Published in final edited form as:

J Prim Prev. 2008 November ; 29(6): 517–533. doi:10.1007/s10935-008-0154-8.

Negative Opinions About Cancer Screening and Contraceptive Measures by Female Emergency Department Patients

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Abstract

We sought to determine the extent to which adult female emergency department participants viewed two women's cancer screening and two contraceptive measures negatively. The study also explored the relationship between having a negative opinion about these measures and participant demography, lack of knowledge, and lack of usage of these measures. Few women expressed negative opinions about these measures. Lack of knowledge about and lack of use of these measures were associated with having negative opinions on these cancer screening and contraceptive measures. Having any negative opinion about one cancer screening or contraceptive measure was associated with a higher risk of having any negative opinion on another measure. The results suggest that influencing opinion and knowledge about these measures might impact the success of emergency department-based cancer screening and contraceptive health programs. *Editors' Strategic Implications:* Emergency departments (and primary care settings) provide key opportunities for prevention. Replication is needed, but the authors present important data on knowledge, attitudes, and characteristics that might influence women's receptivity to consent to and engage in behaviors consistent with prevention, screening, and health promotion.

Keywords

Women's health; Emergency medicine; Contraception; Cancer screening

Emergency departments (EDs) in the United States (U.S.) provide medical care to an estimated 60 million women annually (McCaig and Nawar 2006). For many women with irregular access to regular medical care, the ED commonly serves as a source of care for

urgent and non-urgent medical problems (Liu et al. 1999; Ragin et al. 2005; Sarver et al. 2002; Weber et al. 2005). These medical care visits are an opportunity either to provide or refer these women for cancer screening and contraceptive health programs.

In 1996, the U.S. Preventive Services Task Force recommended that health care providers take advantage of patient visits to provide or link patients to preventive health services (U.S. Preventive Services Task Force 1996). In response to this recommendation, the Society for Academic Emergency Medicine (SAEM) Public Health and Education Task Force reviewed the evidence amassed thus far in support of instituting a wide variety of preventive health service programs in the ED (Irvin 2000; Rhodes et al. 2000; U.S. Preventive Services Task Force 2006). The SAEM task force found few ED-based studies that could measure the success of and need for women's cancer screening and contraceptive programs in the ED. As a result, there was not enough evidence to conduct an in-depth analysis to decide which contraceptive and cancer screening programs, if any, should be implemented in the emergency medicine setting. The SAEM task force called for additional ED-based studies to help guide future recommendations on these topics.

To help address this need for additional research, we investigated the perspectives of female ED patients on four cancer screening and contraceptive measures specific to women: Papanicolaou smears (PAPs) for cervical cancer, breast self-examinations (BSEs) for breast cancer, birth control pills (BCPs), and condoms for contraception and sexually transmitted disease prevention. Elsewhere, we have reported our findings on these patients' cancer screening and contraceptive knowledge (Merchant et al. 2007) and preferences for women's cancer screening and contraceptive services (Merchant et al. 2007). In this manuscript, we report on a potential barrier to the successful implementation of women's cancer screening and contraceptive programs in EDs: negative opinions by women toward Pap smears, BSEs, BCPs, and condoms. The success of future ED-based women's cancer screening and contraceptive programs depends upon identifying barriers to the use of these programs. Understanding the extent to which female ED patients hold negative views toward these cancer screening and contraceptive measures, and knowing which patients hold these views, would improve efforts to create interventions aimed at increasing acceptance of these programs.

For this study, we first determined the extent to which adult female ED patients viewed PAPs, BSEs, BCPs, and condoms negatively along three aspects: "painful," "embarrassing," or "unnecessary." Next, we identified which patients, based upon their demographic characteristics (age, race, insurance, marital/partner status, religious identity, and insurance status), were more likely to view these four cancer screening and contraceptive measures negatively. We also investigated if lack of knowledge on the applicability, purpose, and recommended intervals of these measures was associated with having a negative opinion about these measures. Further, we examined whether having a negative opinion about a given cancer screening and contraceptive measure was associated with having a negative opinion about another measure. Finally, we evaluated if having a negative opinion about a cancer screening or contraceptive measure was related to lack of usage of that measure.

Methods

Study Type and Setting

Using a self-administered, written, and anonymous questionnaire, we surveyed 18-to 55-year-old female ED patients about their negative opinions toward PAPs, BSEs, BCPs, and condoms. The study was conducted at the Rhode Island Hospital ED, which is an urban, academic, medical center ED located in Providence, Rhode Island. During 2002–2003, the

ED had 75,000 patient visits; approximately half of the visits were by women. The hospital institutional review board approved the study.

Questionnaire Design

The development of the questionnaire for this study has been reported previously (Merchant et al. 2007); a summary is provided here. We created a draft version of the questionnaire after reviewing numerous questionnaires from published women's cancer screening and contraceptive health studies. The draft questionnaire was evaluated in June 2002 through brief cognitive-based assessments. These cognitive-based assessments consisted of post-survey interviews from a convenience sample of 20 female patients from the ambulatory care section of the ED. The interviewer asked the participants for their interpretation of randomly selected questions from the survey and their opinions of potentially sensitive questions. The interviewer also reviewed mismarked responses to determine the reason for participant confusion with the questions. The interviewer solicited feedback on the participants' opinions, impressions, and reactions to the questionnaire. Participants received \$20 for participating in the cognitive-based assessments. We revised the questionnaire based upon the participants' comments and the interviewer's observations (e.g., poorly worded questions were rewritten, terms of confusion clarified, typographical errors corrected, etc).

The final survey applicable to the present study included 40 multiple choice questions: 5 demographic questions (age group, race/ethnicity, health insurance, religious identity, and marital/partner status); 11 questions on recent or current usage of PAPs, BSEs, BCPs, and condoms; 3 cancer screening and contraceptive knowledge questions; and 3 negative opinion questions each on PAPs, BSEs, BCPs, and condoms. The multiple-choice, cancer screening and contraceptive knowledge-based questions asked participants to identify the applicability, purpose and recommended intervals of PAPs, BSEs, BCPs, and condoms. The knowledge-based questions asked for whom (applicability), why (purpose), and how often (recommended intervals) each of the four measures was typically used. The negative opinions questions asked participants if they believed the four measures were "painful," "embarrassing," or "unnecessary." The negative opinions questions were in the form of a statement posed in an identical format for all four measures (e.g., "Pap smears/Pap tests are painful," "Examining your own breasts is embarrassing," and "Condoms are unnecessary"). The responses for each of the negative opinions questions were "agree," "disagree," and "I am not really sure." The reading level of the entire questionnaire was a Flesch-Kincaid grade level of 7.8.

Survey Administration

We surveyed 18–55-year-old English-speaking women who presented for urgent and non-urgent medical care in the ambulatory care and urgent care areas of the ED. Women were excluded if they could not read or write in English; were being evaluated in the critical care, psychiatric section, or alcohol abuse holding areas of the ED; were not awake; or could not physically complete the form. We chose to survey 18–55-year-old women because we suspected that women 56-years-old and older were not likely to have recently used or currently use the contraceptive measures mentioned in the survey. Any female patient who met inclusion criteria during the study hours was asked to participate. Patients were apprised of the nature, content, and purpose of the study and were asked to give their verbal consent to participate. Each participant who completed the survey received a gift card to a local pharmacy.

Research assistants and trained volunteers administered the questionnaire in three 2-month blocks consisting of 66 2-hour shifts in July–August 2002, 32 4-hour shifts in October–November 2002, and 32 4-hour shifts in April–May 2003. We scheduled data collection

shifts to reflect the time-dependent influx of patients to the ED. In brief, we scheduled 25% of the shifts between 7 am and 11 am, 50% between 11 am and 11 pm, and 25% from 11 pm to 7 am. This ED's daily volume is essentially the same each day of the week. To reflect this pattern of patient visits, we conducted the survey so that each day of the week was represented equally. Training of the research assistants and volunteers consisted of 2-hour didactic sessions with the study's primary authors on how to approach ED patients for the study, which patients to approach, how to recognize exclusion criteria, and how to present patients with the self-administered survey.

Data Analysis

Data Entry and Verification—Two research assistants independently entered the data into separate Epi Info 2002 databases. The research assistants completed a self-guided tutorial on Epi Info 2002 (Alperin and Escoffery 2003) and were trained by the primary author on how to review the data forms prior to conducting the data entry. For every entry, the two independent databases were compared using the data compare feature of Epi Info 2002, and errors were corrected to create a final database. The final database was transferred into Stata 8.2 (Stata Corporation, College Station, TX) using Stat/Transfer 6 (Circle Systems, Seattle, WA).

Response Tabulation and Designation of “Applicable Women” in the Analyses—Women who answered any part of the negative opinions portion of the questionnaire were included in this analysis. The negative opinions section was near the end of the questionnaire. Failure of participants to complete the questionnaire was related to the length of the questionnaire and the time the participants remained in the ED. Those who did not complete the questionnaire had left the ED prior to their finishing the survey. The sample size of participants who answered each survey question is shown in Tables 1, 2, 3, 4, 5, 6, and 7.

The proportion of correct participant responses to each of the 12 cancer screening and contraceptive knowledge-based questions and the proportion of total correct responses to all three knowledge-based questions for each of the four cancer screening and contraceptive measures were calculated. Participant responses to the cancer screening and contraceptive usage, knowledge, and negative opinions items in the questionnaire were also computed for “applicable women.” Applicable women were survey participants for whom the screening or contraceptive measures were relevant, which varied by the cancer screening or contraceptive measure being analyzed. For example, for PAPs, “applicable women” were women who had not undergone hysterectomy. For BSEs, “applicable women” were those who had not undergone mastectomy. Pregnant women were excluded from the “applicable women” group since they were less likely to have used the screening or contraceptive measures recently. The details of the designations for “applicable women” are provided in Tables 2 and 3.

Negative Opinions Analyses—The proportion of participants who expressed a negative opinion about each of the four cancer screening and contraceptive measures as being “painful,” “embarrassing,” or “unnecessary,” were determined for all women in the study and for the “applicable women” designated for each cancer screening and contraceptive measure. In addition, the proportions of participants who expressed no negative opinion or expressed any negative opinion for each of the four cancer screening and contraceptive measures were calculated.

We then conducted four analyses on the negative opinions expressed by participants in the study. The first analysis entailed determining which participants, based upon their

demography, were more likely to express any negative opinion about each of the four cancer screening and contraceptive measures. Risk ratios (RRs) and corresponding 95% confidence intervals (CIs) for the risk of having any negative opinion on a given cancer screening or contraceptive measure were estimated by each demographic characteristic (age group, race/ethnicity, health insurance, religious identity, and marital/partner status).

The second analysis involved assessing if participants who demonstrated less knowledge about each cancer screening and contraceptive measure were more likely to express any negative opinion on these measures than those who demonstrated greater knowledge. The responses in the knowledge-based section of the questionnaire were used to assess participant knowledge about each cancer screening and contraceptive measure. The RR and corresponding 95% CI for the risk of expressing any negative opinion was estimated by comparing those who answered each of the knowledge-based questions incorrectly about a given measure to those who answered each of the questions correctly about that measure. The risk of having any negative opinion was also estimated for each cancer screening and contraceptive measure based upon the absolute number of incorrect responses a participant gave to the knowledge-based questions.

The third analysis consisted of assessing if participants who expressed any negative opinion about a cancer screening or contraceptive measure were more likely to express any negative opinion about another cancer screening or contraceptive measure. RRs and corresponding 95% CIs were estimated for the risk of these interrelationships.

The fourth analysis examined if having a negative opinion on the four cancer screening and contraceptive measures was related to lack of usage of these measures. Lack of usage of a given measure was determined through the health history questions of the survey. For PAPs and BSEs, lack of usage was expressed in two ways: no current usage and never having used these measures. For BCPs, lack of usage was expressed as no current usage. For condoms, lack of usage was expressed as never having used condoms. RRs and 95% CI were estimated. For all four analyses, differences in RRs were considered significant at the $\alpha = 0.05$ level.

Results

Respondent Characteristics

Of 1,100 women eligible to participate in this study, 769 (70%) completed all or part of the questionnaire. Of these, 670 (87.1%) women answered all or part of the negative opinions section of the questionnaire. Their responses and the subsequent analyses of their responses are presented in this paper. Figure 1 shows the enrollment diagram for the participants. Table 1 provides the demographic characteristics of the participants. The majority were under the age of 35 years (63%), White (61%), had private health insurance (53%), were Catholic (50%), and most were single/never married (42%).

Responses to the Health History and Knowledge-based Questions

Table 2 provides the cancer screening and contraceptive usage reported by participants. Responses are shown for all participants and those for whom the four cancer screening and contraceptive measures were applicable ("applicable women"). Among all participants, 2% were currently pregnant, 10% had undergone a hysterectomy, 25% had undergone a bilateral tubal ligation (BTL), 2% had undergone a mastectomy, and 85% had sexual intercourse with a man within the last year. The utilization of PAPs, BSE, and condom for all participants and "applicable women" were similar. BCP and other non-surgical birth control usage was lower for all participants than it was for "applicable women," which is to be expected, given the restrictions used to create the categories of "applicable women" for each topic (Table 2).

Table 3 shows the responses to the cancer screening and contraceptive knowledge questions, both for all participants and for “applicable women.” Overall knowledge was highest about condoms and overall knowledge was lowest about PAPs. The percentages of correct responses were similar for all participants compared to all “applicable women” for the knowledge-based questions.

Participants’ Negative Opinions About the Four Cancer Screening and Contraceptive Measures

Table 4 shows the percentage of participants expressing a negative opinion, no negative opinions, and any negative opinion on the four cancer screening and contraceptive measures. The percentages of responses to the questionnaire are provided for all participants and for “applicable women.” The majority of participants did not view each of the four cancer screening and contraceptive measures as “painful,” “embarrassing,” or “unnecessary.” Few participants considered the four cancer screening and contraceptive measures to be “unnecessary.” More women considered PAPs to be “painful” and “embarrassing” than the other measures. More women (46%) expressed any negative opinion about PAPs than about the other three cancer screening and contraceptive measures. The results for all participants and for “applicable women” were similar.

Association of Any Negative Opinions and Participant Demographic Characteristics

Age group, race/ethnicity, religious identity and marital/partner status were not associated with having any negative opinion on all four cancer screening and contraceptive measures (data not shown). Not having private health care insurance was associated with an increased risk of having any negative opinion on all four measures: PAPs (RR 1.2 [1.1–1.4], $n = 644$), BSEs (RR 2.1 [1.3–3.2], $n = 650$), BCPs (RR 3.0 [1.7–5.2], $n = 639$), and condoms (RR 1.6 [1.1–2.6], $n = 646$). The results for all women and “applicable women” were the same for these and all subsequent analyses (data not shown).

Association of Any Negative Opinions and Knowledge

Table 5 displays the relationship between expressing any negative opinion and a demonstrated lack of knowledge of each of the four cancer screening and contraceptive measures. For BSEs, BCPs, and condoms, there was a greater risk for a participant to express any negative opinion if she answered incorrectly each or any of the knowledge-based questions (“who,” “why,” and “how often” these measures are used) for these three measures. With the exception of “how often” PAPs should be performed, the association of any negative opinion and PAP knowledge did not reach statistical significance. However, there was a trend toward an association for PAPs. For BSEs, BCPs, and condoms, the risk of having any negative opinion tended to be higher for those who answered incorrect the “why” questions than the “who” and “how often” questions.

Table 5 also presents whether or not the risk of having any negative opinion was greater depending upon the absolute number of questions answered incorrectly. The risk of having any negative opinion about a topic increased as the number of questions answered incorrectly increased. The increase in risk was smallest for PAPs.

Interrelationships of Having Any Negative Opinion Among the Four Cancer Screening and Contraceptive Measures

Table 6 shows the interrelationship of having any negative opinion among the four cancer screening and contraceptive measures. For all comparisons, having any negative opinion on one measure was associated with an increased risk of having any negative opinion on

another measure. The interrelationship of negative opinions on BSEs, BCPs, and condoms compared with PAPs was less strong than the interrelationships among the other measures.

Association of Having Any Negative Opinion and Screening and Contraceptive Usage

Table 7 shows the relationship between having any negative opinion and lack of usage of the four screening and contraceptive measures. For BSEs, BCPs, and condoms, having any negative opinion on any of these measures was associated with lack of usage of that measure. For PAPs, the association did not reach statistical significance.

Discussion

In general, few of these female ED patients expressed negative opinions toward BSEs, BCPs, and condoms. Nearly half, however, expressed at least one negative opinion toward PAPs. It appears that PAPs are considered to be the least liked measure of the four evaluated in this study. Most of these women found PAPs to be “painful” or “embarrassing.” Very few women viewed these screening and contraceptive measures as unnecessary. This latter finding is encouraging because it suggests that the focus of improving compliance of ED patients with these measures should not be on whether or not they are necessary but instead upon other potential barriers to their provision and usage.

Having private health care insurance was associated with a reduced risk of having a negative opinion on all four measures. This observation suggests that access to medical care services, typically lower in those without private health care insurance, is related to patient opinion on these preventive health measures. Improving access through universal health care insurance or other means might help improve patient opinion along with usage of these services.

Although we anticipated a relationship, age group, race/ethnicity, marital/partner status, and religious identity were not associated with having any negative opinion on the four cancer screening and contraceptive measures. PAP, BSE, BCP, and condom opinions have been shown to be related to demographic characteristics in other studies (Battersby and Nelson 2004; Beckman et al. 1996; Murphy et al. 1995; Yu and Rymer 1998). For example, in a British study of opinions on PAPs (Yu and Rymer 1998), a higher percentage of younger women viewed PAPs as “embarrassing, painful, or troublesome.” In a study of Chinese women’s opinions of PAPs (Holroyd et al. 2001), married women were more likely express that they found PAPs painful and embarrassing than unmarried women. Differences in populations studied, study techniques, and questionnaires might account for our discrepant results.

Not knowing the applicability, purpose, and recommended intervals of PAPs, BSEs, BCPs, and condoms was related to having a negative opinion on these measures. This finding was even more striking in the analysis of the absolute number of incorrectly answered questions. The relationship was particularly strong for BSEs, BCPs, and condoms. The relationship proved to be weaker for PAPs, possibly because so many women expressed negative opinions about them, or because opinions of PAPs might be less dependent upon knowledge about them.

Negative opinions were interrelated among these topics, indicating that if women have any negative opinion on one cancer screening or contraceptive measure, they have an increased risk of having any negative opinion on other measures. This finding has implications for overcoming barriers in future ED-based cancer screening and contraceptive health programs. The findings suggest that positively influencing a female ED patient’s opinion about one cancer screening or contraceptive measure might lead to an improvement in opinions about another measure.

Failure to use cancer screening and contraceptive measures was related to expressing any negative opinion on these measures. This finding could also be used to the advantage of ED-based cancer screening or contraceptive health programs. By addressing and overcoming negative opinions, patient compliance with these measures might increase. Underutilization of PAPs, BSEs, BCPs, and condoms has been associated with negative opinions and beliefs about them in several populations (Beckman et al. 1996; Dahl et al. 1998; Eaker et al. 2001; Fletcher et al. 1989; Gaudet et al. 2004; Jacob et al. 1989; Libbus 1995; Mamon and Zapka 1986; Moore et al. 1996; Ross 1992; Yu and Rymer 1998).

It is difficult to determine if more positive opinions lead to greater usage, or vice versa. The direction might be impossible to determine. Nevertheless, the overall clinical and policy implications of this study are that negative opinions and lack of knowledge need to be addressed in any women's cancer screening and contraceptive health programs in the ED setting. Greater uptake of these measures might be achieved by helping women understand the screening or contraceptive measures and by reducing negative opinions towards them. Furthermore, the study results suggest that perhaps if negative opinions on one of these measures are reduced, then negative opinions on the others might also decrease. If usage is at least partially dependent upon opinions, then improving opinions on one preventive health measure might improve opinions, and perhaps usage, on another measure.

The study had several limitations. First, the sample (primarily White, Catholic, single, privately insured 18–55-year-old women) might not be representative of other populations; therefore the results might not be applicable to other populations and settings. Further, the study was conducted at a single ED. The study findings might be different at other EDs. It is possible that the negative opinion questions that were the focus of this survey were either not understood by participants or were not applicable to the measures under study. However, many of our findings were seen in other studies in various populations. In addition, there might be other correlates of negative opinions, such as whether or not the patient has a regular medical provider, that were not evaluated in this study. Future studies could attempt to identify these and other potential factors.

Expressing a negative opinion about these cancer screening and contraceptive measures might have been the result of a lack of knowledge about these measures. Therefore, frustration with not knowing and an inability to answer the question was the source of the negative opinion. We cannot determine the directionality of that relationship from this questionnaire. In addition, the cross-sectional nature of the study allows only for the evaluation of associations, not cause and effect or temporal relationships. It is hoped that future studies can build upon the findings of this study and determine, for example, if lack of usage leads to negative opinions or if the reverse relationship is true. Future studies could also explore if interventions to improve opinions and increase knowledge on screening or contraceptive measures help increase usage of these measures.

Acknowledgments

Dr. Merchant was supported by a National Institutes of Health training grant through the Division of Infectious Diseases, Brown Medical School, The Miriam Hospital, from the National Institute on Drug Abuse, 5 T32 DA13911. There are no financial disclosures or conflicts of interest to report. The authors gratefully acknowledge the data entry expertise of Lyn Robillard, Kristina Casadei, and Robert Andreozzi; the assistance of the survey volunteers from the Society for Clinical Research for Undergraduates at Brown University; and a \$500 donation of gift cards by CVS/pharmacy.

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Fig. 1.
Enrollment diagram

Table 1

Demographic profile of participants

	<i>n</i>	%
Age group	664	
18–25 years		35
26–35 years		28
36–45 years		24
46–55 years		14
Race/Ethnicity	660	
Black/African-American		11
Hispanic/Latina		15
Other*		13
White		61
Health insurance	664	
Private		53
Governmental**		32
No insurance		15
Religious identification	665	
Catholic		50
Protestant		26
No religious preference		17
Other*		7
Marital/partner status	668	
Single		42
Married		29
Divorced/separated/annulled/widowed		16
Male partner		12
Female partner		1

* Any other religious preference

** Medicaid/Medicare or hospital-sponsored free medical care

Table 2

Cancer screening and contraceptive usage

	<u>All women</u>		<u>Applicable women</u>	
	<i>n</i>	%	<i>n</i>	%
Pap smears ^a				
Pap smear within 1 year	662	70	551	70
Ever had a Pap smear	669	94	551	94
Breast self-exams ^b				
Breast self-exams within 1 month	664	46	606	48
Ever performed a breast self-exam	664	78	606	80
Birth control pills ^c				
Currently using birth control pills	667	18	350	30
Currently using other non-surgical birth control	663	89	349	18
Currently using any non-surgical birth control	660	26	347	42
Condoms ^d	610		514	
Never use condoms		50		49
Use condoms some of the time		18		19
Use condoms most of the time		15		16
Use condoms every time		17		17

Note: "Applicable women" designations:

^a not pregnant, no hysterectomy;

^b not pregnant, no mastectomy;

^c not pregnant, no hysterectomy, no bilateral tubal ligation (BTL), sexually active (having had sex with a man within the last year);

^d not pregnant, sexually active (having had sex with a man within the last year)

Table 3

Cancer screening and contraceptive knowledge

Questions		Correct answers		All women		Applicable women	
		n	%	n	%		
Pap smears ^d							
Who should have a Pap smear/Pap test?	Any adult woman	667	74	555	76		
Why do you think a paper smear/Pap test is done?	To see if someone has abnormal cells on the cervix that could turn into cancer	665	74	553	75		
How often should most people go for a Pap smear/Pap test (unless otherwise directed by a doctor)?	Once a year	665	75	553	75		
All correct answers		663	54	551	56		
Breast self exams ^b							
Who should examine their own breasts (breast self-exams)?	All adult women	667	93	608	93		
Why do you think a woman should examine her own breasts (breast self-exams)?	To see if she has a lump that may indicate breast cancer	666	95	608	93		
How often should a woman examine her own breasts (breast self-exams)?	Once a month	667	84	608	84		
All correct answers		666	80	607	81		
Birth control pills ^c							
Who may take birth control pills?	Only women	666	88	351	91		
Why do you think someone might use birth control pills?	To prevent pregnancy	667	97	351	98		
How often should someone take birth control pills?	Once a day	667	93	352	95		
All correct answers		664	83	350	88		
Condoms ^d							
Who should use condoms during sexual intercourse?	Anyone may use condoms during sexual intercourse	664	93	524	94		
Why do you think that someone should use a condom during sexual intercourse?	To prevent pregnancy and/or infection (sexually transmitted diseases)	665	97	525	98		
How often should most people use condoms during sexual intercourse?	All the time	664	94	525	95		
All correct answers		661	89	522	89		

Note: "Applicable Women" designations:

^a not pregnant, no hysterectomy;

^b not pregnant, no mastectomy;

^c not pregnant, no hysterectomy, no bilateral tubal ligation (BTL), sexually active (having had sex with a man within the last year);

^d not pregnant, sexually active (having had sex with a man within the last year)

Table 4

Participants expressing negative opinions

	<u>Painful</u>		<u>Embarrassing</u>		<u>Unnecessary</u>		<u>Negative opinions</u>		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	None %	Any %
All women									
Pap smears	664	22	666	38	669	5	649	54	46
Breast self-exams	660	5	669	8	670	7	656	88	13
Birth control pills	656	4	656	5	652	6	644	91	10
Condoms	654	5	653	7	658	5	651	90	10
Total	643	29	652	43	647	14	660	46	54
Applicable women									
Pap smears ^a	551	23	555	38	557	5	540	54	47
Breast self-exams ^b	605	4	611	8	611	6	601	88	12
Birth control pills ^c	343	2	343	3	344	3	341	94	7
Condoms ^d	517	5	515	6	519	4	515	91	9
Total ^e	329	26	335	39	336	10	338	51	49

Note: "Applicable women" designations:

^a not pregnant, no hysterectomy;

^b not pregnant, no mastectomy;

^c not pregnant, no hysterectomy, no bilateral tubal ligation (BTL), sexually active (having had sex with a man within the last year);

^d not pregnant, sexually active (having had sex with a man within the last year);

^e not pregnant, no hysterectomy, no mastectomy, no BTL, sexually active (having had sex with a man in the last year)

Table 5

Association of having any negative opinion with cancer screening and contraceptive knowledge

	Negative opinions regarding			
	Pap smears	Breast self-exams	Birth control pills	Condoms
“Who” incorrect				
<i>n</i>	647	653	642	646
Risk ratio	1.1	3.6	3.6	3.7
95% CI	0.9–1.3	2.4–5.6	2.2–5.9	2.2–6.2
“Why” incorrect				
<i>n</i>	645	652	643	647
Risk ratio	1.2	6.1	7.6	4.8
95% CI	0.9–1.4	4.3–8.9	4.8–12.0	2.72–8.5
“How often” incorrect				
<i>n</i>	646	653	644	658
Risk ratio	1.3	3.1	2.6	3.3
95% CI	1.1–1.5	2.1–4.6	1.4–4.9	1.9–5.9
Any incorrect				
<i>n</i>	644	652	644	648
Risk ratio	1.1	2.9	2.8	2.9
95% CI	0.9–1.3	1.9–4.3	1.7–4.8	1.8–4.8
Two correct answers				
<i>n</i>	644	652	641	645
Risk ratio	0.9	1.7	1.8	1.7
95% CI	0.7–1.2	0.9–3.0	0.9–3.4	0.5–3.5
One correct answer				
<i>n</i>	644	652	641	645
Risk ratio	1.2	4.0	5.6	8.7
95% CI	0.9–1.5	2.1–7.4	1.9–10.9	4.7–16.3
No correct answers				
<i>n</i>	644	652	641	645
Risk ratio	1.4	9.4	9.3	6.3
95% CI	1.1–1.8	6.5–13.3	5.33–16.1	3.3–11.6

Note: Regression reference group: all three correct answers (in each category)

Table 6

Interrelationships of having any negative opinion

	Pap smears	Breast self-exams	Birth control pills	Condoms
Condoms				
<i>n</i>	619	629	635	
Risk ratio	1.8	6.6	7.0	
95% CI	1.5–2.1	4.5–9.7	4.5–11.0	
Birth control pills				
<i>n</i>	615	626		635
Risk ratio	1.5	6.0		6.7
95% CI	1.2–1.9	4.0–8.9		4.4–10.3
Breast self-exams				
<i>n</i>	633		626	629
Risk ratio	2.0		7.0	7.6
95% CI	1.7–2.3		4.4–11.2	4.9–11.9
Pap smears				
<i>n</i>		633	615	619
Risk ratio		5.2	2.2	3.4
95% CI		3.0–9.2	3.4	2.0–5.9

Table 7

Association of having any negative opinion with lack of usage of cancer screening and contraceptive measures

	<i>n</i>	Risk ratio	95% CI
Negative PAP smear opinion			
No Pap smear within the year	645	1.2	0.9–1.5
Never had a Pap smear	645	1.6	0.8–3.1
Negative breast self-exam opinion			
No breast self-exam within the month	650	1.8	1.3–2.5
Never performed a breast self-exam	650	1.4	1.1–1.6
Negative birth control pills opinion			
Not currently using birth control pills	644	1.1	1.0–1.2
Negative condom opinion			
Never use condoms	595	1.3	1.1–1.6