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PERSUADING YOUNG WOMEN TO OBTAIN PAP TESTS: IT'S BETTER TO BE POSITIVE THAN NEGATIVE

BY

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ABSTRACT

PERSUADING YOUNG WOMEN TO OBTAIN PAP TESTS:
IT'S BETTER TO BE POSITIVE THAN NEGATIVE

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This study tested the effectiveness of persuasive messages encouraging young women to get Pap tests based on Ajzen and Fishbein's (1980) theory of reasoned action. Specifically, it compared the effectiveness of positive and negative outcome belief messages with a general information message. In addition, the study examined the validity of the theory of planned behavior (TPB) in the context of Pap tests and offered an additional component to the TPB in predicting intention and behavior. Results of the study indicate that positive and negative outcome belief messages are no more effective at influencing behavioral intention than a general informational message. However, a positive outcome belief message was significantly more effective at influencing behavior than a general information message. Moreover, the positive belief message was more effective at influencing both intention and behavior than a negative belief message. Results of the study also lend support to the theory of planned behavior with the addition of a perceived behavioral importance factor. A revised theory of planned behavior is offered.

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Introduction

Current statistics from the National Cancer Institute indicate that cervical cancer is the third most commonly occurring cancer among women living in the United States (National Cancer Institute, 1995). More than 50,000 cases of uterine cervix cancer cases occur every year, and approximately 6,000 women die from invasive uterine cancer annually (American Cancer Society, 1990). Moreover, approximately 600,000 women are diagnosed annually with premalignant changes known as squamous intraepithelial lesion (SIL) or cervical intraepithelial neoplasia (CIN) (National Cancer Institute, 1995). If these premalignant conditions are detected early enough, there is an excellent chance of preventing the onset of invasive uterine cancer. However, if left undetected SIL and CIN can and often lead to invasive cancer with a progression time of as little as several months (Bain & Crocker, 1983). Health professionals suggest that prevention and early detection behaviors can significantly reduce the number of deaths caused by cervical cancer (Healthy People 2000, 1991). Early detection allows doctors to treat premalignant conditions with a success rate approaching 100% (Healthy people 2000, 1991).

Use of the Pap test remains one of the best tools for detecting cervical cancer and it's premalignant forms in their early stages. The Pap test is credited by many for the recorded decline in cervical cancer mortality in the 1970s and 1980s (Healthy People 2000, 1991). Unfortunately, a significant portion of the female U.S. population is not aware of or continue to disregard the recommendation to get regular Pap tests (Calle et al.,

1993; Healthy People 2000, 1991).

While older women are at greatest risk for cervical cancer mortality (National Cancer Institute, 1995), the group at most risk for never having a Pap test is never-married women 18 to 39 years old and never-married white women (Calle et al., 1993). Further inspection of the data of young women indicates that those at highest risk for never having a Pap test are those in the population of 18 to 24 year olds. Nationally bout one-third of the young women in this age category has never had a Pap test, compared to only 10% of women 25 to 39 years of age.

One of the reasons given for the low rate of Pap test behaviors among 18 to 24 year old women is the belief that Pap tests are not needed until the onset of sexual activity. While it is true that women should get regular Pap tests once they become sexually active, the American Cancer Society recommends that even young women who are sexually inactive should have an annual Pap test beginning at the age of 18 (American Cancer Society, 1987). In addition, it is recommended that young women have Pap tests conducted annually unless their doctor advises otherwise (American Cancer Society, 1987, Healthy People 2000, 1991).

The Pap test is a simple procedure that takes a relatively short amount of time to complete. During the procedure, a doctor or nurse obtains a sample of the layer of tissue that covers the cervix. Similar to skin, the tissue is constantly rejuvenating itself, and as new cells grow and multiply, they force older, nearly dead cells toward the surface. These are the cells sampled by the Pap smear and used to test for any abnormalities.

While this procedure is relatively painless, a number of women report a level of

discomfort. Discomfort and other inconveniences associated with the test are relatively minor compared to the benefits of obtaining annual Pap smears. Regular testing can identify precancerous conditions which, if caught early, are nearly 100-percent curable (American Cancer Society, 1991). If a woman does have these pre-cancerous conditions the longer she goes without a Pap test, which can detect the onset of cancer, the more serious and less treatable the cancer becomes. It is clear then that regular, annual Pap tests are an important part of the preventive health behaviors of adult women.

In light of the great and potentially life-saving benefits offered by Pap tests, and the evidence which suggests that a large portion of women, especially the white, young, and never-married, are not adopting Pap test behaviors, it is appropriate to develop interventions and communication campaigns targeting this population for adopting Pap test behaviors. Because there is some evidence that past behaviors are positively correlated with future behaviors (Bentler & Speckart, 1981; McGuire, 1976), it seems prudent to get young women to engage in Pap test behaviors so that when they are older and at higher risk for cervical cancer, the probability will be greater that they will indeed take preventive action. The question, then, is not if there should be an intervention to increase Pap test behavior, but of what should the intervention consist?

The Present Study

Most health researchers and professionals are likely to agree that any health communication intervention to change behaviors, beliefs, attitudes, etc., should be driven by theory. Of the many theories which exist for explaining and predicting health

behaviors one which has received a lot of attention and empirical support is Ajzen and Fishbein's (1980) theory of reasoned action (TRA) and an extension of that theory, Ajzen's (1985) theory of planned behavior (TPB). The present study tests the latter theoretical framework for its predictive validity in the behavioral domain of Pap test intentions. It also investigates the effectiveness of persuasive messages based on the theory of planned behavior in influencing beliefs, attitudes, intentions, and behaviors with respect to Pap smear tests. First, this paper discusses the relationship between attitude and behavior. It then describes each of the two relevant theories (TRA and TPB) and provides a literature review of studies applying them. Third, after presenting the two previous studies utilizing the theory of reasoned action to explain Pap test behaviors, this paper offers another component (perceived behavioral importance) as an extension to the theory of planned behavior. This new factor is hypothesized to enhance the predictive utility of the theory in explaining young women's intentions to obtain Pap tests. Multiple regression and path analytic techniques are used to test the hypothesized model (the extension of the TPB). In addition, several hypotheses are offered based on previous findings relevant to Pap test behaviors. Various other analytic techniques, discussed later, are used to test the hypotheses and assess the effectiveness of TPB-based persuasive messages in influencing the underlying beliefs associated with each of the exogenous belief components of the theory of planned behavior. Methods and procedures of the study are then described, and finally, findings are presented along with a discussion of the findings and their implications for future research. We first take up the controversial relationship between attitude and behavior.

The Attitude-Behavior Relationship

The relationship between attitude and behavior has been and continues to be a matter of great discussion for persuasion and social influence researchers (Eagley & Chaiken, 1993). Early studies investigating the effect attitudes have on behavior suggested that attitudinal dispositions could be used to help explain human behavior (Ajzen & Fishbein, 1980). That is, one should be able to predict another's behavior by knowing their attitude toward the behavior. Indeed, this assumed relationship can be found in or inferred from a number of different definitions of attitude. For example, attitudes have been defined as predispositions to respond (Osgood, Tusci, & Tannenbaum, 1957), dispositions to react (Sarnoff, 1960), and as having an energizing effect on behavior (Allport, 1935). However, the results of early attitudinal studies questioned the validity of an attitude-behavior relationship.

One of these early studies was LaPiere's (1934) classic examination of racial prejudice. In his investigation, LaPierre accompanied a Chinese couple to a number of business establishments in the United States to find out how many would refuse service to the couple. He found that of the 251 establishments they visited, only one refused service. About six months later, each of the 251 establishments was sent letters asking if it would accept members of the Chinese race as business patrons. Amazingly, 90% of the 128 establishments responding to the question said they would not. This finding suggested that attitudes are not necessarily associated with behavior, and that the relationship between the two variables is tenuous at best.

Another study by Cory (1937) examining the relationship between students' attitudes

toward cheating and their actual cheating behavior also found that attitudes were not strongly related to behavior. Cory's investigation resulted in a r=.02 correlation between attitude and behavior. Later empirical studies examining the attitude-behavior relationship continued to find a weak relationship between the two variables (Ehlrich, 1969; McGuire, 1969; Wicker, 1969). In 1955, prominent sociologist Herbert Blumer publicly criticized and challenged the assumption that attitudes influence behavior. A few years later another sociologist, Irwin Deutscher (1973), published a harsh critique of the attitude-behavior relationship by providing past studies which were empirically weak in demonstrating a causal relationship between attitudes and behavior.

The attack against an attitude-behavior relationship hit full steam in the 1960s. It was then that psychologist Alan Wicker (1969) published an article in which he wrote that there is "little evidence to support the postulated existence of stable underlying attitudes within the individual which influence ...his actions" (p. 75). He based the his critique on an extensive literature review of empirical studies testing a hypothesized relationship between attitudes and behavior. In his review, he found the average correlation between attitude and behavior to be .15 with a high correlation of .30. Based on this evidence, Wicker concluded that, "taken as a whole, these studies suggest that it is considerably more likely that attitude will be unrelated or only slightly related to overt behaviors than attitudes will be closely related to actions (Wicker, 1969, p. 65). Abelson (1972) similarly concluded that there was not enough evidence to support the hypothesis that attitudes impact human actions.

Though the evidence was building against the once-assumed attitude-behavior

relationship, a number of theorists was unwilling to accept that such a relationship did not exist. They firmly believed that an actor's attitudes had to have some underlying, if not obvious, relationship with his/her behavioral actions. Some of these scholars, examining other work in the area, concluded that the "no- relationship" position was too pessimistic, and unfounded. Dillehay (1973) argued that some of these earlier studies that found null or weak attitude-behavior results suffered from methodological shortcomings. He noted in the LaPierre (1934) study that it was likely that different sets of people responded to the actual face-to-face request for service and the mail survey which followed six months later. That is, there is reason to suspect that desk clerks and host staff handled the face-to-face service requests while hotel and restaurant managers responded to the mail survey. Dillehay argued that the conclusion of Lapierre (i.e, no relationship between attitude and behavior) is misguided since subjects who were part of the first wave of data collection were not the same as those in the second wave.

Other scholars (Ajzen & Fishbein, 1977) have noted at least two other shortcomings in the early attitude-behavior studies. First, Ajzen and Fishbein (1977, 1980) have indicated that a weak relationship between attitude and behavior should not be surprising when the measures of attitude and behavior are at different levels of specificity. For example, discovering another's general attitude toward higher education is not a good predictor of that person's behavior in taking or not taking a college biology class. To increase the probability of predicting that particular behavior, one must assess that person's attitude toward taking the biology class. Second, it is many times the case that behavioral measures and their corresponding attitudinal measures are generally single acts chosen "on an intuitive and arbitrary basis" (Fishbein & Ajzen, 1974, p. 65). That is,

behavior relevant to some attitude object may be affected by environmental factors rather than by attributes associated with the attitude object. However, Fishbein and Ajzen suggest that if one observes a person's behavior toward an attitude object across myriad settings, one would see that the person behaves similarly toward the attitude object because the object itself would be influencing the measure of behavior, and not the peculiarities of the settings (Cacioppo, Hawkins, & Petty, 1981).

A review of the attitude-behavior literature by Ajzen and Fishbein (1977) provided a number of studies in which the previously discussed methodological shortcomings were present. In those studies the relationship between attitude and behavior were non-significant. On the other hand, in studies which employed appropriate measures, statistically significant relationships between attitude and behavior were found each time (26 out of 26 studies). Fishbein and Ajzen's literature review was instrumental in turning the tide toward a relationship between attitude and behavior (Cacioppo et. al., 1981).

While the work of Fishbein and Ajzen put more faith in an attitude-behavior relationship, it did not necessarily explain away all the weak and null results. Subsequently, a number of scholars believed and subsequently concluded that the relationship between attitude and behavior must be mediated or moderated by some unaccounted for variables (Ajzen & Fishbein, 1980). Such effects of other variables would provide evidence that the concept of attitude is associated with behavior and is important to the study of human behavior. Moreover, it would help to explain the findings which suggested a weak or no relationship between attitude and behavior. These researchers set out to find those variables and situations that would provide evidence for

their belief that attitudes are associated with, and could predict behaviors across a wide variety of domains.

One line of research which has examined the attitude-behavior discrepancy has framed the problem as one of measurement (Fishbein & Ajzen, 1974; Weigel and Newman, 1976). As previously discussed, Ajzen and Fishbein (1980; Ajzen, 1975) argue that in order to accurately predict behavior from attitude, specific measures of attitude need to be taken with respect to the behavioral criterion measure. Put differently, the accuracy in predicting specific behaviors from attitudes will be greatly enhanced when the measure of attitude is specified at the same level as the behavior in question. For example, in order to use attitudes to predict whether a woman will get a Pap test within a specified period of time, one must measure the woman's specific attitudes toward that particular behavior, not her general attitude toward Pap tests. Ajzen and Fishbein argue it is not adequate enough to measure general attitudes toward Pap tests. A global or general measure of attitude toward Pap tests will not do a good job of predicting the specific behavior of getting a Pap test within a particular time frame. However, it has been shown that even when specific measures of attitude are utilized, the relationship between attitudes and behavior may still be weak (Jaccard et al., 1977). Such findings have led investigators to develop theories which include other variables that are hypothesized to predict behavior.

In their theory of reasoned action, Ajzen and Fishbein (1980) argue that actors' intentions mediate the effect of attitude on behavior. They define intention as a subjective probability to act (Ajzen & Fishbein, 1980). They claim that one's "intention to perform (or not perform) a behavior as the immediate determinant of the action" (p. 5).

In fact, they state that it is relatively easy to predict another's behavior if one has knowledge of that person's intention to perform the behavior. However, they caution that there is not always a one-to-one correspondence between intention and behavior, but "barring unseen events, a person will usually act in accordance with his or her intention" (p. 5). While it is at some level helpful to know that intention has a causal relationship with behavior, Ajzen and Fishbein (1980) admit that the notion that intention is a good predictor of behavior does not give much insight to the reasons why people act. It is of more value to be able to explain behavior. Accordingly, they posit a cognitive theory for both predicting and explaining human behavior. That theory, the theory of reasoned action, is taken up in the next section.

Theory of Reasoned Action

A number of different theories has been used to try to explain human behaviors. When it comes to the adoption of health behaviors, one of the most applied theoretical frameworks is the theory of reasoned action (Ajzen, 1975; Ajzen & Fishbein, 1980). In general, the theory has been empirically supported across a wide variety of behavioral domains (Ajzen, 1991; Sheppard, 1988). The theory posits that behavior is directly influenced by an individual's intention to perform or not perform the behavior in question. As the immediate and only direct determinant of behavior in the theory, Ajzen and Fishbein suggest that, "behaviors are not really difficult to predict" (p. 5) given knowledge of an actor's intention. However, they also state that while being able to predict behavior is useful, it is also valuable to understand why people behave. Therefore, their model

includes other variables which help to determine behavioral intention.

According to Ajzen and Fishbein, behavioral intention is a function of an individual's beliefs about the behavior in question. These beliefs have been divided into two conceptually distinct groups: behavioral and normative (Fishbein & Ajzen, 1975). Behavioral beliefs (i.e. outcome beliefs) about outcomes are said to influence attitudes toward the behavior while normative beliefs (i.e., beliefs about what referent others believe about an object) are hypothesized to impact general subjective norms. Specifically, attitude about the behavior is operationalized to be equivalent to the sum of the products of salient beliefs about outcomes that would result if the behavior were to be enacted (outcome beliefs or expectancies) and the value the individual places on each of the outcomes (outcome evaluation or value). It is commonly expressed as:

$$A_{beh} = \int_{i=1}^{n} b_i e_i$$

where A_{beh} is attitude toward the behavior, b is the belief that performing the behavior$_{beh}$ leads to a consequence or outcome i; e is the individual's evaluation of the outcome i; and n is the number of salient beliefs the individual holds about performing the behavior$_{beh}$.

In the same manner, subjective norm is a function of salient beliefs about what important individuals or reference groups think about what the individual should or should not do (normative beliefs) multiplied by the actor's motivation to comply with

those important others. Subjective norm is algebraically expressed in this manner:

$$SN = \sum_{i=1}^{n} NB_i MC_i$$

where SN stands for subjective norm; *NB* represents normative belief; *MC* is the individual's motivation to comply with referent i; n is the number of relevant referents.

The relative importance of the attitudinal and normative components in influencing behavioral intention is expected to vary across behavioral domains (Eagley & Chaiken, 1993; Kurland, 1995; Morrison, Gillmore, & Baker,1995). That is, for one particular behavior the attitudinal component may account for more of the variance in behavioral intention than the subjective norm component, and in another behavioral domain, subjective norm may influence behavioral intention more so that attitude. For example, in a study of ethical behaviors of insurance agents Kurland (1995) found that attitude accounted for more variance in intention than subjective norm. On the other hand, Morrison et al. (1995) found that subjective norm was more important than attitude in determining college students intentions to use condoms with casual partners. In terms of producing persuasive messages, it is theoretically fruitful to know which component is more heavily weighted as a determinant of intention so that any persuasive message developed can target the more salient and important beliefs.

Because of the way the attitudinal and normative components of the theory of reasoned action are operationalized, the theory of reasoned action has also been placed

under the class of theories known as expectancy-value theories. According to the theory of reasoned action, any other variables external to the model only influence intention through the mediating effect of attitude and subjective norm. However, Ajzen and Fishbein (1980) state that they are open to the inclusion of other predictor variables if they can be shown to significantly enhance the predictive utility of the theory.

Ajzen and Fishbein (1980) suggest that one can target an individual's outcome and normative beliefs with persuasive messages to increase the individual's behavioral intention and, ultimately, the probability that actual behavior will occur. Specifically, they suggest that persuasive messages should challenge, de-emphasize, and/or counterargue any beliefs that might inhibit the performance of the recommended behavior and support and maximize any beliefs which are positively associated with the behavior. Several applications of the theory of reasoned action provide empirical support for theory of reasoned action-based persuasive messages (i.e., messages with emphasize salient positive outcome beliefs and de-emphasize salient negative outcome beliefs) (Brubaker & Fowler, 1990; Fishbein et al., 1980; Hoogstraten, 1985). However, in two of the studies, one investigating testicular self-examination (Brubaker & Fowler, 1990) and the other examining dental care behaviors (Hoogstraten, 1985), researchers found that while theory of reasoned action-based messages (i.e., messages which target salient negative and positive outcome beliefs) are useful in affecting beliefs and ultimately behavior, they also found that non-theory based informational messages were just as effective. These findings challenge Ajzen and Fishbein's (1980) claim that persuasive messages that target salient beliefs are superior to messages which do not. In sum, the few studies which have tested the claim that TRA-based persuasive messages are better

than messages which do not target salient outcome beliefs have resulted in conflicting results. One goal of the present research is to test the effectiveness of a TRA-based persuasive message in the domain of Pap test behavior.

Boundary Conditions of the TRA

According to Fishbein and Ajzen (1975; Ajzen & Fishbein, 1980), the magnitude of the relationship between behavioral intention and actual behavior can be affected by three conditions. First, correlations between intention and behavior can be impacted by the extent to which the behavior in question is under the actor's volitional control. The theory of reasoned action does not consider efficacy issues directly. There is a number of situations in which one may have strong intentions to perform an act, but is unable to do so because of an obstacle or barrier. For example, young women may have a high level of intent to get a Pap test, but they may find the cost of getting one prohibitive. Second, the relationship between intention and behavior can be affected by the extent to which the measures of behavioral intention and actual behavior are at the same level of specificity. For example, if the behavior one is exploring is that of getting a Pap test within a one week time span, then measures of intent should also specify a one week time span. Third the change in intentions between the measure of behavioral intention and the measure of actual behavior. Violations of these boundary conditions negatively affect the predictive utility of the theory. They caution researchers utilizing the theory to be mindful of these boundary conditions in their research investigations.

The many applications of the theory of reasoned action have yielded generally

supportive results when the theory's boundary conditions are met (Sheppard et al., 1988) . It has been used to predict and explain a variety of health behaviors including breast self-examination (Hill et al., 1985), testicular self-examination (Brubaker & Fowler, 1990; Brubaker & Wickerman; 1990; Steffan, 1990), Pap test behavior (Hill et al. 1985; Hennig & Knowles, 1990), alcohol use (Fishbein et al., 1980; London, 1982; McCarty et al., 1983), seat-belt use (Budd et al., 1984), and dental care and flossing (Hoogstraten et al., 1985; Toneatto & Binik, 1987).

However, it is obvious that not all health behaviors are under the volitional control of the actor. That is, there is a variety of health behaviors which have barriers that an actor may have difficulty in overcoming, or may not be able to overcome without the use of resources, skills, abilities, etc., not immediately available to him/her. For example, the performance of getting a Pap smear test is contingent upon such things as knowledge about when Pap tests are needed, money to pay for the test, access to a doctor or health site, and time constraints. In these situations where actors have less than full control of behavioral performance, it can be seen how positive attitudes and subjective norm potentially have little effect on intention and behavior if the actor believes that he/she cannot perform or has difficulty in performing the behavior. Critics of the theory of reasoned action claim that the theory is not sufficient in these situations where the actor does not have full control over whether he/she performs the behavior (Sheppard et al., 1988).

Theory of Planned Behavior

In response to these critics Ajzen (1985) extended the theory of reasoned action to include a factor that takes into account behaviors which are not completely under the control of the actor. His theory of planned behavior includes perceived behavioral control as another factor that potentially influences behavioral intention.

Perceived behavioral control is defined as an individual's perceptions about his/her ability in performing the behavior in question. Ajzen (1985) suggests that perceived behavioral control is conceptually similar to Bandura's concept of self-efficacy (Bandura, 1977; Bandura, 1982). According to Bandura (1982, p. 122) the concept of self-efficacy "is concerned with judgments of how well one can execute courses of action required to deal with prospective situations." Previous studies provide support for the inclusion of a self-efficacy component in models designed to predict health-adoption behaviors (Beck & Ajzen , 1991; Devellis, Blalock, & Sandler, 1990; Hill, Gardner & Rassaby, 1985). The data from those studies suggest that an individual's ability to perform a behavior is strongly influenced by his/her assessment of the requisite resources and abilities needed (Bandura, Adams, Hardy, and Howells 1980; Beck & Ajzen, 1991; Brubaker & Wickersham; 1990).

The theory of planned behavior, like it's predecessor, has received a good deal of empirical support (Ajzen, 1991; Madden, 1992). Ajzen and Madden (1986) were one of the first to offer a complete test of the theory. They used the theory to examine college students' class attendance (study 1) and predictions of getting an "A" in a class (study 2). The results of the study suggest that perceived behavioral control accounted for a

significant portion of the variance in intention beyond that accounted for by attitude and subjective norm. However, perceived behavioral control did not add significantly to the prediction of behavior when behavioral intention was controlled. This non-significant finding, they suggest, can be accounted for by the relatively high degree of control students have over attending class. They argue that under conditions where actors have a high degree of volitional control, the theory of reasoned action is sufficient in predicting behavior.

In their second study the researchers investigated the behavior of getting an "A" in a college course. Data measuring students' attitudes, subjective norms, perceived behavioral control and behavioral intention were collected at two different points of time; one at the beginning of the course and one at the end. The students' grades in the course were used as the measure of behavior. Analyses of the data from the first wave yielded similar results to their first study. That is, perceived behavioral control added significantly to the prediction of intention, but added little to the prediction of actual behavior. Analyses of the data collected from the second wave, however, were consistent with the predictions offered by the theory of planned behavior. That is, perceived behavioral control enhanced the prediction of behavior even after controlling for intention. They explained this result by arguing that students' perceptions of control concerning getting an "A" in the course at the beginning of the semester were inflated and unrealistic. More realistic control perceptions were given at the end of the semester when students' had more information to use in assessing their ability to get an "A." They conclude that perceived behavioral control only has predictive utility with respect to behavior when perceptions of control are accurate.

In another test of the theory of planned behavior Schifter and Ajzen (1985) investigated the behavior of weight loss. They found that college women's assessment of control over losing weight had a significant contribution on intentions to lose weight and a moderate effect on actual weight loss. They suggest that the moderate effect of perceived control on weight loss may be due to the unaccounted for effects of other factors. In sum, applications of the theory of planned behavior have, in general, been supportive of the model's validity. With respect to the domain of health, the theory has yielded favorable results across a variety of health behaviors including weight loss (Schifter & Ajzen, 1985), condom use (Morrison et al., 1995), exercise (Godin, 1990; Godin et al., 1989), and cancer screening (Devellis et. Al., 1990).

Applications to Pap Smear Tests

One behavior which has not been investigated with the theory of planned behavior is that of getting a Pap Smear test. As noted earlier, Pap tests are strongly recommended for early detection of cervical cancer. A literature review by this researcher shows that Pap test behaviors have been examined with the theory of reasoned action no less than two times. Hill, Gardner, and Rassaby (1985) found support for the theory of reasoned action in predicting intentions to obtain Pap tests and perform breast self-examinations (the remaining discussion will only refer to Pap tests). In their study they tested three models commonly used to explain the adoption of health behaviors (i.e., theory of reasoned action, health belief model, and subjective probability model). Data measuring components of each of the three theoretical frameworks were collected from N=123

Australian women ranging in age from 18 to 70 (mean years =34). A behavioral measure was not taken. Their results indicated that each model had predictive utility with respect to intentions to perform Pap tests. However, none of the theories accounted for large amounts of variance in Pap test intentions. The two theories that accounted for the most variance, the theory of reasoned action and the health belief model, accounted for 26% and 30% of the variance, respectively. In choosing the "best" model the authors opted for the theory of reasoned action because it is the most parsimonious of the two models.

However, their analyses also found that the barriers component of the health belief model accounted for a significant portion of the variance in addition to the variance accounted for by attitude and subjective norm. Since the notion of barriers is highly associated with the concept of self-efficacy and perceived behavioral control, this finding suggests that the component of perceived behavioral control might enhance the predictive power of the theory of reasoned action in explaining intention and behavior. In fact, Hill et al. (1985) conclude that a composite model consisting of the theory of reasoned action and the barriers component (i.e., theory of planned behavior) might be best suited to predict women's intentions to get a Pap test. In addition, their findings suggest that persuasive messages targeting older women to get Pap tests should maximize the positive behavioral outcome beliefs of 1) finds cancer in the early stages, and 2) give a sense of relief to find nothing amiss, and minimize the negative beliefs of 1) involves embarrassment, and 2) is physically unpleasant.

In a study similar to the Hill et al. study, Hennig and Knowles (1990) examined intentions to get Pap tests among a sample of N=144 Australian women over 40 years old

(mean years = 54). They too found that attitude and subjective norm significantly influenced Pap test intentions, but the two components explained only 12% of the variance in intention. One possible explanation for the small effect on the variance in behavioral intention is that these researchers incorrectly obtained the measure of attitude. These researchers operationalized attitude by summing up belief outcomes and belief evaluations before multiplying the two to come up with attitude. This method of creating the attitude measure has been cautioned against (Ajzen & Fishbein, 1980). The correct method is multiplying each of the outcome beliefs with its corresponding belief evaluation and then summing up the products. Hennig and Knowles methodological mistake conceivably introduced non-random error into their study and produced the low variance finding in behavioral intention.

While the Hill et al. (1985) and Hennig and Knowles (1990) studies lend general support to the theory of reasoned action, their results with respect to the amount of variance in intention accounted for by the theory's components was relatively low. Such findings suggest one or a combination of reasons which may account for the results. First, one or more of the boundary conditions specified for the theory of reasoned action may have been violated. In the case of these two studies, it is possible that the subjects had limited control over getting a Pap test. To the extent that this is true, Pap test behaviors are not completely volitional and thus outside the scope of the theory of reasoned action. Second, it is likely that other factors have a direct effect on intention which were not accounted for in either of the studies. For example, the relationship between intention and subjects' attitudes and subjective norm with respect to getting a Pap test within two years (target behavior in both studies) may be mediated or moderated by the subject's

assessment of the importance of the behavior. If one deems a behavior to be unimportant, while still holding positive attitudes toward the behavior and believing others think he/she should do it, there is a strong possibility that he/she will not enact the behavior. This idea of behavioral importance or salience is similar to the concept of attitude importance. These two concepts are taken up in the next section.

Attitude Importance

In the social science literature the concept of attitude importance has been thought of as a motivational concept that influences perception and behavior (Boninger, Krosnick & Berent, 1995, Eagley & Chaiken, 1993). The literature on attitude strength does not contain a strong formal definition of the concept, nor does it provide any well-established operationalizations (Boninger et. al., 1995). Subsequently, conceptualizations of attitude importance include ideas of extremity (Tannenbaum, 1956), investment (Krosnick, 1990), caring (Krosnick, 1989), emotional commitment (Abelson, 1988), significance (Boninger, et. al., 1995), and accessibility (Fazio, 1986). Definitions of attitude importance include, "the degree to which a person is passionately concerned about and personally invested in an attitude" (Krosnick 1990, p. 60) and "an individual's subjective sense of the concern, caring, and significance he or she attaches to an attitude" (Boninger et. al., 1995, p. 62). These conceptualizations and definitions suggest that when a person attaches a high level of personal importance to an attitude, he/she deeply and passionately cares about it and is committed to it. Boninger et. al. (1995, p. 62) argue that attitude importance is "a belief that links an attitude to an attribute."

Many of the ideas used in discussing attitude importance can be carried over to the idea of behavioral importance. In this light, behavioral importance can be thought of as the degree to which one cares about or is committed to a behavior. If an individual attaches great personal importance to a behavior then that individual views the behavior as personally salient, is passionate towards it, and is more likely to engage in the behavior than not. For example, those who believe that it is very important to wear a seat-belt every time they are in an automobile are likely to wear seat-belts and encourage others to wear seat-belts. Their attachment of importance to that particular behavior (seat-belt use) is expected to guide their seat-belt relevant behaviors. Like attitude importance, behavioral importance is conceptualized to be a belief and is defined as an individual's perception of the value, significance, and relevance of a behavior. Behavioral importance, like intention, is hypothesized to influence one's intention to act.

Within the realm of expectancy-value theories, and more specifically the theory of reasoned action, the question may arise, "How is the concept of behavioral importance different than the concept of attitude?"While behavioral importance may be similar to the concept of attitude, insofar as they both are hypothesized to influence intention, conceptually they are argued to be quite different. Behavioral importance, as a belief, is generally cognitive in nature while attitude has generally been thought of as more affective than cognitive (Eagley & Chaiken, 1993). In order to obtain a clearer distinction between the concepts it may be useful to further examine and define the concept of attitude.

The Concept of Attitude

The English word *attitude* comes from the Latin *aptus* which means "fitness" or "adaptedness." Original uses of the term primarily referred to posture or bodily position (e.g., the way one sits is sometimes perceived as indicative of one's "attitude" at the time). In his *Expressions of Emotions in Man and Animals*, Charles Darwin utilized *attitude* as a motor concept, or the physical expression of an emotion (see Fleming, 1967). Darwin viewed an attitude as a biological state of readiness to respond. Experimental psychologist L. Lange referred to a "task-attitude" as a musculature preparation to respond. He offered this behavioral conception of attitude following an 1888 reaction-time experiment in which he found that subjects mentally prepared to press a telegraph key in response to a signal did so more quickly than subjects who focused on the signal rather than the response to the signal. In the same vein, English neurophysiologist Charles Sherrington in 1906 referred to attitude as a person's normal pose or posture, not as an occasional indicant of a strong emotion or a response to a certain task set (see Fleming, 1967). While Darwin, Lange, and Sherrington originally conceptualized attitude as motor states it was not long before the concept of attitude was viewed as a mental of cognitive construct.

It was in 1918 that sociologist William I. Thomas and poet-philosopher Florain Znaniecki published *The Polish Peasant in Europe and America*. This landmark volume in social research examined the problems Polish immigrants faced in coming to the United States. Much of what Thomas and Znaniecki presented centered around the concept of attitude. In their work, the authors referred to *attitude* as a wholly affective and evaluative

concept. For them, an attitude was nothing short of a feeling(s) toward some object. Attitudes were such things as "love of children," "hatred of criminals," and "respect for science." Thomas and Znaniecki's statement of attitudes was historically important because, for the first time, attitudes had been separated from its physiological content (see Fleming, 1967).

This more cognitive-based view of attitudes received greater support in the 1930's due to the influential work of such neo-behaviorists as Hull, Tolman, and Skinner whose works divorced attitude from physiology (Petty, Ostrom, & Brock, 1981) . As more and more researchers began examining the similarities between attitude and psychophysical judgments it became commonplace to refer to attitudes as mostly, if not purely, cognitive. By World War II this cognitive understanding of attitude was firmly entrenched in the vocabularies of both academics and lay persons. However, while it was understood that attitude was a cognitive concept, there was less agreement on how to define attitude.

A number of different definitions of attitude has been given in the past. Attitude has been referred to as a psychological tendency with some degree of favor or disfavor (Eagley & Chaiken, 1992), a mental state of readiness exerting influence upon an individual's response to an object (Allport, 1935), an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world (Krech & Crutchfield, 1948), an object evaluation that is stored in memory (Judd, Drake, Downing & Krosnick), the affect for or against a psychological object (Thurstone, 1931), a learned disposition to respond favorably or unfavorably with respect to an object (Fishbein & Ajzen, 1975), and a person's evaluation of any

psychological object (Ajzen & Fishbein, 1980). The many varied definitions of attitude make it difficult to find commonalities that weave through all. However, most contemporary attitude researchers would agree that an attitude is a *learned*, *enduring,* and *affective evaluation* of an object which has some degree of causal impact on behavior (Eagley & Chaiken, 1993; Perloff, 1993). We next take up a discussion of these components of attitude.

Attitudes are widely accepted to be more a product of learning rather than the result of genetic forces (Eagley & Chaiken, 1993; Perloff, 1993; Petty, Ostrom, & Brock, 1981). It is through the course of socialization that we learn the attitudes which we hold. A number of different factors (e.g., family, friends, media) play an integral role in the formation of our attitudes, and it would be very difficult to single out any one factor as the determinate of any of the attitudes we hold. While some investigators (McGuire, 1985; Schacter 1982) hold that genetic forces influence us to develop some attitudes or direct us to behave in a particular manner toward attitude objects, there is little evidence to support a genetic view of attitude formation (Eagley & Chaiken, 199; Perloff, 1993).

It is generally understood that attitudes are enduring mental dispositions rather than fleeting, moment-to-moment occurrences (Perloff, 1993). Unlike moods, which may covary with the environment in which we find ourselves, attitudes are said to be stable formations that affect our thoughts and behaviors. Attitudes are unlikely to change because we've had a bad day or because someone yelled at us. Rather, attitudes tend to be enduring and, in many cases, very resistant to change.

Lastly, attitudes are said to have a strong affective dimension. Thurstone (1931), an

influential scholar in the area of attitude measurement, conceptualized attitude as the amount of affect for or against an attitude object. Subsequent conceptualizations of the attitude concept offered other dimensions beyond the affective one (see Scott, 1968; Smith, Bruner & White, 1956). The properties of these other dimensions suggest three classes of responses: 1) *affective* -- one's feelings about or emotions toward some object, 2) *cognitive* -- one's thoughts, ideas, associations, and images relevant to some object, and 3) *conative* (i.e., behavioral) -- one's behavioral response to some object. It has been suggested (Ostrom, 1969) that the three response types can be used to assess one's attitude toward a designated stimulus object. Accordingly, *affect* has to do with the positive or negative feelings toward an object; *cognition* is concerned with the positive or negative attributes one associates with a stimulus object; and *conation* deals with the positive or negative behaviors which one displays as a response to a stimulus object. While Ostrom (1969) suggested that all three responses could be used as indicants of an attitude, they are said to be conceptually distinct and independent of one another.

The tri-partite view of attitude has been used by a number of researchers. Some have used two or all three types of responses in creating their definitions of attitude (Allport, 1935; Katz & Stotland. 1959; Rosenberg & Hovland, 1960). However, there has been a move to return to Thurstone's conceptualization of attitude as mainly affective in nature (Cacioppo, Hawkins, & Petty, 1981, Perloff, 1993). As examples, Bem (1970) defines attitudes as likes and dislikes; Collins (1970) suggests an attitude is a feeling of good or bad, fair or unfair toward an attitude object; Insko and Schopler (1972) present attitudes as dispositions to favorably or unfavorably evaluate attitude objects; and Fishbein & Ajzen (1975, p. 11) say that, "the major characteristic that distinguishes attitude from

other concepts is its evaluative or affective nature." By restricting the definition of attitude to mainly being an affective evaluation, one is able to distinguish feelings (i.e., "I hate Pap smears.") which constitute attitude, from cognition (i.e., "Pap smears are important.") and conations (i.e., " I rarely get Pap smears."). While we may define attitude with mainly an affective component, it is not to say that the cognitive and behavioral components should be dismissed. Rather, as stated previously, cognitions and conations are given distinct and conceptually independent recognition.

To the extent that one utilizes Fishbein and Ajzen (1975; Ajzen and Fishbein's,1980) definition of attitude as an affective evaluation of an object and the way in which they operationalize attitude (e.g., expectancy-value), then one can make a claim that an attitude toward some particular object, in the present case, a behavior, is an affective disposition toward that behavior. This conceptualization does not fully represent the degree of value, importance, or significance one may place on an attitude object. That is, the level of importance one places on an attitude object is different than one's affective disposition toward it. This can be seen in a case in which an individual has very positive attitudes toward a behavior (e.g., watching a particular television program), but places little importance on watching that program. Accurately predicting intentions and behavior based only on the actor's positive attitudes is tenuous at best. Conversely, an individual may believe exercising three times a week is very important, but have negative attitudes about exercising three times a week. It can be seen that holding a favorable or unfavorable evaluation of a behavioral action is not the same as believing that performing the behavior is important. Of course, one might expect the evaluation (affective) of a behavioral action to be correlated with the importance (cognitive) placed on that action. However, there is

at least a conceptual distinction between the two dimensions which should be considered in examining behaviors within the class of expectancy-value theories (e.g., theory of reasoned action, theory of planned behavior). In fact, a study by Budd (1986) suggests that a measure of belief salience can improve the predictive power of the theory of reasoned action. While belief salience as Budd operationalizes it (i.e., measuring only the five most important or accessible beliefs) is not the same as the factor of perceived behavioral importance, it suggests that a measure of how important a behavior is to a person is potentially useful in predicting if the person intends to actually perform the behavior.

In the case of Pap test behavior, and health behaviors in general, a measure of behavioral importance has the potential to exert an independent influence on behavioral intention and/or moderate the effects of other variables. For example, take the case in which a woman has positive attitudes about getting a Pap test, but does not feel it important to get one. Some young women may know the benefits of getting Pap tests (i.e. hold positive attitudes), but may be misinformed and believe that they do not need to get Pap tests until they are older and more susceptible to cervical cancer (i.e., low behavioral importance). In this case, one might predict that these women are less likely to intend to get a Pap test. In the case of older women, like those in the in the Hennig and Knowles study, they might believe that getting regular Pap tests is not necessary if they are no longer sexually active (i.e., not important), but still have positive attitudes toward Pap tests. It is argued that knowing the value (i.e., perceived behavioral importance) an actor places on a behavior enhances the prediction of intentions.

Hypotheses

One goal of the present research is test the theory of planned behavior as a model for predicting women's behaviors with respect to getting a Pap test. Past studies in the behavioral domain of Pap tests have not formally tested the theory of planned behavior (Hennig & Knowles, 1990; Hill et. al., 1985). However, the results of the Hill et. al. (1985) study suggest that a barrier/efficacy component might add predictive utility to the theory of reasoned action. Adding such a component to the TRA essentially turns the model into that expressed by the theory of planned behavior (Ajzen, 1985). The theory of planned behavior is hypothesized to have better predictive utility, with respect to behavioral intention, than the theory of reasoned action if Pap tests behaviors are not completely volitional. The TPB's factor of perceived behavioral control, which extends the theory of reasoned action, has been shown to contribute significantly in accounting for explained variance in behavioral intention in cases where the behavior is somewhat beyond the complete control of the actor. In light of past research and the desire to understand if the behavior of getting a Pap test is perceived by an actor to be under her volitional control, the first hypothesis is offered.

H1:The factor of perceived behavioral control will account for a significant amount of the variance in Pap test intention over and beyond that accounted for by attitude and subjective norm.

Support for this hypothesis would suggest that Pap test behaviors are perceived by actors to be, to some degree, outside their complete control.

The second hypothesis tests the claim that perceived behavioral importance has an

influential impact on Pap test intention. The relatively small level of explained variance in Pap test intentions in the Hill et al. (1985) and Hennig and Knowles (1990) studies suggest that other variables need to be added to the theory of reasoned action, at least in explaining intentions regarding Pap tests. It was previously argued that perceived behavioral importance (i.e., the value placed on performing the behavior) is a conceptually distinct from attitude and could play a predictive role in explaining Pap test intentions. Subsequently, the second hypothesis is offered.

H2: The factor of behavioral importance will account for a significant amount of the variance in Pap test intention and, over and beyond that accounted for by attitude subjective norm, and perceived behavioral control.

The third and fourth sets of hypotheses tests Ajzen and Fishbein's (1980) claim that persuasive messages which target specific outcome beliefs are more effective than general informational messages. Specifically, Ajzen and Fishbein claim that messages which utilize salient outcome beliefs should have a stronger impact on intention and behavior than a message containing general information about the behavior in question.

H3A:Persuasive messages targeting positive outcome beliefs will be more effective at influencing Pap test intention than a general informational Pap test message.

H3B:Persuasive messages targeting positive outcome beliefs will be more effective at influencing Pap test behavior than a general informational Pap test message.

H4A:Persuasive messages targeting negative outcome beliefs will be more effective at influencing Pap test intention than a general informational Pap test message.

H4B:Persuasive messages targeting negative outcome beliefs will be more effective at influencing Pap test behavior than a general informational Pap test message.

It was noted that past research empirically testing Ajzen and Fishbein's claim has resulted in inconsistent findings. The present study attempts to provide more information in order to substantiate or refute the claim.

Method

Subjects

The sample selected for this study is college-aged undergraduate females. Subjects of this age make up an appropriate sample because recent studies suggest that young, never-married women 18 to 39, and never married White women compose the largest groups of females never having a Pap smear (Calle, et al., 1993). Moreover, the same study suggests that the youngest women aged 18 to 24 have the highest risk of never having a Pap smear. Compared to the rest of the population, college age women fit the demographic profile of women who are at high-risk of never having a Pap smear. In light of past research on Pap test behavior and the theoretical framework applied in the present research, it also is appropriate to use a young sample because young women's Pap smear intentions and behaviors have never been examined with the theory of planned behavior.

Participants in the present investigation were N=183 female undergraduates from a small, midwestern college. The mean age of the participants was M=21.6 years with no woman over age 23 and no one less than 18 years of age. 14% were first year students, 16% were sophomores, 20% were juniors, 20% were seniors, and 30% indicated they were 5th year seniors. Nearly one-fifth of the participants (18%) had never heard of the Pap smear test before coming to participate in the study, and 67% had never had a Pap smear test conducted. 13% of the women indicated they were "not knowledgeable at all" concerning Pap tests, 75% felt they were somewhat knowledgeable, and the remaining 12% said they were very knowledgeable. These Pap test behavior and knowledge

statistics further underscore the need for interventions encouraging young women to obtain Pap smear tests.

Pilot Study

As suggested by Ajzen (1988) a prior elicitation questionnaire was administered to a sample of young, undergraduate females (N=31). Those involved in the pilot study came from the same population from which main study participants were recruited. The elicitation questionnaire was designed to obtain modal salient behavioral, normative, and control beliefs relevant to getting a Pap smear test. Fishbein and Ajzen (1980) suggest that the predictive validity of the theory of reasoned action is enhanced when modal salient beliefs are targeted in persuasive messages. Subsequent analyses of the questionnaires provided the positive and negative outcome beliefs which were used to develop the stimulus materials. In deciding which beliefs were the most salient, Fishbein and Ajzen's (1980) recommendation to take the top five to nine most mentioned beliefs was used. However, an examination of questionnaires indicated that subjects only mentioned six positive outcome beliefs and eight negative outcome beliefs, and some of those were only mentioned once. In light of this data, this researcher decided that only beliefs mentioned by at least ten percent of the subjects would be utilized. Table 1 below shows those positive and negative outcome beliefs which met the ten percent criterion.

Table 1

Salient Positive and Negative Outcome Beliefs

Positive Outcome Beliefs	Negative Outcome Beliefs
1. Detects cancer early	1. Fear of negative result
2. Gives me peace of mind	2. Costs a lot of money
3. Learn more about my own health	3. Causes discomfort
4. Can save my life	4. Anxiety producing

Messages

Based on the findings of the elicitation questionnaire, persuasive messages emphasizing positive outcome beliefs (message 1) and challenging negative outcome beliefs (message 2) were developed. A general information message (message 3) was also developed from an informational pamphlet distributed by the health center at the subjects' college. Each of the three messages was one page in length and indicated the college health center as the source. All three messages began with providing the same general information about Pap tests. The positive belief message ("Pap Tests: Learn the Benefits!") then emphasized the four outcome beliefs obtained from the prior elicitation questionnaire in the second half of the message while the negative belief message ("Pap Tests: They're Not as Bad as You Think!") went on to de-emphasize the four negative outcome beliefs. The general information message ("Pap Tests: What You Should Know!") continued on with providing more general information. The three messages used in the study are presented in Apeendices A, B, and C.

Questionnaire

Based on the findings from the prior elicitation questionnaire and the previously cited Pap test studies a survey instrument was designed to measure the components of the theory of planned behavior. Items on the test instrument conformed to procedures suggested by Ajzen and Fishbein (1980). Unless otherwise noted all items were measured on a 7-point linear scale and asked about obtaining a Pap test by the end of the summer (a time span of approximately three months).

Behavioral Beliefs: On a 7-point scale anchored by extremely likely (1) and extremely unlikely (7) subjects were asked to give probability ratings that seven outcomes would result from having a Pap test. The seven beliefs were presented in a manner similar to what is subsequently described: "My having a Pap test by the end of the summer (belief)...." give me a sense of relief that I don't have cancer, reassure me about not having cancer, cause me embarrassment with my doctor, be physically unpleasant, mean any cancer found would be curable, cause me to worry until I got the test results, detect cancer in the early stages.

Outcome Evaluation: To obtain measures of the value subjects place on each outcome belief subjects were asked to rate how good or bad each outcome would be. These items were presented like this, "For you, how good or bad would (outcome) be?" Subjects responded on a 7-point scale with anchors, extremely bad (1) and extremely good (7).

Attitude: A molecular measure of attitude was obtained by summing up the products of each outcome belief and its corresponding outcome evaluation, in accordance with the procedure prescribed by Ajzen and Fishbein (1980). A global measure of attitude toward

having a Pap test by the end of the summer was obtained by utilizing respondents' scores on 6 semantic differential items: bad-good, foolish-wise, unfavorable-favorable, harmful-beneficial, worthless-valuable, useless- useful.

Normative Beliefs: To assess subjects' normative beliefs, respondents were asked the degree to which seven important individuals/groups would be in favor or oppose the subject having a Pap test by the end of the summer. Subjects were asked in this manner, "How much would (individual/group) be in favor or oppose you having a Pap test by the end of the summer?" The important others were: my mother/stepmother, my father/stepfather, my boyfriend/significant other, my doctor, my close friends, my roommates, my grandmother. Responses were recorded on a 7-point scale with anchors, extremely oppose (1) and extremely in favor (7).

Motivation to Comply: Measures to assess the degree to which the subject wanted to do what each of the seven referents wanted them to do with respect to having a Pap test by the end of the summer was obtained on a 7-point scale. The scale was anchored by don't want to at all (1) and want to very much (7), and was asked in this manner, "When it comes to having a Pap test by the end of the summer, I want to do what my (referent) wants me to do."

Subjective Norm: Similar to the molecular measure of attitude, the molecular measure of subjective norm was obtained by multiplying each normative belief score with its corresponding motivation to comply score and summing up the seven products. To obtain a global measure of subjective norm subjects were asked the extent to which they agree with the following four items, "Most people who are important to me (1) think I

should get, (2) want me to get, (3) are in favor of me getting, (4) would like me to get) a Pap test by the end of the summer." Responses were recorded on a 7-point scale anchored by totally disagree (1) and totally agree (7). A general motivation to comply question was also be asked, "When it comes to getting a Pap test by the end of the summer, I generally want to do what most people who are important to me 1) think I should do , (2) want me to do , (3) are in favor of me doing, and (4) would like me to do. Again, each general belief was multiplied by its corresponding general motivation to comply. Each of the products were then be summed to give a global measure of subjective norm.

Barriers: Respondents were asked to indicate the degree to which seven items would be barriers to them getting a Pap test by the end of the summer. The 7-point scale was anchored by no barrier at all (1) and very big barrier (7). The seven barrier items were: lack of time, forgetting to do so, embarrassment associated with the test, fear of result, physical discomfort associated with the test, indignity of examination, access to doctor/health center, and cost of getting the test.

Barrier Control: Respondents' ability to overcome the seven barriers also was assessed by asking subjects how easy or difficult it would be for them to overcome each of the barriers. Anchors of very difficult (1) and very easy (7) were used. The seven questions were framed as follows, "when it comes to getting a Pap test by the end of the summer, how easy/difficult would it be for you to over come (barrier)."

Perceived Behavioral Control: A molecular measure of perceived behavioral control was obtained by summing each of the eight products resulting from the multiplication of

each barrier score with its respective barrier control score. A global measure of perceived behavioral control was assessed using the following four items, 1) I have control over whether I get a Pap test by the end of the summer, 2) I am able to get a Pap test by the end of the summer, 3) It would be easy for me to get a Pap test by the end of the summer, 4) Nothing is stopping me from getting a Pap test by the end of the summer.

Perceived Behavioral Importance: A global measure of importance was obtained by asking subjects to respond to the following six items, 1) How important is it for you to get a Pap test by the end of the summer? (not important at all-extremely important), 2) How big a goal is it for you to get a Pap test by the end of the summer? (not a goal at all-very big goal), 3) How motivated are you to get a Pap test by the end of the summers? (not motivated at all-extremely motivated), 4) How much value do you place on getting a Pap test within the next six months? (very little value-a great deal of value), (5) how committed are yo to getting a Pap test by the end of the summer (not committed at all-extremely committed), and (6) how significant is it for you to get a Pap test by the end of the summer (not significant at all-extremely significant). Each item was scored on a seven-point scale.

Intention: Intention was measured with four items, 1) I intend to get a Pap test by the end of the summer, 2) It is likely that I will get a Pap test by the end of the summer, 3) I expect to get a Pap test by the end of the summer, and 4) I plan to get a Pap test by the end of the summer. Respondents were asked to indicate the degree to which they agreed with each of the four statements on a 7-point scale, where 1 means totally disagree and 7 means totally agree. The four items were factor analyzed obtain the measure of

intention.

Behavior: Because of the difficulty in obtaining an actual behavior measure (measuring if respondents actually got a Pap smear test), a proxy for behavior was used in order to assess the entire framework set forth in the theory of planned behavior. The proxy in this case was a pre-addressed, stamped postcard respondents could fill out to receive more information about Pap smear tests and cervical cancer. The postcards were attached to each of the questionnaires and subjects were told at the beginning of the data collection session that if they wanted to receive more information they could fill out the post card and mail it back to the researcher. Although this measure of behavior is not optimal, it does offer a behavioral proxy that can be used to test the study's hypotheses.

In addition to the measures noted above, items to test the effect of the three messages were also included in the questionnaire. Specifically, items were included to measure persuasiveness, memorability, favorability, fear producing, motivating, credibility, informativeness, and attitude toward Pap smears.

Design and Procedures

A quasi-experimental post-test only, no control group design with three experimental groups was utilized. This particular design allows the comparison of scores among the three message conditions. Participants were recruited with flyers from various dorms (underclassmen) and on-campus apartment complexes (upperclassmen) to help ensure variance in age (within the age boundaries of traditional college-aged students). The flyers asked for participants for a women's health study (nothing on the flyer indicated the

health issue under investigation). As an incentive, the flyer stated that those who participated in the study would be included in a drawing for cash prizes of $100, $50, and $25.

Data collection was conducted by female undergraduate research assistants on two consecutive nights at various spots on the college campus. When participants arrived, they were asked to sign-in on a sheet of paper which would be used to select the winners of the cash prizes. A research assistant then provided a short, general introduction to the research project and then distributed a packet of materials which included the survey instrument, one of the three messages (general information, N=55; negative belief messages, N=68; positive belief messages, N=60), and a consent form. Participants in any particular data collection session all received the same message. Each data collection session lasted approximately 25 to 30 minutes. Participants were told during the introduction that if they would like further information about Pap tests and cervical cancer they could do so by completing and returning the pre-addressed stamped postcard attached to the end of their survey instrument. Return of the card was used as the behavioral measure.

Analyses and Results

Results indicate that 50% of subjects in the positive outcome belief message condition returned their postcards, compared to 31% of those in the negative outcome belief message condition, and 29% of those who received general information messages. A one-way analysis of variance confirms a significant difference among the conditions $F(2,167)=5.50$, $p<.01$ when it comes to behavior. While there was a significant difference in conditions in behavior, a one-way ANOVA did not indicate any difference in conditions in terms of behavioral intention, $F(2,180)=.23$, $p>.05$. At first glance these results are puzzling since one would expect a difference among the conditions on the measure of intention if there is a difference on the measure of actual behavior. However, it must be reminded that the measure of behavior in this study was whether or not subjects returned a postcard requesting more information about Pap tests. Though this behavior requires some effort, it is not as effortful as getting an actual Pap test. Moreover, there are presumably fewer negative outcomes associated with returning a postcard than with actually going through the Pap test procedure . In other words, the behavior being measured in the present study is relatively easy to do compared to the behavior presented in the measure of intention. In this context, the obtained results are not surprising.

Before subjects responded to items relevant to the components of the TRA and TPB, they were asked to rate the message they read along seven (7) evaluative dimensions. The ratings are presented in Table 2.

Table 2

Message Ratings

Item (Overall mean & SD)	General Info Mean	General Info SD	Negative Belief Mean	Negative Belief SD	Positive Belief Mean	Positive Belief SD
Persuasive (m=5.13, SD=1.18)	4.76	1.25	5.25	1.08	5.32	1.17
Memorable (m=4.89, SD=1.15)	4.67	1.06	4.99	1.11	4.98	1.26
Favorable (m=5.02, SD=1.25)	4.70	1.27	5.12	1.21	5.13	1.26
Fear Producing (m=3.73, SD=1.62)	3.56	1.50	3.34	1.67	4.32	1.50
Motivating (m=4.81, SD=1.24)	4.56	1.15	4.94	1.30	4.88	1.24
Credible (m=5.65, SD=1.14)	5.67	1.09	5.69	1.00	5.58	1.33
Informative (m=6.12, SD=.85)	6.05	.73	6.23	.83	6.12	.98

Note: Ratings are on a 1 to 7 scale with 7 being high.

In general, respondents found the messages to be persuasive (m=5.13), memorable (m=4.89), favorable (m=5.02), motivating (m=4.81), credible (m=5.65), and informative (m=6.12). Subjects did not find the messages frightening (m=3.73). The results of the ratings do not indicate a large number of differences in means among the three message categories. Negative and positive belief messages were rated significantly more persuasive and favorable than general informational messages, $p<.05$ in both cases. General information messages were rate slightly less memorable than both negative and positive belief messages, though differences were not significant at the .05 level. Surprisingly,

positive belief message were rated significantly more fear producing than both general information and negative belief messages, $p<.05$ in both cases. One plausible reason for this result is that in the positive outcome belief message, two of the targeted beliefs mentioned cervical cancer while emphasizing the life saving potential of Pap tests. It is likely that these two beliefs in their mentioning of cancer prompted cognitions associated with death, and thus produced a moderately fearful reaction to the message. All three messages were rated relatively high on the credible and informative dimensions. This suggests that respondents probably did not discount or entirely disregard the information they read. Other comparisons did not produce any other significant differences among the messages.

To test hypotheses one and two, multiple regression analyses were conducted. Before any regression model was tested, valid factors to be used in the regression equations were developed. In this study, confirmatory factor analysis (CFA) was used to provide valid factors for the testing of the regression model. In CFA, the researcher *a priori* hypothesizes the existence of certain factors based on theory. The researcher then develops items to measure those factors. After gathering data relevant to those items, the researcher subjects the items to at least three separate tests. In the first test, the face validity of each items is assessed. That is, the researcher asks if the items in question appear to be measuring the hypothesized factor and no other factors. Items which are considered face valid are then tested for internal consistency. This statistical procedure tests for the similarity of the item-to-total correlations of the within factor items. The third test is a test of parallelism (external consistency). In this test, each of the items within a factor are examined to see if they correlate similarly to outside factors within the

hypothesized model. Items which pass the tests for face validity, internal consistency, and parallelism are then considered to be relatively valid indicators of their respective hypothesized factors. Table 3 presents a list of the items which passed the content and statistical tests along with their confirmed factors. All factors were derived from the global measures of attitude, subjective norm, perceived behavioral control, perceived behavioral importance, and intention (latent variables). Bentler (1980) argues that measures of latent variables should be used in causal modeling analyses because they are more reliable than measures of the more manifest, distal variables (i.e, outcome beliefs, outcome evaluations). Measures of these more distal variables include more error and are thus less reliable. These latent factors were used in subsequent analyses.

Table 3

CFA Results: Confirmed Latent Factors and Their Items

Factor Loadings	
	Attitude (alpha = .92)
.77	For me, getting a Pap test by the end of the summer is extremely foolish/wise.
.74	For me, getting a Pap test by the end of the summer is extremely harmful/beneficial.
.94	For me, getting a Pap test by the end of the summer is extremely worthless/worthwhile.
.89	For me, getting a Pap test by the end of the summer is extremely useless/useful.
.83	For me, getting a Pap test by the end of the summer is extremely unimportant/important
	Subjective Norm (alpha = .90)
.88	When it comes to getting a Pap test by the end of the summer, I generally want to do what most people who are important to me THINK I should do.
.81	When it comes to getting a Pap test by the end of the summer, I generally want to do what most people who are important to me WANT me to do.
.79	When it comes to getting a Pap test by the end of the summer, I generally want to do what most people who are important to me are IN FAVOR of me doing.
.85	When it comes to getting a Pap test by the end of the summer, I generally want to do what most people who are important to me ENCOURAGE me to do.
	Perceived Behavioral Control (alpha = .74)
.73	It would be easy for me to get a Pap test by the end of the summer.
.68	I am unable to get a Pap test by the end of the summer. (R)
.70	I have complete control whether I get a Pap test by the end of the summer.
	Perceived Behavioral Importance (alpha = .95)
.86	How much value do you place on getting a Pap test by the end of the summer?
.91	How motivated are you to get a Pap test by the end of f the summer?
.95	How big a goal is it for you to get a Pap test by the end of the summer?
.90	How significant is it for you to get a Pap test by the end of the summer?
.81	How committed are you toward getting a Pap test by the end of the summer?
.93	How important is it for you to get a Pap test by the end of the summer?
	Intention (alpha = .92)
.86	I intend to get a Pap test by the end of the summer.
.90	I do not plan to get a Pap test by the end of the summer. (R)
.91	It is unlikely that I will get a Pap test by the end of the summer. (R).

Note: The letter "R" indicates the item was reversed scored.

Hypothesis one predicted that the addition of a perceived behavioral control (PBC) factor would account for a greater amount of the variance in Pap test intention over and beyond that accounted for by attitude and subjective norm. By adding this

control/efficacy factor, the theory of reasoned action is turned into the theory of planned behavior. To test this hypothesis two separate multiple regression analyses were conducted. The first analysis regressed intention onto attitude and subjective norm. The second regression analysis regressed intention onto attitude, subjective norm, and perceived behavioral control. Comparing the two R^2s from these analyses allows one to see if one model accounted for more variance in intention than the other. If the regression equation containing perceived behavioral control accounts for more variance, one can conclude that the additional factor (PBC) was the cause for the added variance accounted for. Results show support for hypothesis one. The regression of intention onto attitude and subjective norm was significant (Multiple R=.57, R^2=.33, $F(2, 180) = 44.16$, $p <$ .001). Attitude and subjective norm accounted for 33% of the variance in intention. The regression of intention onto attitude, subjective norm, and perceived behavioral control was also significant (Multiple R=.62, R^2=.38, $F(3, 178) = 37.10$, $p < .001$). With all three factors which comprise the theory of planned behavior in the model, 38% of the variance is accounted for in intention. The addition of perceived behavioral control factor increased the variance accounted for in intention by 5%. These results suggest that PBC is a useful factor in attempting to predict Pap test intentions. Moreover, they suggest that getting a Pap test is not perceived by young women to be fully under their control.

While it is useful to know that attitude, subjective norm, and perceived behavioral control have a combined effect on intention, it is also important to understand the relative contributions each makes, independent of the other predictor variables. One way to

examine these independent effects is to examine the partial correlations of each independent variable. A partial correlation analysis was conducted. Table 4 presents the zero-order and partial correlations of the TRA-model exogenous predictors with intention.

Table 4
Correlations between TRA predictor variables and intention

Predictor Variables	Zero-order Correlations (r)	Partial Correlations (pr)
Subjective Norm	.51	.36
Attitude	.48	.31

The data indicate that subjective norm and attitude have approximately the same impact on intention, with respect to one another, whether one examines the zero-order correlations or the partial correlations. By partialling out the effect of one independent variable while examining the correlation between the other independent variable and the dependent variable, we are able to see the independent effect of each of the predictor variables. We are also able to see their relative contributions to changes in the dependent variable In the present case, we see that the association between subjective norm and intention shrinks from r=.51 to pr=.36 when attitude is partialled out. The partial correlation between subjective norm and intention is significant, t=6.98 (180), $p < .01$.

Likewise, the relationship between attitude and intention drops from r=.48 to pr=.31 when subjective norm is partialled out. The partial correlation between attitude and intention is also significant, t=6.01 (180), $p < .01$. One can readily see that the strength of the relationship between attitude and intention was enhanced by the relationship between attitude and subjective norm. In the same way, the relationship between subjective norm and intention was enhanced by the relationship between attitude and subjective norm. Though subjective norm is slightly more correlated with intention than is attitude with intention, the differences are within sampling error.

Squaring the partial correlations gives an estimate of the amount of variance attitude and subjective account for, independently, in intention. One can see that subjective norm accounts for 13% ($pr^2 = .36^2 = .13$) of the variance in intention and attitude accounts for 10% ($pr^2 = .31^2 = .10$) of the variance. The summed independent effects of subjective norm and attitude (23%) does not equal the R^2 from the multiple regression analysis (33%) because attitude and subjective are correlated and also have a combined effect, apart from the individual effects. Multiple regression takes into account both independent and combined effects (Cohen & Cohen, 1983).

Table 5 shows the zero-order and partial correlations of the theory of planned behavior exogenous predictor variables (perceived behavioral control is added) with intention.

Table 5
Correlations between TPC predictor variables and intention

Predictor Variables	Zero-order Correlations	Partial Correlations
PBC (perc. beh. control)	.36	.23
Subjective Norm	.52	.35
Attitude	.48	.29

Again, the relationship of each of the predictor variables with intention shrinks when the effects of the other independent variables are partialled out. Each of the partial correlations is statistically significant at $p = .01$. For the partial correlation between PBC and intention, $t(178)=4.82$, $p < .01$, between subjective norm and intention, $t(178)=7.34$, $p < .01$, and between attitude and intention, $t(178)=6.08$, $p < .01$. Moreover, the data show that perceived behavioral control accounts for 5% of the variance in intention, subjective norm accounts for 12% of the variance, and attitude accounts for 8% of the variance. Again, the summed independent effects (25%) does not equal R^2 from the multiple regression analysis (38%), suggesting a combined effect of the independent variables. In sum, the data suggest that perceived behavioral intention is a valid and useful factor in predicting young women's intention to get a Pap test. It accounts for additional variance over and beyond attitude and subjective norm.

Hypothesis two predicted that the factor of perceived behavioral importance (PBI)

would account for a significant amount of the variance in Pap test over and beyond that accounted for by the three factors in the theory of planned behavior (i.e., attitude, subjective norm, perceived behavioral control). Multiple regression analyses were used to test the hypothesis. Results of the analyses indicate strong support for this prediction. The regression of intention onto attitude, subjective norm, perceived behavioral control and perceived behavioral importance was found to be significant (Multiple R = .81, $R^{2=}.66$, $F(4, 177) = 85.26$, $p < .001$). The inclusion of perceived behavioral importance substantially increased the amount of explained variance in intention from 38% to 66%.

To discover the relative, unique effects of each the four independent variables, partial correlations were once again calculated. Table 6 provides the zero-order and partial correlations of intention with the theory of planned behavior predictor variables along with perceived behavioral importance.

Table 6
Correlations between TPB variables + Perceived Behavioral Importance with Intention

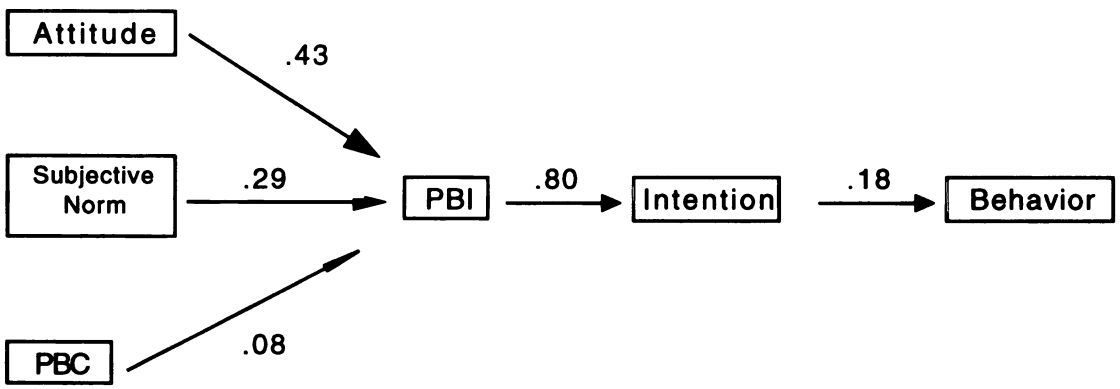
Predictor Variables	Zero-order Correlations	Partial Correlations
PBI (per. beh. importance)	.79	.67
PBC (perc. beh. control)	.36	.22
Subjective Norm	.53	.20
Attitude	.48	.01

With the inclusion of perceived behavioral importance in the regression equation, we see substantial drops in the strength of the association between the other three independent variables and intention (subjective norm: r=.53 –> pr=.20; PBC: r=.36 –> pr=.22; attitude: r=.48 –> pr=.01). Indeed, once PBI is added to the equation, the relationship between attitude and intention disappears. Significance tests indicate a statistically significant partial correlation between PBI and intention, t=26.22, (177 df), $p < .01$, PBC and intention, t=8.61, (177 df), $p < .01$, and subjective norm and intention, t=7.83, (177 df), $p < .01$. Each of these predictor variables makes statistically significant and unique contributions to intention. However, the non-significant partial correlation between attitude, t=.39, (177 df), $p > .05$ suggests that the relationship between attitude and intention is spurious, or that attitude has only an indirect effect on intention (see Cohen & Cohen, 1983). Since the association between attitude and intention weakened substantially with the addition of perceived behavioral importance into the regression equation, it is plausible that the attitude component is not necessary in a model representing Pap test intentions. However, since past studies have indicated a correlation between attitude and intention, it is likely that attitude has an indirect effect on intention, possibly via a path that runs through perceived behavioral importance (i.e., perceived behavioral importance is an intervening variable). The weakened relationships between subjective norm and intention and perceived behavioral control and intention when perceived behavioral importance was added also suggests perceived behavioral importance

has an intervening status in these two relationships . To check whether perceived behavioral importance has an intervening effect, a causal model was tested. This model, along with its corresponding path coefficients is depicted in Figure 1.

Figure 1

Causal Model with PBI as an Intervening Variable



*Path model with perceived behavioral importance as an intervening variable. The model provided a good fit to the data, $x^2=3.73$, $df=6$, $p=.81$.

Latent variable causal modeling was used to check the fit of the measurement model with the data. Bentler (1980) argues that this model of testing causal models is superior to manifest variable causal modeling because the former method eliminates measurement error that is introduced by the measurement of the more distal, manifest variables (e.g., outcome beliefs, outcome evaluation, normative beliefs, motivation to comply, etc.). Any measure has with it an associated error component, so the more measures one makes, the more errors are introduced to the model. For example, in this study, a molecular measure of attitude (i.e., the sum of the belief X evaluation products) is a less reliable measure of

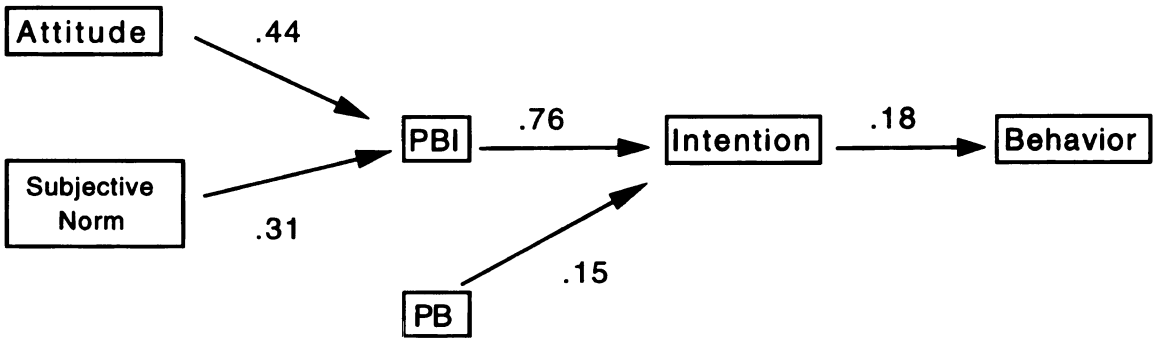
attitude than a global measure (i.e., latent factor) because more items need to be measured in the molecular measure. Reducing error in the model enhances reliability.

The model was tested using Hunter and Hamilton's (1992) PATH program. Results of the analysis suggest a good fit to the data, x^2 = 3.73, df=6, p =.81. 95% confidence intervals were used to check the significance of each of the path coefficients (*betas)*. For the path between attitude and PBI the lower and upper bounds of the confidence interval are .33, .50, thus b=.43 is significant. For subjective norm and PBI, the lower and upper bounds are .21, .37 respectively, thus b=.29 is significant. The 95% confidence interval for the path between PBC and PBI is –.10, < b >.18; since the confidence interval includes zero (0), this path is non-significant. The path between PBI and intention has a confidence interval of .77 < b> .84, thus b = .80, is significant. The path between intention and behavior has a confidence interval between .11, and .26, thus b=.18 is significant.

The non-significant path between PBC and PBI along with the data which indicate that PBC has a significant impact on intention suggests that the path between PBI and intention needs to be direct. That is, PBC and PBI become the immediate determinants of intention while attitude and subjective norm remain in their positions as the determinants of PBI. Moreover, intention remains the only predictor of behavior. The adjusted model along with corresponding path coefficients are presented in Figure 2.

Figure 2

Adjusted Causal Model



*Adjusted causal model. The model fits the data well, x^2=2.44, df=6, p=.93.

The adjusted model was also tested using PATH. Results indicate the data fit the model very well, x^2=2.44, df=6, p=.93. The chi-square statistic was reduced from x^2=3.73 (previous model) to x^2=2.44 (adjusted model). Moreover, all path coefficients are significant at the .05 level of significance. To check the amount of variance in intention accounted for by PBI and PBC a multiple regression analysis was conducted. The analysis regressing intention onto PBI and PBC was found to be significant (Multiple R=.80, R^2=.64, F(2,179)=161, p<.001. Furthermore, the amount of variance in intention accounted for by PBC and PBI is virtually equivalent to the amount of variance accounted for by attitude, subjective norm, PBI and PBC (R^2=.66). This suggests that a more parsimonious model can be created without sacrificing any predictive power by deleting attitude and subjective norm. A check of the correlations among all variables in the model

also support such a conclusion. Table 7 shows attitude and subjective norm are highly correlated with perceived behavioral importance suggesting multicollinearity among the independent variables. According to Cohen and Cohen (1983) when multicollinearty exists, it is appropriate to combine the correlated variables into a single index or delete the more peripheral ones. Since a factor analysis did not support the single index option, it was decided that attitude and subjective norm should be dropped from the model.

Table 7

Correlations Among Model Variables

	Int	PBC	PBI	SN	Att	Beh
Intention	1.00	.36*	.80*	.52*	.48*	.18*
PBC	–	1.00	.27*	.28*	.24*	.00
PBI	–	–	1.00	.53*	.59*	.21*
SN	–	–	–	1.00	.48*	.16*
Att	–	–	–	–	1.00	.14*
Beh	–	–	–	–	–	1.00

* indicates significance at .05 level

Hypothesis 3A predicted that persuasive messages using positive outcome beliefs will have a greater impact on Pap test intention than will general information messages. To test this hypothesis, a *t*-test comparing independent group means was conducted. In the positive belief condition, the mean score for intention is, $m = 12.07$, $sd = 5.78$. The

mean in the general information condition is, $m = 11.40$, $sd = 5.70$. While the results are in the right direction, the hypothesis is not supported, $t(113) = .62$, $p > .05$. Table 8 presents the means and standard deviations of intention and behavior according to message condition.

Table 8

Means and Standard Deviations of Intention and Behavior According to Message Type

	Intention		Behavior	
Message Type	Mean	SD	Mean	SD
General Info	11.40	5.70	1.29	.46
Negative Belief	10.00	5.57	1.31	.47
Positive Belief	12.07	5.78	1.50	.51

Note: The measure of intention is the sum of three items. Each item was measured on a seven point scale with 1 being low and 7 being high. Therefore, scores on the measure of intention can range from 3 to 21. Scores on the measure of behavior can range from 1 (did not return postcard) to 2 (returned postcard).

Hypothesis 3B predicted that persuasive messages targeting salient positive beliefs would have a greater impact on Pap test behavior (whether or not they return a postcard requesting for more information) than messages containing general Pap test information. Since the dependent variable (behavior) has a binomial distribution a *Z*-test for the equality of two proportions (see Kanji, 1993) was used to test the hypothesis . Results of the analysis suggest the null hypothesis that the proportions are equal can be rejected,

$Z = 2.33, p < .05$. The means and standard deviations are $m = 1.50$ (proportion = 50%), $sd = .51$, and $m = 1.29$ (proportion = 29%), $sd = .46$ for the positive belief and general information message conditions respectively.

Hypothesis 4A predicted that persuasive messages using negative outcome beliefs will have a greater influence on Pap test intention than messages containing general information about Pap tests. A *t*-test comparing independent group means did not support this hypothesis, $t(121) = -1.37, p > .05$. The mean in the negative belief condition is $m = 10.00$, $sd = 5.57$ while the mean in the general information condition is $m = 11.40$, $sd = 5.70$.

Hypothesis 4B predicted that persuasive messages targeting salient negative outcome beliefs would have a greater impact on Pap test behavior than a general information message. Though an analysis of the proportions in each condition (negative belief: $P = 31\%$; general information: $P = 29\%9$) show the results are in the right direction, the difference in the proportions is not significant, $Z = .25, p > .05$.

Additional *t* and *Z*-tests were conducted to assess whether or not positive outcome belief messages impacted Pap test intention and behavior differently than negative outcome belief messages. These analyses indicate that positive belief messages ($m = 12.07$) influenced intentions to get a Pap test more so than negative belief messages ($m = 10.00$), $t(126) = -2.06, p < 05$. Likewise, positive belief messages ($P = 50\%$) did a better job of influencing respondents to send in a postcard (behavior) than negative belief messages ($P = 31\%$), $Z = 2.16, p < .05$.

Discussion

This paper examined the impact of various message types on Pap test intention and behavior. Specifically, it investigated Ajzen and Fishbein's (1980) claim that messages employing pre-determined salient outcome beliefs, based on the theory of reasoned action, are more persuasive than messages containing general information. Previous studies (Brubaker & Fowler, 1990; Hoogstraten et. Al, 1985) offered mixed results when testing Ajzen and Fishbein's claim. This paper sought to offer some evidence to either refute or substantiate the claim within the behavioral domain of Pap test behavior.

Additionally, the present study tested the theory of planned behavior (TPB) with respect to Pap test behavior. Past studies (Hennig & Knowles, 1990; Hill et. Al, 1985) utilizing the theory of reasoned action to examine Pap test behavior suggested that a control component (i.e., self-efficacy/perceived behavioral control) might add predictive utility to the model. The additional component would extend the theory of reasoned action into the theory of planned behavior. Support for the added component would suggest that Pap test behavior is to some degree not completely under the control of an individual. That is, there is any number of barriers to getting a Pap test which many women perceive as unbreakable without the help of someone or something. Finally, this study offered an additional component which was hypothesized to add predictive utility to the TPB. Perceived behavioral importance was predicted to account for a greater amount of variance in intention, over and beyond that accounted for by attitude,

subjective norm, and perceived behavioral control.

The results of the present study offers some support for the theory of planned behavior within the domain of Pap test behavior. Hypothesis 1, which predicted that perceived behavioral control would enhance the predictive utility of the theory of reasoned action, was supported. A multiple regression analysis indicated perceived behavioral control accounted for an additional 5% of the variance in intention to get a Pap test. Moreover, the partial correlation between PBC and intention was found to be significant, $t(178) = 4.82$, $p < .01$. These results suggest that Pap test behaviors are not completely under the volitional control of young women, or at least not perceived to be. There are at least two reasons why the young women in this study may have perceived getting a Pap test was beyond their control. First, some may have believed that getting a Pap test is expensive and felt, as college students, they could not afford it. Second, some may have seen access to a doctor/gynecologist or health center as a barrier they could not overcome by themselves. The health center at the college the subjects attended does not provide Pap tests. Though local health agencies provide free Pap testing, it is likely the case that many of the subjects did not have this information. Barriers such as these can be overcome with some effort and information. These results suggest information campaigns targeting young women for Pap tests should address these and other barrier issues.

Hypothesis 2 was also supported. This hypothesis predicted that the addition of perceived behavioral importance would account for an increase in variance in intention

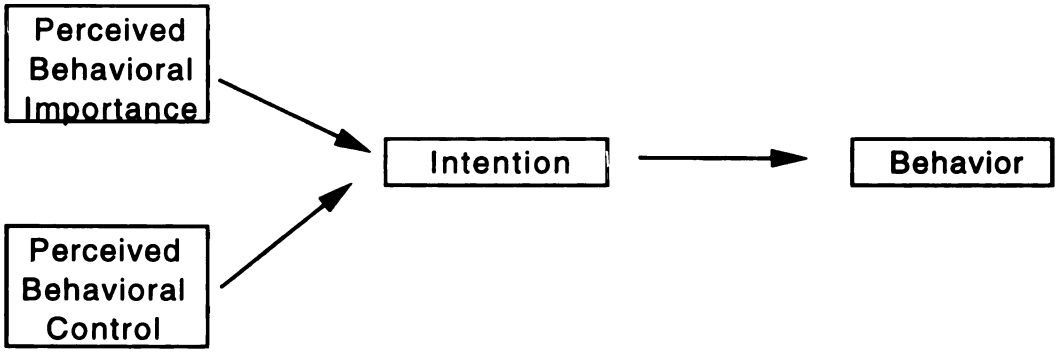
over and beyond what was accounted for by the TPB predictors. Indeed, with perceived behavioral importance in the regression equation, the amount of variance accounted for in intention increased from 38% (TPB) to 66% (TPB + perceived behavioral importance). When the relative contributions of each of the four predictor variables were examined with partial correlations, the associations between intention and the three theory of planned behavior predictors (attitude, subjective norm, PBC) were substantially reduced. In fact, the partial correlation between attitude and intention was only .01, compared to a zero-order correlation of .48. These results suggested that PBI was intervening in the relationship between intention and all three TPB predictors. This model was tested using path analysis.

The path analysis with a model depicting (1) intention as the only determinant of behavior, (2) PBI as the only determinant of intention, and (3) attitude, subjective norm and PBC as the immediate determinants of PBI provided strong support for the model, $x^2 = 3.73$, df = 6, $p = .81$. All path coefficients were statistically significant in the model except for the path between PBC and PBI. Since earlier analyses showed a significant relationship between PBC and intention, an adjusted causal model was created to include this particular path, and delete the non-significant path between PBC and PBI. The revised model provided an even better fit than the previous model, $x^2 = 2.44$, df = 6, $p = .93$. Moreover, after examining the amount of variance in intention accounted for by PBC and PBI, it was seen that those two factors accounted for virtually the same amount of variance explained by attitude, subjective norm, PBC and PBI combined. This being the

case, this researcher suggests that attitude and subjective norm are not necessary predictors of intention, as laid forth by Ajzen (1986) in his theory of planned behavior. A more parsimonious model predicting intention and behavior can be used. This model is depicted in Figure 3.

Figure 3

A Revised Theory of Planned Behavior



Tests of hypotheses 3A and 3B provided mixed results. There was no support for the hypothesis that messages based on positive outcome beliefs were more effective than general informational messages, as Ajzen and Fishbein (1980) claim. This null finding could be the result of several reasons. First, respondents may not have completely read the message they were given. Since the differences in the messages would not be noticed by a reader until they were half-way done reading, those not carefully reading the second-half of the message would not be greatly affected no matter which message they read.

However, since the mean ratings of the informativeness of the messages was relatively high (low 6s on a 7-point scale), it is likely that most of the subjects read the entire message. Another reason may be that any messages about Pap tests, whether they target positive outcome beliefs, negative outcome beliefs, or general knowledge may elicit the same thought processes and cognitions about such tests; especially in a sample in which two-third of the subjects had never had a Pap test. Finally, getting a Pap test can take a lot of effort and planning, and intentions to get a Pap test may not develop in the short amount of time subjects had to read the message and respond to the questionnaire.

There was support for hypothesis 3B. Subjects who read the message targeting positive outcome beliefs were much more likely to return a postcard requesting more information than those who read the informational message. In fact 50% of those in the positive belied message condition returned a postcard compared to 29% in the general information condition. Again, these results must be interpreted with caution since returning a postcard was used as a proxy for the actual behavior of getting a Pap test conducted. The act of returning a postcard requires less effort and planning, and probably does not have as many negative cognitions associated with it than actually getting a Pap test.

Hypothesis 4A and 4B predicted that messages targeting negative outcome beliefs would be more effective in influencing intention and behavior than general information messages. Neither of the hypotheses was supported. The reasons listed previously to account for the null finding on hypothesis 3A might also account for the null finding in

hypothesis 4A.

The null findings for hypothesis 3A, 4A, and 4B challenge the assumption set forth in the theory of reasoned action that persuasive messages must target underlying outcome beliefs in order to impact behavioral intention and actual behavior. The data indicate that general information messages work just as well as messages challenging negative outcome beliefs and those emphasizing positive outcomes. These findings are consistent with those of Brubaker and Fowler (1990) and Hoogstraten et. al (1985) and suggest that Ajzen and Fishbein's (1980) model of the belief structure underlying intention and behavior is incomplete or misspecified. Indeed, the model developed from this study (revised theory of planned behavior) suggests it is not necessary to target outcome beliefs. It is only necessary to develop messages which primarily increase the perception of the importance of a behavior. Those message may or may not target outcome beliefs.

However, when it comes to deciding whether to one should target negative or positive outcome beliefs in a persuasive message, the data from the present study suggest that messages targeting positive outcome beliefs are more effective at influencing intention $t(126)=-2.06, p<.05$, and behavior $t(116)=-2.17, p<.05$. One reason that might account for this finding is that young women with any knowledge of Pap tests may only focus on negative beliefs and not positive outcomes. That is, the consequences of getting a Pap test are far more salient for young women than the benefits, and what they need is not more information bringing up the negative beliefs they hold (even if these beliefs are challenged in the message), but information detailing the many benefits Pap tests have for

young females. In this study, more than 70% of subjects indicated they were somewhat knowledgeable about Pap tests, but only 34% had ever had a Pap test performed on them. These statistics suggest that the subjects who felt somewhat knowledgeable may have had the "wrong" knowledge. In other words, many of the respondents may only have had negative information and or information which did not emphasize the benefits of or need for Pap tests. These data suggest that any information campaign encouraging young women to get Pap tests should focus on the positive outcomes and benefits of Pap tests.

Conclusion

The results of this study should be interpreted with care. Although this study provided support for a revised theory of planned behavior, it may be that the results cannot be generalized to other behaviors. It would be helpful for future research to test the revised model in different behavioral domains and contexts. In addition, this study only used a proxy for the actual behavior of getting a Pap test. Though this did not impact the results of analyses which did not include behavior in the equation/model being analyzed (e.g., multiple regression analyses with intention as the dependent variable), it does call into question the results of the full revised model. Future research should test the full model with a behavior measure which corresponds to the behavior asked about in items measuring intention, perceived behavioral control, and perceived behavioral importance. Finally, the data from this study were obtained from young, white women and should not be generalized to older, and/or non-white populations.

In summary, Ajzen and Fishbein's (1980) theory of reasoned action and its extension, the theory of planned behavior, provide an initial understanding of Pap test behaviors and intentions. Intention has been shown to be the immediate determinant of behavior, and acts as a mediator for the effects of other variables. However, this study also suggests that, at least within the behavioral domain of Pap tests, the models need some adjustment. Specifically, the data suggest that a perceived behavioral importance factor can be used to replace attitude and subjective norm as one of the two immediate determinants of intention, the other being perceived behavioral control. Such a model is

more parsimonious and explains as much variance in intention as the theories of reasoned action and planned behavior

The guidelines presented by Ajzen and Fishbein (1980) for designing persuasive messages to affect intention and behavior are not necessarily supported by the results of the present study. Ajzen and Fishbein's (1980) claim that persuasive messages which target the underlying belief structure associated with a behavior are more effective than general informational messages received mixed support. Though belief based messages were not any more effective at influencing intention than general information messages, positive outcome belief messages did have a greater impact on behavior. Again the behavior measured in this study was only a proxy for actual Pap test behavior, but the return of a postcard requesting more information is a behavior which is meaningful. If it is the case that young women have incorrect and/or negative information concerning Pap tests, it would be helpful to be able to encourage them to seek out more information. For those who may be uninformed, or misinformed, requesting more information about Pap tests is probably a good first step toward actually getting one.

APPENDICES

Appendix A: Positive Outcome Belief Message

PAP TESTS: Learn the Benefits

Cervical Cancer

In 1995, the American Cancer Society estimates that more than 80,000 women will be diagnosed with precancerous or cancerous conditions of the cervix (the lower end of the uterus). Health professionals suggest that the use of annual Pap tests to screen for cervical cancer can greatly reduce the thousands of deaths that result from cervical cancer.

What is a Pap Test?

The Pap test is a method of detecting precancerous and cancerous conditions of the cervix. It is considered to be the best cancer-screening tool available. The procedure was named for Dr. George Papnicolaou, who developed the test about 40 years ago.

How Is The Pap Test Done?

During a Pap test, a small sample of cell tissue is taken from the cervix with a swab. Like skin, the tissue constantly regenerates itself. As new cells at the bottom of the layer grow and multiply, they force older, nearly dead cells toward the surface – the area sampled in a Pap test. The cells are then examined under a microscope for any abnormalities.

Where Can I Get a Pap Test?

Pap tests can be obtained from your family doctor, an OB/GYN, a medical clinic, or local health department.

How Often Should I Get a Pap Test?

Doctors recommend that all women have the Pap test performed annually as part of a pelvic examination. Regular Pap tests should be obtained by women who are sexually active or who have reached the age of 18. All women who are 18 or over should have annual Pap tests whether they are sexually active or not.

Can Pap Tests Detect Cancer Early Enough?

Pap tests are highly effective at detecting cancer in its early stages when it is most curable. In fact, precancerous conditions that are identified in their early stages are 100% curable!

Can I Have Cervical Cancer Without Knowing It?

The answer to that question is YES. Often there is no pain associated with cancer of the cervix. Obtaining annual Pap tests can give you peace of mind and reassure you that you don't have cancer, as well as catch cancer in its earliest stages when it is much easier to cure.

What Can I Learn From Pap Tests?

Many women say getting an annual test helps them learn more about their own health and become more health conscious. Moreover, studies show that women who get regular Pap tests tend to take other health actions that protect them from preventable illnesses.

Pap Tests Can Save Your Life!

In recent years the number of deaths due to cervical cancer has decreased 75%. Health experts credit the widespread use of the Pap test as the primary reason for the significant reductions in cervical cancer deaths. Indeed, there are many benefits to getting regular Pap tests.

Appendix B: Negative Outcome Belief Message

PAP TESTS: They're Not As Bad As You Think

Cervical Cancer

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What is a Pap Test?

The Pap test is a method of detecting precancerous and cancerous conditions of the cervix. It is considered to be the best cancer-screening tool available. The procedure was named for Dr. George Papnicolaou, who developed the test about 40 years ago.

How Is The Pap Test Done?

During a Pap test, a small sample of cell tissue is taken from the cervix with a swab. Like skin, the tissue constantly regenerates itself. As new cells at the bottom of the layer grow and multiply, they force older, nearly dead cells toward the surface – the area sampled in a Pap test. The cells are then examined under a microscope for any abnormalities.

Where Can I Get a Pap Test?

Pap tests can be obtained from your family doctor, an OB/GYN, a medical clinic, or local health department.

How Often Should I Get a Pap Test?

Doctors recommend that all women have the Pap test performed annually as part of a pelvic examination. Regular Pap tests should be obtained by women who are sexually active or who have reached the age of 18. All women who are 18 or over should have annual Pap tests whether they are sexually active or not.

What If I Have An Abnormal Pap Test?

Many women believe that an abnormal Pap smear can only mean one thing: cervical cancer. In fact, an abnormal Pap smear often indicates a minor problem, such as inflammation or vaginal infection. If your smear is abnormal, (as are some 10% of all Pap tests), the most likely cause is a minor condition. While it's important to follow up on an abnormal result, there's no cause for panic.

Aren't Pap Tests Expensive?

Contrary to popular belief , Pap tests are relatively inexpensive and sometimes free. Many public health centers offer Pap tests free of charge or for a very minimal fee. Any cost for a Pap test is far outweighed by the potential of saving your life.

Aren't Pap Tests Embarrassing?

Some women find that getting a Pap test can cause embarrassment with their doctor. However, most say that the embarrassment quickly goes away as they get to know their doctor. And, if you have a preference for a male or female doctor, you can often request to have your test done by a doctor that you feel most comfortable with.

Don't Pap Tests Cause Physical Discomfort?

While some women experience a little discomfort during the test, it takes only a few seconds to perform and is painless. Health experts emphasize that the lifesaving potential of the Pap test greatly outweighs the minimal discomfort some women experience.

Appendix C: General Information Message

PAP TESTS: What You Should Know

Cervical Cancer

In 1995, the American Cancer Society estimates that more than 80,000 women will be diagnosed with precancerous or cancerous conditions of the cervix (the lower end of the uterus). Health professionals suggest that the use of annual Pap tests to screen for cervical cancer can greatly reduce the thousands of deaths that result from cervical cancer.

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Who Evaluates a Pap Smear?

The sample of tissue obtained from a Pap smear along with some personal information are sent to a laboratory. A specially trained technologist examines the tissue under a microscope and searches for abnormalities.

How Is the Pap Smear Evaluated?

The Bethesda Classification System is a recently developed means of evaluating the Pap smear. It was devised at a 1988 workshop by the national Cancer Institute. This system provides three important categories of information used in evaluation.

New Directions for the Pap Smear

Advances in technology are combining with the traditional Pap smear technique, the new Bethesda System, and better sampling and interpretation guidelines to make this test as effective as possible.

PAPNET: This is a computerized method for analyzing Pap smears. The PAPNET computer duplicates the process that the human eye and mind use to identify abnormal cells. Currently it is only being used to retest Pap smears that have been interpreted by technologists, but eventually it is hoped that it will replace much of the screening now done by hand.

ViraPap: This is a test that was approved by the FDA in 1989. It is used to screen for the presence of human papillomavirus in Pap smear samples.

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