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Psychosocial Determinants of Cancer-Related Information Seeking among Cancer Patients

AARON SMITH-McLALLEN, MARTIN FISHBEIN, and ROBERT C. HORNIK

Annenberg School for Communication, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Abstract

This study explores the utility of using the Integrative Model of Behavioral Prediction as a framework for predicting cancer patients' intentions to seek information about their cancer from sources other than a physician, and to examine the relation between patient's baseline intentions to seek information and their actual seeking behavior at follow-up. Within one year of their diagnosis with colon, breast, or prostate cancer, 1641 patients responded to a mailed questionnaire assessing intentions to seek cancer-related information from a source other than their doctor, as well as their attitudes, perceived normative pressure, and perceived behavioral control with respect to this behavior. In addition, the survey assessed their cancer-related information seeking. One year later, 1049 of these patients responded to a follow-up survey assessing cancer-related information seeking during the previous year. Attitudes, perceived normative pressure, and perceived behavioral control were predictive of information seeking intentions, though attitudes emerged as the primary predictor. Intentions to seek information, perceived normative pressure regarding information seeking, baseline information seeking behavior, and being diagnosed with stage 4 cancer were predictive of actual information seeking behavior at follow-up. Practical implications are discussed.

Being diagnosed with cancer catapults patients and their families into an unfamiliar landscape of medical terminology, decision-making, and lifestyle changes. As a result, cancer patients encounter a new set of informational needs. Research has shown that most cancer patients (74%–98%) want as much information as possible about their disease and its treatment (Cassileth, Zupkis, Sutton-Smith & March, 1980; Chen & Siu, 2001; James, James, Davies, Harvey, & Tweddle, 1999; Jenkins, Fallowfield, & Saul, 2001). Although doctors and other medical professionals are generally the cancer patients' primary source of information, most patients seek out additional information about the cancer itself (e.g., etiology and course of disease, physical effects of disease, and stage of disease), rehabilitation (e.g., recovery time and nutrition during recovery), and prognosis (Finney Rutten, Arora, Bakos, Aziz & Rowland, 2005; Nair, Hickok, Roscoe, & Morrow, 2000; Talosig-Garci & Davis, 2005) from a variety of interpersonal (e.g., friends, family, and other cancer patients) and mediated sources (e.g., TV, magazines, and the Internet) (Jenkins, Fallowfield, & Saul, 2001; Finney Rutten, Arora, Bakos, Aziz & Rowland, 2005; Carlsson, 2000; Mills & Davidson, 2002; Silliman, Dukes, Sullivan & Kaplan, 1998).

Some evidence suggests that information can reduce anxiety associated with the diagnosis (e.g., Davidson, Goldenberg, Gleave & Denger, 2003; Michie, Rosebert, Heaversedge, Madden & Parbhoo, 1996) and assist in coping with the effects of the disease itself (e.g.,

Harrison-Woermke & Graydon, 1993; Zemore & Shepel, 1987). One study found that cancer patients who sought information via the Internet participated more actively in treatment-related decision-making, and asked more questions of their doctors during a visit (Bauerle Bass, Burt Ruzek, & Gordon, 2006). However, other studies have found that information seekers and non-seekers may differ demographically (Czaja, Manfredi & Price, 2003) as well as in terms of informational coping styles (i.e. monitoring vs. blunting) (Barnoy, Bar-Tal & Zisser, 2006), suggesting that the effects of information seeking may not be independent of one's propensity to seek out information. Nevertheless, a randomized clinical trial examining the effects of providing (or not providing) women attending an out-patient breast clinic with information prior to their initial consultation found that members of the information-receiving treatment groups experienced less anxiety about their exam, less anxiety about what the doctor might find, and perceived their problem as less serious than did those in the no-message control group (Michie et al., 1996). Studies using more macro levels of analysis have noted that rates of breast-conserving surgery were highest in states that had informed-consent laws requiring physicians to provide patients with information about different treatments options (Farrow DC, Hunt WC, Samet, 1992; Ganz, 1992; Nattinger, Gottlieb, Veum, Yahnke & Goodwin, 1992; Fraenkel & McGraw, 2007). These studies suggest that the effects of information on cancer patients' decision-making are not limited to those who are inclined to seek out information on their own, and that encouraging cancer patients to seek out information about their cancer may lead to more informed cancer-related decision-making.

Although, some research has identified a few demographic (Czaja et al., 2003; Mayer et al., 2007) and psychological differences (Barnoy et al., 2006) between those who tend to seek out cancer-related information and those who do not, little is known about the psychosocial factors that predict cancer patient's intentions to seek out information related to their cancer, or about the relation between intentions to seek information and actual seeking behavior. This study uses the Integrative Model of Behavioral Prediction (IM) (Fishbein, 2000, 2008; Fishbein & Yzer, 2003) as a theoretical model for examining predictors of cancer patient's intentions to seek information about their cancer from sources other than their doctors at baseline, as well as their actual information seeking behavior at follow-up one year later.

The Integrative Model of Behavioral Prediction

The IM is a model that specifies a set of constructs that predict behavioral performance, and is based on the health belief model (Janz & Becker, 1984; Rosenstock, 1974), the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), Social Cognitive Theory (Bandura, 1986), and the theory of planned behavior (TPB) (Ajzen, 1988, 1991) and is illustrated in Figure 1. The IM posits that an intention to perform (or not perform) a behavior is a precondition for engaging in the behavior. Behavioral intentions (BI), in turn, are a function of attitudes (ATT) toward performing the behavior in question, perceptions of normative pressure (PNP) to engage in (or not engage in) the behavior, and perceived behavioral control (PBC) with respect to performing the behavior. More specifically, ATT toward the behavior refers to the degree to which one is in favor of or opposed to performing the behavior; is my performance of the behavior pleasant or unpleasant? Is it wise or foolish, harmful or beneficial? PNP refers to a person's perception of the degree to which important others think he or she should or should not perform the behavior, as well as perceptions of whether or not similar or important others are themselves performing the behavior. PBC assesses a person's belief that they do, or do not, have the ability to perform the particular behavior under a number of challenging circumstances; that performing the behavior is, or is not, under the person's control. Also according to the IM, the influence of distal variables, such as demographic factors, cancer type, and cancer stage, on intention should be mediated through ATT, PNP,

and PBC. The influence of ATT, PNP, and PBC on behavior should be mediated through BI, although in some instances PBC may have a direct influence on behavior.

The Current Study

This study was designed to test some of the IMs theoretical predictions as a means for understanding the factors associated with cancer patient's intentions to seek information and their actual information seeking behavior. Specifically, we examined three main hypotheses. First, according to the IM, behavioral intentions should be reliably predicted from the psychosocial variables ATT, PNP, and PBC. Second, the effects of demographic variables on intentions should not contribute, or contribute very little to the prediction of intentions over and above the effects of ATT, PNP, and PBC. Third, BI should have a direct and significant impact on behavior and should mediate the effects of ATT, PNP, and PBC on behavior. Tests of these relationships will provide insight into the factors that contribute to information seeking among cancer patients, and suggest strategies for modifying information seeking intentions and behavior.

Method

Patients and procedure

A list of 26,608 patients diagnosed with breast, colorectal, or prostate cancer in 2005 was obtained from the Pennsylvania Cancer Registry. This list included approximately 95% of all cancer cases that were eventually reported to the registry. After stratifying by cancer type, a sample was randomly selected of 3994 patients, of whom 2013 responded. Potential participants were contacted with a pre-notice letter explaining the purpose of the study, which included instructions for opting-out, and a brochure about the cancer registry. Three days later, surveys tailored by cancer type, along with a letter and small cash incentive were mailed to those who had not opted out. Two weeks later those who had not returned the initial survey were sent an additional letter and survey (Dillman, 2000).

In an experiment reported elsewhere (Kelly, Frazee, & Hornik, under review) 382 patients were selected to receive and filled out a shorter version of the questionnaire in which the items of interest in this study were not included. The analyses of baseline data reported here are based on responses from 1641 patients. Using response rate four from the American Association for Public Opinion Research (AAPOR, RR4) standard definitions to adjust for estimated cancer and non-cancer related deaths within Pennsylvania (AAPOR, 2006), the response rate was 60% for colorectal cancer, 68% for breast cancer, and 64% for prostate cancer participants. Baseline data were collected between September and November of 2006.

One year later, a follow-up questionnaire was sent to the 1390 respondents who received the baseline survey containing measures of the IM variables and who indicated we could contact them again. We received 1049 responses to the follow-up survey. Again, using AAPOR RR4 (AAPOR, 2006), the follow-up response rates to follow-up questionnaires were 82% for colon cancer and 83% for both breast and prostate cancer. Table 1 more fully describes the characteristics of the baseline and follow-up samples. Prior to the study survey items were pilot tested using interviews with cancer patients.

Measures

Baseline—The current study is based on responses to questions assessing respondent's intentions to actively seek information related to their cancer from sources other than their doctors in the next 12 months, attitudes about seeking such information, as well as perceived

norms and perceived control with respect to this behavior. We also examine past information seeking behavior.

Behavioral intentions (BI) were measured using a single item reading “How likely is that you will actively seek information about issues related to your cancer from a source other than your doctor in the next 12 months” scored on a 7-point semantic differential scale anchored by “very unlikely” and “very likely.” Attitudes toward information seeking were assessed by averaging responses to three semantic differential scales; “My actively seeking information about issues related to my cancer from a source other than my doctor in the next 12 months would be...” useless – useful; unenjoyable – enjoyable; foolish – wise. Perceived behavioral control (PBC) was measured by averaging responses to two items; “My actively seeking information about issues related to my cancer from a source other than my doctor in the next 12 months would be...” not up to me – up to me, and “If I really wanted to, I could actively seek information about issues related to my cancer from a source other than my doctor in the next 12 months” disagree – agree. Perceived normative pressure (PNP) was measured by averaging responses to two items; Most people like me (e.g. other cancer patients) actively seek information about issues related to their cancer from a source other than their doctors” and “Most people who are important to me think I should actively seek information about issues related to my cancer from a source other than my doctor in the next 12 months.” Both items were anchored by disagree agree. All semantic differential items were scored –3 to +3.

We measured past information seeking by asking respondents to indicate from which of 12 sources they had sought information about issues related to their cancer in the time since their diagnosis. The sources included interpersonal sources (e.g., doctors, family and friends, other cancer patients) and mediated sources (e.g., TV and radio, newspapers and magazines, the Internet) as well as an “other” option to capture sources not listed. Respondents were categorized as seekers if they sought from at least one source other than doctors and other medical professionals and as non-seekers if they had not sought from any source or only from a doctor or other medical professional. Details on the types of information cancer patients sought out and sources of that information are described more fully in Nagler et al (under review).

Follow-up—In order to maintain correspondence between the measures of ATT, PNP, PBC, BI, and the follow-up behavior measure participants indicated which of 12 sources they sought information from in the past 12 months. The response options and computation of seeking and non-seeking at follow-up were identical to the baseline measure.

Analyses

We used a one-sample *t*-test to test whether the mean level of intentions to seek information was significantly different from the scale’s midpoint. ANOVAs (with post-hoc comparisons where appropriate) were used to examine differences in mean levels of information seeking intentions by cancer type. A chi-square analysis was used to examine the proportions of intenders and non-intenders by cancer stage. We used MANOVAs to test differences between intenders and non-intenders on ATT, PNP and PBC. Linear regression was used to predict seeking intentions at baseline. Stepwise logistic regression models with forced entry were used to predict seeking behavior at follow-up.

Results

Baseline

Seeking behavior—Overall, at baseline, 80% of respondents indicated they had sought information about their cancer from at least one source other than their doctor in the time (one year or less) between their diagnosis and the completion of the survey.

Mean group differences—Across all cancers the mean for intentions to seek cancer-related information in the next 12 months was negative ($M = -0.92$, $SD = 2.16$), and significantly below the scale midpoint of zero, $t(1525) = -16.63$, $p < .001$. Mean levels of intentions differed by cancer, $F(2, 1520) = 10.63$, $p < .001$, and breast cancer patients reported stronger intentions to seek cancer-related information in the future ($M = -0.56$, $SD = 2.19$) than did those with prostate ($M = -1.15$, $SD = 2.08$) or colon ($M = -1.05$, $SD = 2.16$) cancer, $ps < .001$. Intentions did not differ between those with colon and prostate cancer. Analyses also indicated that although women had stronger intentions to seek information in the future ($M = -0.71$, $SD = 2.18$) than did men ($M = -1.13$, $SD = 2.12$), $t(1521) = 14.31$, $p < .001$, $d = 0.19$, this largely reflected the higher seeking intentions for breast cancer. Intentions did not differ between men and women with colon cancer. Intentions to seek information differed also by cancer stage, $F(2, 1421) = 7.06$, $p = .001$. Post-hoc analyses indicated that those with less advanced disease (stages 0, 1, and 2) had lower intentions to seek ($M = -1.06$, $SD = 2.11$) than did those with stage 3 ($M = -0.53$, $SD = 2.22$), $F(2, 1421) = 4.88$, $p = .008$ or stage 4 ($M = -0.67$, $SD = 2.27$), $F(2, 1421) = 3.48$, $p = .031$ disease. The difference between stage 3 and stage 4 was not significant, $F(2, 1421) = 0.23$, $p = .794$.

As Table 2 illustrates, patients who said it was likely that they would seek in the next 12 months (those who scored 1, 2, or 3 on the intention measure) held more positive attitudes toward seeking, perceived more social pressure to seek information, and expressed having more control over seeking compared to those who indicated they were not likely to seek (those who scored -3, -2, -1 or 0 on the intention measure). It should be noted that both those who indicated they were likely to seek and those who indicated they were unlikely to seek reported relatively high levels of control over information seeking.

Predicting seeking intentions—In Step 1 of the regression model intentions were predicted from IM predictors (ATT, PNP, and PBC). Background variables (i.e. demographics, cancer stage, and cancer type) were added in Step 2. Coefficients and significance tests for Step 2 of this model appear in Table 3. As Table 3 illustrates, ATT ($\beta = .442$, $p < .001$), PNP ($\beta = .251$, $p < .001$), and PBC ($\beta = -.059$, $p = .024$) were all significantly associated with intentions to seek information, though ATT was the factor most strongly associated with intentions. Together, ATT, PNP, and PBC accounted for 40% of the variance in intentions. Some of the background variables added in Step 2 were significantly associated with seeking intentions. Specifically, there were negative associations between seeking intentions and highest level of educational attainment (high school education $\beta = -.088$, $p = .002$; less than high school, $\beta = -.066$, $p = .013$) and age at diagnosis ($\beta = -.110$, $p < .001$). Having breast cancer ($\beta = .055$, $p = .034$) and being diagnosed with advanced stage disease (Stage 3, $\beta = .086$, $p < .001$; Stage 4, $\beta = .047$, $p = .033$) were positively associated with seeking intentions. Entering the background variables in Step 2 increased the adjusted R^2 by 3%, $F(3, 1251) = 226.74$, $p < .001$. These results provide support for the hypotheses that ATT, PNP, and PBC should predict intentions and that background variables should contribute relatively little to the prediction of intentions. Models that included the interaction of cancer type and stage yielded identical results and the interaction terms were not significant.

Follow-up

Predicting seeking behavior—Overall, 54% sought information from at least one source other than their doctor in the previous 12 months (compared to 80% at baseline). Seventy-six percent of those who at baseline indicated they were likely to seek information reported at follow-up having sought information in the previous 12 months. However, 41% of those who said it was unlikely that they would seek information, did seek information at follow-up.

According to the IM, behavioral intentions mediate the influence of ATT, PNP, and PBC on behavior, and background variables should not contribute to the prediction of behavior over and above intentions. In step 1 of a 4-Step logistic regression model ATT, PNP, PBC was regressed on behavior. In this model ATT ($OR = 1.28, p < .001$) and PNP ($OR = 1.19, p = .001$) were predictive of behavior but PBC was not ($OR = 0.98, p = .730$). As seen in Table 4, when intentions were added in Step 2, it was a significant predictor of behavior ($OR = 1.30, p < .001$). ATT ($OR = 1.11, p = .066$) and PBC ($OR = 1.00, p = .959$) were not predictive of behavior and there was a marginally significant association between PNP and behavior ($OR = 1.11, p = .053$). Because past behavior is usually a strong predictor of future behavior it was added in Step 3 and was highly significant, ($OR = 2.79, p < .001$). Yet, intentions remained a significant predictor of behavior. Also, when past behavior was added to the model the relationship between PNP and behavior became statistically significant. Finally, when the background variables were added in Step 4 all of the patterns in Step 3 remained; PNP, intentions, and past information seeking were predictive of behavior. Having stage 4 cancer was the only background variable that was significantly associated with behavior ($OR = 2.47, p < .001$).

Discussion

Although numerous studies have examined the sources that cancer patients consult for information about their cancer, and the types of information they look for (e.g., Finney Rutten et al., 2003), this is the first study to examine the attitudinal, normative, and control factors that drive cancer patient's intentions to seek information about their cancer from sources other than their doctors, as well as their actual information-seeking behavior. This study demonstrates that the Integrative Model of Behavioral Prediction (Fishbein, 2000, 2008; Fishbein & Yzer, 2003) is a useful model for understanding the psychosocial predictors of cancer patient information-seeking intentions and behavior. Specifically, patients' intentions to seek information about their cancer from sources other than their doctor(s) were reliably associated with ATT, PNP, and PBC about information seeking. Seeking intentions were driven primarily by attitudes toward seeking and normative pressure and PBC played a relatively minor role in accounting for seeking intentions. These findings are consistent with others who have found that attitudes and normative pressure are predictive of cancer patients' intentions to seek out psychosocial support in the form of support groups, social workers, and others (Steginga, et al., 2008).

Also noteworthy is the fact that, although their contribution to the prediction of intentions was small (together they accounted for an additional 3%), level of education, age, having breast cancer, and being diagnosed with advanced stage disease contributed significantly to the prediction of seeking intentions over and above the IM constructs. The theoretical explanation is that these background variables are proposed to influence the behavioral, normative, and control beliefs that underlie ATT, PNP, and PBC respectively, not necessarily through the direct measures of these constructs included in this study. Nevertheless, in practice it is important to realize that older individuals and those with lower levels of education are less likely, and those with breast cancer and more advanced stages of

cancer are more likely to intend to seek out information from sources other than their doctors.

The majority (76%) of those who expressed intentions to seek at baseline reported having sought at follow-up. As predicted by the IM, intentions to seek predicted actual seeking and mediated the effects of ATT and PNP on behavior (there was no direct effect of PBC on behavior). Being diagnosed with stage 4 cancer was the only background variable associated with seeking behavior after accounting for the predicted effects of the IM constructs and past seeking behavior. Interestingly, there was a significant effect of PNP at baseline on follow-up behavior that was not entirely mediated by intentions. One possible explanation is that those who experienced more normative pressure to seek out information at baseline eventually complied and sought information at follow-up even though at baseline they had not initially intended to do so. The effect of PNP on behavior may also help to account for a portion of the 41% of respondents who did not express intentions to seek at baseline but reported seeking at follow-up. This finding also suggests that many cancer patients may not anticipate the advent of new health or psychosocial issues about which they might seek information, and seems to indicate that a considerable proportion of cancer-related information seeking occurs in response to unanticipated informational needs. Our results might be accounted for if patients' attitudes towards seeking became more positive and/or they experienced substantial normative pressure to seek between baseline and follow-up.

Finally, compared to those diagnosed with less advanced disease (stages 0, 1, and 2), being diagnosed with advanced stage disease was predictive of both intentions to seek and actual seeking of cancer-related information from sources other than one's doctor(s). Others have found that relative to medical treatment information, patients receive significantly less advice about psychosocial care and must therefore seek out that information on their own, and those who experience more cancer-related distress have stronger intentions to seek (Steginga, et al., 2008). Although our data do not speak to this directly, it is likely that compared to those diagnosed with less advanced disease, those diagnosed with more advanced disease may experience more distress and be faced more acutely with psychosocial issues about which information from sources other than their doctors may be quite useful (e.g., learning to live with cancer, and end of life issues).

Practical implications

Information seeking among cancer patients is a fairly common behavior, and previous research suggests that information seeking is associated with a number of positive outcomes (Butow, Boyer, & Tattersall, & Brown, 1999; Davidson, et al., 2003; Ganz, 1992; Michie, et al., 1996). Given that intentions to seek information were most strongly associated with attitudes toward information seeking, persuasive appeals targeting patient's attitudes toward information seeking by highlighting the usefulness of information seeking will likely lead to changes in information seeking intentions and behavior. The finding that norms are also important predictors of information seeking intentions and given that doctors and family members are among cancer patients' most important referents (e.g., Talosig-Garcia & Davis, 2005) it would seem that these referents can have a significant impact on the patients' information seeking behaviors. In addition, it could be hypothesized that older individuals and those with lower levels of education are most likely to benefit from encouragement to seek out information. However, research has shown that some informational resources are of questionable quality (Chen & Siu, 2001; Hoffman-Goetz & Clarke, 2000; Silberg, Lundberg, & Musacchio, 1997). Providing patients with a circumscribed list of reliable informational resources may make the information seeking process more enjoyable and assure exposure to high-quality information. Future research could test these hypothesized causal associations by examining the effects of persuasive messages aimed at creating positive attitudes towards seeking information about cancer. More specifically, according to

the Integrative Model, one strategy would be to identify the specific behavioral beliefs that distinguish those who intend to seek information from those who do not. Messages should emphasize positive beliefs about information seeking held by intenders and redress negative beliefs held by non-intenders. Also, according to the results reported here and the IM's theoretical predictions, these messages might be most effective if delivered by an important source of social influence such as the patient's doctor or significant other.

Limitations

We should note some specific limitations of this study. This study's sample consisted entirely of Pennsylvania residents who may not be representative of cancer patients from other regions. Generalization of these results to other populations should be made cautiously where reason exists to believe that cancer patients in Pennsylvania differ from other populations on relevant dimensions. Also, this study relied exclusively on self-report data and no attempt was made to verify any actual information seeking. As such, rates of reported seeking behavior are subject to the problems inherent in using self-report data such as recall bias and social desirability influences. Another limitation is that the study did not measure patient's anxiety about their cancer or their level of literacy, two factors that research suggests may be associated with cancer information seeking (Dubois & Loisele, 2009; Kim, et al., 2003). In addition, some research suggests that there are gender differences with regard to the use of and satisfaction with cancer information (e.g., Dubois & Loisele, 2009). Because we chose to examine patterns across three types of cancer and cancer type was confounded with gender, our findings are not informative with regard to any gender differences in cancer information seeking intentions or behavior.

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Figure 1.
Integrative Model of Behavioral Prediction

Table 1

Sample Characteristics

	Baseline (N = 1641) <i>n</i> (%) or mean (<i>sd</i>)	Follow-up (N = 1049) <i>n</i> (%) or mean (<i>sd</i>)	Sig. Test (Attrition)*
Age range	23–103	24–103	
Mean (<i>sd</i>) age at Diagnosis	64.66 (12.36)	64.05 (11.95)	$t = 2.68, p = .007$
Male	809 (49.3%)	514 (49.0%)	$\chi^2 (1) = 0.11, p = .746$
Female	832 (50.7%)	535 (51.0%)	
Cancer Type			
Breast	539 (32.8%)	352 (33.6%)	$\chi^2 (2) = 3.45, p = .178$
Colon	587 (35.8%)	358 (34.1%)	
Prostate	515 (31.4%)	339 (32.3%)	
Highest Level of Education			
Less than high school	260 (16.0%)	136 (13.0%)	$\chi^2 (3) = 33.82, p < .001$
High school or GED	659 (40.7%)	413 (39.4%)	
Some college (1–3) years	360 (22.2%)	244 (23.3%)	
College graduate	342 (21.1%)	254 (24.3%)	
Ethnicity			
Non-Hispanic White	1329 (81.0%)	886 (84.5%)	$\chi^2 (2) = 22.90, p < .001$
Non-Hispanic Black	232 (14.1%)	120 (11.4%)	
Other	80 (4.9%)	43 (4.1%)	
Marital Status			
Married	1108 (68.7%)	745 (71.6%)	$\chi^2 (2) = 11.98, p = .003$
Divorced or separated	397 (24.6%)	230 (22.1%)	
Never married	108 (6.7%)	65 (6.3%)	
Cancer Stage			
Stage 0	146 (9.5%)	88 (8.9%)	$\chi^2 (4) = 21.34, p < .001$
Stage 1	286 (18.6%)	193 (19.5%)	
Stage 2	621 (40.4%)	425 (43.0%)	
Stage 3	200 (13.0%)	130 (13.2%)	
Stage 4	284 (18.5%)	152 (15.4%)	

Note.

* All chi-square tests compare participants who responded at follow-up to those who did not. Cancer stage was determined from clinical data available from the Pennsylvania Cancer Registry.

Table 2

Means, Standard Deviations, and Mean differences between Intenders and Non-Intenders

	Likely to Seek		Unlikely to Seek		<i>t</i>	<i>p</i> <	Effect Size (<i>d</i>)
	Mean	SD	Mean	SD			
ATT ($\alpha = 0.89$)	1.39	1.34	-0.82	1.83	25.01	.001	1.30
Useful	1.84	1.41	-0.63	2.04	25.54	.001	1.32
Enjoyable	0.64	1.68	-1.21	1.71	17.73	.001	1.09
Wise	1.58	1.79	-0.53	2.15	18.21	.001	1.03
PNP ($r = 0.53$)	0.70	1.79	-1.17	1.70	18.84	.001	1.08
Injunctive norm	0.38	2.25	-1.60	1.93	15.74	.001	0.98
Descriptive norm	1.02	1.83	-0.71	2.03	15.59	.001	0.87
PBC ($r = 0.37$)	2.02	1.34	0.82	2.00	13.39	.001	0.65
Up to me	2.07	1.52	0.67	2.40	12.71	.001	0.65
Could seek	2.00	1.63	0.98	2.27	9.51	.001	0.48

Note. Positive effect sizes (Cohen's *d*) indicate higher scores for intenders. Due to missing data, *N*s for intenders range from 378 to 434, and *ns* for non-intenders range from 899 to 1092. α the measure internal consistency, *r* is the inter-item correlation. Both *rs* are significant, *ps* < .001.

Table 3

Predicting Seeking Intentions at Baseline

Model Step & Variables Entered	β	t	$p \leq$
Step 1			
ATT	.442	15.94	.001
PNP	.251	9.86	.001
PBC	-.059	-2.25	.024
Step 2			
Comparison: College Grad.			
Some College	-.026	-0.97	.333
High School	-.088	-3.15	.002
Less than HS	-.066	-2.47	.013
Comparison: Whites			
Black	.038	1.67	.092
Other	.016	0.73	.465
Age	-.110	-4.62	.001
Comparison: Married			
Divorced or separated	.042	1.82	.069
Never married	.027	1.24	.214
Comparison: Colon			
Breast	.055	2.12	.034
Prostate	.007	0.26	.796
Comparison: Stages 0–2			
Stage 3	.086	3.76	.001
Stage 4	.047	2.14	.033
Adjusted Model $R^2 = .43$			

Note. All regression coefficients are from Step 2 after controlling for demographic covariates in Step 1. Step 1 adjusted $R^2 = 0.40$ Gender was not included as a covariate because it was collinear with cancer type. N = 1267.

Table 4

Regression Models Predicting Information Seeking Behavior at Follow-up

Predictor	Step 2			Step 3			Step 4		
	OR	95% CI	p ≤	OR	95% CI	p ≤	OR	95% CI	p ≤
ATT	1.11	0.99 – 1.24	.066	1.10	0.98 – 1.23	.101	1.11	0.99 – 1.25	.075
PNP	1.11	1.00 – 1.23	.053	1.12	1.01 – 1.24	.040	1.13	1.01 – 1.26	.028
PBC	1.00	0.91 – 1.10	.959	0.99	0.90 – 1.09	.845	0.98	0.88 – 1.08	.642
BI	1.30	1.18 – 1.43	.001	1.26	1.14 – 1.39	.001	1.22	1.11 – 1.35	.001
Baseline Seeking	---	---	---	2.79	1.80 – 4.31	.001	2.85	1.79 – 4.53	.001
Comparison: College Grad.									
Some College	---	---	---	---	---	---	1.02	0.64 – 1.62	.935
High School	---	---	---	---	---	---	0.94	0.61 – 1.43	.761
Less than HS	---	---	---	---	---	---	0.74	0.40 – 1.34	.314
Comparison: Whites									
Black	---	---	---	---	---	---	1.57	0.90 – 2.73	.112
Other	---	---	---	---	---	---	1.81	0.71 – 4.60	.214
Age	---	---	---	---	---	---	1.00	0.99 – 1.02	.939
Comparison: Married									
Divorced or separated	---	---	---	---	---	---	0.75	0.49 – 1.14	.179
Never married	---	---	---	---	---	---	1.56	0.76 – 3.21	.224
Comparison: Colon									
Breast	---	---	---	---	---	---	1.36	0.90 – 2.07	.149
Prostate	---	---	---	---	---	---	0.89	0.58 – 1.34	.566
Comparison: Stages 0–2									
Stage 3	---	---	---	---	---	---	1.46	0.88 – 2.41	.142
Stage 4	---	---	---	---	---	---	2.47	1.51 – 4.03	.001
^a Model Fit	$\chi^2(8) = 3.83, p = .872$			$\chi^2(8) = 5.40, p = .714$			$\chi^2(8) = 6.98, p = .538$		
^b Pseudo R^2	.175			.208			.247		

Note:

^aHosmer and Lemeshow test.

b Naglekerke R^2 . The BI measure is continuous. N = 792