Article

Modifying and Pilot Testing the Pap Smear Belief Questionnaire

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Abstract

This study is a report on modifications and pilot testing of a measurement tool to predict Pap testing based on the Interaction Model of Client Health Behavior. Women have been found to avoid routine cervical cancer screening (CCS) due to personal influencing factors. For this study, the Pap Smear Belief Questionnaire (PSBQ) was modified by adding items and evaluated through content validity index (CVI = .89) and cognitive interviews (think-aloud protocol), resulting in a 31-item instrument with four subscales (Benefits, Barriers, Vulnerability, Experiences). Pilot testing the modified PSBQ was conducted at a local agency. Fifty-three women completed and returned the PSBQ, which had good internal consistency, with a Cronbach's alpha coefficient of .81 (Benefits α = .51; Barriers α = .85; Vulnerability α = .78; Experiences α = .87). Test–retest reliability of the 31-item PSBQ was also good (.878). Univariate logistic regression indicated that the only significant predictor of seeking/ avoiding routine screening by women's background characteristics was social influence (p = .04). Subscales found to be significant predictors in Pap testing were Barriers (p = .003) and Gynecological Exam Experiences (p = .04). The refined 31-item PSBQ has good psychometric data supporting its use in predicting CCS. However, this research should be replicated in a larger sample enabling further validity and reliability testing of the PSBQ. Understanding women's attitudes toward CCS will help health care providers, who deal with gynecological health, develop more effective screening programs and interventions facilitating better experiences for women contributing to an increase in routine screening.

In 2010, a total of 11,818 women in the United States were newly diagnosed with cervical cancer and 3,939 women died from the disease (Centers for Disease Control and Prevention [CDC], 2012). This is particularly troubling because cervical cancer is preventable with routine Pap tests (American Cancer Society [ACS], 2013). In general, most women are aware of the Pap test and of the benefits of routine cervical cancer screening (CCS; Hawkins, Cooper, Saraiya, Gelb, & Polonec, 2011). Yet, many women fail to obtain screening. Among those with advanced stage cervical cancer, most had either never been screened or failed to obtain routine screening (ACS, 2013). Understanding the barriers to routine screening is essential to improved rates of adherence to CCS.

Frequently cited barriers associated with women not getting routine screening are being uninsured, poor, and having less education (Bazargan, Bazargan, Farooq, & Baker, 2004; Behbakht, Lynch, Teal, Degeest, & Massad, 2004). To the extent that these resource-related factors (e.g., income, insurance coverage) predict avoidance or lack of CCS, it becomes obvious we must increase access to services and availability of screening to improve routine screening. Furthermore, however, it is important that we gain a better

understanding of the factors that contribute to avoidance of CCS in women who have access to health care but avoid screening despite these resources. In previous qualitative research on attitudes toward CCS (Ackerson, 2010; Ackerson, Pohl, & Low, 2008), some participants chose not to get a Pap test even though they had available resources (i.e., access to care, insurance coverage). In these small qualitative studies, personal barriers (including negative emotions) emerged as the most powerful factor related to avoidance of routine screening. We propose that these other barriers, particularly those relating to personal history, will predict avoidance behavior in this sample of women with access to health care. A better understanding of these specific barriers contributing to avoidance in this population is

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essential, so that relevant intervention models can be developed to address the core barriers, above and beyond the obvious need to increase access to services for a broad range of women. To this end, it is necessary to have a measure of the social and emotional barriers to CCS that may be modifiable in intervention approaches.

The Interaction Model of Client Health Behavior (IMCHB; Cox, 1982) is a useful guiding framework to explore the factors that influence women to obtain (or avoid) CCS, particularly among those who otherwise have access to health care in general (Ackerson, 2012; Ackerson et al., 2008). The IMCHB assumes that each client is a unique and active dynamic agent who has both the desire and the ability to make informed decisions regarding their health care (Cox, 1982). The model assumes that the decisional process relative to health behavior for each individual is driven by the interaction of the *element of client singularity* (unique client characteristics) and *client–provider interaction* (intervention) to produce the *client health outcome or behavior* (seeking or avoiding routine CCS). This model is a flexible model, where the researcher can select all or portions of the model based on the purpose of the study. Abel and Chambers (2004) used two elements of the IMCHB (client singularity and health outcome) to guide their study, which addressed sexual health among Hispanic women. Whereas Wagner, Bear, and Davidson (2011) applied all three elements of the model (client singularity, client–provider interaction, and client health outcome) exploring postpartum women's satisfaction with the educational intervention they received. However, outside of the principal investigator's (PI's) studies, no other published studies have used the IMCHB to address CCS.

Of interest for this study are the elements of *client singularity* and *health outcome*. The first element includes background characteristics such as demographic variables (age, race/ethnicity, history of last Pap test), social influences that may promote or discourage health preventive behavior (mother, family members, health care provider, media, others), previous health care experiences (gynecological exam—Pap test and pelvic), and environmental resources (income, education, insurance availability). The client singularity element also includes a range of dynamic variables, such as cognitive appraisal (beliefs about the benefits and barriers to CCS, perceptions of vulnerability to cervical cancer), affective response (emotional reactions to an event such as previous screening/health care interactions), and motivation (a process that causes action and involves social, emotional response and cognitive forces). In addition, we included a history of interpersonal trauma (IPT; sexual and/or physical abuse), which has emerged in our qualitative research as a strong potential predictor of CCS behavior (Ackerson, 2012; Ackerson et al., 2008). The variables included in client singularity are believed to interact to produce a specific health behavior (i.e., seeking or avoiding Pap tests).

Therefore, understanding how personal influencing factors contribute to screening behavior will help health care providers develop more effective interventions. The aim of this study was to modify and pilot test the Pap Smear Belief Questionnaire (PSBQ), determine its psychometric properties and its predictive validity related to Pap test avoidance.

Method

Participants

Study participants were female employees of a not-for-profit continuum of care facility located in Michigan, employed in a wide range of positions (e.g., administrative, nursing, nursing assistants, housekeeping, clerical, kitchen services, maintenance, environmental, and entry level). This facility was selected because they employ a large number of people, most of them are women, with diversity in education and income.

Procedures

Prior to conducting this study (instrument modification and pilot testing the PSBQ), approval was obtained from the PI's university institutional review board. Women below age 21, older than 70, and those who had a hysterectomy were ineligible to participate because they fall outside of recommended screening guidelines (American College of Obstetricians and Gynecologists [ACOG], 2009).

Instrument

Data collected included a series of demographic questions and background characteristic questionnaire and the PSBQ. Background characteristics were addressed with 11 questions related to an individual's demographics, environmental resources, social influences related to Pap testing, personal history of CCS behavior, and history of IPT. Although CCS guidelines have been modified in recent years, at the time the current study was conducted (March 2011), recommended guidelines for routine Pap testing were every 2 years for women between ages 21 and 29, and every 3 years for women between ages 30 and 65/70 for those with three previous normal tests (ACOG, 2009), and thus these criteria were used to determine whether a woman was adherent to CCS.

Steps in Instrument Refinement

The PSBQ was developed and tested in a previous study using nursing students and included 17 items with three subscales—Benefits, Barriers, and Vulnerability (Ackerson, Zielinski, & Patel, 2014). Internal consistency reliability of the 17-item PSBQ was .60 (Benefits .58, Barriers .86, and Vulnerability .81). In the present study, based on the PI's previous qualitative research (Ackerson,

2010, 2012; Ackerson et al., 2008), 14 additional items were added to the PSBQ: 2 items addressing the benefits of screening, 3 items addressing vulnerability, and a new sub-scale addressing the gynecological exam experience (Ackerson, 2012).

The newly developed experience subscale, which consisted of six items, was distributed to five professional experts in women's health and IPT. Only three of the five responded, a sufficient number to conduct a content validity index (CVI; Polit & Beck, 2010). The experts were instructed to consider each of the experience subscale items and to select only one of four different responses (1 = *not relevant*; 2 = *somewhat relevant*; 3 = *quite relevant*; and 4 = *very relevant*), which, in their opinion, best represents their own judgment regarding each of the respective items. In addition, they were encouraged to respond to an open-ended question: "Are there content areas relevant to women's experiences with the Pap smear and pelvic exam that is missing?" Two of the experts fully agreed on five of the items being very relevant. One expert agreed that two items were very relevant, three items were quite relevant, and one item was not relevant. The one item deemed somewhat relevant by one expert and not relevant by another was "I only want to see female providers." A comment was made that there could be many reasons beyond the pelvic exam as to why someone would prefer a female provider. From the open-ended questions, one expert recommended three additional questions. These questions were as follows: (a) "I do not trust health care providers"; (b) I feel like I am being violated when the provider does not explain to me what they are doing during the female exam"; and (c) "When the provider rushes through the female exam it makes me feel on edge." These questions were considered and believed to more accurately describe women's concerns and were subsequently added to the subscale. The item "I only want to see female providers" was not deleted from the scale, since through prior qualitative research (Ackerson, 2012), provider's gender was a very important issue among participants and deemed important. The sub-scale's CVI was calculated to be .89, which is considered sufficient (Polit & Beck, 2010). Finally, a sample of women between ages 21 and 70 who self-reported a history of IPT was recruited from a local agency to participate in cognitive interviews.

Cognitive interviews (think-aloud protocol; Pett, Lackey, & Sullivan, 2003; Polit & Beck, 2010) are a qualitative method used to collect data about cognitive processes, such as thinking, problem-solving, and decision-making. For this portion of the project, women who self-identified as having a history of IPT were considered experts to evaluate the questionnaire and acceptability of the experience items.

Verbal and written instructions were provided to the women by the PI on how to "think aloud." The think-aloud protocol (Willis, 1999) was conducted through verbal reporting of the participant's thought processes during the task of responding to the items on the questionnaire.

Ten individual interviews were completed. Among these 10 interviews, no refinements, modifications, or new questions were suggested. Based on the cognitive interviews, no cognitive problems were identified, indicating that the women understood and accurately interpreted the experience questions and the remainder of the questions in the instrument. Only one change was made to an item on the Benefits scale after one participant suggested that "People doing Pap smears are rude to women" should be revised to simply read "People doing Pap smears are rude," as men cannot receive a Pap test.

The final version of the PSBQ has 31 items in four sub-scales that address the elements of client singularity (previous health care experience, cognitive appraisal, affective response): Benefits (7 items: early detection, treatment effectiveness, peace of mind), Barriers (9 items: fear of finding something wrong and being afraid of not understanding what will be done, embarrassment, knowledge of where to access, time constraints, remembering to schedule, more important life issues, and too old to need a Pap), Vulnerability (2 items: risk [personal and family], taking care of health by exercising and eating right, and using protection with sex), and Experience (9 items: Pap and pelvic exam, provider approach and gender preference, unwanted memories and feelings). Items are answered on a Likert-type scale from 1 = *strongly disagree* to 5 = *strongly agree*, with potential scores for the entire scale ranging from 31 to 155 (subscale ranges: Benefits, 7-35; Barriers, 9-45; Vulnerability, 6-30; and Experiences, 9-45). The scale has positively and negatively worded items.

Data Collection

To conduct an ethical, non-coercive sampling, all employees (female and male) of the health care agency received the PSBQ in their mailbox. Male employees were instructed to either return the questionnaire indicating their gender, or discard. The female employees who chose to participate were asked to select a six-digit code to put on each questionnaire to connect their responses from Time 1 (T1) and Time 2 (T2). The initial questionnaire (T1), including the PSBQ and demographic and personal history questions, was accompanied by a letter introducing the study letting them know their employer had no affiliation with this study and would never know who participated, requesting that they return the completed questionnaire within 1 week, and a stamped pre-addressed return envelope. Reminder postcards were placed in all of the employee mailboxes after the first week. At T2 (2 weeks post), participants completed only the PSBQ. Informed consent was provided to potential participants and was assumed with return of the completed questionnaire. Participants received no compensation.

Data Analysis

Data were analyzed using R Statistical Package Version 2.15.1 (2012). To understand differences in attitudes and

Table 1. PSBQ 31—Scores for Participants Who Do and Do Not Obtain Routine Pap Tests.

	Routine (n = 43) M (SD)	Non-routine (n = 10) M (SD)	Group difference	p value	Effect size
PSBQ 31 item	120.93 (10.12)	111.00 (11.46)	9.93**	.004	0.13
Benefits	28.37 (3.26)	27.3 (3.2)	1.07	.331	0.02
Barriers	39.93 (4.38)	35.0 (6.02)	4.93**	.003	0.15
Vulnerability	13.02 (2.96)	13.8 (2.15)	0.78	.554	0.02
Experience	34.58 (6.17)	29.9 (7.02)	4.68*	.045	0.08

Note. PSBQ = Pap Smear Belief Questionnaire.
*$p < .05$. **$p < .005$.

beliefs in women who seek or avoid routine Pap testing, participants were placed in one of two groups (Routine/Non-Routine) based on their response to the question regarding when they had their last Pap test. Univariate logistic regressions (Kutner, Neter, Nachtsheim, & Li, 2004) were conducted to examine if any of the background characteristics and PSBQ subscales were significant predictors of seeking (Routine) or avoiding (Non-Routine) CCS. Temporal stability was assessed through test–retest reliability with an intraclass correlation and construct validity through known-group technique with independent-sample t test. All negatively worded items were reverse coded prior to analysis. Significance was set at $p = .05$ across analyses.

After running the univariate statistics, we decided to dichotomize variables associated with some of the background characteristics due to low cell sizes in certain categories. We reduced yearly income to ≤US$30,000 or >US$30,000; educational attainment to ≤ high school (or general education diploma [GED]) or >high school; insurance availability to yes/no; and age at first intercourse to <18 years of age or ≥18 years of age.

Results

Sixty-five questionnaires were returned for T1 (16% response rate), with 53 meeting eligibility for participation (6 were eliminated due to male gender, 2 women were below 21 years of age, and 4 reported having had a hysterectomy). Nineteen questionnaires were returned for T2 (36% response rate). For the current study, the PSBQ had good internal consistency, with a Cronbach's alpha coefficient of .81. Subscale alphas were generally good to acceptable with Barriers α = .85, Vulnerability α = .78, and Experiences α = .87, with only the Benefits subscale having a poor internal consistency (α = .51). Reliability of the Benefit subscale decreased in this study from the previous study (Ackerson et al., 2014). An explanation for this may be that this sample was more homogeneous in their beliefs about the benefits of screening, or the two items that were added affected reliability estimates. These items may be addressing factors other than benefits of screening. Test–retest reliability of the 31-item PSBQ was conducted and found to be very good (.823). Range of scores on the PSBQ in the current study was 93 to 138, with higher scores representing more positive attitudes toward screening.

Construct Validity Through Known-Group Technique

Placing the participants in one of two groups allowed the opportunity to use a contrasting or known-group approach to validity (Polit & Beck, 2010). If the PSBQ 31 is a valid measure, then the non-routine participants should exhibit significantly lower scores reflecting more negative attitudes.

Independent t tests were conducted to compare the mean PSBQ 31 between the non-routine and routine groups. The non-routine group of women had significantly lower scores (111.00, $SD = 11.46$) than the routine group of women (120.93, $SD = 10.12$; Table 1). The magnitude of the differences in the between-groups total was moderate ($\eta^2 = .13$). The guidelines (proposed by Cohen, 1988) for interpreting the effect size value are as follows: .01 = small effect, .06 = moderate effect, .14 = large effect (Pallant, 2005). This demonstrates that the PSBQ had statistically significant moderate effects using the known-groups technique; women who avoid routine Pap testing would be predicted to have more negative attitudes toward Pap testing and cervical cancer than those women who obtain routine Pap tests.

The demographic profile of the 53 respondents is presented in Table 2. Eighty-one percent (n = 43) indicated having a Pap test within the previous 3 years. Women ranged in age from 21 to 66 (M = 43), and were predominately Caucasian (79.2%) with yearly incomes of US$30,000 or less (53%). Most were educated, with 91% of the sample reporting having some college or a college degree. Most women were covered by medical insurance (89%). Thirty-one percent of the sample reported a history of sexual trauma and 24% had experienced physical trauma.

Results of the univariate logistic regression indicated that the only significant predictor of seeking/avoiding routine screening by women's background characteristics was social influence ($p = .04$; odds ratio [OR] = 5.83), although insurance availability was marginally significant ($p = .06$; see Table 2). A majority of the routine group were socially influenced to value CCS by their mothers and health care providers, whereas a majority of the non-routine group reported being influenced by no one. The subscales found to be significant predictors in Pap testing were Barriers to Screening ($p = .003$) and Gynecological Exam Experiences ($p = .045$; see Table 1).

Table 2. Background Characteristics of Non-Routine and Routine Pap Testing.

Demographic category	Routine (N = 43)	Non-routine (N = 10)	Total (N = 53)	p value	OR
Age	M = 44.1 (SD = 14.36)	M = 40.3 (SD = 12.56)	M = 43 (SD = 13.9)	.45	
Race and ethnicity				.26	
African American/Black	6 (14.0)	0	6 (11.3)		
Asian	1 (2.3)	0	1 (1.9)		
Caucasian	32 (74.4)	10 (100)	42 (79.2)		
Hispanic	1 (2.3)	0	1 (1.9)		
Other	3 (7.0)	0	3 (5.7)		
Yearly income level				.20	2.44
US$30,000 or less	21 (48.8)	7 (70)	28 (53.0)		
More than US$30,000	22 (51.2)	3 (30)	25 (47.0)		
Education				.24	3.33
High school (GED) or less	3 (7.0)	2 (20.0)	5 (9.0)		
Some college/college degree	40 (93.0)	8 (80.0)	48 (91.0)		
Insurance				.06	5.71
No health insurance	3 (7.0)	3 (30.0)	6 (11.0)		
Health insurance	40 (93.0)	7 (70.0)	47 (89.0)		
Age at first intercourse				.48	1.375
Less than 18	20 (47.6)	5 (55.6)	25 (47.1)		
18 or older	22 (52.4)	4 (44.4)	26 (49.1)		
Social influence				.04*	5.833
Mother	16 (37.2)	1 (10.0)	17 (32.1)		
Family member (sister, aunt, cousin)	1 (2.33)	0	1 (1.9)		
Health care provider	15 (34.9)	3 (30.0)	18 (34.0)		
Media (TV commercials, magazine articles, newspaper)	0 (0)	1 (10.0)	1 (1.9)		
Other	4 (9.3)	0	4 (7.5)		
No one	6 (14.0)	5 (50.0)	11 (20.8)		
Sexual trauma				.54	1.555
Yes	12 (29.0)	4 (40.0)	16 (31.0)		
No	28 (66.0)	6 (60.0)	34 (65.0)		
Not sure	2 (5.0)	0	2 (4.0)		
Bothersome feelings if had exam today				.10	4.0
Yes	0	1 (10.0)	1 (1.8)		
No	28 (65.1)	7 (70.0)	35 (66.0)		
Not sure	3 (7.0)	0	3 (5.7)		
Physical trauma				.24	2.44
Yes	9 (20.9)	4 (40.0)	13 (24.5)		
No	33 (76.7)	6 (60.0)	39 (73.6)		
Not sure	0	0	0		
Bothersome feelings if had exam today				.17	4.0
Yes	1 (2.33)	1 (10.0)	2 (3.8)		
No	28 (65.1)	7 (70.0)	35 (88.0)		
Not sure	3 (7.0)	0	3 (5.7)		

Note. Not all percentages will add up to 100% due to missing values. OR = odds ratio; GED = general education diploma.
*p < .05.

Discussion

The refined 31-item version of the PSBQ has good psychometric data supporting its use in predicting CCS. In particular, two subscales from the measure were particularly strong predictors of CCS attendance: Barriers and Previous Exam Experiences. The results of this study provide further understanding of women's personal characteristics, as well as their attitudes and beliefs about CCS that relate to avoiding routine CCS, even in the context of availability of health care. It is relevant to note that a substantial portion of women in this sample avoid CCS, despite having insurance coverage. Furthermore, women who seek CCS and women who avoid CCS both recognized that there were benefits to

obtaining a Pap test. Thus, both basic knowledge of the benefits of CCS and having insurance (thus access) seem to be inadequate to promote screening behavior. Despite the fact that this was a reasonably well-educated sample of women, misinformation about cervical cancer and Pap tests was prevalent. Many women reported feeling that they were not vulnerable to cervical cancer and thus did not believe testing was necessary (in both the routine and non-routine CCS groups). However, the source of this perceived invulnerability may be different for the two groups: The routine group may feel that they are not vulnerable to cervical cancer because they obtain routine screenings. However, women who avoid routine screening may lack knowledge about screening, or be misinformed regarding cervical cancer risks. This may, in turn, perpetuate a belief of invulnerability, thereby contributing to avoidance behavior. This information is important, particularly in the context of our finding that the women who do not seek routine screening generally report no other support or encouragement from their social resources to influence screening behavior. Not only can social supports be utilized to encourage screening behavior, but perhaps these same social influences could also be used to share corrective health information that might influence women to seek routine CCS.

Indeed, women who were socially influenced to value and receive a Pap test were more than 5 times more likely to receive routine screening, compared with women who had no social influences. Specifically, women in this study were encouraged to obtain screening primarily by their mothers and health care providers, which helps illuminate the importance of highly influential others in contributing to screening behavior. Interventions to boost seeking and adherence to CCS guidelines, then, may be made more effective by incorporating the support of these others to encourage women's screening. This is particularly salient, given the finding that women who avoid screening had no major social influences that encouraged CCS. Approximately 58% of the routine group indicated that they were socially influenced to value routine CCS either by their mother (37.2%) or by health care provider (34.9%), whereas 50% of the non-routine group reported that no one influenced them. These findings are similar to previous research, which found that women who avoid routine screening were not socially influenced by any important individual in their life and did not receive adequate information to make a well-informed decision regarding CCS (Ackerson, 2010, 2012; Ackerson & Gretebeck, 2007). Although previous research has found some mixed results as to the power of health care provider influence at promoting Pap testing (Fatone & Jandorf, 2009; Ogedegbe et al., 2005), the current results suggest that providers play an important role. The influence of health care providers may interact with the quality of a woman's relationship with her provider, relationship stability, and factors such as rapport and trust. It is also possible that even when women who avoid CCS recognize the value of such preventive health care, other factors including negative previous exam experiences are more salient and may have a greater impact on their screening behavior.

Women's perceptions of barriers to routine screening and a negative history of gynecological exam experiences may directly contribute to avoidance. In this study, the non-routine group perceived more personal barriers. Perceived barriers to obtaining routine Pap tests are both system barriers and individual barriers. System barriers such as time, access, and how women are treated at the time of the exam are important to address and can be modified in the health care setting or through social endeavors, such as the Affordable Care Act. Insurance availability was marginally significant among this group of women (most of them were insured). Having insurance is a well-known predictor of CCS, and women without health insurance are less likely to receive routine screening (Fedewa et al., 2012). However, even insured women are vulnerable to screening avoidance, particularly when they have low income and higher copays. Making gynecological visits more accessible and convenient for women (evening visits and weekends, especially for women who may not be able to take time off from work) is one way to reduce this perceived barrier. In addition, changing how Pap tests are delivered by making sure providers are trained to deliver the exam in a sensitive manner is one way to address a system-level barrier that will, of course, help put women at ease. This modification also has the potential to influence individual-level barriers that prevent women from seeking screening, as it is likely to make women feel more knowledgeable, less embarrassed, and build trust with their provider.

Indeed, individual barriers, such as fear and embarrassment, are not uncommon in the research literature associated with avoidance behavior (Guilfoyle, Franco, & Gorin, 2007; Guvenc, Akyuz, & Açikel, 2011). These internal barriers are difficult to overcome and, just as they are likely to be related to a complex range of factors including previous personal and health care experiences, interventions addressing these internal barriers will require a multifaceted approach. A positive interaction between the woman and her provider is necessary. A provider who explains what will be done at the time of the gynecological exam may promote increase in knowledge, reduce fear and anxiety of the unknown, and help promote feelings that the screening test is important, thus increasing the likelihood of routine screening.

Some research indicates that women avoid CCS because they are afraid something abnormal will be found, and they would prefer ignorance rather than the negative screening result (Ackerson & Preston, 2009). This avoidance too is likely an emotional response to the anxiety associated with the uncertainty or threat (abnormal cervical cells vs. normal cells). As women in the current study in large part believed that they were not vulnerable to cervical cancer, screening avoidance may have been related to fear of this threat. This anxiety-related barrier to screening may also relate to previous

negative exam experiences (e.g., excessive worry over an abnormal test result) and/or may contribute to their lack of trust in providers (e.g., "Doctors only give bad news").

Many women perceive the gynecological exam to be an uncomfortable procedure that has the potential to make an individual feel vulnerable and embarrassed. Factors that may contribute to negative perceptions of or experiences with Pap testing include providers who are not sensitive to a woman's individual needs, who are not "present" at that visit, or who do not treat the woman with respect. Providers who fail to provide clear verbal communication about the Pap procedure or who approached the exam in a hurried manner may exacerbate these negative feelings (Ackerson, 2012). These negative emotions related to the screening may be even more substantial for women with a history of sexual or physical abuse or assault. Women with these histories may avoid screening due to the physical nature of the exam, which may serve as a reminder of the traumatic event for some women. Although the difference was not statistically significant in our sample, it is important to note that 50% of the non-routine group reported having a history of interpersonal violence (compared with only 32% of routine group), thus it is possible that the study may have been underpowered to find this effect due to the small sample size.

Strengths and Limitations

The current study has important strengths and some limitations. This study is among the first of which we are aware to utilize a multidimensional theoretical model to explore a range of factors contributing to seeking/avoiding routine screening behavior. The sample, which represented a wide range of working women, adds a valuable contribution to this literature, which has often examined CCS behavior in more discrete samples (e.g., low-income, uninsured women). Because participants were selected from one large workplace, however, it is possible that the findings might not be representative of working women or women with access to health care in general. The low response rate may reflect a response bias, thus results should be interpreted with some caution, although other factors may have also played a role, for example, some employees may work outside of the office, thus not have had access to the survey in their mailbox during the open time period for response submission. Because of the small sample size, factor analysis could not be conducted, which is another procedure to help validate measurement tools. To conduct a factor analysis with a 31-item scale, it is recommended that there be at least 10 to 15 participants for each item (Pett et al., 2003). Therefore, we would have needed anywhere from 310 to 480 participants. In addition, as this was a pilot study, we should have included some open-ended questions at the end of the instrument asking for any comments they wish to make about the instrument. Overall, however, the current study offers important insights into factors contributing to screening/avoidance, which may help future efforts develop in-clinic or community-based interventions to promote screening behavior.

Implications for Practice

Despite the ample scientific evidence that routine Pap tests decrease cervical cancer, some women still avoid routine screening. This research should be replicated in a larger, more socioeconomically and educationally diverse sample to better understand background characteristics and experiences that influence routine screening behavior in a wider range of women. In addition, a larger sample will enable further validity and reliability testing of the PSBQ, that is, factor analysis. Further research should be conducted evaluating how providers describe the interaction between themselves and their client. It is important to obtain not only the client's perspective, but the provider's as well at the time or soon after the interaction occurs. Understanding any differences in perceptions (client's and provider's) associated with the interaction (Pap test and pelvic exam) may lend to improved communication techniques, exam approach, affective support, which has the potential to contribute to better care and client satisfaction. Understanding women's attitudes toward CCS will help health care providers, who deal with gynecological health, develop more effective screening programs and interventions, thus facilitating a better experience for women and contributing to an increase in routine screening.

Conclusion

Improving rates of adherence to routine Pap testing is a multifaceted and complicated public health problem. Personal barriers contributing to avoidance behavior may need to be addressed individually and through community- or family-based interventions directed at women who avoid or are at risk of avoiding routine screening. We also need to address the ways in which health care providers educate and interact with women, and ensure that Pap testing is both encouraged and approached in a careful and sensitive way. Future outreach efforts must include components designed to address women's emotional experiences and the emotional factors that related to screening avoidance. If we can predict the negative emotions elicited by the exam in some women, we can develop public health interventions that will be sensitive and responsive to women at greatest risk for avoiding future screenings.

Declaration of Conflicting Interests

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