FROM THE PUBLIC'S PERSPECTIVE: NARRATIVE PERSUASION'S MECHANISM, USAGE AND EVALUATION IN PAP SMEAR CAMPAIGN AMONG CHINESE WOMEN LIVING IN THE US

A Master's Thesis

Presented to

The Faculty of the

Jack J. Valenti School of Communication

University of Houston

In Partial Fulfillment

Of the Requirements for the Degree of

Master of Arts

By

Jiajie Dai

May, 2011

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ABSTRACT

This study aimed to examine if narrative persuasion was an effective method in Pap smear campaign among Chinese women in the United States and if the situational theory of problem solving (STOPS) was appropriate to measure such an intervention. A three-group quasi-experiment with three different types of intervention was conducted among 233 Chinese women living in the U.S. Results showed that the selected first-person narrative on Pap test and cervical cancer was significantly effective in eliciting active information acquisition and transmission behaviors while direct health messages were significantly effective in eliciting passive information acquisition and selection behaviors. In particular, transportation level is significant correlated with differences in two major perceptual variables (problem recognition and involvement recognition), as well as information attending, seeking, permitting, and forwarding behaviors about Pap smear. The research also demonstrated that number of years in the United States, previous Pap test experience, and acculturation level significantly correlated with some situational theory variables. It is concluded that narrative persuasion has the potential of activating publics into information seeking and forwarding while direct messages from authoritative source seem to work only on passive dimensions of information behaviors. In addition, transportation level can serve as an important situational motivation for information behaviors. The lack of difference in the perceptual variables across all three groups indicates that persuasion, no matter in what form, might have limited impact on Chinese women with high education levels.

TABLE OF CONTENTS

LIST OF TABLES

Chapter One

Introduction

Context of Study

Early diagnosis of pre-cancerous cervical change can prevent such change from advancing into invasive cancer (American Cancer Society, 2010). Regular Papanicolaou (Pap) test has been recognized as an effective method for early detection of pre-cancerous change in cervix and, thus, American College of Obstetricians and Gynecologists recommends that women begin regular Pap test screening at age 21 (American Cancer Society, 2010).

However, significant disparities in Pap test exist among ethnic minority groups in the United States. For example, a previous study (National Cancer Institute, 2009) showed that Asian American women are less likely to obtain a Pap test compared to Caucasian women. Meanwhile some statistics suggested that Chinese women in the United States have higher rates of cervical cancer than the general population (Fred Hutchinson Cancer Research Center, 2002); and survival rates of those who were diagnosed as having early-stage cervical carcinoma are lower in this population compared to other Asian or non-Asian population (Lin *et al.*, 2002). Factors that contribute to these disparities include health beliefs (Hislop *et al.*, 2003) and access barriers (Kagawa-Singer & Pourat, 2000, Yu, Kim, & Chen, 2001).

Research and health communication efforts (Buller *et al.*, 1999, 2000; Fishbein & Yzer, 2003; Wang *et al.*, 2008) using a narrative persuasion method have been focusing on how to "correct" some health beliefs of the ethnic minority groups and on how to reduce their barriers in order to facilitate their health behaviors favored by the mainstream society. These efforts were usually evaluated by the before-after comparison of the audience' knowledge,

attitude and behaviors. Few studies have been done to study how these changes, if any, occurred.

Scholars in various fields have studied how narratives work to change people's belief and attitudes. Among them, Green and Brock (2000) and Dal Cin, Zanna and Fong (2004) regarded transportation as the mechanism for the persuasive impact of public narratives. Transportation is defined as absorption into a story by Green and Brock (2000), who first proposed a scale to measure people's level of being transported into a single story. Later, Dal Cin and his fellows (2004) addressed individual differences in their tendency to be transported into a story and define such a nature as "transportability (p. 183)." Transportation makes story-consistent messages more believable by evoking audience' imaginary and affect (Green & Brock, 2000), increasing identification with the characters in the story and reducing counterarguing consideration in their mind (Dal Cin, Zanna, & Fong, 2004). It's likely that through transporting narrative persuasion, people's degree of involvement might be increased and recognition of the barriers might be reduced.

However, such changes do not necessarily result in changes in attitude or belief. When it comes to health communication, ethnic minority groups might already have deeply-rooted health beliefs that they hold as truth. Though through narrative persuasion, these groups can be well informed of certain health risks they might feel resistant against before, it is still essentially their own decisions as to whether they will alter their health beliefs and behaviors. One cannot judge a health communication effort as ineffective merely because communication does not result in changes in health beliefs and behaviors. In fact, health promotion can still contribute to the target audience's choice of health beliefs and behaviors by giving them an opportunity to make decisions that are more informed.

Situational Theory of Publics (Grunig, 1997), a theory usually used to segment publics before communication campaigns, might be a more appropriate method to measure the effectiveness of health communication programs targeted at ethnic minority groups who might hold health beliefs that are different from those of the majority population hold. This theory focuses more on the change of activeness of the publics rather than the change in their beliefs and behaviors per se.

Regarded as one of "the most useful theories" (Aldoory & Sha, 2006, p. 339) in public relations, Grunig's (1997) situational theory of publics has been studied for more than 30 years and widely used in health campaigns. There are three major independent variables in the theory: problem recognition, the extent which people detect the problem about a situation and stop to think about it; constraint recognition, or people's perceived obstacles in a situation that limit their ability to do anything about the situation; and level of involvement (later named as involvement recognition), the extent to which people are involved in a situation. The three variables work together to decide if a person will engage in information seeking, information processing (Grunig & Hunt, 1984), information permitting, information forefending, information sharing, and information forwarding (Ni & Kim, 2009). Evaluation of health communication efforts through this theory could focus on the assessment of changes in one’s perceptions, cognitive frame, and information behaviors rather than the assessment of changes in one’s actual knowledge, attitude, and behaviors about a particular issue.

This study used the situational theory of problem solving (Kim & Grunig, 2011), the most updated version of the situational theory of publics, to measure Chinese women’s changes in the above dimensions after two separate kinds of intervention: exposure to an

article of direct health messages and exposure to a first-person narrative implying those messages. The two kinds of interventions were compared for their effectiveness in changing the problem recognition, involvement recognition, constraint recognition and various information behaviors.

Significance of the Study

The research revealed the perspectives and information behaviors of Chinese women living in the United States regarding Pap smear and identified a culturally appropriate approach to increase the active information behaviors among Chinese women living in the United States for them to make better health decisions.

The research also is the first research project that has measured narrative persuasion's effectiveness in a publics-oriented rather than organization-centered way. In other words, Situational Theory of Publics, helped evaluate the change of publics' activeness in information behaviors rather than the changes in actual health beliefs and behaviors.

Chapter Two

Literature Review

The purpose of the study is to examine if narrative persuasion is an effective method in Pap smear campaign among Chinese women in the United States and if the situational theory of problem solving is appropriate to measure such intervention. Thus, in this chapter, I will first introduce the concept of narrative and how it has been used in health communication, especially in culture-centric health communication. Then I will discuss how these communication efforts were usually evaluated and the shortcomings of these measurement criteria. Following that, I will introduce a theory that has been used to explain mechanism of narrative persuasion, transportation theory, and make linkage between the transportation theory and the situational theory of publics. Then the latter theory, together with its most recent version, the situational theory of problem solving, will be explained in details. The theory's existing usage in health communication and why it could be useful in the evaluation of narrative persuasion will also be discussed.

Narrative Persuasion

The concept of narrative emerged from various areas, including anthropology, communication, psychology, and other social sciences. Its main idea is that human's social interactions are constructed through narrative exchange. Narrative is an essential way for humans to establish identity (McAdams, 1993) and to organize and communicate their thoughts and ideas, verbally or nonverbally (Hoshmand, 2005).

Fisher (1984) suggested that narrative was essential to human experience and shared narratives let humans make sense of their lives. Storytelling is one of the oldest and most prevalent forms of communication and, through this, individuals approach their social world

in a narrative mode and make decisions and act within this narrative framework. Social constructionists recognized narrative's role in shaping culture and cultural identity, and creating cultural meaning, belonging, and guidance collectively (Harwood, 1998; Hoshmand, 2005).

Narratives in individual and social contexts are integral to the development of self-concept (McAdams, 1993; McLean, 2005). MacAdams (1993) maintained that narrative resided within the selective and cohesive memory and contributed to the formation of self-identity of an individual. This view implied the potential of narratives in shaping attitudes and beliefs about self and in increasing the likelihood that behavior will be guided by those beliefs.

Green and Brock (2000) defined a narrative as "a story that raises unanswered questions, presents unresolved conflicts, or depicts not yet completed activity; characters may encounter and then resolve a crisis (p.701)" and they suggested that a narrative can be identified through a story line, with a beginning, middle and end. They also regarded narrative as a way of persuasion that has the potential change people's belief and attitude by transporting people into the world of narrative and became involved with its protagonists.

Narrative persuasion's application in health communication. Many scholars have studied the application of narratives in health communication, especially on cancer and AIDs prevention (Buller *et al*, 1999, 2000; Community PROMISE, 2004; Fishbein & Yzer, 2003; Wang, Liang, & Schwartz, 2008). The specific form of narrative, storytelling, has been widely adopted in these health promotion efforts among and across different ethnic groups. Buller and his fellows (1999, 2000) promoted cancer prevention and screening through narrative presented as illustrated stories with cultural elements among Latinos in the United

States. Wang and his fellows (2008) used culturally tailored educational video to change breast cancer-related behaviors in Chinese women. Using stories in community settings and in radio and television shows has been successful in communicating risk and publicizing ways to change behavior to lower risk in community HIV prevention programs (Community PROMISE, 2004; Fishbein & Yzer, 2003).

Kreuter and his fellows (2007) proposed a framework to detail the guidelines of how to properly apply narrative communication specifically to cancer prevention and control. They defined narrative as "a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed" (p. 222). These authors further suggested that narrative was storytelling and provided a more social framework than the psychologically rooted view for narrative in health promotion contexts.

Narrative theory and culture-centric health communication. Larkey and Hecht (2010) regarded narrative theory as a basis for culture-centric health promotion. Hecht and his colleagues (Hecht & Kreiger, 2006; Hecht & Miller-Day, 2009) also maintained that narratives are a way of creating culturally grounded health messages because its content can connect with the values and norms of the culture and the forms in which these messages are presented are consistent with cultural practices. Furthermore, the shared social context between the characters and the listeners make stories meaningful to listeners by providing "good reasons" that justify actions based on the dominant stories within the group (Fisher, 1984). Unlike purely advocacy, messages conveyed in a story are not always obvious, requiring the receiver to be an active listener, a contemplative thinker, and an interested participant in the interaction (Gilland, 1995).

Evaluation on the effects of narrative persuasion. As one can see from research above, the effectiveness of narrative persuasion in health communication was usually evaluated through the end results, i.e., changes in attitude or behaviors toward certain health issues. Extant research has rarely touched on the process of how such changes occurred, and how progress could be measured before the desired final changes occur, which might take years to happen in some cases. In addition, to measure the effectiveness merely through changes in knowledge, attitude, and behaviors might be contradictory to people's rights to freedom of choice about health beliefs and behaviors. For example, if a health promotion has successfully increased people's efforts in communication about a certain health issue, one cannot conclude that the health promotion is not effective simply because the target population of that campaign still choose, or even endorse more firmly, the alternative way against which they are persuaded. In fact, such health promotion can still contribute to the target audience's choice of health beliefs and behaviors by increasing their activeness in communication. Thus, besides measuring the actual change in knowledge, attitude, and behaviors, a systematic method to evaluate the target audience's activeness in communication about health issues is needed.

Mechanism of narrative persuasion and transportation theory. How narratives work to change people's belief and attitudes has been studied by a few scholars (Green & Brock, 2000; Dal Cin *et al*., 2004) in social psychology. They regarded transportation as the mechanism for the persuasive impact of public narratives. Transportation, defined as absorption into a story, makes story-consistent messages more believable by evoking audience' imaginary and affect (Green & Brock), increasing identification with the characters in the story and reducing counterarguing consideration in their mind (Dal Cin *et al*., 2004).

Along this line, Kreuter (2007) and his fellows recognized the four distinctive capabilities of narrative persuasion in health communication: overcoming resistance, facilitating information processing, providing surrogate social connections, and addressing emotional and existential issues.

These studies implied that the effectiveness of narrative persuasion might be measured through changes such as changes in their counterarguing thoughts or changes in information selection behaviors other than changes in knowledge, attitude, and belief. So far, no study has been done to explore to what degree narrative persuasion can influence one's activeness in information behaviors (including acquiring information, selecting information, and transmitting information) about the messages implied in the narrative involved.

Situational Theory of Publics

As one of "the most useful theories" (Aldoory & Sha, 2006, p. 339) in public relations, the situational theory of publics has been studied for more 30 years after first conceptualized by Grunig (Grunig, 1978, 1982, 1983, 1987, 1989, 1992, 1997; Grunig & Hunt, 1984). It has been widely used to segment publics according to their activeness in information behaviors.

The original theory includes four independent variables (Grunig, 1997). They are problem recognition, the degree to which "people detect that something should be done about a situation and stop to think about what to do" (p. 10); constraint recognition refers to the degree to which "people perceive … obstacles in a situation that limit their ability to do anything about the situation" (p. 10); level of involvement is the degree to which "people connect themselves with a situation" (p. 10); and referent criterion, a solution carried from previous situations to a new situation. The first three independent variables work on the two

dependent variables: active communication behavior, which is also called information seeking, and passive communication behavior, also called information processing. The theory was inspired by the assumption first raised by Dewey (1927) when he was studying the formation of public opinion and publics. Dewey maintained that after recognizing that problems affect them, publics organize into issue groups to pressure government to constrain or regulate those organizations. Grunig's series of studies confirmed that high problem recognition and low constraint recognition increased both active information seeking and passive information processing. In other words, if people recognize a problem and believe they have ability to do something about it, they will more actively seek for information related to the issue and process the information. These studies also found level of involvement increased information seeking, but had less effect on information processing. In other words, if people don't feel involved in a certain issue, they won't proactively search related information, but they may still randomly process the information whenever they come across it, especially when they find the issue problematic.

Some later studies have been focused on the effects of communication behavior (Grunig, 1982; Grunig & Ipes, 1983) predicted by the independent variables, the elaboration of the independent variables (Cameron & Yang, 1991; Dorner & Coombs, 1994; Grunig & Childers, 1988; Heath & Douglas, 1990; Heath, Liao, & Douglas, 1995); the expansion of types of publics as well as newly defined types of information behaviors among the publics (Kim & Grunig, 2011; Kim, Ni & Sha, 2008; Ni & Kim, 2009;).

Based on these findings, the situational theory of publics segments publics into four categories based on their likelihood of active communication and potential behavioral change: active, aware, latent and non-publics. Active publics have low constraint recognition

and high problem recognition and involvement. Members of this public actively seek and share information. Aware publics have high problem recognition, constraint recognition and involvement, but do not move into action. Latent publics have low problem recognition and moderate involvement (Aldoory & Sha, 2006). Finally, nonpublics are people who have low problem recognition and involvement with high constraint recognition.

Development of the variables and the situational theory of problem solving. The previously mentioned variables employed in Grunig's Situational Theory of Publics have been researched and employed extensively. Kim and Grunig (2011) recently made major progress by generalizing and expanding the theory into the situational theory of problem solving. In the following sections, the evolution and the current definition of the variables in the situational theory of publics will be discussed led by the most recent conceptualization of the variables used by Kim and Grunig (2011).

Problem recognition. Kim and Grunig (2011) defined problem recognition as "one's perception that something is missing and that there is no solution yet available for the issue (p. 128), which echoes Grunig's (1989a) definition that problem recognition is the state where an individual stops to think about an issue that is creating a problem and considers what can be done to resolve the problem.

Weissman (2008) suggested that the public communication environment served as an important cue to problem recognition. Aldoory and van Dyke (2006) argued that people did not stop to think about a situation unless they perceived that something needed to be done to improve the situation.

Involvement recognition. This variable was initially named as level of involvement, or a "perception" that people come to have within a giving situation (Grunig, 1976). Later

Grunig (1997) revised its definition to "the extent to which people connect themselves with a situation" (p. 10), based on what Krugman's (1965) used to introduce the concept of involvement into mass communication research.

There's significant difference between actual connection and one's perceived connection (Kim & Grunig, 2011), the latter being more determinant to one's behavior, because people base their thoughts on their perception of the world, not the world itself (Lippmann, 1922). To make such a difference more distinguishable in the theory, Kim and Grunig (2011) changed the variable's name "level of involvement" into "involvement recognition" and re-defined it as "a perceived connection between the self and the problem situation" (p. 130).

Constraint recognition. Grunig (1989) defined constraint recognition as the extent to which a person viewed perceived barriers that limited his or her ability to resolve the problem. It occurs when "people perceive there are obstacles in a situation that limit their ability to do anything about the situation" (Grunig, 1997, p. 10). It can be regarded as the reversed expression of personal efficacy in social learning theory (Bandura, 1977). This variable is the most constant independent variable in the situational theory of publics, partly due to its origin in economics and management science rather than in social psychology.

Situational motivation. Kim and Grunig (2011) theorized and confirmed situational motivation as a motivational concept that mediates the effect of problem recognition, constraint recognition and involvement recognition on the information behaviors. It predicts the extent to which a person stops to think about or is curious about a problem. Unlike referent criterion, which will be explained later, situational motivation has a situation-specific and goal-oriented nature.

Referent criterion. This variable, initially defined as a cross-situational attitude that guides problem solving and decision making, is less situational than the three variables above. Kim and Grunig (2011) later addressed both the objective and subjective aspects of the variable by defining it as "any knowledge or subjective judgmental system that influence the way in which one approaches problem solving" or "the presence and extent of wishful thinking toward an end state in problem solving" (p. 131) and found the variable can directly work on the information behaviors without interaction with the other three independent variables and regardless of people's situational motivation.

Information acquisition behaviors. Information seeking and information processing are the first two information behaviors studied in the situational theory of publics. Grunig (1997) contrasted these two behaviors by defining information seeking as the premeditated and planned scanning of the environment for messages about a specified topic and information processing as the unplanned discovery of a message followed by the continued processing of it (p. 9). Grunig added that people with information seeking "develop more organized cognitions actively, are more likely to have attitudes about a situation, and more often engage in behavior to do something about the situation" (p. 6). On the other hand, Werder (2005) agreed that information processing was characterized as passive communication with low levels of activity, which also required little or no effort on the part of the individual to seek information. The two behaviors were grouped by Kim and Grunig (2011) under information acquisition as they are both focused on the intake of information.

Information selection behaviors. Kim and Grunig (2011) distinguished two types of information selectivity, information forefending and information permitting, both of which reside within cognitive aspects of information use and are thus different from information

acquisition behaviors. Information forefending was defined as "the extent to which a communicator fends off certain information in advance by judging its value and relevance for a given problem-solving task", while information permitting refers to the "extent to which a communicator accepts any information related to a problem solving task" (p. 124). Therefore, information forefending is the active form of information selection behaviors and information permitting is the passive form.

Information transmission behaviors. Like information acquisition and information selection, information transmission also consists of its active and passive forms. Information sharing, the passive form of information transmission, was defined as "sharing of information reactively only when someone requests one's opinion, idea, or expertise about the problem" (Kim & Grunig, 2011, p. 127). In contrast, information forwarding is an active, self-propelled information transmission behavior defined as "forwarding information proactively even no one solicited it" (p. 9).

Applications of the situational theory of publics in health communication. Historically, the situational theory of publics has been widely studied and utilized in both healthcare public relations settings and other health communication efforts. During the theory's conceptualization stage, issues surrounding AIDS were used in the related studies (Cameron & Yang, 1991; J. E. Grunig & Childers, 1988). Studies have also shown the practical benefits of segmenting publics according to their active engagement with an issue, which have been used for the purposes of message development and campaign design (Werder, 2005). Aldoory (2001) studied the antecedents of the variable level of involvement and found that a consciousness of everyday life, source preference, self-identity, a consciousness of personal health, and cognitive analyses of message content influenced

involvement with health messages. Weissman (2008) explored the influence of problem recognition and involvement on perceived susceptibility to skin cancer using the situational theory of publics. Vardeman and Tindall (2008) studied how women of color explain their problems, involvement, and constraints in reading heart disease communication.

The situational theory of publics and culture. The situational theory of publics has also been applied in several studies conducted among specific cultural groups. For example, Sriramesh, Moghan & Wei (2007) applied the situational theory of publics to consumer publics in Singapore. However, few intercultural studies have been done to investigate the influence of ethnic difference over the variables themselves. Sha (2006) found that different ethnicities could contribute to different levels in problem recognition, level of involvement and information behaviors across ethnic groups. But the issue she chose for the study is racioethnic problem. In situations that are less ethnic sensitive, ethnic difference in the variables hasn't been studied yet.

Implications of the situational theory of publics. As one can see from the above studies, the theory was usually used to segment publics for various communication initiatives. Little research has been done in which the theory was used as an evaluative tool for the health communication efforts.

This might be due to the fact that the situation theory itself doesn't have the capacity to measure the valence of the information that people related themselves to or behave about. As mentioned in the earlier sections, the effectiveness of communication program is usually measured by the level of changes in knowledge, attitude and behaviors desired by organizations. The prevalence of this kind of measurement is in accordance with the prevalence of organization-centered communication in which organizations have always tried

to reach their organizational goals among its publics.

Until recently, Kim and Ni (in press) distinguished two types of public relations problems: those initiated by the publics (PPR problems) and those initiated by the organizations (OPR problems). They pinpointed the situational theory's potential to become an evaluation tool for PPR problems, which can be used to assess if the publics' activeness in information behaviors have been changed after communication efforts. .

When it comes to health communication, the focus should be the publics rather than the organizations because the publics have every right to make decisions for their own good. If publics made choices that were not intended by the organization after they carefully acquired and selected information, the organization still contributed to their health choice by activating these publics into communicating the information with others. Thus, the situational theory of publics has the potential to be a more appropriate measurement tool to determine the effectiveness of health communications through a more public-centered way.

Research Questions

RQ1: To what degree does narrative persuasion influence the problem recognition about Pap smear among Chinese women living in the United States?

RQ2: To what degree does narrative persuasion influence the involvement recognition about Pap smear among Chinese women living in the United States?

RQ3: To what degree does narrative persuasion influence the constraint recognition about having Pap smear among Chinese women living in the United States?

RQ4: To what degree does narrative persuasion influence the information behaviors about Pap smear among Chinese women living in the United States?

RQ5: To what degree is narrative persuasion more or less effective than direct health

messages in changing involvement recognition, constraint recognition, problem recognition, and information behaviors about Pap smear among Chinese women living in the United States?

RQ6: To what degree does transportation level influence involvement recognition, constraint recognition, problem recognition, and information behaviors among Chinese women living in the United States?

Chapter Three

Methodology

Participants

Data were collected in March 2011 from 483 Chinese women living in the United States. It was a convenience sample of individuals who completed the survey on a voluntary basis. Most of the participants were recruited from two popular online forums: mitbbs.com and huaren.us, both of which are frequented by Chinese expatriates. The researcher also visited Chinese communities in Houston, TX, and was able to get the responses from 20 participants who didn't use a computer. In order to ensure the participants were adult Chinese women living in the United States, they were asked in the questionnaire of their age, their years spent in the United States, their native language, and the ethnicity they most identified with. An acculturation scale was also included in the questionnaire. Ten $10 gift cards were offered through a lottery drawing as rewards for participation.

A total of 233 adult female participants completed the survey questionnaires. The average age of the participants was 33.62 years (SD = 7.83, Min = 22.00, Max = 66.00). They had spent an average of 7.09 (SD = 5.28, Min = 0.5, Max = 39) years in the United States with a median household income between $45,000 and $75,000. Among the participants, 97.6% had at least a bachelor degree, 93.43% had medical insurance, 78.87% had had at least one Pap test, and 44.6% had been pregnant. The mean acculturation level of the sample was 2.56 on a 1-5 point Likert scale. No significant group difference was found on these demographic features. Detailed information of the sample is listed in the following table.

Table 3.1 *Overview of the Sample*

Variable	Value	Frequency	Percentage (excluding missing values)
Age	22-25 yrs old	13	7.90%
	26-30 yrs old	58	35.40%
	31-35 yrs old	41	25.00%
	36-40 yrs old	30	18.29%
	41-50 yrs old	14	8.54%
	51 yrs old and above	8	4.88%
Years in U.S.	<1 year	3	1.40%
	1-3 years	30	14.08%
	3-5 years	47	22.07%
	5-10 years	67	31.46%
	10-20 years	58	27.23%
	>20 years	8	3.76%
Household Income	<$15,000	20	9.48%
	$15,000-$45000	54	25.59%
	$45,000-$75,000	36	17.06%
	>$75,000	101	47.87%
Medical Insurance	Yes	199	93.43%
	No	13	6.10%
	Not sure	1	0.47%
Highest Education	Elementary and middle school	1	0.47%
	High school diploma	1	0.47%
	Bachelor degree	47	22.07%
	Master degree	99	46.48%
	Doctorate degree	62	29.11%
	Professional certificate	3	14.08%
Previous Experience of Pap	Yes	168	78.87%
	No	43	20.19%
	Not sure	2	0.94%
Pregnancy Experience	Yes	95	44.60%
	No	118	55.40%

Data Collection

Data collection was conducted using a three-group experimental design. The three groups were: experimental group 1, experimental group 2, and the control group. For the

participants recruited online, they were directed to an online survey posted on Surveymonkey.com through the link in the recruitment notice and were randomly exposed to one of the three questionnaires corresponding to three groups. They were asked to read the informed consent form before they proceeded to answer the questionnaires. For the participants recruited in person from the Chinese community, the three types of questionnaires were shuffled before being randomly assigned to the participants. The researcher read the informed consent form to the participants before they proceeded to complete the questionnaires.

Participants in the control group were asked to answer questions from the following categories including: the revised Situational Theory of Problem Solving (STOP) questions (Appendix B, section 1), questions relating to their knowledge, attitude, and behavior intentions about Pap test (Appendix B, section 2), a questionnaire concerning their demographic and sociographic information such as age, years in the United States, household income, and times of pregnancy (Appendix B, section 3), and questions measuring their acculturation (Appendix B, section 4). Participants in experimental group 2 were exposed to an article of direct health messages about Pap test in Chinese (Appendix D) before they filled in the same questionnaires as the control group did. Participants in experimental group 1 were exposed to a Chinese first-person narrative (Appendix C) about a person's cancer experience, after which they were immediately asked to fill in the transportation scale (Appendix E) revised from Green and Brock's (2000) scale and the same questions that the control group did. All the surveys were in Chinese.

Intervention Materials

The first-person narrative used in experimental group 1 was revised from several

online blog posts (*My Story*, 2010; *My Stage 0 Cervical Cancer Experience*, 2010; *Weekend Diary*, 2010) in Chinese written by Chinese cervical cancer patients. These articles were chosen because they were the only ones found in which Chinese women talked about their own experience about cervical cancer or Pap smear. A pilot test was done to assess the quality of the story. And three Chinese women were interviewed and they were asked to provide suggestions on how to make the story sound more relevant and interesting. For example, the first appearance of "Pap smear" was moved to the later part of the text and some symptoms were added at the beginning of the story to attract audience' attention.

The article used in experimental group 2 was a revision of the guideline on American Cancer Society's (2010) website. The original article is the only official guideline for cervical cancer prevention and early diagnosis in the United States

Measurement

Transportation was measured by the scale (Appendix E) revised from Green and Brock's (2000) original transportation scale. The revised scale consisted of 13 statements such as "While reading the story, I had a vivid image of what the character." Response choices followed a 7-level Likert format ranging from strongly disagree to strongly agree. A higher score on scale indicated the reader's higher level of being transported into the story, while a lower score indicated a lower level. This measure had a Cronbach's alpha of 0.859, indicating high reliability.

The participants' problem recognition, involvement recognition, constraint recognition referent criterion, situational motivation, information behaviors, knowledge, attitude, and behavior intentions were measured using a questionnaire (Appendix B, section 1) based on the situational theory of problem solving. This questionnaire consisted of 32

statements, most of which participants were asked to provide a number between 1-7 to describe their degree of agreement with the statement, with "1" indicating strongly disagree to "7" strongly agree. The following chart is a list of the questions that was used to measure each STOP variable. For problem recognition, they were asked about their agreement with statements like "Your current participation in Pap smear doesn't meet your expectation;" for involvement recognition, "You see a great connection between yourself and the topic Pap smear;" for constraint recognition, "Pap smear is more difficult for you to understand than other problems;" for referent criterion, "You're confident about your knowledge of Pap smear;" for situational motivation, "You feel curious about Pap smear;" for information acquisition, "You would listen, if others talk about Pap smear;" for information selection, "You welcome any information related to Pap smear;" for information transmission, "If possible, you would take time to explain things about Pap smear to other people."

The reliability levels were relatively high for involvement recognition, referent criterion, information attending, information seeking, information forefending, information permitting, and information forwarding, their respective alphas being 0.743, 0.768, 0.833, 0.735, 0.767, 0.692, and 0.802.

However, three variables had relatively lower reliability levels: problem recognition with an alpha value of 0.367, constraint recognition 0.414, and information sharing 0.404. Thus, one of the statements measuring each of the variables was deleted to boost reliability. The deleted statements were: "You regard Pap test as a problem that is worth your attention" (problem recognition); "Pap smear is more difficult for you to understand than other problems" (constraint recognition); "You would participate but not lead in conversations related to Pap smear" (information sharing). After adjustment, reliabilities of the three

variables all exceeded 0.6.

An abbreviated version of Marin, Sabogal, Marin, Otero-Sabogal and Perez-Stable's (1987) acculturation scale was also used (Appendix B, Section 4). It consisted of four questions and participants were asked to provide a number between 1-5 to describe their degree of agreement with the statement, with "1" indicating strongly disagree and "5" strongly agree. The Cronbach's alpha for acculturation was 0.781.

All the questionnaires used were in Chinese. To ensure translation accuracy of all questionnaires, back translation and decentering translation procedures (van de Vijver & Leung, 2001) were used. First, one Chinese-English bilingual author translated the questionnaire into Chinese. The words and phrases in the English version that did not have equivalences in Chinese were adapted. This author then invited two other bilingual people to compare the two versions and provide feedbacks. Then the Chinese version was translated back to English for an accuracy check. The consequent English version was translated again to Chinese. A pretest was carried out among ten bilingual (English and Chinese) participants in order to assess the comprehension of the instrument and to ensure that the applicability of the survey. Some modifications were made to yield the final Chinese version used in this study. Below is the overview of the variables assessed in the study.

Table 3.2 *Mean, Standard Deviation and Reliability of the Variables and Pearson Correlation among the Variable*

	PR	IR	CR	RC	SM	IAT	ISK	IFF	IPM	ISH	IFW	T	M (SD)
PR	(.621)												3.54(1.72)
IR	-.072	.743											5.89(1.22)
CR	.034	-6.36**	(.662)										1.92(1.21)
RC	-.093	.673**	-.639**	.768									5.30(1.37)
SM	.451**	.248**	-.115	.146*	.602								4.26(1.46)
IAT	.163*	.631**	-.497**	.549**	.514**	.833							4.85(1.53)
ISK	.273**	.482**	-.327**	.372**	.574**	.657**	.735						4.38(1.60)
IFF	-.070	.563**	-.550**	.767**	.042	.428**	.354**	.767					4.84(1.52)
IPM	.086	.513**	-.383**	.537**	.500**	.644**	.554**	.346**	.692				4.72(1.49)
ISH	.102	.514**	-.421**	.618**	.405**	.579**	.492**	.543**	.670**	(.679)			4.41(1.50)
IFW	.136*	.512**	-.441**	.609**	.472**	.641**	.593**	.502**	.720**	.756**	.802		4.34(1.47)
T	.304**	.450**	-.222**	.250**	.438**	.522**	.449**	.154	.307**	.246*	.340**	.859	4.52 (1.13)

The numbers on the diagonal are Cronbach's alphas. Figures in () indicating alpha after one item deleted.
***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*
PR=Problem Recognition; IR=Involvement Recognition; CR=Constraint Recognition; RC=Referent Criterion; SM=Situational Motivation; IAT=Information Attending; ISK=Information Seeking; IFF=Information Forefending; IPM=Information Permitting; ISH=Information Sharing; IFW=Information Forwarding; T=Transportation Level.

Manipulation Check

Among the participants that were exposed to the first-person narrative, 87.8% agreed that they knew what exactly happened in the story, 73.3% agreed that the details of the event described in the story were well presented, 55.7% agreed that things mentioned in the story were closely related to themselves and 75.6% of the participants agreed that they cared about the related issue strongly. These numbers show that the narrative was a valid intervention.

Data Analysis

For RQ1 to RQ5, I used an experimental research design in which subjects were

asked to offer their perceptions of their own problem recognition, constraint recognition, involvement recognition, information behaviors, knowledge, attitude, and behavior intentions about Pap test following different exposures. Subjects were randomly assigned to one of the three experimental conditions: no exposure to any material (control group), exposure to a first-person narrative (experimental group 1), and exposure to an article of direct health messages (experimental group 2). The type of exposure with three levels is the independent variable. The dependent variables are the participants' problem recognition, involvement recognition, constraint recognition, and information behaviors.

A one-way MANOVA test was run using PASW 18.0 to see if there're group differences in the dependent variables. Several one-way MANCOVA tests were also conducted by separately and simultaneously controlling variables like previous knowledge of Pap test, previous experience of Pap test, and family history of cervical disease.

For RQ6, data from experimental group 1 were further examined to see the influence of the independent variable, transportation level, on the dependent variables: problem recognition, involvement recognition, constraint recognition, and information behaviors about Pap test. Multiple regression analysis was conducted to determine the contribution of transportation level to the dependent variables. Other factors like participants' previous experience, knowledge of Pap test, times of pregnancy, family income, medical insurance, and acculturation were also included as independent variables in the regression.

Chapter Four

Results

RQ1-RQ3: To what degree does narrative persuasion influence the problem recognition, involvement recognition, and constraint recognition about Pap smear among Chinese women living in the United States?

Box's test was not significant ($p = 0.252$), which mean the assumption of equal variances was not violated. The Wilks' Lambda multivariate test of overall differences in these three perceptual variables among groups was statistically not significant ($p = 0.917$, Table 4.1). When other variables like age, previous Pap test experience, years in the United States, and acculturation level were entered as covariates (Table 4.2), group differences were not shown either ($p = 0.562$). However, years in United States and previous Pap experience turned out to be influencing factors on these three perceptual variables (with $p = 0.039$ and 0.000 respectively). In particular, years in United States was particularly important for differences in problem recognition ($p = 0.023$) and previous Pap experience was important for differences in all three variables ($p = 0.027$ for problem recognition, 0.000 for involvement recognition, and 0.005 for constraint recognition).

Table 4.1. *MANOVA of Problem Recognition, Involvement Recognition, and Constraint Recognition between Experimental Group 1 and the Control Group*

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	0.017	3066.617[a]	3	160	0
Group	Wilks' Lambda	0.997	.169[a]	3	160	0.917

a. Exact statistic

b. Design: Intercept + Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	PR	.123[a]	1	.123	.041	.840
	IR	.251[b]	1	.251	.157	.693
	CR	.059[c]	1	.059	.038	.845
Intercept	PR	2060.233	1	2060.233	684.695	.000
	IR	5474.073	1	5474.073	3416.814	.000
	CR	644.596	1	644.596	417.807	.000
Group	PR	.123	1	.123	.041	.840
	IR	.251	1	.251	.157	.693
	CR	.059	1	.059	.038	.845
Error	PR	487.454	162	3.009		
	IR	259.540	162	1.602		
	CR	249.935	162	1.543		
Total	PR	2570.750	164			
	IR	5793.778	164			
	CR	902.000	164			
Corrected Total	PR	487.578	163			
	IR	259.791	163			
	CR	249.994	163			

a. R Squared = .000 (Adjusted R Squared = -.006)

b. R Squared = .001 (Adjusted R Squared = -.005)

c. R Squared = .000 (Adjusted R Squared = -.006)

PR=Problem Recognition; IR=Involvement Recognition; CR=Constraint Recognition

Table 4.2. *MANCOVA of Problem Recognition, Involvement Recognition, and Constraint Recognition between Experimental Group 1 and the Control Group*

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	.473	50.412[a]	3.000	136.000	.000
YearsinUS	Wilks' Lambda	.941	2.862[a]	3.000	136.000	.039
Highest Education	Wilks' Lambda	.967	1.568[a]	3.000	136.000	.200
Income	Wilks' Lambda	.965	1.648[a]	3.000	136.000	.181
PreviousPap	Wilks' Lambda	.850	8.006[a]	3.000	136.000	.000
Insurance	Wilks' Lambda	.996	.171[a]	3.000	136.000	.916
Acculturation	Wilks' Lambda	.954	2.209[a]	3.000	136.000	.090
Group	Wilks' Lambda	.985	.687[a]	3.000	136.000	.562

a. Exact statistic

b. Design: Intercept + YearsinUS + HighestEducation + Income + PreviousPap + Insurance + Acculturation + Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	PR	43.264[a]	7	6.181	2.324	.029
	IR	38.380[b]	7	5.483	4.298	.000
	CR	26.171[c]	7	3.739	3.023	.005
Intercept	PR	67.074	1	67.074	25.218	.000
	IR	50.431	1	50.431	39.530	.000
	CR	27.790	1	27.790	22.473	.000
YearsinUS	PR	13.965	1	13.965	5.250	.023
	IR	2.140	1	2.140	1.678	.197
	CR	2.789	1	2.789	2.256	.135
HighestEducation	PR	6.731	1	6.731	2.531	.114
	IR	2.285	1	2.285	1.791	.183
	CR	.272	1	.272	.220	.640
Income	PR	.042	1	.042	.016	.901
	IR	.002	1	.002	.002	.967
	CR	4.388	1	4.388	3.549	.062
PreviousPap	PR	13.333	1	13.333	5.013	.027

	IR	26.424	1	26.424	20.712	.000
	CR	10.277	1	10.277	8.311	.005
Insurance	PR	.031	1	.031	.012	.914
	IR	.028	1	.028	.022	.882
	CR	.337	1	.337	.273	.602
Acculturation	PR	.481	1	.481	.181	.671
	IR	7.128	1	7.128	5.587	.019
	CR	4.591	1	4.591	3.713	.056
Group	PR	.258	1	.258	.097	.756
	IR	2.582	1	2.582	2.024	.157
	CR	.432	1	.432	.349	.556
Error	PR	367.052	138	2.660		
	IR	176.059	138	1.276		
	CR	170.644	138	1.237		
Total	PR	2269.500	146			
	IR	5217.556	146			
	CR	741.500	146			
Corrected Total	PR	410.315	145			
	IR	214.438	145			
	CR	196.815	145			

a. R Squared = .105 (Adjusted R Squared = .060)

b. R Squared = .179 (Adjusted R Squared = .137)

c. R Squared = .133 (Adjusted R Squared = .089)

PR=Problem Recognition; IR=Involvement Recognition; CR=Constraint Recognition

RQ4: To what degree does narrative persuasion influence information behaviors about Pap smear among Chinese women living in the United States?

Box's test was not significant (p = 0.888). As Table 4.3 shows, no group difference in information behaviors was found between experimental group 1 and the control group before controlling any demographic or sociographic variable (p = 0.619).

Table 4.3 *MANOVA of Information Behaviors between Experimental Group 1 and Control Group*

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	0.064	385.213[a]	6	157	0
Group	Wilks' Lambda	0.973	.739[a]	6	157	0.619

a. Exact statistic

b. Design: Intercept + Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	IAT	2.816[a]	1	2.816	1.097	.297
	ISK	7.284[b]	1	7.284	2.697	.102
	IFF	.103[c]	1	.103	.043	.836
	IPM	6.724[d]	1	6.724	2.902	.090
	ISH	3.372[e]	1	3.372	1.476	.226
	IFW	5.122[f]	1	5.122	2.210	.139
Intercept	IAT	3656.192	1	3656.192	1423.869	.000
	ISK	3133.311	1	3133.311	1160.024	.000
	IFF	3913.079	1	3913.079	1618.394	.000
	IPM	3440.352	1	3440.352	1484.897	.000
	ISH	3097.884	1	3097.884	1356.151	.000
	IFW	2952.258	1	2952.258	1273.573	.000
Group	IAT	2.816	1	2.816	1.097	.297
	ISK	7.284	1	7.284	2.697	.102
	IFF	.103	1	.103	.043	.836
	IPM	6.724	1	6.724	2.902	.090
	ISH	3.372	1	3.372	1.476	.226
	IFW	5.122	1	5.122	2.210	.139
Error	IAT	415.982	162	2.568		
	ISK	437.574	162	2.701		
	IFF	391.696	162	2.418		
	IPM	375.337	162	2.317		
	ISH	370.060	162	2.284		
	IFW	375.531	162	2.318		

Total	IAT	4130.139	164			
	ISK	3638.111	164			
	IFF	4346.444	164			
	IPM	3885.500	164			
	ISH	3521.250	164			
	IFW	3385.556	164			
Corrected Total	IAT	418.797	163			
	ISK	444.858	163			
	IFF	391.799	163			
	IPM	382.061	163			
	ISH	373.431	163			
	IFW	380.653	163			

a. R Squared = .007 (Adjusted R Squared = .001)

b. R Squared = .016 (Adjusted R Squared = .010)

c. R Squared = .000 (Adjusted R Squared = -.006)

d. R Squared = .018 (Adjusted R Squared = .012)

e. R Squared = .009 (Adjusted R Squared = .003)

f. R Squared = .013 (Adjusted R Squared = .007)

IAT=Information Attending; ISK=Information Seeking; IFF=Information Forefending; IPM=Information Permitting; ISH=Information Sharing; IFW=Information Forwarding

After participants' number of years in the United States, education level, household income, previous Pap test experience, ownership of health insurance and acculturation level were entered as covariates, overall group difference was still not evident for information behaviors (p = 0.45, Table 4.4). However, some specific group differences were found in information seeking (p = 0.034, η^2 = 0.032) and information forwarding (p = 0.046, η^2 = 0.029)

However, previous Pap experience and acculturation turned out to be important factors influencing information behaviors (p = 0.008 and 0.008 respectively). In particular, previous Pap experience showed influence on information attending (p = 0.023), information forefending (p = 0.001), and information sharing (p = 0.049). Acculturation showed

influence on all information behaviors (p = 0.010 for information attending, 0.005 for information seeking, 0.001 for information forefending, 0.001 for information sharing and 0.001 for information forwarding) except for information permitting (p = 0.91).

Table 4.4 *MANCOVA of Information Behaviors between Experimental Group 1 and Control Group*

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	0.83	4.539[a]	6	133	0
YearsinUS	Wilks' Lambda	0.944	1.313[a]	6	133	0.256
Highest education	Wilks' Lambda	0.939	1.442[a]	6	133	0.203
Income.	Wilks' Lambda	0.955	1.045[a]	6	133	0.399
PreviousPap	Wilks' Lambda	0.88	3.022[a]	6	133	0.008
Insurance	Wilks' Lambda	0.975	.568[a]	6	133	0.755
Acculturation	Wilks' Lambda	0.879	3.039[a]	6	133	0.008
Group	Wilks' Lambda	0.958	.967[a]	6	133	0.45

a. Exact statistic

b. Design: Intercept + YearsinUS + HighestEducation + Income + PreviousPap + Insurance + Acculturation + Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	IAT	44.888[a]	7	6.413	2.835	.009	.126
	ISK	43.159[b]	7	6.166	2.459	.021	.111
	IFF	65.596[c]	7	9.371	4.817	.000	.196
	IPM	20.703[d]	7	2.958	1.368	.223	.065
	ISH	38.690[e]	7	5.527	2.794	.009	.124
	IFW	41.977[f]	7	5.997	2.933	.007	.130
Intercept	IAT	35.823	1	35.823	15.838	.000	.103
	ISK	41.539	1	41.539	16.568	.000	.107
	IFF	3.666	1	3.666	1.885	.172	.013
	IPM	41.350	1	41.350	19.131	.000	.122
	ISH	12.244	1	12.244	6.190	.014	.043
	IFW	12.583	1	12.583	6.155	.014	.043
YearsinUS	IAT	5.149	1	5.149	2.276	.134	.016

	ISK	11.942	1	11.942	4.763	.031	.033
	IFF	.898	1	.898	.461	.498	.003
	IPM	4.153	1	4.153	1.921	.168	.014
	ISH	9.412	1	9.412	4.758	.031	.033
	IFW	5.204	1	5.204	2.546	.113	.018
HighestEducation	IAT	7.769	1	7.769	3.435	.066	.024
	ISK	5.296	1	5.296	2.112	.148	.015
	IFF	2.273	1	2.273	1.168	.282	.008
	IPM	.102	1	.102	.047	.828	.000
	ISH	5.088E-5	1	5.088E-5	.000	.996	.000
	IFW	1.133	1	1.133	.554	.458	.004
Income	IAT	1.353	1	1.353	.598	.441	.004
	ISK	.800	1	.800	.319	.573	.002
	IFF	3.847	1	3.847	1.977	.162	.014
	IPM	.981	1	.981	.454	.502	.003
	ISH	.163	1	.163	.082	.774	.001
	IFW	1.195	1	1.195	.585	.446	.004
PreviousPap	IAT	11.904	1	11.904	5.263	.023	.037
	ISK	.844	1	.844	.337	.563	.002
	IFF	24.176	1	24.176	12.427	.001	.083
	IPM	.389	1	.389	.180	.672	.001
	ISH	7.826	1	7.826	3.956	.049	.028
	IFW	6.528	1	6.528	3.193	.076	.023
Insurance	IAT	.347	1	.347	.154	.696	.001
	ISK	.476	1	.476	.190	.664	.001
	IFF	.072	1	.072	.037	.848	.000
	IPM	4.044	1	4.044	1.871	.174	.013
	ISH	.038	1	.038	.019	.889	.000
	IFW	.008	1	.008	.004	.949	.000
Acculturation	IAT	15.344	1	15.344	6.783	.010	.047
	ISK	20.830	1	20.830	8.308	.005	.057
	IFF	22.652	1	22.652	11.643	.001	.078
	IPM	6.248	1	6.248	2.891	.091	.021
	ISH	24.009	1	24.009	12.137	.001	.081
	IFW	24.729	1	24.729	12.097	.001	.081
Group	IAT	8.079	1	8.079	3.572	.061	.025

	ISK	11.546	1	11.546	4.605	.034	.032
	IFF	1.433	1	1.433	.737	.392	.005
	IPM	7.853	1	7.853	3.633	.059	.026
	ISH	5.976	1	5.976	3.021	.084	.021
	IFW	8.281	1	8.281	4.051	.046	.029
Error	IAT	312.145	138	2.262			
	ISK	345.999	138	2.507			
	IFF	268.477	138	1.945			
	IPM	298.265	138	2.161			
	ISH	272.981	138	1.978			
	IFW	282.103	138	2.044			
Total	IAT	3686.083	146				
	ISK	3221.000	146				
	IFF	3937.556	146				
	IPM	3490.750	146				
	ISH	3170.000	146				
	IFW	2993.889	146				
Corrected Total	IAT	357.033	145				
	ISK	389.158	145				
	IFF	334.073	145				
	IPM	318.967	145				
	ISH	311.671	145				
	IFW	324.080	145				

a. R Squared = .126 (Adjusted R Squared = .081)

b. R Squared = .111 (Adjusted R Squared = .066)

c. R Squared = .196 (Adjusted R Squared = .156)

d. R Squared = .065 (Adjusted R Squared = .017)

e. R Squared = .124 (Adjusted R Squared = .080)

f. R Squared = .130 (Adjusted R Squared = .085)

IAT=Information Attending; ISK=Information Seeking; IFF=Information Forefending; IPM=Information Permitting; ISH=Information Sharing; IFW=Information Forwarding

RQ5: To what degree is narrative persuasion more or less effective than direct health messages in changing involvement recognition, constraint recognition, problem recognition, and information behaviors about Pap smear among Chinese women living in the United States?

No significant group difference in the STOP variables was found between experimental group 1 and experimental group 2 ($p = 0.134$), even after controlling other variables like age, number of years in the United States, previous Pap test experience, etc. ($p=0.290$). Thus the researcher went on to explore whether narrative persuasion (experimental group 1) and direct health messages (experimental group 2) could contribute to different variables in the situational theory.

Same as narrative persuasion, direct health messages didn't influence any perceptual variables. The Wilks' Lambda multivariate test of overall differences among groups was statistically not significant ($p = 0.105$). However, significant group difference in information permitting was found between experimental group 2 and control group. Information permitting in the experimental group 2 was significantly higher ($p = 0.019$, $\eta^2 = 0.039$) than that in the control group. Detailed information was listed in Table 4.5.

After number of years in the United States, education level, household income, previous Pap test experience, ownership of health insurance, and acculturation level were controlled simultaneously, overall group differences were not significant ($p = 0.175$), but group difference was found in information attending ($p = 0.046$, $\eta^2 = 0.033$) and information permitting ($p = 0.034$, $\eta^2 = 0.037$)

In addition, previous Pap experience and acculturation were both influential factors in the information behaviors, with $p = 0.000$ and 0.023 respectively. Specifically, pervious Pap

experience contributed to differences in information forefending (p = 0.000) and sharing (p = 0.007). Acculturation contributed to differences in all information behaviors (p = 0.003 for information attending, 0.001 for information seeking, 0.040 for information permitting, 0.007 for information forefending, 0.003 for information sharing, and 0.016 for information forwarding).

Table 4.5 *MANOVA of Information Behaviors between Experimental Group 2 and Control Group*

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	0.055	387.427[a]	6	136	0
Group	Wilks' Lambda	0.927	1.791[a]	6	136	0.105

a. Exact statistic

b. Design: Intercept + Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	IAT	7.630[a]	1	7.630	3.569	.061	.025
	ISK	.594[b]	1	.594	.242	.623	.002
	IFF	1.595[c]	1	1.595	.695	.406	.005
	IPM	11.113[d]	1	11.113	5.659	.019	.039
	ISH	2.070[e]	1	2.070	.950	.331	.007
	IFW	5.371[f]	1	5.371	2.783	.097	.019
Intercept	IAT	3350.946	1	3350.946	1567.212	.000	.917
	ISK	2573.325	1	2573.325	1048.998	.000	.882
	IFF	3259.491	1	3259.491	1419.529	.000	.910
	IPM	3124.987	1	3124.987	1591.505	.000	.919
	ISH	2694.378	1	2694.378	1236.555	.000	.898
	IFW	2615.727	1	2615.727	1355.430	.000	.906
Group	IAT	7.630	1	7.630	3.569	.061	.025
	ISK	.594	1	.594	.242	.623	.002
	IFF	1.595	1	1.595	.695	.406	.005
	IPM	11.113	1	11.113	5.659	.019	.039

	ISH	2.070	1	2.070	.950	.331	.007
	IFW	5.371	1	5.371	2.783	.097	.019
Error	IAT	301.480	141	2.138			
	ISK	345.891	141	2.453			
	IFF	323.761	141	2.296			
	IPM	276.859	141	1.964			
	ISH	307.230	141	2.179			
	IFW	272.104	141	1.930			
Total	IAT	3652.972	143				
	ISK	2920.222	143				
	IFF	3593.889	143				
	IPM	3403.750	143				
	ISH	3001.750	143				
	IFW	2888.111	143				
Corrected Total	IAT	309.110	142				
	ISK	346.485	142				
	IFF	325.357	142				
	IPM	287.972	142				
	ISH	309.301	142				
	IFW	277.475	142				

a. R Squared = .025 (Adjusted R Squared = .018)

b. R Squared = .002 (Adjusted R Squared = -.005)

c. R Squared = .005 (Adjusted R Squared = -.002)

d. R Squared = .039 (Adjusted R Squared = .032)

e. R Squared = .007 (Adjusted R Squared = .000)

f. R Squared = .019 (Adjusted R Squared = .012)

IAT=Information Attending; ISK=Information Seeking; IFF=Information Forefending; IPM=Information Permitting; ISH=Information Sharing; IFW=Information Forwarding

Table 4.6 *MANCOVA of Information Behaviors between Experimental Group 2 and Control Group*

Multivariate Tests[b]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	0.866	2.987[a]	6	116	0.009
YearsinUS	Wilks' Lambda	0.94	1.243[a]	6	116	0.29
HighestEducation	Wilks' Lambda	0.934	1.358[a]	6	116	0.238
Income	Wilks' Lambda	0.925	1.561[a]	6	116	0.165
PreviousPap	Wilks' Lambda	0.802	4.780[a]	6	116	0
Insurance	Wilks' Lambda	0.963	.745[a]	6	116	0.615
Acculturation	Wilks' Lambda	0.883	2.553[a]	6	116	0.023
Group	Wilks' Lambda	0.927	1.527[a]	6	116	0.175

a. Exact statistic

b. Design: Intercept + YearsinUS + HighestEducation + Income + PreviousPap + Insurance + Acculturation + Group

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	IAT	36.467[a]	7	5.210	2.459	.022	.125
	ISK	46.158[b]	7	6.594	2.888	.008	.143
	IFF	63.303[c]	7	9.043	4.501	.000	.207
	IPM	27.754[d]	7	3.965	1.981	.063	.103
	ISH	38.522[e]	7	5.503	2.664	.013	.134
	IFW	25.491[f]	7	3.642	1.863	.081	.097
Intercept	IAT	19.067	1	19.067	8.998	.003	.069
	ISK	20.740	1	20.740	9.083	.003	.070
	IFF	2.768	1	2.768	1.377	.243	.011
	IPM	28.375	1	28.375	14.180	.000	.105
	ISH	3.619	1	3.619	1.752	.188	.014
	IFW	13.223	1	13.223	6.767	.010	.053
YearsinUS	IAT	2.538	1	2.538	1.198	.276	.010
	ISK	9.900	1	9.900	4.335	.039	.035
	IFF	1.104	1	1.104	.550	.460	.005
	IPM	3.522	1	3.522	1.760	.187	.014
	ISH	8.162	1	8.162	3.951	.049	.032
	IFW	9.175	1	9.175	4.695	.032	.037

HighestEducation	IAT	.031	1	.031	.015	.904	.000
	ISK	.196	1	.196	.086	.770	.001
	IFF	4.875	1	4.875	2.426	.122	.020
	IPM	.580	1	.580	.290	.591	.002
	ISH	8.189	1	8.189	3.964	.049	.032
	IFW	.360	1	.360	.184	.669	.002
Income	IAT	.018	1	.018	.008	.927	.000
	ISK	7.691	1	7.691	3.368	.069	.027
	IFF	1.592	1	1.592	.792	.375	.007
	IPM	.185	1	.185	.092	.762	.001
	ISH	3.998	1	3.998	1.935	.167	.016
	IFW	.026	1	.026	.013	.909	.000
PreviousPap	IAT	6.553	1	6.553	3.093	.081	.025
	ISK	.015	1	.015	.007	.936	.000
	IFF	47.503	1	47.503	23.641	.000	.163
	IPM	1.436	1	1.436	.718	.399	.006
	ISH	15.588	1	15.588	7.545	.007	.059
	IFW	4.105	1	4.105	2.100	.150	.017
Insurance	IAT	1.420	1	1.420	.670	.415	.006
	ISK	.142	1	.142	.062	.804	.001
	IFF	.001	1	.001	.001	.979	.000
	IPM	5.217	1	5.217	2.607	.109	.021
	ISH	.005	1	.005	.002	.961	.000
	IFW	.272	1	.272	.139	.710	.001
Acculturation	IAT	19.143	1	19.143	9.034	.003	.069
	ISK	25.357	1	25.357	11.105	.001	.084
	IFF	15.357	1	15.357	7.643	.007	.059
	IPM	8.630	1	8.630	4.313	.040	.034
	ISH	18.873	1	18.873	9.135	.003	.070
	IFW	11.718	1	11.718	5.996	.016	.047
Group	IAT	8.630	1	8.630	4.073	.046	.033
	ISK	1.127	1	1.127	.494	.484	.004
	IFF	1.202	1	1.202	.598	.441	.005
	IPM	9.228	1	9.228	4.612	.034	.037
	ISH	2.546	1	2.546	1.232	.269	.010
	IFW	5.080	1	5.080	2.599	.110	.021

Error	IAT	256.400	121	2.119			
	ISK	276.294	121	2.283			
	IFF	243.127	121	2.009			
	IPM	242.133	121	2.001			
	ISH	249.994	121	2.066			
	IFW	236.463	121	1.954			
Total	IAT	3322.583	129				
	ISK	2653.222	129				
	IFF	3263.889	129				
	IPM	3135.500	129				
	ISH	2758.750	129				
	IFW	2624.000	129				
Corrected Total	IAT	292.867	128				
	ISK	322.451	128				
	IFF	306.431	128				
	IPM	269.888	128				
	ISH	288.516	128				
	IFW	261.953	128				

a. R Squared = .125 (Adjusted R Squared = .074)

b. R Squared = .143 (Adjusted R Squared = .094)

c. R Squared = .207 (Adjusted R Squared = .161)

d. R Squared = .103 (Adjusted R Squared = .051)

e. R Squared = .134 (Adjusted R Squared = .083)

f. R Squared = .097 (Adjusted R Squared = .045)

IAT=Information Attending; ISK=Information Seeking; IFF=Information Forefending; IPM=Information Permitting; ISH=Information Sharing; IFW=Information Forwarding

Compared to the results of RQ4, which demonstrated that narrative persuasion can influence information seeking and forwarding, the results of RQ5 showed that direct health messages can contribute to more passive types of information behaviors including information attending and permitting.

RQ6: To what degree does transportation level influence involvement recognition, constraint recognition, problem recognition, and information behaviors among Chinese women living in the United States?

The *R*-values of transportation level in its contribution to the STOP variables were respectively inspected. After that, number of years in the United States, education level, household income, previous Pap test experience, ownership of medical insurance, and acculturation level were set aside with transportation level as independent variables in the multiple regression analysis to inspect the β values.

The results indicate that the overall model of transportation is statistically significant for problem recognition (F = 8.857, p = 0.004), involvement recognition (F = 22.030, p = 0.000), constraint recognition (F = 4.512, p = 0.037), information attending (F = 32.544, p = 0.000), information seeking (F = 11.366, p = 0.01); but not significant for information forefending (F = 2.107, p = 0.150), and information sharing (F = 5,622, p = 0.20).

Specifically, transportation level was a significant predicator of problem recognition (R = 0.304, β = 0.272, p =0.016), involvement recognition (R = 0.450, β = 0.376, p = 0.000), information attending (R = 0.522, β = 0.463, p =0.000), information seeking (R = 0.449,β = 0.404, p = 0.000), information permitting (R = 0.307, β = 0.263, p = 0.029), and information forwarding (R = 0.340, β = 0.286, p = 0.015); but not a significant predicator of constraint recognition (R = 0.222, p = 0.190), information forefending (R = 0.154, p = 0.368), and information sharing (R = 0.246, p = 0.144).

Problem Recognition. Previous Pap test experience and transportation level were the only two variables found to be significant correlated with problem recognition. Meanwhile, the correlation between previous Pap test experience and problem recognition was negative

(β = -0.284, p = 0.017).

Involvement Recognition. Apart from transportation level, previous Pap test experience was the other variable that was significantly correlated with involvement recognition and the correlation was positive (β = 0.398, p = 0.000).

Constraint Recognition. Number of years in the United States and previous Pap test experience were the only two variables found to be significantly correlated with constraint recognition. The correlation between previous Pap test experience and constraint recognition was negative (β = -0.249, p = 0.037) and that between number of years in the United States and constraint recognition was positive (β = 0.275, p = 0.018).

Information Acquisition. Transportation level was the only variable that was significantly correlated with information attending, as well as the only variable that was significantly correlated with information seeking. Both correlations were positive.

Information Selection. No variable was found to be significantly correlated with information forefending. Transportation level was the only variable that was significantly correlated with information permitting and the correlation was positive.

Information Transmission. Acculturation level was the only variable that was significantly correlated with information sharing and the correlation was positive (β = 0.237, p = 0.042). Transportation level was the only variable that was significantly correlated with information sharing and the correlation was positive.

While no significant difference in problem recognition, involvement recognition and constraint recognition was found between the experimental groups and the control group, significant difference was found in some of the information behaviors as indicated in the results of RQ4 and RQ5. And through the above results we also found that transportation

level was the only variable that significantly contributed to most of these information behaviors. Thus it is likely that transportation level might serve as an independent variable for the information behaviors by promoting the audience's short-term motivation. The situational theory of problem solving asserted that situational motivation is a mediator between the IVs (problem recognition, involvement recognition, and constraint recognition) and the DVs (information behaviors). The researcher thus conducted an additional regression analysis between transportation level (IV) and situational motivation (DV). The result was significant, the *R*-value of transportation level reached 0.438 with a *p* value of 0.000.

Chapter Five

Discussion

The above results show that the first-person narrative seems to be more powerful in eliciting active information acquisition and transmission behaviors whereas direct health messages seem to work on the passive information acquisition and selection behaviors. However, neither kind of intervention materials has significant contribution to the perceptual variables in the situational theory of problem solving. Factors including number of years in the United States, education level, household income, previous Pap test experience, ownership of medical insurance, and acculturation level all contribute to the information behaviors. The results also indicate level of being transported into the first-person narrative was significantly correlated with problem recognition, involvement recognition, and information attending, seeking, permitting, and forwarding.

Narrative and Perceptual Variables in the Situational Theory of Problem Solving

None of the experimental condition has produced problem recognition, involvement recognition, and constraint recognition that are significantly different from those in the control condition. However, in this special case of Pap smear, the sample population's involvement recognition (M = 5.766, SD = 1.304) and referent criterion (M = 5.275, SD = 1.326) in the control group already seem to be relatively high and, their constraint recognition (M = 1.973, SD = 1.249) relatively low, which mean the changes in these variables might be too small to be observe. The results of RQ6 did show that the level of being transported into the story was significantly correlated with problem recognition and involvement recognition, but not constraint recognition.

This finding is understandable and fits the theoretical assumptions of these variables. Problem recognition is "one's perception that something is missing and that there is no solution yet available for the issue (Kim & Grunig, 2011, p. 128). Those who are more absorbed into the story might have a higher chance to recognize the problem implied in the story. Meanwhile, involvement recognition, "a perceived connection between the self and the problem situation (Kim & Grunig, 2011, p. 130)," might be increased through the readers' identification with or attachment to the character, as a result of being immersed in the story. Constraint recognition is the extent to which a person viewed perceived barriers that limited his or her ability to resolve the problem (Grunig, 1989). The reason why transportation level has little effect on this perceptual variable might be that the narrative itself does not mention the physical constraints in reality such as whether Pap smear is covered in medical insurance, how people can get such medical insurance, etc. In the intervention, the researcher intended to focus more on reducing their internal barriers, like embarrassment, discomfort, etc., but it turns out that the sample population has little psychological barriers, which might be due to their relatively higher education level. Therefore, constraint recognition is not likely to be influenced by transportation level in this special case.

Another reason why these differences in perceptual variables are not significant between the experimental groups and the control group might be explained through the additional analysis of the results to RQ6, which indicate that rather than promote information behaviors through increasing involvement recognition and problem recognition, transportation level might serve as an independent variable to promote situational motivation to influence information attending, information seeking, information permitting and information forwarding. Future studies should verify such a mechanism by monitoring the

exact change in the information behaviors through a pre-post experiment and by investigating if such a change, if there is, is resulted from the publics' absorption into the story. If the relationship exists, transportation level itself might serve as the criteria to measure whether narrative health communication is successful.

Narrative and Information Behaviors

Results of RQ4 show that the first-person narrative can significantly influence the participants' active forms of information acquisition and transmission behaviors: information seeking and information forwarding.

The results of RQ6 show that the participants' transportation level is a significant predicator of information attending, information seeking, information permitting, and information forwarding. However, as discussed in the above section, the narrative's influence on information attending and permitting might be too small to be observed in the group comparison.

Comparison of Intervention Materials: First Person Narrative and Direct Health Messages

As discussed above, the first person narrative seems to be more powerful in eliciting active forms of information behaviors. Contrastingly, results of RQ5 show that the article of direct health messages used for intervention can only significantly influence the participants' information permitting and information attending, the passive forms of information acquisition and information selection, judging from its comparison to the control group. Unlike the participants in the experimental group 1, who were not told the source and truthfulness of the story, the participants in the experimental group 2 were told that the article was from American Cancer Society's website. The authoritativeness assumed of the organization might decrease the readers' motivation to seek further information.

However, the study fails to directly produce significant difference in STOP variables between the two experimental groups. Several reasons might contribute to the lack of direct evidence. First, the sample population has a relatively higher education level in general and the majority had had a Pap test before, and thus they might be quick to learn and analyze the messages implied in the stories. Meanwhile, both the first-person narrative and the article of direct health messages contain the same messages like "'you' should have Pap test on regular basis," "abnormal bleeding might be indication for cervical cancer," etc. What's more, the messages were given by a "doctor" in the first-person narrative and the direct health messages were endorsed by American Cancer Society: both the doctor and the American Cancer Society can be regarded as authoritative and the readers might have assumed that the first-person narrative was a true story. Chinese culture is typically portrayed as a collectivistic culture with high level of power distance (Hofstede, 2010) and Chinese people have an authority-directed orientation (Dien, 1999). Thus, the little difference between the two groups' results might imply that as long as the two articles' messages and perceived authority are the same, the format in which the messages were delivered doesn't matter too much for Chinese women living in the United States. Thus, for future health campaigns among this population, authoritarian elements should be hidden from the publics in order to activate the women into information seeking and forwarding.

Covariates' Effect on the Information Behaviors

The results also show that two cross-situational factors, number of years in the United States and acculturation level, as well as previous Pap test experience can contribute to the information behaviors. However the influence of education level, income, and insurance are not so significant, which might be due to the limitation of the study that most participants

were recruited through online forums and according to their self-report, 97.6% had at least a bachelor degree, 93.43% had medical insurance and the median household income was above $45,000.

Situational Theory, Narrative Persuasion and Cultural Identity

The results show that some cultural identity factors, including years in the United States and acculturation level, have significant contribution to problem recognition and almost all information behaviors. Meanwhile, as a criterion to measure a persuasive narrative's capability in transporting people on a certain issue, transportation level was highly correlated with participants' problem recognition, involvement recognition, and information behaviors. Thus, it is possible that there might be certain association between identity factors and transportation level. People's transportation level can be issue specific, and it can also be influenced by their innate transportability (Green & Brock, 2000). Future studies can focus on how cultural identity can interact with transportability or situational transportation level and on how cross-situational transportability can contribute to people's situational perceptions and information behaviors.

Limitation

The study is limited in several aspects due to the budget constraint. As mentioned above, a convenience sample was used in the data collection, and the participants were mostly recruited online, who have relatively higher socioeconomic status: at least they have access to computers and have enough leisure time to help the survey. Though the researcher tried to collect some data from those who have little computer access, the participation was low: only 20 people were willing to help the survey. These conditions in recruitment resulted in a sample that has a relatively higher education level, higher income, greater access to

medical insurance, etc. A study can target on a more diverse population.

The impact of the intervention is also limited. The intervention used in the study was just one or two pages of an article. If more dramatic forms of narratives were available, like TV programs, theatre play, long-term online campaigns etc., the group difference might be much more significant.

Another limitation is no individual change could be tracked through this three-group experimental design. The research was to propose a pre-post three-group experimental design; however the idea was revised considering few people might be willing to complete the same questionnaire twice without being promised rewards for participation in advance. Future studies could be conducted in the pre-post setting to track the change in the STOP variables of the individuals.

As Table 3.2 shows, the correlations among the situational variables are very significant. One concern might be that if the variables are independent from each other. However, according to the conceptualization of the theory, the conceptual domain of each variable is different.

In order to keep the questionnaire as short as possible, only four relatively subjective questions were asked in the manipulation check. If more objective questions were asked, like asking participants about the facts mentioned in the article, we might have a better understanding about the quality of the manipulation.

Practical Implications

The results on each material's distinct contribution to the information behavior types imply that in organization-initiated public relations problems (Kim & Ni, in press), in which the organization wants to upgrade publics' activeness, more narratives should be used to

increase the publics active information behaviors like information seeking and forwarding; meanwhile, in public-initiated public relations problems, in which publics activeness is intended to be downgraded, simple and concise statements should be sent from authoritative sources.

On the other hand, this study has a highly-educated sample on which we found both interventions had very limited impact. Even though in several dimensions like information behaviors, there are some effects, but the effect sizes are quite small, not to mention the interventions have no significant effect on perceptual variables. These results imply that for future health communication programs, organizations should not expect this kind of population to have substantial behavioral change desired by the organizations, because the degree of change they could make among this population is really limited.

Future research

Future research should be conducted on a sample of greater diversity, especially in income and education levels, to examine if narratives or direct health messages can have a greater impact on the perceptions and information behaviors of people with lower income and education levels. Materials with more visual or even audio impact for interventions might be used to explore if such interventions impose greater influence on the perceptions and information behaviors.

Though participants' acculturation level was measured in the study, it was used to describe the feature of the sample in general. Its relations to the perceptions and information behaviors about Pap smear haven't been studied. Research might be conducted to examine acculturation's contribution to these variables.

Another direction is to study the cross-situational transportability's influence on

people's transportation level on specific issues, as well as its influence on their situational perceptions and information behaviors. Cultural identity items such as acculturation level should also be studied in their relations to the cross-situational transportability.

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Appendix A: Cover Letter

UNIVERSITY OF HOUSTON
CONSENT TO PARTICIPATE IN RESEARCH

PROJECT TITLE: From the publics' perspective: From the publics' perspective: Narrative persuasion's mechanism, usage and evaluation in Pap smear campaign among Chinese women living in the United States.

You are being invited to participate in a research project conducted by Jiajie Dai from the Jack J. Valenti School of Communication at the University of Houston. This project is a part of her master thesis and is being conducted under the supervision of Dr. Lan Ni.

NON-PARTICIPATION STATEMENT

Your participation is voluntary and you may refuse to participate or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled. You may also refuse to answer any question.

PURPOSE OF THE STUDY

In this six-month research we want to learn women's perceptions about Pap smear and which way will be more appropriate to communicate this problem. Pap smear is a screening test used in gynecology to detect premalignant and malignant (cancerous) processes in the cervix.

PROCEDURES

You will be one of approximately ___300__ subjects to be asked to participate in this project.

If you agree to participate, you will need to fill in the following online questionnaire which asks about your perceptions about Pap smear and some general information about yourself (such as your age range etc.) for us to better understand the problem. The survey will last about 20-30 minutes.

CONFIDENTIALITY

Your participation in this project is anonymous. Please do not write your name on any of the research materials to be returned to the principal investigator.

RISKS/DISCOMFORTS

You might feel a bit embarrassed about the topic of Pap smear. If so, you may exit from the online questionnaire at any time.

BENEFITS

You will have chance to win a 10-dollar gift card.

ALTERNATIVES

Participation in this project is voluntary and the only alternative to this project is non-participation.

INCENTIVES/REMUNERATION

Ten participants will be randomly drawn from all the participants. Each of the ten will receive a 10-dollar gift card. You will be notified through email and online messages once you win and asked about your address, which the gift card will be mailed to.

PUBLICATION STATEMENT

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

If you have any questions, you may contact Jiajie Dai at 832-212-3760 or jdai4@uh.edu. You may also contact Lan Ni, faculty sponsor, at 713-743-1872.

ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204).

Principal Investigator's Name: _____Jiajie Dai_____

Signature of Principal Investigator: _____

Appendix B: Questionnaire 1

Pap smear is a screening test used in gynecology to detect premalignant and malignant (cancerous) processes in the cervix. The study is to understand Chinese American women's perceptions about Pap smear.

Section 1:

The first section of questionnaires is designed to assess your general feelings about Pap smear; there are no right or wrong answers. Please choose a number that best describe your feeling. Please circle ONE answer choice for each question.

(PR=Problem recognition; IR=Involvement Recognition; CR=Constraint Recognition; SM=Situational motivation; RC=Referent criterion; IAT=Information attending; ISK=Information seeking; IPM=Information permitting; IFF=Information forefending; ISH=Information sharing; IFW=Information forwarding.)

1. You regard Pap test as a problem that's worth your attention. (PR)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

2. You believe Pap smear could involve you or someone close to you at some point (IR)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

3. You would visit online or regular bookstores to find useful information about Pap smear.(ISK)
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4. You believe that Pap smear is a problem that you can personally do something about. (CR, reversed)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

5. Your current participation in Pap smear doesn't meet your expectation. (PR)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

6. You would watch/listen to a news report related to Pap smear if I came across it on TV or radio. (IAT)
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

7. You see a great connection between yourself and Pap smear. (IR)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

8. Pap smear is more difficult for you to understand than other problems. (CR)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

9. You feel that something needs to be done to improve your participation in Pap smear. (PR)
   Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

10. You would check to see if there's any new information about Pap smear. (ISK)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

11. If you came across a hyperlink regarding Pap smear, you would click it. (IAT)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

12. You believe Pap smear is important to you personally. (IR)
Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

13. You would listen, if others talked about Pap smear. (IAT)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

14. You've studied about Pap smear enough to judge the value of information related to it. (IFF)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

15. You believe that you have the ability to decide whether and how you would participate in Pap smear. (CR, reversed)
Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

16. You strongly support a certain way (frequency, location, etc.) of participating in Pap smear. (RC)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

17. You have invested enough time and energy on learning about Pap smear. (IFF)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

18. You would participate but do not lead in conversations related to Pap smear. (IAT)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

19. You know where to go when I need updated information about Pap smear. (IFF)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

20. You would request free booklets containing relevant information about Pap smear. (ISK)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

21. You're careful in accepting information about Pap smear because of the vested interests of those who provide the information. (IPM, reversed)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

22. You welcome any information related to Pap smear. (IPM)
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

23. You’re pretty sure that you know how to deal with Pap smear. (RC)
Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

24. It's one of your top priorities to share your knowledge and perspective about Pap smear. (IFW)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

25. You want to know more about Pap smear. (SM)

Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

26. If possible, you would take time to explain things about Pap smear to other people. (IFW)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

27. You would talk to others about Pap smear when others express concerns or interests about it. (ISH)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

28. You're a person to whom your friends and others come to learn more about Pap smear. (ISH)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

29. To make better decisions regarding having a Pap smear, you would listen to opposite views about information as long as they are related to the problem. (IPM)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

30. You're confident about my knowledge about Pap smear. (RC)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

31. You look for chances to share your knowledge and thoughts about Pap smear. (IFW)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

32. You're curious about Pap smear. (SM)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Section 2:

The second section of questionnaires is designed to understand your current understanding about and participation in Pap smear; there are no right or wrong answers. Please choose a number that best describes your own situation. Please circle ONE answer choice for each question. For question No. 45, please fill in your answer.

33. I have little knowledge about Pap smear.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

34. I plan to have a Pap smear within one year.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

35. I know what Pap smear is.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

36. Only those who have multiple sex partners should have regular Pap smears.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

37. I eagerly want to know if it's necessary for me to have a Pap smear now.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

38. All women who have or had sex life should have regular Pap smears.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Section 3:

To help the researcher better understand the problem, please answer each of the questions below by checking the appropriate answer category or by writing in the relevant information. All your information will be held as confidential.

1. Gender: __Male __Female 2. Age: ____ 3. Your birth country: _____
4. Years of stay in United States: _____ 5. Current country of residence: _____
6. Your highest academic degree:
___Elementary School ___High School ___Bachelor ___Master ___Doctorate
___Professional certificate ____Others (please specify_____)
7. Your household income before tax
___<$15,000 ___$15,000-$45,000 ___$45,000-$75,000 ___>$75,000
8. Have you ever had a Pap smear? ___Yes ___No ___Not sure
9. What's your last time taking Pap smear _____ (Month/Year) ___I've never taken it
10. Have you ever been pregnant? ___ Yes ___No (If yes, how many times? _____)
11. How often do you have Pap smear? (Multiple choice)
____ I would have it when I felt any discomfort
____ I took it regularly; Please specify:_____ (for example, once a year, once every three years, etc.)
____ I have never had a Pap smear; _____ I don't remember
12. How many times in your life have you had Pap smear? _____ (give a rough number)
13. Has any of your family or close friends had serious cervical disease (including cervical cancer)? __Yes __ No
14. What media would you prefer if you were to get information about Pap smear? (Check all that apply and rank order them in the order of importance. Please only list one item for each order.):
__TV __Newspaper __Internet (_ news section __online forum) __Professional magazines __General magazines __Book __Friends ___ Family ___ Health professional __Others (Please specify_____)
15. You identify yourself more with: __Chinese __American __Hongkongnese __Taiwanese __Others (Please specify_____)
16. Your first language is: __Chinese __English __Others(Please specify _____)

Section 4:

To help the researcher better understand the problem, please answer each of the questions below by choosing a number that best describes your own situation. Please circle ONE answer choice for each question.

	Strongly disagree		Neutral		Srongly agree
1. You speak English at home	1	2	3	4	5
2. You think in English	1	2	3	4	5
3. You go to attend social gatherings with American People	1	2	3	4	5
4. You have many American acquaintances	1	2	3	4	5

Thank You!

Appendix C: Article Assigned to Experimental Group 1

Please take your time and read the following story. After reading the story, we will be asked about several related questions.

In the past, I sometimes felt a little bit uneasy in my lower abdomen, especially in my menstrual cycle. I thought it was normal and didn't pay any attention to it. After getting married, I sometimes had abnormal bleeding. My husband asked me to have a health check. I thought I was still young and I wouldn't have terrible diseases, so I just kept putting off seeing a doctor.

It was until I came across a TV program on cervical cancer. I found my symptoms were similar to those that cervical cancer patients can have. I had always been a person who buried her head in the sand, so I became more reluctant to see a doctor.

Then I got pregnant.

The doctor suggested that I have a Pap smear, which was one of the common pregnancy check-ups.

"I can have the pap test even being pregnant?" I was curious.

"You can have it in the early stage of pregnancy, especially since you had never had one in your entire life," the doctor answered.

For the sake of my baby, I had to have in spite of all the fears. I went to the gyno chair nervously with confusions and closed my eyes tightly.

The doctor asked me to relax, and she told me to take a deep breath before every step she took. "It will hurt a bit, it will just feel like a needle." The procedure was over when I was still thinking what she meant.

It didn't hurt at all. I felt nothing. It was like I just loosened a big knot in my heart.

Now looking back, I would not discover how ignorant I was until I experienced all these things. If you cringe out of fears, what you lose might be tragic. You can't relive your own life.

The results of the Pap test came out a week after. The doctor said that there was something abnormal. But I had to wait till after the delivery to take another check-up to get the results determined.

I had a bad feeling but I waited patiently until the baby was born.

I remembered the day I went to get the report after the second test. I carried my daughter on my back and went to the hospital.

"I would suggest you take another test at a larger hospital. According to your situation, you will need to have a further Pap test," the doctor said.

It was then that I realized things got serious. I sat still and looked at the doctor hollowly.

The doctor might have noticed my concern and began to comfort me, "You must be thinking 'why am I so unlucky,' right? Actually, you should think you are lucky because you're still in phase 0. The earlier the disease is diagnosed the easier it is to treat. You don't need a surgery that will remove the whole womb and your chance of recovery is high. Do you remember the lady Tingting who went to my clinic to have pap smear every year? She was in the same situation as yours and she has recovered already."

However, I still felt like my life has become black and white. I wanted to cry, but I could cry no tears.

After discussing it with my families, I made an appointment with Dr. Shao. The doctor said I need to have a surgery to remove a cone-shaped piece of tissue from my cervix.

Once I heard the word "surgery", I was trembling and my tears started sprouting in my eyes. All of a sudden, I felt strengthless and my head was aching. It was then I knew that the scenes in the TV dramas could be real.

Appendix D: Article Assigned to Experimental Group 2

Please take time to read the following article before you proceed to the questionnaire.

Women with early cervical cancers and pre-cancers usually have no symptoms. Symptoms often do not begin until a pre-cancer becomes a true invasive cancer and grows into nearby tissue. When this happens, the most common symptoms are:

* Abnormal vaginal bleeding, such as bleeding after sex (vaginal intercourse), bleeding after menopause, bleeding and spotting between periods, and having longer or heavier (menstrual) periods than usual. Bleeding after douching, or after a pelvic exam is a common symptom of cervical cancer but not pre-cancer.

* An unusual discharge from the vagina -- the discharge may contain some blood and may occur between your periods or after menopause.

* Pain during sex (vaginal intercourse).

These signs and symptoms can also be caused by conditions other than cervical cancer. For example, an infection can cause pain or bleeding. Still, if you have any of these problems, you should see your health care professional right away. If it is an infection, it will need to be treated. If it is cancer, ignoring symptoms may allow it to progress to a more advanced stage and lower your chance for effective treatment.

Even better, don't wait for symptoms to appear. Have a regular Pap test and pelvic exam.

American Cancer Society suggests that all women should begin cervical cancer screening about 3 years after they begin having vaginal intercourse, but no later than 21 years old. Screening should be done every year with the regular Pap test or every 2 years using the newer liquid-based Pap test.

Beginning at age 30, women who have had 3 normal Pap test results in a row may get screened every 2 to 3 years. Women older than 30 may also get screened every 3 years with either the conventional or liquid-based Pap test, plus the human papilloma virus (HPV) test.

(Source: American Cancer Society. Retried through http://www.cancer.org/cancer/cervicalcancer/moreinformation/cervicalcancerpreventionandearlydetection/cervical-cancer-prevention-and-early-detection-cervical-cancer-signs-and-symptoms)

Appendix E: Questionnaire 2

This part of the questionnaire is aimed to understand your feeling while reading the story. Please choose the number which best represents your feeling.

1. I want to learn the rest part of the story.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

2. While I was reading the story, I could easily picture the events in it taking place.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

3. While I was reading the story, other activities going on in the room around me was on my mind.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

4. I could picture myself in the scene of the events described in the story.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

5. I was mentally involved in the story while reading it.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

6. After finishing the story, I found it easy to put it out of my mind.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

7. I wanted to learn about how the story ended.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

8. The story affected me emotionally.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

9. While reading the story, I had a vivid image of the character.
   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

10. I found my mind wandering while reading the story.
    Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

11. The events in the story are relevant to my everyday life.
    Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

12. The events in the story have changed my life.
    Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

13. While reading the story, I had a vivid image of what the character was experiencing.
    Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Appendix F: Recruitment Notice

A graduate student in School of Communication at University of Houston is doing a study on women's perceptions about Pap smear. This study might help future campaigns aimed to raise health awareness among Chinese women living in the United States. Your participation will be appreciated. The link listed below will direct you to the survey questionnaire. The whole process will take about 20 -30 minutes. Ten participants will be randomly drawn from all the participants. Each of the ten will receive a 10-dollar Target gift card. You'll be asked to fill in your forum ID or email address so that you can be notified once you win the gift card. Notification will be sent to you through email or private message once you win.

Please also encourage your friends to participate in the survey. Thanks!

Here are the requirements for the participants:

- Female
- With Chinese ethnicity
- Living in the United States
- Above 18 yrs old

#Link to the questionnaire#

Please note: Each participant can only submit one questionnaire.

Appendix G: Outline for Oral Presentation

- If you're above 18 yrs old and can read Chinese, we'd like to invite you to participate in our study.
- A graduate student in School of Communication at University of Houston is doing a study on women's perceptions about Pap smear.
- This study might help future campaigns aimed to raise health awareness among Chinese women living in the United States. Your participation will be appreciated.
- The whole process will take about 20 -30 minutes.
- Ten participants will be randomly drawn from all the participants. Each of the ten will receive a 10-dollar Target gift card.
- Please list your contact information here (on a separate form) if you'd like to participate in the lucky draw. You will be notified once you win the gift card.
- Please read the cover letter first. If you don't agree with the terms, you may choose not to participate.