

# Examining the Dimensions of Cancer-Related Information Seeking and Scanning Behavior

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Recent decades have witnessed a growing emphasis on patients as active consumers of health information. The literature about cancer-related information focuses on active and purposeful information seeking, but a great deal of exposure to cancer-relevant information may happen less purposively (termed *information scanning*). This article presents results from an in-depth interview study that examined information seeking and scanning behavior in the context of cancer prevention and screening decisions among a diverse sample of people living in a major metropolitan area. Results suggest that information scanning is quite common, particularly for information related to screening tests. Information seeking is rarer and occurs primarily among those who also are information scanners. Respondents report using a greater variety of sources for information scanning than for information seeking, but participants were much more likely to report that their decisions were influenced by information received through seeking than through scanning. These findings shed new light on how individuals navigate the media environment and suggest future research should examine predictors and effects of less purposeful efforts to obtain cancer-related information.

The growing emphasis on patients as active consumers of health care (Kaplan & Frosch, 2005) and the rapid growth in the availability of health information, particularly through the Internet (Eysenbach, Powell, Kuss, & Sa, 2002; Rice & Katz, 2001), lend urgent significance to the question of how people obtain and make sense of cancer-related information to make decisions about their health. In theory, these changes have the potential to greatly improve cancer prevention and care in the United States and abroad. However, questions remain about (a) how people gain access to and use health information, and (b) what impact this information has on health behavior and health outcomes. This study examines these questions using in-depth interviews in the context of decisions about cancer prevention and screening.

### THE HEALTH CARE CONSUMER PARADIGM

The role of the patient in making medical decisions has traditionally been thought of as a passive one, with physicians playing the dominant role (Brody, 1980). Several academic, social, and institutional forces are shifting this approach to one where health care consumers are expected to take a more active role in reaching health care decisions, a transition aided by the increasing public availability of an expanded range of medical information and sources (e.g., Sharf & Street, 1997; Stewart et al., 1995). The health care consumer paradigm envisions individuals as empowered decision makers, aided by public information and guided by health practitioners who weigh the relative benefits and costs of preventive, diagnostic, and treatment options and engage in health behaviors that are consistent with preferences and values (e.g., Kaplan & Frosch, 2005; Rimal, Ratzan, Arntson, & Freimuth, 1997). Nevertheless, it is unclear whether nondiagnosed health care consumers take such an active role in prevention and screening information acquisition and decision making.

### CONCEPTUAL DEFINITIONS: INFORMATION SEEKING AND SCANNING BEHAVIOR

Scholars across several disciplines have studied the process and dynamics of information acquisition (Case, 2002). Information seeking has received the most research attention. Numerous information seeking models have been proposed (Case, 2002), including several specific to health (e.g., Freimuth, Stein, & Kean, 1989; Griffin, Dunwoody, & Neuwirth, 1999; Johnson, 1997). Several definitions have also been offered. Johnson (1997) defines information seeking as "the purposive acquisition of information from selected information carriers" (Johnson, 1997, p. 4). More restrictive definitions view information seeking as active

efforts to obtain specific information in response to a relevant event, like a cancer diagnosis (Czaja, Manfredi, & Price, 2003; Echlin & Rees, 2002; Freimuth et al., 1989). Most definitions agree that information seeking occurs when new, salient information creates an undesired level of uncertainty, prompting active efforts to obtain additional information (e.g., Case, 2002; Johnson, 1997).

Increasingly, scholars have recognized the frequency and importance of information acquired in a less purposeful way (Case, 2002), as well as the tendency for some individuals to actively avoid information (e.g., Brashers, Goldsmith, & Hsieh, 2002; Case, Andrews, Johnson, & Allard, 2005). Various terms have been used to describe comparatively less purposeful modes of information acquisition, including *incidental* or *mere exposure* (e.g., Hornik, 2002; Obermiller, 2001; Shapiro, 1999), *casual seeking* (e.g., Johnson, Andrews, & Allard, 2001); *browsing* (e.g., Dutta-Bergman, 2004a), *passive information acquisition* (e.g., Berger, 2002; Ramirez, Walther, Burgoon, & Sunnafrank, 2002), *routine information acquisition* (e.g., Griffin et al., 1999), and *information scanning* (e.g., Kosicki & McLeod, 1990; Slater, 1997). Several models conceptualize information acquisition occurring on a continuum from information seeking to purely incidental exposure (e.g., Griffin et al., 1999; Ramirez et al., 2002; Wilson, 1999). Other conceptualizations place information seeking and active avoidance at opposite ends of the spectrum, with comparatively less purposeful information acquisition falling in between (e.g., Atkin, 1973). The placement of information seeking and less purposeful information acquisition on a continuum renders the task of distinguishing between modes of information acquisition a tricky endeavor (Johnson, 1997). Nevertheless, given the number of definitions proposed for information seeking and the breadth of terms offered to describe less purposeful information acquisition, clear conceptual distinctions are warranted. This study proposes the terms *information scanning* and *information seeking* to distinguish between two modes of information acquisition.

*Information scanning* represents information acquisition that occurs within routine patterns of exposure to mediated and interpersonal sources that can be recalled with a minimal prompt. This definition, consistent with Griffin et al.'s (1999) concept of routine information acquisition, Atkin's (1973) discussion of information yielding, and virtually all studies of exposure to purposeful communication campaigns (Hornik, 2002), includes information that was encountered in a purely incidental manner, insofar as sufficient attention was paid to generate a minimal memory trace that can be recalled later (Southwell, Barmada, Hornik, & Maklan, 2002). Information scanning also includes information accessed by browsing the news media, paying attention to health content in regular television viewing, or hearing cancer information in the course of routine interactions

with friends, family, or medical practitioners. It excludes incidental exposure to information that was not encoded in memory because such exposure (although potentially meaningful) is nearly impossible to assess in a survey or interview context.

Individuals differ in the extent to which they encounter health-related information in their normal patterns of behavior (Cool, 2001; Johnson, Case, Andrews, Allard, & Johnson, 2006). Some people embed themselves in health information-rich environments by subscribing to health-related magazines, viewing health-related programs, and/or reading health sections of newspapers, whereas others do not (Johnson, 1997; Johnson et al., 2006). Information scanning from these sources reflects more purposeful behavior than information acquired incidentally (e.g., seeing a commercial for colonoscopy during a football game). However, this article offers *information scanning* as an umbrella term to describe a continuum of behaviors, none of which are completely passive, that characterize information acquisition that occurs within normal patterns of behavior. The definition recognizes that the health information persons encounter in their normal patterns of exposure will influence the nature and amount of their topic-specific information scanning.

*Information seeking*, on the other hand, describes active efforts to obtain specific information outside of the normal patterns of exposure to mediated and interpersonal sources (Atkin, 1973; Griffin et al., 1999). This definition includes any nonroutine media use or interpersonal conversation about a specific topic and thus includes behaviors such as viewing a special program about a health-related treatment, using a search engine to find information about a particular health topic on the Internet, and/or posing specific health-related questions to a friend, family member, or medical practitioner outside the normal flow of conversation. This view is consistent with conceptualizations used in studies of cancer patient information seeking, where researchers assess how individuals search for information about a personal cancer diagnosis or treatment decision (e.g., Echlin & Rees, 2002).

These distinctions do not describe a separate category for active information avoidance. Although there is no doubt that some individuals habitually avoid, ignore, or selectively process cancer-related information (Brashers et al., 2002; Case et al., 2005), this article contends that avoidance will manifest in either (a) lack of cancer information acquisition altogether, or (b) failure to encode information after acquisition. As a result, a tendency to avoid cancer information should result in lower levels of information seeking and scanning. This conceptualization is consistent with models that treat habitual information avoidance as a complex of cognitive and emotional factors (e.g., fear, stress, coping) that affect whether or not an individual engages in information seeking and scanning behavior (SSB; Case et al., 2005).

## RESEARCH ON CANCER-RELATED INFORMATION ACQUISITION

Despite the growing recognition of what this article has termed *information scanning*, research on cancer-related information acquisition has focused largely on information needs and information seeking by cancer patients (e.g., Czaja et al., 2003; Echlin & Rees, 2002; Leydon et al., 2000), often centered on people already engaged in a formal search (Freimuth et al., 1989) or those using a particular medium (e.g., the Internet; Eysenbach & Kholer, 2002). Such emphasis is supported by the fact that proximity to the disease is among the strongest predictors of cancer-related information seeking (Freimuth et al., 1989). Nevertheless, many suggest that nondiagnosed individuals are likely to encounter cancer information through comparatively less purposeful means (Johnson, 1997; Johnson et al., 2001), highlighting the need to assess the frequency, nature, and impact of information scanning among the general population.

Studies of cancer information acquisition among the general population leave several questions unanswered. For example, Johnson and colleagues examined mammography information preferences and behavior in several studies but did not distinguish between mode of acquisition (e.g., Johnson & Meishcke, 1992; Johnson, Meishcke, Grau, & Johnson, 1992). Information acquired through information seeking or scanning may have differential impact on cancer-related decisions, highlighting the need to distinguish between them (Griffin et al., 1999). The elaboration likelihood model (ELM; Petty & Cacioppo, 1986) and heuristic-systematic model (HSM; Eagly & Chaiken, 1993) propose that humans process information in two distinct ways: (a) peripheral or heuristic, where minimal effort is invested to make sense of information and only limited, short-term effects on cognitions and behavior are likely to manifest, and (b) central or systematic, where individuals are motivated to carefully scrutinize message content, leading to enduring attitude and behavior change. Several authors (Dutta-Bergman, 2004b; Kahlor, Dunwoody, & Griffin, 2004; Slater, 1997) suggest that information seeking should lead to central or systematic message processing, because individuals who are motivated to seek out information should also be motivated to carefully scrutinize it. Conversely, information obtained through scanning may not receive the same depth of processing, leading to comparatively lower impact on cancer-related decisions. These considerations warrant studies that assess the comparative impact of information seeking and scanning on decisions about cancer prevention and screening.

Much of the existing research on nonpatient information acquisition has also focused exclusively on a single information source (e.g., Johnson & Meishcke, 1993), but individuals are frequently exposed to numerous channels of information, all of which may contain cancer-related

information (Johnson et al., 2001). Other studies define the mode of information acquisition in terms of intrinsic properties of individual media (Carlson, 2000; Dutta-Bergman, 2004b), a problematic operationalization. While it is likely that some sources are more often used for information seeking (e.g., the Internet) than others (e.g., television), both sources could be used for information seeking *and* scanning. Individuals might tune in for particular television program they wouldn't have ordinarily viewed (information seeking) or notice information while browsing the Internet for an unrelated purpose (information scanning). These considerations highlight the need to consider modes of information acquisition from multiple channels.

## STUDY OBJECTIVES

Lenz (1984) suggests that engagement with information around a particular decision can be categorized with regard to its (a) mode of acquisition (seeking or scanning), (b) breadth (number of sources consulted), (c) depth (extent of use of any one source), and (d) relevance to the decision. Several of these distinctions are closely related to concepts derived from the ELM and HSM: Information considered actively and deeply reflects effortful processing and should lead to greater impact on decisions (Petty & Cacioppo, 1986; Eagly & Chaiken, 1993). This study uses these categories to describe SSB related to decisions about preventive behaviors and screening tests for breast, colon, and prostate cancer.

Several hypotheses and research questions were crucial to the design of this study and analysis. First, based on Freimuth et al.'s (1989) and Johnson's (1997) findings, this study hypothesized that respondents would report learning about cancer-related prevention and screening decisions more frequently through information scanning rather than seeking (H1). Second, considerable research has explored predictors of SSB, linking age, gender, education, and cancer history to an increased likelihood of SSB (e.g., Freimuth et al., 1989; Johnson, 1997; Lenz, 1984). Thus, this study hypothesized that these characteristics would predict whether or not individuals engaged in SSB (H2). Third, many studies of cancer information acquisition treat SSB as an enduring trait that manifests across health decisions and behaviors (e.g., Dutta-Bergman, 2005; Rakowski et al., 1990), but others find considerable variation in SSB based on proximity to cancer and intrinsic properties of each disease (e.g., Freimuth et al., 1989). Thus, this study hypothesized that an individuals' pattern of SSB would vary across decisions (H3). Fourth, based on information processing theories (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986), this study hypothesized that respondents would report greater depth and relevance to decision-making for information sought, compared to information scanned (H4). In the absence of strong a priori expectations

about breadth, the study tested whether information seeking or scanning involved more sources (RQ1).

Finally, building on previous work that conceptualized the mode of information acquisition in terms of intrinsic properties of individual sources, this study assessed whether the use of communication channels typically seen as active or passive (e.g., Carlson, 2000; Dutta-Bergman, 2004b) match people's reports of channels used for information seeking versus scanning (RQ2). In particular, in the context of recent, broad claims about levels of Internet use for health-related information (Fox, 2005; Rossiter, 2000), this study assessed how big a role the Internet plays for the general population's cancer-related SSB (RQ3). This article addresses these issues by exploring the characteristics of SSB in the context of prevention and screening decisions relating to breast, prostate, and colon cancer among a diverse sample of adults living in a major metropolitan area.

## DATA AND METHOD

### Data Collection Procedure

We conducted in-depth, in-person interviews with 85 respondents between June 9, 2004, and August 2, 2004. The eligible population included persons aged 50 to 70 years living within a 15 mile radius of a major university in a large, Northeastern metropolitan area. We focused on 50- to 70-year-old adults because cancer risk increases substantially during these years, making cancer prevention and screening decisions particularly relevant for this group. We purchased a list-assisted, random sample of households likely to have a 50- to 70-year-old head of household from Survey Sampling International. Introductory letters were sent to sampled households and we telephoned within 2 weeks of sending the letters. We enumerated all household members between 50 and 70 years old and used procedures developed by Dillman (1978) to randomly select one participant. Ninety sample numbers were ineligible, leaving a total of 410 eligible households (response rate = 20.7%; American Association for Public Opinion Research, 2000). Three interviewers met respondents in coffee shops ( $n=54$ ), libraries ( $n=5$ ), their homes ( $n=16$ ), their place of employment ( $n=2$ ), or at the university ( $n=8$ ). Interviews averaged 30 to 45 min and respondents received \$20 compensation. All study materials were approved by the university's institutional review board.

### Sample Characteristics

The final sample included 53 women (62.4%) and 32 men. The majority described themselves as White ( $n=63$ , 74.1%), with the remainder identified as African American ( $n=21$ , 24.7%) or Asian American ( $n=1$ , 1.1%), fairly close to census estimates for the Greater Philadelphia region for Whites (74.0%) and African Americans

(census figures = 20%; U.S. Census, 2000). The mean age of respondents was 59.5 years ( $M = 59.5$ ) and mean education was 14.9 years (equivalent to “some college”). Sixty percent were married, with others equally distributed among widowed ( $n = 11$ , 12.9%), single ( $n = 11$ , 12.9%), and divorced ( $n = 10$ , 11.8%).

### SemiStructured Interview Protocol

Breast, colon, and prostate cancers are among the most common cancers among persons age 50 and older (U.S. Cancer Statistics Working Group, 2003). Scientific evidence is weak with regard to effective preventive behaviors for most cancers (Taubes, 1995), and the value of some screening tests also is uncertain. There is scientific disagreement about whether the relative pros and cons of mammography screening justify its continued use (e.g., Baum, 2004; Freedman, Petitti, & Robins, 2004). Whereas the American Cancer Society and American Urological Association (AUA) recommend routine prostate-specific antigen (PSA) testing for men age 50 or older (AUA, 2000; Smith, Cokkinides, & Eyre, 2004), the National Cancer Institute (NCI) and the U.S. Preventive Services Task Force (USPSTF) suggest that men carefully consider pros and cons before deciding to have a PSA test (NCI, 2003; USPSTF, 2002b). Likewise, although there are several different colon cancer screening options available (e.g., stool fecal occult blood tests, flexible sigmoidoscopy, and colonoscopy), there is insufficient evidence to determine which strategy is best (USPSTF, 2002a). This uncertainty and scientific controversy, combined with relatively high prevalence of these cancers, makes SSB particularly important for these decisions.<sup>1</sup> Instrument development began with pilot interviews using a convenience sample ( $n = 20$ ). These interviews suggested that men were unlikely to engage in SSB related to breast cancer, whereas women were less likely to seek or scan about prostate cancer than for breast cancer or colon cancer. To maximize the value of limited interview time, subsequent surveys asked women only about their SSB related to breast and colon cancer and men about their SSB only related to prostate and colon cancer. After a few initial items about general exposure to health information, we initiated a series of four modules for each respondent: (a) breast/prostate cancer prevention, (b) breast/prostate cancer screening, (c) colon cancer prevention, and (d) colon cancer screening. Although many respondents considered screening behavior as relevant

to prevention, the study distinguished between preventive behaviors that might reduce the risk of developing a particular cancer (diet, exercise, etc.) and screening behaviors that detect the presence of a particular cancer (mammograms, PSA tests).<sup>2</sup>

Within each prevention module, respondents were asked, “What do you know about what a [woman/man/person] can do to prevent [breast/prostate/colon] cancer?” If a respondent mentioned a screening test or routine doctor visits, interviewers asked the follow-up question, “What can a [woman/man/person] do to avoid getting [breast/prostate/colon] cancer in the first place?” For each preventive behavior, interviewers asked respondents to “tell me how you learned about [the preventive behavior].” Interviewers assessed whether respondents came across the information in the course of normal media use/interpersonal behavior or whether they actively searched for the information using the following probe: “You mentioned that you heard information about breast cancer prevention on the [source]. Did you choose to [listen to/watch] a specific program because you thought you would [see/hear] something about a breast cancer prevention, or did you just happen to be tuned in when it was mentioned?” Interviewers also assessed whether the information was relevant to their decision to initiate or avoid the behavior.

Next, after inquiring about sources of information for each prevention decision, interviewers asked respondents specific questions about media and interpersonal sources not previously mentioned. Questions were asked as follows: “You didn’t mention anything about television. Have you ever come across information about how to avoid getting [breast/prostate/colon] cancer on television? Tell me about that.” Respondents were asked specific questions for each decision about the following sources: television, radio, the Internet, newspapers, magazines, books, educational materials, family/friends/coworkers, and doctors/nurses/health practitioners. Interviewers probed for details about each exposure.

Interviewers asked similar questions about screening tests. Questions focused on one screening test for each cancer: mammography (breast cancer), the PSA test (prostate cancer), and colonoscopy (colon cancer).<sup>3</sup> Interviewers first asked respondents, “What do you know about

<sup>1</sup>The degree to which preventive and screening behavior reflects an actual “decision” likely differs across individuals. For example, some individuals may undergo annual mammograms simply because their doctor made an appointment for them without ever “deciding” to initiate the behavior. It is beyond the scope of this study to know to what extent these behaviors reflect conscious decision-making processes. Nevertheless, for the purpose of this study, the term *decision* is used to reflect specific preventive and screening behaviors, whether carefully considered or not.

<sup>2</sup>Colonoscopy can be viewed as a preventive or screening behavior. It is a preventive measure because it permits removing polyps *before* they become cancerous. Nonetheless, the study classified colonoscopy as a screening behavior because it is meant to detect disease or polyps that put one at the risk of disease rather than as a prevention behavior parallel to diet or exercise. All references to colonoscopy were coded under the category of screening.

<sup>3</sup>However, follow-up probes about the specific sources of information used for other screening tests were used if respondents mentioned them, including (but not limited to) breast self-exams (breast cancer), digital rectal exams (prostate cancer), sigmoidoscopy (colon cancer), or fecal occult blood tests (colon cancer).

[mammograms/the PSA test/colonoscopy]?” After respondents provided relevant information, interviewers followed up with the statement, “Tell me how you learned about that.” Interviewers asked specific questions about media and interpersonal sources in the same manner described for preventive behaviors. The interview concluded with questions about family/friend cancer histories and a battery of standard demographic items (age, race/ethnicity, marital status, and education).

### Coding Procedures

Digital audio files were transcribed into text documents for coding, which proceeded in two stages. First, coders entered closed-ended, quantitative data in a spreadsheet to characterize SSB by source and decision. Second, coders used QSR N6 qualitative data analysis software to code salient transcript passages to illustrate characteristics of quantitative categories.

Codebook development was an iterative process. The authors began with a set of closed-ended categories, based loosely on previous studies of cancer-related information seeking (e.g., Czaja et al., 2003; Lenz, 1984), and applied this coding document, as a group, to a sample ( $n = 2$ ) of pretest interview transcripts. Six coders then discussed issues with existing categories, suggested changes, and revised the codebook to apply to a new set of sample interviews ( $n = 5$ ). The six coders applied the codebook individually and then met as a group to discuss coding issues and reach consensus. It soon became apparent that the interpretive nature of the coding process required some level of interaction between coders to reach agreement. As a result, the study used a process whereby two randomly assigned coders coded each transcript independently, discussed their coding decisions, and came to consensus about all codes.

Prior to discussions, agreement between independent coders was relatively high (86% agreement overall), although kappa scores (which correct for marginal frequencies) were only moderate (average  $\kappa = 0.59$ ; range 0.55–0.64). Nevertheless, the decision to double-code every transcript provided the opportunity for coders to discuss their coding discrepancies and reach consensus about final codes. A third coder made the final coding decision in limited instances where coders could not reach agreement (6 times in 85 interviews).

### SSB Measures

Coders first assessed whether or not a particular source was used for a particular decision. Respondents were coded as not using a source for a particular decision if they either (a) said they had never heard of any preventive behaviors or screening tests (e.g., Respondent 9: “I have no idea what causes colon cancer. I have no idea. I’m completely blind when it comes to

that type of cancer”); or if, when prompted, (b) they specifically mentioned they didn’t use a particular source for a decision. Respondents who mentioned using a particular source for a decision were coded along four additional dimensions for the nature of their use of the source: whether it was part of seeking or scanning (activeness); number of sources used (breadth); specificity of recall (depth); and relationship to decision-making. The following sections review each coding dimension in turn and provide a relevant example from transcripts for each coding category in Table 1.

*Seeking or scanning.* Respondents who recalled being exposed to information from any source were asked how they acquired that information. *Information scanning* was operationalized as “instances where respondents did not actively look for information, but instead either encountered information in the normal course of their media use, or placed themselves in locations where they were at an increased likelihood of coming across information. In both cases, respondents made a choice to attend to the information.” Examples of responses classified as scanning include incidental exposure to commercials (e.g., Table 1, Respondent 28) and paying attention to cancer-related content on a television show (e.g., Table 1, Respondent 18). *Information seeking* was operationalized as “active efforts to obtain information, including (but not limited to) responses to the question, ‘Have you ever actively looked for information about [breast/prostate/colon] cancer [prevention/screening]?’” Seeking examples include information obtained at the library or on the Internet (e.g., Respondents 13 and 65 in Table 1). In limited circumstances where respondents used a source for a decision but did not recall enough information to assess whether information scanning or seeking occurred, coders assigned the default code “information scanning.”

*Breadth of SSB.* Breadth of SSB was defined by the total number of sources an individual reported as associated with a particular decision. The measure summed the total number of sources used per decision, and also reports this information separately for seeking and scanning.

*Depth of SSB.* Depth of SSB was defined as the specificity of SSB recall. Coders assessed the degree to which respondents remembered specific details about either the information they received about a decision or the circumstances of their exposure. Coders assigned responses to one of three categories: (a) no details recalled (e.g., Respondent 71, who only knew he/she was exposed to the information in a magazine); (b) some general ideas recalled (e.g., Respondent 25, who knew he saw information questioning the reliability of the PSA test on a TBS television show airing on Sunday mornings); and (c) extensive details recalled (e.g., Respondent 70, who recalled being exposed to multiple, contradictory evidence about the effectiveness of a high-fiber, low-fat diet and remembered the most recent source

TABLE 1  
Qualitative Examples, Closed-Ended Coding Categories

<i>Scanning (Television)</i>	
Interviewer :	So you didn't mention anything about TV or radio, seeing anything specifically about the colonoscopy. You did mention Katie Couric earlier actually for television—that was a couple years ago?
Respondent 18 :	One or a couple. I think her husband's been dead about six years now and maybe five, you know, and then afterwards she went on an absolute crusade to try to get people, I mean, to get this test done. She really pushed on it, you know. And are you familiar with Katie Couric's story and all that?
Interviewer :	Sure.
Respondent 18 :	And it showed you her going through it. I mean, they gave you the hospital shots, her laying on the gurney and all, the whole thing and follow-through and I'm kind of watching that, I was interested in that. ...That was kind of interesting to me, like to watch going through it and all that...
Interviewer :	Do you remember—did you tune in specifically to watch the particular episode with her going through the colonoscopy or was that something that was just kind of on that you came across when it was on?
Respondent 18 :	It was on, and then of course, and then there is always 25 minutes of me missing part of the show because I go in to take a shower, you know what I mean? So I can't watch the whole, now it's on three hours, I can't give up three hours just to stay glued to it, you know what I mean? And if I don't like the interview or who they're interviewing, zip, I go to another network.
<i>Seeking (Internet, Doctor)</i>	
Respondent 65 :	Yeah, I did. I looked into it, oh I know, my husband was having a colonoscopy, and I was just curious because I'm probably due, and I thought, let me see this, is it coming soon? And I actually happened to run into my gastroenterologist at the time I was looking at it and I mentioned something to her, we were on an elevator or something and she goes "Oh no, that's not here yet."
Interviewer :	Oh, okay. So when you went to look for information about it, where did you go?
Respondent 65 :	Well, I think I probably did a Med Line search and just looked in the general literature to see if there was anything, if any studies have been done and how new it was and how widespread its use is."
<i>Specificity of Recall</i>	
No details recalled (magazine)	Interviewer : You remember seeing something about avoiding breast cancer? Respondent 71 : Yeah. I don't remember exactly what it read, but I remember reading something, and they have these awareness walks and things like that. I never did it, but you know.
	Interviewer : Okay. And how about magazines or books? Respondent 71 : I've seen stuff in magazines.
Some details recalled (television)	Interviewer : Have you heard any controversy about avoiding prostate cancer or about the PSA test? Respondent 25 : Only the fact the PSA test may not be a definitive way to diagnose this. Other than that, no. I mean as far as, you know, it's not invasive and they just take some blood and test the blood, it may not be invasive.
	Interviewer : And do you remember where you heard that the PSA may not be 100% effective? Respondent 25 : Probably on, I mean once in a while I'll catch a health show on TBS; it's a Sunday show. I think I may have seen it on that. It was on Sunday mornings.
Extensive details recalled (Internet)	Interviewer : Okay. So what can people do to avoid colon cancer? Respondent 70 : Well, I think there is, I don't know if the jury is still out on whether, there are a lot of things that have been advertised as helping. You know, it's basically anything that keeps the system moving I guess, you know? And so for a while there it seemed like the high-fiber, low-fat diet was all the, was the ultimate silver bullet for that one, the magic bullet. But then that was discredited, that study, from what I understand. So right now, I mean, it's a bit fuzzy in my mind what I would do, and I have heard of something leading to it but nothing that really sounded, nothing that sounded too plausible, you know? I think it's just, if you eat, if you have a healthy diet, then you're probably going to be better off in terms of colon cancer.
	Interviewer : Okay. Do you remember where you saw those studies? Respondent 70 : I saw them, I think those I saw online, you know, on one of the portals, probably the MSN portal. I think that's where I saw that because I am always looking at diet and nutrition kind of info.
	Interviewer : Okay. So when you look for that, are you looking, do you seek that stuff out or when it pops up, are you reading it? Respondent 70 : I don't actively go searching too much unless I've been in an argument with somebody and I need to substantiate something.
<i>Relevant to Decision</i>	
Interviewer :	Okay. Great. And when, you said that your doctor provided you information about the PSA as well, when that happened, did they bring it up or did you bring up questions to them?
Respondent 2 :	He probably brought it up that I should get the PSA every year and then after they do the test, then he mails me the results.
Interviewer :	Okay. So you think most of the information that you've gotten from your doctor he's given to you without prompting from you?
Respondent 2 :	Oh yeah. I never, I let him run the show.

(Continued)

TABLE 1  
(Continued)

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Interviewer :	Yeah. And, when was the last time you saw or heard anything about the colonoscopy?
Respondent 64 :	That would be a couple of days ago.
Interviewer :	And where was that.
Respondent 64 :	Katie Couric show.
Interviewer :	Oh, Katie!
Respondent 64 :	Yes, can you try and get a—when she first come out with that—with the big push?
Interviewer :	Yeah?
Respondent 64 :	Because her husband, Jay, had died from it and I was due for one and what a job setting it up.
Interviewer :	Really, it was really busy?
Respondent 64 :	Yeah, everybody was getting colonoscopies and it was difficult to schedule....

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was msn.com). Two indicator variables for specificity were created. Responses with some or extensive details recalled were coded 1; those who recalled no details were coded 0. For the second measure, we assigned a value of 1 to responses with extensive recall, whereas the other two categories were assigned a value 0.

*Relevance to decision making.* Finally, coders assessed whether respondents indicated that the information they acquired through scanning or seeking affected their decision making about a particular prevention or screening behavior. A relevant information seeking or scanning behavior could lead a respondent toward or away from the focus behavior. To be coded as relevant, responses had to explicitly mention that (a) a source was discredited or otherwise rejected; (b) a source reinforced or confirmed a decision that was already made; (c) a source contributed to the respondent's prevention or screening decision but was not the only source of information; or (d) the source was the determinant source of information used to make a particular decision. For example, Respondent 2's statement, "I let [my doctor] run the show" exemplified a determinant source, whereas Respondent 64 indicated that Katie Couric's television story about colonoscopy contributed to his/her decision to undergo a screening test but was not the only factor (a friend dying from colon cancer also was cited). Relevant sources were assigned a value of 1. Responses where the information was ignored (but not explicitly rejected) or where the relationship to the decision was unclear were assigned a value of 0.

### Analytic Approach

To address the first two hypotheses, we described the prevalence of SSB from any medium for each of six cancer-related decisions (prevention/screening for breast/prostate/colon cancers). We divided information acquisition into a four-category typology: (a) no scanning or seeking, (b) seeking only, (c) scanning only, and (d) scanning and seeking. We also calculated overall information scanning and seeking measures that reflect the average proportion of decisions for which respondents reported

engaging in SSB. We tested H1 by comparing the proportion of decisions for which an individual reported engaging in scanning or seeking behavior using the Wilcoxon nonparametric tests of proportions for paired samples. We also conducted Wilcoxon tests to determine whether variation in SSB was a function of demographics described in H2.

We used two approaches to test H3. First, we used Wilcoxon tests to compare whether the pattern of SSB differed statistically across decisions (e.g., comparing SSB for prevention decisions to SSB for screening decisions). Next, we assessed whether respondents were consistent in their categorization on the SSB typology across decisions using kappa statistics, which compare observed levels of agreement with the level that would be expected from chance alone. To create an overall measure of consistency across the four decisions for any given individual, we applied Light's (1971) method for calculating kappa statistics for multiple "raters" (in this case, multiple decisions). We averaged kappa scores for each pair of decisions (Conger, 1980), which included six possible pairings.

We assessed H4 and RQ1 with a series of comparative analyses between information seekers and scanners. Among those who reported information scanning any source within a particular decision, we calculated the number of sources used, the proportion recalling at least some details about a source, the proportion recalling extensive details, and the proportion of sources cited as relevant to the decision. We repeated these analyses among those who reported seeking from any source within a decision and conducted Wilcoxon tests to compare seeking and scanning in terms of breadth (number of sources), depth, and relationships to decision making.

Finally, we examined how respondents reported using each source for SSB. Whereas previous sections focused on the *proportion of decisions* for which respondents reported SSB, these analyses report the proportion of respondents who reported using a particular source for seeking and scanning *for any decision*. We also examined the proportion of respondents who recalled at least some details about a source, recalled extensive details, and reported the source as being relevant for any decision, with the goal of comparing sources with regard to their activeness, depth, and relevance to decision making (RQ2 and RQ3).



RESULTS

Scanning Versus Seeking

Table 2 presents the distribution of respondents along the SSB typology by decision and averaged across decisions. Overall, consistent with H1, scanning occurred more frequently than seeking. Specifically, respondents reported scanning for 83.8% of all decisions, whereas seeking occurred in only 26.5% of decisions. The difference was large in magnitude and statistically significant (difference = 57.4%,  $p < .001$ ). In addition, seeking was almost always a complement to scanning. In 92% of decisions where seeking occurred (26.5% overall), respondents also scanned for information (24.4%). For 83% of decisions, most respondents obtained information via scanning alone.

SSB by Demographics

H2 predicted differences in the prevalence of SSB by various demographic characteristics, including age (60–70 vs. 50–59 or less), race (White vs. African American), education (some vs. no college), and familial cancer history. Contrary to H2, no significant differences in overall SSB were observed for any of these characteristics.

Consistency of SSB

Consistent with H3, prevention decisions produced less SSB than screening decisions (Table 2). Prevention decisions were both significantly more likely not to have involved any

SSB (26.5% versus 1.8%,  $p < .001$ ), and much less likely to have involved both seeking and scanning (14.1% versus 34.7%,  $p < .001$ ). Results also demonstrated notable SSB differences by cancer. Differences were tested separately for men (prostate vs. colon) and women (breast vs. colon). Women were more likely to report the absence of any seeking or scanning for colon cancer decisions (15.1%) than for breast cancer decisions (8.5%,  $p < .05$ , paired samples Wilcoxon test). Men were more likely to report the absence of any seeking or scanning for prostate cancer decisions (25.0%) than for colon cancer decisions (10.9%,  $p < .05$ ). These results support an inference that breast cancer decisions prompted the most SSB, followed by colon cancer. Prostate cancer decisions prompted the least SSB. Men and women were not different in the amount of SSB reported with regard to colon cancer decisions.

H3 also received strong support from kappa analyses presented in Table 3. On average, across each pair of decisions, respondents were consistent in their position on the SSB typology about half of the time (49.0%). However, based on the marginal distributions of SSB across decisions, one would expect respondents to be consistent 42.3% of the time. Taking chance into account, the level of overall agreement across decisions was very low and in fact no greater than what could be expected by chance alone ( $\kappa = 0.12$ ,  $p > .10$ ). Respondents were more consistent within decision categories; agreement beyond chance was observed among prevention decisions ( $\kappa = 0.19$ ,  $p < .05$ ) and screening decisions ( $\kappa = 0.21$ ,  $p < .05$ ). Nevertheless, in support of H3, overall consistency in placement along SSB typology categories was low.

TABLE 2  
Proportion Reporting Information Seeking and Scanning Behavior by Decision

	<i>Breast (n = 53)</i>		<i>Prostate (n = 32)</i>		<i>Colon (n = 85)</i>		<i>Average across all decisions</i>
	<i>Prevent</i>	<i>Screen</i>	<i>Prevent</i>	<i>Screen</i>	<i>Prevent</i>	<i>Screen</i>	
No scanning or seeking							
Proportion estimate	0.170	0.000	0.438	0.063	0.259	0.012	0.141
SE	0.052	0.000	0.089	0.043	0.048	0.012	0.022
Seeking only							
Proportion estimate	0.019	0.000	0.000	0.000	0.047	0.024	0.021
SE	0.019	0.000	0.000	0.000	0.023	0.017	0.009
Scanning only							
Proportion estimate	0.585	0.660	0.469	0.531	0.588	0.635	0.594
SE	0.068	0.066	0.090	0.090	0.054	0.052	0.030
Seek and scan							
Proportion estimate	0.226	0.340	0.094	0.406	0.106	0.329	0.244
SE	0.058	0.066	0.052	0.088	0.034	0.051	0.027
Scanning overall							
Proportion estimate	0.811	1.000	0.563	0.938	0.694	0.965	0.838
SE	0.054	0.000	0.089	0.043	0.050	0.020	0.022
Seeking overall							
Proportion estimate	0.245	0.340	0.094	0.406	0.153	0.353	0.265
SE	0.060	0.066	0.052	0.088	0.039	0.052	0.028

Note. Cells contain proportion estimates and their corresponding standard errors in parentheses.

TABLE 3  
Consistency of Information Seeking and Scanning Behavior Across Decisions

	Observed Agreement (SE)	Chance Agreement	$\kappa$ (SE)
Overall (across all 4 decisions)	0.490 (0.031)	0.423	0.119 (0.079)
By decision group			
Prevention	0.518 (0.055)	0.408	0.186 <sup>a</sup> (0.084)
Screening	0.612 (0.053)	0.508	0.209 <sup>a</sup> (0.105)
By cancer			
Breast	0.528 (0.069)	0.464	0.121 (0.104)
Prostate	0.406 (0.088)	0.316	0.134 (0.093)
Colon	0.494 (0.055)	0.414	0.139 <sup>a</sup> (0.072)

Note. The column labeled "Observed Agreement" presents the proportion of paired decisions in agreement and the standard error for this estimate in parentheses. The column labeled "Chance Agreement" indicates the proportion of paired decisions in agreement that would be expected by chance alone. <sup>a</sup>Denotes kappa significantly different from zero,  $p < .05$ .

### Breadth, Depth, and Relevance of SSB

Related to RQ1, scanners reported considerably more breadth in sources (3.29 sources per decision) compared to seekers (1.36 sources per decision,  $p < .001$ ; Table 4). In total, respondents who engaged in either seeking or scanning averaged 3.63 sources per decision ( $SD = 0.12$ ). Consistent with H4, the percentage of decisions for which respondents recalled some details was higher for sources used for seeking (97.5%) than for scanning (81.9%,  $p < .001$ ), but in both cases the recall of details was high. The difference was larger when comparing the percentage who recalled extensive details for seeking (59.6%) compared to scanning (19.7%;  $p < .001$ ). Turning to relevance, seekers reported that 71.7% of sources were relevant, compared to only 27.0% of sources used for scanning ( $p < 0.001$ ). Each of these findings provides strong support for H4.

### Sources of SSB

Next, analyses examined the breadth, depth, and relevance of SSB by source. The same general pattern (greater breadth for scanning, greater depth and relevance for seeking) was observed across each source, suggesting that source differences did not explain differences by seeking and scanning. Table 5 addresses RQ2 and RQ3 by examining differences in how respondents described their use of specific sources. Communication with health care providers and friends, family, and coworkers were the most commonly reported sources of SSB. Not surprisingly, respondents reported that information from mass media sources (television and print) was most often acquired via scanning. Nevertheless, a few respondents did report seeking information from television and print. Respondents cited doctors or other members of the medical establishment as the most

TABLE 4  
Characteristics of Information Seeking and Scanning Behavior Across Decisions

	Among Scanners (SE)	Among Seekers (SE)	Seekers or Scanners (SE)
No. of sources used per decision (breadth)	3.29 (0.105)	1.36 <sup>a</sup> (0.078)	3.63 (0.119)
Proportion with some details recalled (depth)	0.819 (0.019)	0.975 <sup>a</sup> (0.013)	0.832 (0.018)
Proportion with extensive details recalled (depth)	0.197 (0.020)	0.596 <sup>a</sup> (0.050)	0.229 (0.020)
Proportion relevant to decision-making process	0.270 (0.019)	0.717 <sup>a</sup> (0.047)	0.316 (0.019)

Note. \*The "Among Scanners," "Among Seekers," and "Seekers or Scanners" columns present breadth of information seeking and scanning behavior (SSB), depth of SSB, and relevance of SSB to decision making, averaged across all decisions, among respondents who scanned ( $n = 84$ ) or sought ( $n = 50$ ) cancer-related information for at least one decision. Cells include estimates and their corresponding standard errors in parentheses.

<sup>a</sup>Denotes that the difference between information seekers and scanners was statistically significant at  $p < .001$ .

TABLE 5  
 Characteristics of Sources Used for Information Seeking and Scanning Behavior

	<i>Proportion Who Named the Medium for Any Decision</i>					
	<i>Any Seeking or Scanning (SE)</i>	<i>Activeness</i>		<i>Depth of Recall</i>		<i>Relevant (SE)</i>
		<i>Scanning (SE)</i>	<i>Seeking (SE)</i>	<i>Some Details (SE)</i>	<i>Extensive Details (SE)</i>	
Doctor or medical establishment	0.965 (0.020)	0.871 (0.037)	0.447 (0.054)	0.965 (0.020)	0.741 (0.048)	0.894 (0.034)
Family, friends, or coworkers	0.941 (0.026)	0.941 (0.026)	0.118 (0.035)	0.929 (0.028)	0.675 (0.053)	0.518 (0.055)
Television	0.894 (0.034)	0.894 (0.034)	0.047 (0.023)	0.824 (0.042)	0.318 (0.051)	0.341 (0.052)
Newspapers or magazines	0.812 (0.043)	0.812 (0.043)	0.082 (0.030)	0.718 (0.049)	0.165 (0.040)	0.224 (0.045)
Pamphlets	0.777 (0.045)	0.765 (0.046)	0.059 (0.026)	0.671 (0.051)	0.118 (0.035)	0.224 (0.045)
Radio	0.506 (0.055)	0.506 (0.055)	0.000 (0.000)	0.400 (0.053)	0.106 (0.034)	0.059 (0.026)
Source forgotten	0.424 (0.054)	0.424 (0.054)	0.000 (0.000)	0.365 (0.053)	0.071 (0.028)	0.094 (0.032)
Books	0.282 (0.049)	0.177 (0.042)	0.165 (0.040)	0.259 (0.048)	0.059 (0.026)	0.118 (0.035)
Internet	0.224 (0.045)	0.129 (0.037)	0.153 (0.039)	0.200 (0.039)	0.118 (0.035)	0.106 (0.034)
Other sources	0.224 (0.045)	0.200 (0.044)	0.047 (0.023)	0.212 (0.045)	0.106 (0.034)	0.082 (0.030)

*Note.* Cells include estimates and their corresponding standard errors in parentheses.

common source of information seeking, but friends, family members, and coworkers were also frequently mentioned as scanning sources. A notable proportion of respondents (>15%) reported seeking information from the Internet, but a comparable proportion scanned from the medium (13%), and overall the Internet was among the least likely sources to be mentioned for at least one prevention or screening decision.

Almost all respondents reported that information accessed from doctors or the medical establishment was recalled with at least some detail (96.5%) and perceived as relevant to at least one decision (89.4%). SSB from interpersonal sources also was recalled with some detail among most respondents (92.9%) and was cited as relevant by more than half of the sample (51.8%). Television and newspapers/magazines were commonly recalled with some detail (82.4% and 71.8%, respectively), but these sources were cited as relevant much less frequently (34.1% and 22.4%) than doctors or other interpersonal sources. Only 10.6% of respondents cited SSB related to the Internet as relevant to any cancer-related decision.

## DISCUSSION

This study builds on previous research (e.g., Johnson, 1997) to advance understanding of how nondiagnosed

individuals acquire cancer-related information. Information scanning was quite common, particularly for screening test information; information seeking was less frequent and occurred primarily among those who were also are scanners. Contrary to previous studies that assume uniform patterns of information acquisition across decisions (e.g., Dutta-Bergman, 2005; Rakowski et al., 1990), there was considerable variation in SSB depending on proximity to disease (prevention and screening) and specific disease characteristics (breast, prostate, and colon cancer). These findings suggest that efforts to measure cancer-related SSB should not assume a uniform pattern of behavior across decisions and may reflect (a) intrinsic characteristics of specific cancers (e.g., Freimuth et al., 1989), (b) differences in receptivity to information by disease stage (e.g., Johnson et al., 2001), and/or (c) discrepancies in information availability (e.g., Freimuth, Greenberg, DeWitt, & Romano, 1984). Future studies should test these competing explanations.

Among those who engaged in SSB from any source, respondents reported substantial breadth. On average, respondents used several sources to inform themselves about screening or prevention decisions. Information scanning was associated with use of more sources than was information seeking. In contrast, seekers were somewhat more likely than scanners to provide evidence of depth by reporting some details about the information or how they

came across it, and even more likely to provide extensive details. Seekers also were much more likely to report that their decisions were influenced by information received through seeking.

Unsurprisingly, mass media sources were frequently used for information scanning but virtually never for information seeking. In contrast, nonprofessional interpersonal sources, the Internet, and books were commonly used for seeking. The most common seeking source was doctors or other members of the medical establishment. Furthermore, the majority of respondents who reported SSB from doctors or other agents of the health care system recalled extensive details about this SSB and cited this information as relevant to at least one decision, suggesting these were important sources of cancer-related information. Mediated sources were far less likely to be recalled with such detail or cited as relevant to any cancer-related decisions.

### Study Implications

Respondents were exposed to a considerable amount of information relating to cancer prevention and screening, particularly from the mass media, without engaging in purposeful searches to obtain that information. Although scanned information was not always perceived as relevant to decision making, respondents who did scan mentioned that this information contributed to decisions about cancer screening and prevention more than one fourth of the time. This does not, however, undermine the significance of efforts to obtain information through information seeking. Although seeking was a less common behavior, and almost always was accompanied by scanning, sought information was recalled with considerable detail and frequently contributed to prevention and screening decisions. These findings are consistent with expectations derived from the ELM and HSM (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986) and highlight the importance of distinguishing information seeking from information scanning.

The calculus of whether scanning or seeking mattered more in respondents' minds involves trading off frequency and breadth for influence. This trade-off suggests a crude calculation. Eighty-four percent of respondents recalled scanning an average of 3.29 sources, with 275 of those sources classified as relevant to decisions. Twenty-seven percent recalled seeking an average of 1.36 sources with 72% of those sources deemed decision-relevant. In each case the product of those three numbers represents the average number of relevant sources per decision. For scanning, that number is 0.75; for seeking, it is 0.26. This analysis is crude because it averages across decisions and sources (both doctors and television can fall into the scanning category), but, more important, because it equates all reports of relevance as equivalent. It is also possible that seeking may be performed to obtain very specific information and thus may have a higher threshold for relevance, whereas the threshold for what might be considered useful or relevant

when scanning might be much lower. Thus these calculations do not necessarily argue that scanned information is more important than information seeking, but rather indicate that scanning is common and may indeed be influential.

The analysis also leads to some focus on participants' frequent use of the doctors for cancer prevention and screening information and highlights the central role that health care practitioners continue to play in the complex health media environment. Medical practitioners were among the most common sources for scanning cancer-related information and by far the most frequently cited source for active information seeking. The extraordinary increase in the availability of health information on the Internet has led to broad claims about levels of use for health-related information (Fox, 2005; Rossiter, 2000). Although nearly one fourth of participants used the Internet for cancer-related SSB for at least one decision, they were more than four times as likely to have received information about these specific decisions from doctors or other agents of the health care system. More important, SSB involving health professionals was perceived as relevant to at least one cancer-related decision by the vast majority of respondents (almost 9 out of 10). In contrast, only three mediated sources (television, newspapers/magazines, and pamphlets) and not the Internet were cited as relevant by more than one in five respondents.

Interpreting these results is not straightforward; several contrasting explanations are plausible. One interpretation is that most SSB is inconsequential relative to the impact of contacts with health professionals. If this interpretation is true, it may be unrealistic to expect consumers to educate themselves about these decisions, no matter how much public cancer-related information there might be. A second, more optimistic interpretation suggests that perception of relevance is not the same as actual relevance. Respondents may be influenced by other scanned and sought information sources, but may be responding to the relevance question in a conventional way (of course television does not matter and doctors do). Third, even with broad independent access to information, people may rely on physicians to help them interpret the information they obtain through mediated or interpersonal sources. Unfortunately, increased access to information through SSB may increase demands on physicians, who are unlikely to have more time available in the future than now to help patients decipher increasingly complex public information about cancer. Fourth, people may seek or scan alternative sources of information to confirm or modify information received from a physician. Fifth, individuals may lack the necessary health literacy skills to navigate a complex information environment. This explanation, if supported, would suggest a shift of the burden to health educators to develop simpler cancer prevention and screening messages. More evidence is needed to sort through these contrasting interpretations.

This study raises a host of other questions for future research. What distinguishes those who neither seek nor scan, or actively avoid information, from those who engage in SSB related to cancer prevention and screening decisions? Does the fact that individuals use far fewer sources for seeking suggest that they are more selective in seeking, that they trust fewer sources, or that they obtain relevant information quickly from select sources? These data are not equipped to answer such questions, but suggest promising paths for future investigation.

### Study Limitations

This study was designed to describe the relative prevalence and characteristics of SSB and gain a deeper understanding of the way respondents engage with information about cancer prevention and screening. This article focuses largely on the former, using qualitative data to illustrate the parameters of quantitative coding categories. Subsequent analyses could provide a more nuanced understanding of the qualitative dimensions of SSB. In addition, methods that rely on respondents to rate channel influence on their decision making should not be mistaken for conclusive evidence for such influence. Rather, these findings highlight the importance of future studies to assess the prevalence and effects of SSB on subsequent outcomes using methods that can assess causal relationships, including longitudinal panel surveys and experimental studies.

Results are based on open-ended, semistructured interviews, responses to which were coded to create quantitative data. The final categories used to describe SSB were shaped in part by the responses themselves. As such, these data are not directly comparable to what would be obtained with a closed-ended instrument. Every attempt was made to train interviewers to use the instrument in a consistent manner and train coders to make consistent judgments. Nonetheless, a significant difference in SSB between two interviewers was observed ( $p < .05$ ); respondents who talked to Interviewer 2 were more likely to report SSB from any source (92.3%) than respondents who talked to Interviewer 1 (80.5%). It is unclear whether this result is a function of differences in interviewer gender, personality, or instrumentation. Interviewer 2 was more likely to elicit higher reports of *both* seeking *and* scanning, however, suggesting that analyses comparing the *relative* frequency of these two behaviors are not confounded. Furthermore, there was no evidence of differences in SSB across coding dyads, suggesting coding teams were consistent across the sample. Readers are nevertheless cautioned against drawing strong conclusions about the absolute prevalence of SSB based on these considerations.

In addition to the observed differences in SSB by interviewer, the relatively small size of the sample ( $n = 85$ ), the modest response rate (20% of eligible respondents), and reliance on participants who live within 15 miles of

the university may reduce the generalizability of results. Although the use of a random sampling technique reduces the chance that the sample is not representative of the metropolitan area in which it was conducted, it is possible that people living in or near a large Eastern city are quite different in their SSB than those from the rest of the country. In addition, the small sample size limited the power to detect demographic differences. It is quite possible that important differences in SSB would have been found if larger samples by age, gender, race, and education were collected. More important, the possibility must be acknowledged that the sample represents individuals with higher levels of SSB than nonrespondents; SSB may not be so common among those who refused to participate in the study.

This study made no attempt to assess the degree to which breast, colon, and prostate cancer appear in the news media, or whether screening or prevention are discussed more frequently in doctor's offices. It is possible that differences in scanning across decisions are a function of differences in news coverage, consumer interest, vulnerability, or receptivity across decisions, structural differences in the health care system that make certain decisions more salient than others, or any combination of these and other factors. Future studies, building on existing content analyses of cancer information in the news media (e.g., Freimuth et al., 1984; Stryker, Solky, & Emmons, 2005), should continue to explore the causes of these distinctions.

### CONCLUSIONS

This study addresses important questions about cancer-related information acquisition. Specifically, we found (a) it is possible to distinguish between information seeking and scanning about cancer-related decisions; (b) the nature of SSB varies by cancer, whether prevention or screening is the focus, and source; and (c) information scanning is potentially influential and worthy of further consideration, even based on this preliminary evidence. Although scanning is seen as less relevant to decisions and involves less depth than seeking, it is so much more common that it might rival seeking in influence on decisions. A greater understanding of how nondiagnosed individuals acquire cancer-related information will help researchers, health care professionals, and policymakers respond to and shape public information in a manner that enables people to make informed health decisions.

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