of satisfaction were measured using several items from a medical interview satisfaction scale developed by Wolf, Putnam, James, and Stiles (1978). In the original satisfaction scale, there were 25 items in total and 10 were selected for use in this study. The other 14 items were eliminated because of repetitive content and concerns about the length of the questionnaire. Similar to the trust-in-doctor scale, Likert-type five point response options were used. One example of the questions was "The physician made me feel comfortable enough to tell everything that was bothering me", and the response alternatives ranged from strongly disagree to strongly agree. The Cronbach's alpha is 0.9476224 , which is above 0.75 , indicating a good internal reliability.

Willingness to visit a doctor

The levels of willingness to visit a doctor were measured by two questions. An example of the questions was "Overall, I am willing to visit a doctor whenever I feel like that I need to". Likert-type five point response options were used, ranging from strongly disagree to strongly agree. The Cronbach's alpha is 0.8368272 , which is above 0.75 , so there is good reliability.

Perceived expertise of a doctor

Perceived expertise of a doctor was measured by two questions. An example of the questions was “I perceive doctors as experts in medicine”. Similarly, Likert five point response was used, with options ranging from strongly disagree to strongly agree. The reliability is checked as its Cronbach’s alpha is above 0.75 ($\alpha = 0.8997529$).

Perceived reputation of a doctor

Perceived reputation of a doctor was measured by one question, which was “I believe that in general doctors have high reputation”. Similarly, Likert five point response was used, with options ranging from strongly disagree to strongly agree.

Emotional responses (anger, fear and disappointment)

It was assumed in the hypothesis that subjects’ emotions towards their doctor would mediate their trust and satisfaction towards their doctor, so emotions potentially triggered by these news articles including anger, fear, frustration and distress were measured in the questionnaire as well. Example questions were “After reading the news article, to what extent do you feel angry about the doctor?” and “After reading the news article, to what extent do you feel angry about the health policy makers?”. Each kind of emotion was measured in two questions with respect to different targets using Likert five point response options which ranged from “not at all” to “a lot”.

Results

Before exploring this study's hypotheses and research questions, it is helpful to look at the descriptive statistics to gain a general idea of the data. The distribution of the three groups of news stories is pretty even, with 99 in the no blame group, 98 in the blame on doctors group and 103 in the blame on health system group. In terms of the five response variable measuring public perception, all the mean values are higher than three which is the average value on the one to five scale. The overall mean value for trust is 3.63 (0.67), and its corresponding mean values by control group, blame-on-doctor group and blame-on-health-system group are 3.6 (0.70), 3.69 (0.65) and 3.58 (0.67) respectively, which suggest that there can be little differences among groups. For satisfaction, the overall mean value is 3.47 (0.84), and the corresponding mean values by groups are 3.47 (0.80), 3.56 (0.80) and 3.39 (0.91), so the differences among groups seem to be not significant. The overall means for perceived expertise of doctors and perceived reputation of doctors are higher (3.95 and 3.85), while similarly, there is not much difference among the three groups. For willingness to visit a doctor, the overall mean value is 3.4 (1.12), and there seems to be a greater difference among the three groups compared to the previous four response variables, with 3.51 (1.01) in the control group, 3.47 (1.16) in the blame-on-doctor group, and 3.22 (1.17) in the blame-on-health-system group. A visual presentation of the descriptive statistics above is shown in the boxplots in the appendix.

In the first hypothesis, we proposed that news story including blame attribution would reduce people's positive perceptions of doctors, compared to news story with no blame attribution. To test this hypothesis, we examined the difference in means between the group of news frame with blame attribution and the group of news frame with no blame attribution using

ANOVA. From the results, it is shown that there is no statistically significant difference between the overall blame group and the control group for all the five dependent variables, thus the hypothesis 1 was not supported. Relevant statistics of the results are listed in the table 1.

Table 1: ANOVA Analysis for Hypothesis 1

	Degrees of freedom	F statistic	p value
DV1: Trust	1, 298	0.17	0.68
DV2: Satisfaction	1, 298	0.00	0.98
DV3: Willingness to See a Doctor	1, 298	1.33	0.25
DV4: Perceived Expertise	1, 298	0.00	1.00
DV5: Perceived Reputation	1, 298	0.17	0.68

$p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The second hypothesis stated that news stories which attributed blames to doctors would lead to a lower level of trust in, satisfaction of, willingness to see, perceived expertise of and perceived reputation of a doctor, compared to medical news which attribute blames to the health system. To test Hypothesis 2, we first did ANOVA to check if there was a statistically significant difference in the means in the groups. For trust in doctors, the results showed that there was no statistically significant difference between the news frame with blame on doctors and the news frame attributing responsibility to the health system ($p=0.47$). This means that there is no statistically significant evidence to conclude that attributing blames towards doctor reduced people's trust, more than attributing blame to the health system did in the medical news. Similarly, the results from ANOVA were not statistically significant for the other four response variables, satisfaction ($p=0.36$), willingness to visit a doctor ($p=0.15$), perceived expertise ($p=0.33$) and perceived reputation ($p=0.85$). Based on the results above, we do not need to

further conduct Tukey’s test which is a post-hoc analysis to examine whether there was a significant difference between the group of news stories with blame attribution to doctors and the group of news that attributed blames to the health system. The results from ANOVA suggest that the second hypothesis is not confirmed.

Table 2: ANOVA Analysis for Hypothesis 2

	Degrees of freedom	F statistic	p value
DV1: Trust	2, 297	0.76	0.47
DV2: Satisfaction	2, 297	1.02	0.36
DV3: Willingness to See a Doctor	2, 297	1.93	0.15
DV4: Perceived Expertise	2, 297	1.13	0.33
DV5: Perceived Reputation	2, 297	0.16	0.85

$p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To explore the research question, whether emotions including anger, fear and frustration mediate the relationship between blame attribution and perception of doctors, we first fitted linear regression models on emotions to see if blame types in news stories predicted immediate emotional responses. We wanted to examine if there was a direct influence of blame attribution on people’s emotions. Then we fitted another set of linear regression models on each of the five perception variables to see if each of the three emotions predicted the perceptions of doctors measured by the five response variables. In this way, we could figure out if emotional responses played a mediation role between blame attributions in the medical news and public perceptions of doctors. The results are listed in the table 3.

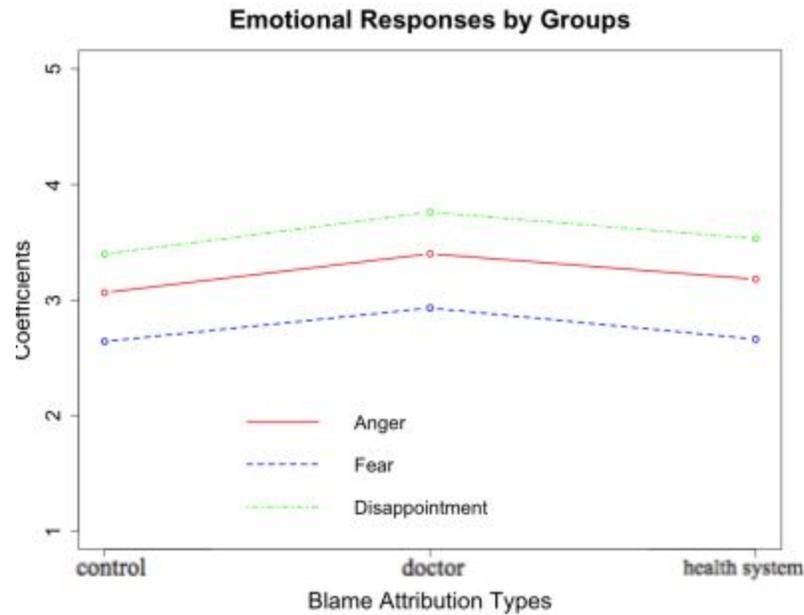
Table 3: Regression Analysis on Emotional Responses against Blame Attribution Types

	Anger	Fear	Disappointment
Control Group	β : 3.06 p: < 0.000***	β : 2.64 p: < 0.000 ***	β : 3.40 p: < 0.000 ***
Blame on Doctors	β : 3.40 p: 0.000 ***	β : 2.93 p: 0.002 **	β : 3.76 p: 0.000 ***
Blame on the Health System	β : 3.18 p: 0.03 *	β : 2.66 p: 0.65	β : 3.53 p: 0.01 *

β : the actual value of coefficients estimate; # $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

From the results, the presence of almost all three types of blame attributions in the medical news story statistically significantly increased respondents' anger, fear and disappointment, except for the relationship between blame-on-health-system group and fear. The specific effects on each emotional response between groups of blame attributions are similar, as shown in the parallel lines among groups in the Figure 1. Both blame attribution on doctors and blame attribution on health systems led to a higher degree of emotional responses compared to the control group, which indicated that the presence of blame attribution indeed triggered anger, fear and disappointment. More specifically, attributing blames to doctors led to slightly higher degrees of anger, fear and disappointment than blame attribution on health systems, as shown by the negative slopes of the lines from "doctor" frame to "health systems" frame. This suggests that blame attribution towards health systems may have less impact on people's emotional reactions.

Figure 1: Coefficients Estimates of Emotional Responses by Blame Groups



To further examine whether there are actually differences among the three groups, we did ANOVA test on three emotional responses against the blame frame respectively. The results are presented in the table 2. We see that for all three emotions, it is statistically significant that there are differences among three groups. Therefore, we can conclude that the blame attribution frame in medical news indeed affects three emotions (anger, fear, and disappointment), while the extent to which a specific blame attribution influences a certain emotion varies.

Table 2: ANOVA Analysis for Research Question

	Degrees of freedom	F statistic	p value
Anger	2, 296	8.72	< 0.000 ***
Fear	2, 297	4.92	<0.01 **
Disappointment	2, 297	10.25	< 0.000 ***

p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

Then we examined the relationship between emotional responses and public perceptions towards doctors. The results of linear regression models of emotions on public perceptions are described in the table 4.

Table 4: Regression Analysis on Perceptions of Doctors against Emotional Responses

	Trust	Satisfaction	Willingness to see doctors	Perceived Expertise	Perceived Reputation
Anger	β : -0.02 p: 0.57	β : -0.01 p: 0.68	β : 0.011 p: 0.86	β : -0.02 p: 0.56	β : 0.02 p: 0.57
Fear	β : -0.03 p: 0.30	β : -0.04 p: 0.33	β : 0.05 p: 0.30	β : -0.08 p: 0.06 #	β : -0.01 p: 0.72
Disappointment	β : -0.01 p: 0.78	β : -0.02 p: 0.63	β : -0.01 p: 0.86	β : -0.03 p: 0.49	β : 0.01 p: 0.88

β : the actual value of coefficients estimate; # $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Overall, the effects of three kinds of emotion on public perceptions of doctors are not statistically significant. Only on the significance level of 0.1, it is marginally statistically significant that fear led to a slight decrease in the respondents' perceived expertise of doctors (β : -0.08, p: 0.06). Therefore, the presence of blame attribution in the medical news stories has an impact on emotional responses, yet there is no significant evidence that these emotional changes subsequently influence perceptions of doctors.

Discussion

The purpose of this study was to explore whether including the blame attribution towards doctors or the health system in the medical news would influence how people perceive the image of doctors. In addition, this study looked at the mediation effects of emotional responses triggered by reading the news story. These questions are important because previous studies have shown that doctors suffer from pressure and blames from the public due to medical mistakes which they can not take control of (Wu, 2000). Stress on physicians will increase mistakes and more suboptimal patient cares (Williams, Manwell, Konrad, & Linzer, 2007), thus has an impact on patients. Although only the relationships between blame attribution and emotional responses were statistically significant, there results reveal numerous interesting findings.

The primary finding was that no statistically significant results supported the hypothesis that there was a difference in people's perceptions of doctors between the group including blame attribution and the group without blame attribution. It is hard to compare the findings with previous studies since no previous researchers have treated blame attribution frame as an independent variable and studied its effects on people's perceptions of doctors. Most of the previous studies examined how various news frames influence people's blame attribution subjects (Malhotra & Kuo, 2008; Haider-Markel & Joslyn, 2001; Iyengar, 1990, p19), so the findings from this study on the consequent effects of blame attribution frame are actually pioneering.

There was also no statistically significant difference found on perceptions of doctors between the group with blame-on-doctor frame and the group attributing blame to the health system. Although this finding is consistent with the results for hypothesis 1, it is beyond our

expectation because multiple studies have shown that there are more blame attributions towards individuals than society in news coverage in general (An & Gower, 2009; Kim & Willis, 2007, p.361; Iyengar, 1990, p22). We expected to see a certain level of impact of the dominant personal blame frame on people's perceptions, yet it did not exist. Perhaps, the difference in the wordings in the two news stories is not obvious enough for readers to distinguish them. It is also possible that people have become accustomed to the high-frequency exposure of individual-level responsibility attribution and their reactions towards the blame attribution on doctors are desensitized, so reading a news story with blame on doctors does not change people's minds much compared to reading a news story with blame on the health system.

In addition, cultural differences may also play an important role in the explanation of the insignificant results for hypothesis 1 and 2. Although the hypotheses were supported by literatures and theories, the idea was originated from news reportings of violence against doctors and medical practitioners in China. However, because of the limitation to conduct research abroad, this study applies Chinese social background to the U.S., whereas the situations in the U.S. may differ from the context in China. People in the U.S. can be less sensitive to the blame attributions towards doctors and health system compared to people in China who frequently see news on violence against doctors. It is also possible that people in the U.S. hold more respect for medical practitioners than in China, so one piece of negative information of doctors can not undermine their existing perception of doctors to a great degree. Thus, the importance of cultural context should be considered and researchers are suggested to conduct studies in China in the future.

One significant finding was that blame attribution triggered people's anger, fear and disappointment. This finding is important as it reveals the mechanism behind the relationship between blame attribution and perception of doctors, and can help us to understand the insignificance of the results regarding the two hypotheses. It suggests that blame attribution frame in the medical news story indeed leads to changes, but just not on people's perceptions directly. It is also interesting to see the difference between emotional responses: both anger and disappointment are stronger in the health system group, while the doctor group leads to more fear. It is hard to understand the different mechanisms behind these emotions, so future researchers can look more into that.

The change in emotions did not statistically significantly predict negative perceptions of doctors. One possible reason is that the exposure to the news stories is not long and deep enough. In this study, each participant spent less than 3 minutes in reading the news story, which might be too short to have a great impact on their perceptions. Moreover, the forms of presentation may lead to different results. Therefore, in future studies, the researchers should consider extending the exposure period as well as using multiple media presentation including tv news and radio news to examine the potential effects.

In terms of the mediation effect overall, we can interpret that it is easier for information to have a direct effect on people's emotions, yet it is much harder to result in a change in people's belief. Then how much cumulation on emotions from the exposure of blame attribution will lead to change in perception of doctors? What amount of exposure to information containing blame attribution is it equivalent to? It is worthwhile to expand this study to explore the relationship among risk information exposure, affect change and belief change in the context of

medical news. As we have a better understanding of the mechanisms behind how information attributing blame to one party influences people's emotion and perception, we can keep an eye on the negative impact of certain information.

Conclusion

According to the framing theory, the framing in the news media has a great impact on how people view things. Numerous studies have found that blame on doctors regarding medical mistakes brings them stress and leads to less satisfied performances on patients. In order to learn whether the news on medical mistakes contribute to the vulnerability of doctors, this study is interested in studying how the blame attribution frame influence people's perceptions of doctors. The primary finding is that the use of blame attribution towards doctors or health system in the news stories increases people's anger, fear and disappointment levels, although no significant results are found on the two hypotheses.

There are some limitations of this study that may lead to the insignificant results and needs more attention for future studies. The biggest limitation is that the study cannot be conducted in China where according to many literatures the phenomenons of stigma and violence against doctors are more prevalent. Future researchers on this topic are suggested to replicate the experiment in China, and perhaps the results will have more significance. One potential problem is that the adapted versions of the news article used in this experiment have not been tested by people besides the researcher, so whether the wordings of each news story are strictly considered by the respondents as the type of framing we want it to be is unsure. Another limitation is that there is only a single short news article which is too little exposure for the respondents. This can be a factor that accounts for the insignificant results for the main hypotheses. A larger variety of news article content and media presentation formats should be included in future studies. In addition, more various types of measurements for "public perceptions" should be used rather than the five dimensions used in this study.

No previous studies have examined the influence of blame attribution in medical news stories on readers' perceptions, so this study brings a new perspective to the field of framing studies. Many factors contribute to better doctor-patient relationships, while news reporting is one of those important factors and it is easy to be ignored. This study draws attention to the influence of news media on public perceptions of doctors, in order to help reveal the mechanism behind the formation of impression of doctors.

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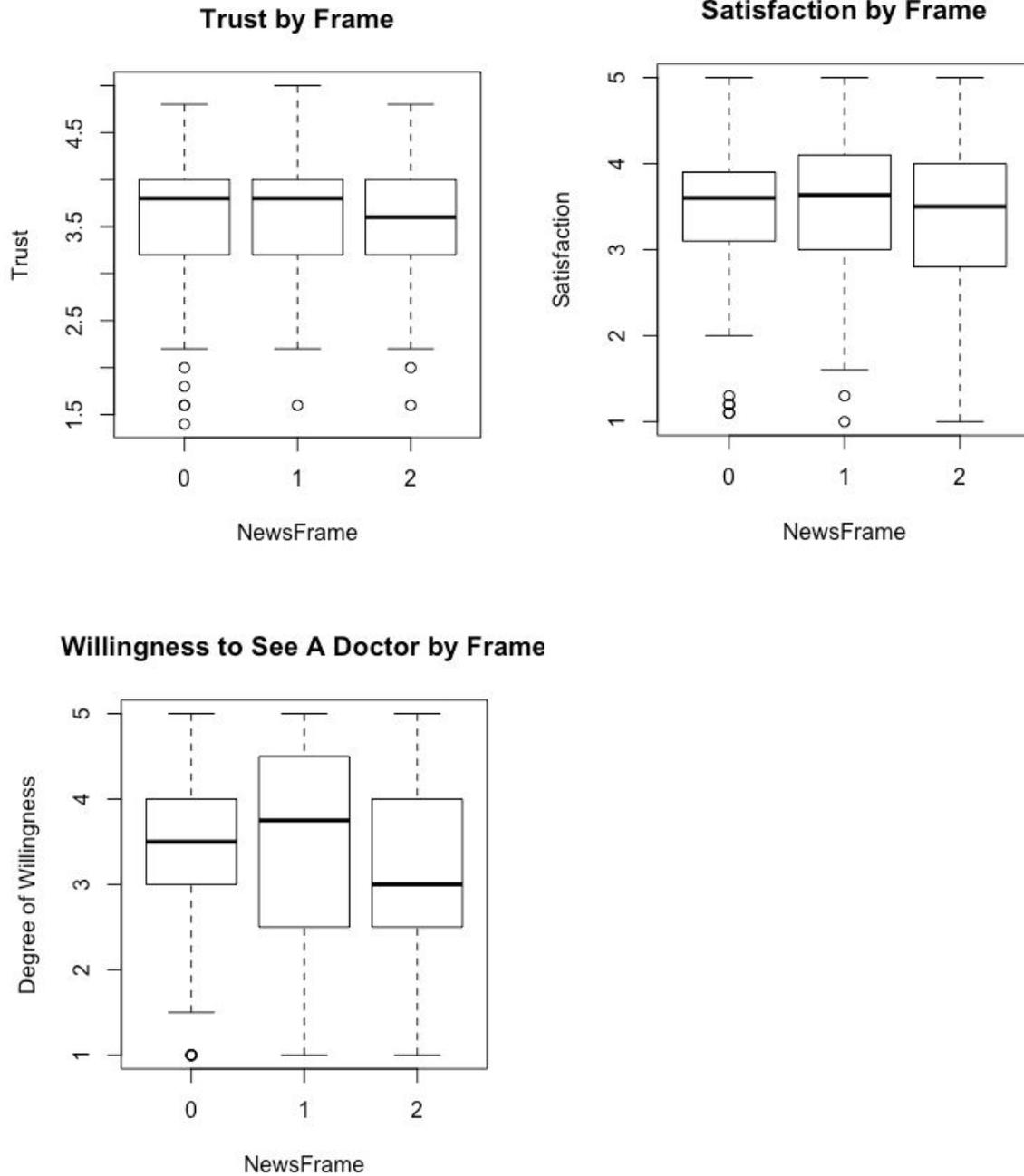
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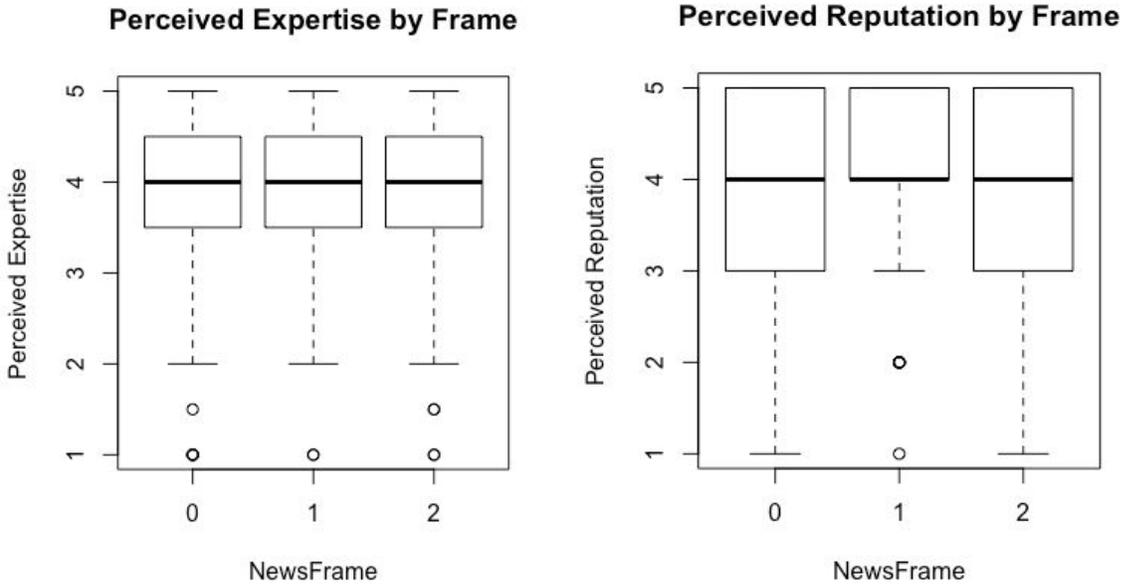
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Appendix

- **Boxplots for the five measurements of public perceptions**





- **Survey questionnaire**

Please use the scale 1 to 5 to indicate the degree to which you agree with the following statements. 1 indicates strongly disagree, 2 indicates to some extent disagree, 3 indicates neither disagree nor agree, 4 indicates to some extent agree, 5 indicates strongly agree.

1. In general, I trust doctor and I always try to follow his/her advice.
2. If a doctor tells me something is so, then it must be true.
3. In general, I trust doctor's judgements about my medical care.
4. Doctors are well qualified to manage (diagnose and treat or make an appropriate referral) medical problems like mine.
5. I trust doctors to put my medical needs above all other considerations when treating my medical problems.
6. I had confidence in doctors' abilities in general.

7. Doctors always seem to know what they are doing.
8. I have a good deal of confidence in doctors.
9. In general, doctors really care about me as a person.
10. In general, doctors treat me with a great deal of respect.
11. In general, doctors are kind and considerate of my feelings.
12. In general, doctors try to make me feel relaxed.
13. In general, doctors make it easy for me to ask questions.
14. In general, doctors listen to me closely.
15. Overall, I am satisfied with doctors.
16. Overall, I am willing to visit a doctor whenever I feel like that I need to.
17. I do not have hesitation in visiting a doctor when I am sick.
18. I perceive doctors as experts in medicine.
19. I believe that in general doctors are good at their jobs.
20. I believe that in general doctors have high reputation.

Please use the scale from 1 to 5 to indicate how much you have the following feelings. 1

indicates not at all, 2 indicates little, 3 indicates average level, 4 indicates some, 5 indicates a lot.

21. How much do you feel angry?
22. How much do you feel fearful?
23. How much do you feel disappointment?
24. Demographic information:

1) How old are you? 2) What is your ethnicity? 3) What is your perceived gender? 4) What is your estimated average income for a year? 5) What is the highest educational degree you have achieved?

- News article

Control group

The New York Times

Opinion | EDITORIAL

Was This Death Really Unavoidable?

AUG. 2, 2012



An article in The Times on Sunday recounted in jarring detail the tragic death of a young woman, an aspiring novelist named Sabrina Seelig, at a hospital in Brooklyn five years ago. Ms. Seelig's family is convinced she is a victim, nevertheless, the trial jury decided that neither the hospital nor an emergency room doctor or nurse had been negligent.

In 2007, Ms. Seelig, 22, was working as a waitress while studying classics at Hunter College. During an all-night study session at home she took Ephedra, a stimulant diet drug that had been banned by the Food and Drug Administration, and had a few beers. She also took an herbal sleep remedy. Feeling ill, she called 911 and told the operator that she thought she may have poisoned herself. She also called the Poison Control Center, and an operator told her to wait for the 911 ambulance, or call a friend or her out-of-state mother.

An ambulance delivered Ms. Seelig to the hospital. She took two anti-nausea drugs and two intravenous doses of a strong sedative. Then things got worse. Ms. Seelig was eventually found in an overflow area with a racing heartbeat and foaming at the mouth. By that evening she was brain damaged and on life support. Her parents transferred her to a hospital in Manhattan where last-ditch efforts to treat her were of no avail.

Defense lawyers argued that Ms. Seelig had suffered a heart attack brought on by taking Ephedra and possibly other drugs as well. Ms. Seelig's actions somehow triggered her illness. Dr. Eric Manheimer, former medical director at Bellevue Hospital Center, where he oversaw the highly regarded emergency room, reviewed Ms. Seelig's charts at the request of The Times. He concluded that Ms. Seelig had been properly monitored and treated, so her family should not attribute blame to either the hospital or the doctor.

Was This Death Really Unavoidable?

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Whatever the legal merits of that judgment, Anemona Hartocollis's account strongly suggests that the treatment Ms. Seelig got from the Health Department's Poison Control Center and Wyckoff Heights Medical Center was unresponsive to her deteriorating condition. Most crucially, she seems to have been left unattended by doctors for an extended period. The question now is whether the care at Wyckoff has improved under a new chief executive, or whether another such tragedy could arise.

In 2007, Ms. Seelig, 22, felt ill after she studied all night at home so she called 911. An ambulance delivered Ms. Seelig to the hospital. There things got worse. An emergency room doctor gave her two anti-nausea drugs and two intravenous doses of a strong sedative. But then she seems to have fallen off the doctors' radar screen; all witnesses agreed there were no new vital signs entered into her chart for more than three hours that afternoon, which indicates that she was left unattended by doctors.

Ms. Seelig was eventually found in an overflow area with a racing heartbeat and foaming at the mouth. By that evening she was brain damaged and on life support. Her parents transferred her to a hospital in Manhattan where last-ditch efforts to treat her were of no avail.

Dr. Eric Manheimer, former medical director at Bellevue Hospital Center, where he oversaw the highly regarded emergency room, reviewed Ms. Seelig's charts at the request of The Times. He concluded that she had not been properly monitored and treated by doctors and should have been moved to intensive care. We will never know if she could have been saved. The doctors should take the responsibility of the tragedy of a young life.

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