

WHEN WE DO NOT WANT TO KNOW:
THE INFORMATION AVOIDANCE MODEL

By

DARYA MELNYK

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To my family

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By

Darya Melnyk

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Chair: James Shepperd
Cochair: Catherine Cottrell
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I present the Information Avoidance Model, which outlines costs and benefits that result from seeking and avoiding information. The model takes into account factors such as potential for negative consequences, potential to change outcomes, perceived coping resources, and ease of information attainment. I tested several hypotheses related to the Information Avoidance Model in three studies. Study 1 and Study 2 examined avoidance regarding breast cancer and Study 3 examined avoidance in romantic relationships. Analyses revealed several findings consistent with the Information Avoidance Model.

First, people were more likely to avoid unwanted information when they perceive the outcomes of the information as uncontrollable than when they perceive the outcomes as controllable (Studies 1 & 2). Second, people were more likely to avoid unwanted information when they anticipate greater regret over seeking the information than over avoiding the information (Studies 1 & 2). Third, people with less prior experience with a given situation were more likely to avoid information than people with more prior experience (Study 3). Fourth, people engaged in greater avoidance when the outcomes of the information were serious than when the outcomes were mild (Study 3). The results revealed mixed support for the hypothesis

that fewer perceived coping resources engaged in greater avoidance than people with greater perceived coping resources (Studies 1, 2, & 3). I discuss these findings in the light of the model and suggest future directions in the General Discussion section.

CHAPTER 1 INTRODUCTION

Overview

Knowledge is power.

-Francis Bacon

Ignorance is bliss.

-A proverb

Knowledge can be both good and bad. Sometimes, knowledge is good in that it can facilitate career success and higher income (Day & Newburger, 2002; Pfeffer, 1977; Ronan & Organt, 1973), and promotes comfort and survival. However, knowledge can also be bad in that it can be disturbing, such as learning that one is HIV positive (Rugg, Higgins, & Schnell, 1989), or prompt questions about important beliefs, such as trust in one's favorite political candidate (Sweeney & Gruber, 1984). In this dissertation, I examined the decisions that prompt people to avoid information. I proposed that people would be motivated to avoid information when it is potentially undesirable, uncontrollable, and when they lack perceived coping resources. I present the Information Avoidance Model that outlines when and why people avoid unwanted information. I then present three studies that examined when people would be likely to avoid medical (Studies 1 and 2), and interpersonal (Study 3) information.

The Information Avoidance Model

Defining Information Avoidance

Information avoidance refers to preventing or delaying the acquisition of potentially unwanted information. People may turn away or walk out of the room to avoid learning unwanted information, or they may simply fail to act to obtain that information. For example, a

man who undergoes a blood test for HIV can choose not to retrieve his results. Or, a woman can look away when being weighed at the doctor's office to avoid learning her weight.

Information avoidance involves avoiding undesirable information, but undesirable information does not need to be negative. Sometimes people will avoid positive information such as the sex of a forthcoming child, or prematurely learning the ending of a novel. In such instances people avoid information because they perceive that learning the information prematurely will spoil the experience. Information avoidance also need not be permanent. Although sometimes people may want to avoid information permanently, in other instances they may wish to merely delay learning the information until later. I consider such temporary delays as part of information avoidance.

Information avoidance can be either active or passive (i.e., acting or failing to act). People can perform behaviors designed to avoid learning information, or fail to perform behaviors necessary to obtain information. Additionally, information avoidance can involve information about self as well as information about others. In cases where people avoid information about others, the information has potential consequences for self. For example, people may choose to avoid information about close others or others that are important to them (e.g., a politician one supports). Finally, information avoidance can be done with or without awareness. That is, people may or may not be conscious of the fact that they are avoiding information.

It is important to note that there are many instances where people avoid information that do not qualify as information avoidance. Sometimes people avoid the information simply because they are disinterested, or lack time or energy to obtain the information. For example, avoiding listening to the news because one does not want to hear about the ongoing war is information

avoidance; avoiding listening to the news because one is late for work is not information avoidance.

What Motivates Information Avoidance?

Although people may avoid information for a variety of reasons, these reasons likely fall into three broad categories. First, people are inclined to avoid information when this information may produce undesired emotions such as sadness, anger, guilt, or disappointment. Second, people are inclined to avoid information when they believe that knowing the information will obligate them to take action or engage in some behavior that they prefer not to perform. For example, a woman may avoid learning whether she has diabetes because such information will require her to change her diet and exercise. Third, people are inclined to avoid information when they believe that the information might require them to give up a cherished belief. For example, people may avoid information that reveals that the government they trust committed war crimes.

Decisions Comprising the Information Avoidance Model

To predict when people will avoid potentially unwanted information, I propose the Information Avoidance Model (Figure 1). This model describes factors contributing to a person's decision to seek or avoid information. When faced with potentially unwanted information, people evaluate both benefits and costs associated with learning the information. Benefits from learning potentially unwanted information are based on the following factors: (a) satisfaction of curiosity, (b) opportunity to take action, (c) confirmation of existing beliefs, and (d) achievement of a pleasant emotional experience (e.g., relief of not having a serious disease or happiness of knowing that one passed a tough exam). Costs from learning potentially unwanted information are based on the following factors: (a) whether potential for negative consequences associated with learning the information is high vs. low, (b) whether one has control over the consequences of learning the information (potential to change outcomes), (c) whether one believes one can

cope with learning the information (perceived coping resources), and (d) whether one has an easy access to the information (ease of information attainment). It is important to note that decisions based on the contributing factors may occur quite quickly, such that people may be unaware that they have made the decision. Below, I elaborate on the contributing factors involved in the model.

One decision people make is whether the encountered information is potentially unwanted or not (see the top of Figure 1). If people decide the information is unwanted, they are more likely to avoid it than if they decide it is wanted. Thus, determining whether the encountered information is potentially unwanted is necessarily the starting point of the decision process.

When people realize that there is a possibility of learning potentially unwanted information, they are likely to weigh the potential costs and benefits associated with learning that information. People are more likely to seek information that they perceive as beneficial (i.e., they perceive a potential benefit to seeking that information; left side of Figure 1) and are more inclined to avoid information that they perceive as not useful to them. However, if people anticipate that the information is useful, e.g., it fills a gap in their knowledge, (Loewenstein, 1994) illuminates the necessary steps to take action, confirms existing beliefs, or provides a pleasant experience, they will likely consider seeking it or continuing to evaluate it. For example, the results of a medical test may be unwanted information because it may reveal a health problem, or the need for a painful treatment or expensive medication. On the other hand, the results can provide health and emotional benefits, such as relief of learning that one does not have the disease, or information about necessary treatment.

Besides determining potential benefits, people are also likely to evaluate potential costs of seeking the information (right side of Figure 1). There are several factors that contribute to this

evaluation of costs. One important factor is whether potential for negative consequences associated with learning the information is high vs. low. In this model, potential for negative consequences refers to the likelihood that a bad or unwanted outcome will occur as a result of learning information, and to the likelihood that the outcome will have negative emotional consequences and will require actions or changes in cherished beliefs. For example, a woman who is considering learning the results of a breast cancer test may evaluate the likelihood that she has cancer by reviewing the family history of cancer and analyzing her lifestyle choices that could have contributed to her risk of developing cancer.

Potential for negative consequences is subjective and may be influenced by people's perceptions and experiences. For example, learning whether one is about to be fired from a job can bring about more serious consequences for the family's breadwinner than for a person who works only to keep busy or entertained. Potential for negative consequences plays an important moderator role in people's decisions to avoid information. According to the model, people focus on different aspects of the potentially unwanted information depending on whether they regard that information as potentially high vs. low in negative consequences. When the information is likely to result in negative consequences, people will evaluate their perceived coping resources. These resources include the personal and social resources people have that can help them cope with learning potentially unwanted information. Prior research indicates that people cope better with serious diseases such as cancer when they perceive they have social support (Arora, Finney Rutten, Gustafson, Moser, & Hawkins, 2007). In addition, personal qualities such as self-efficacy can increase perceived defense capacity (Bandura, 1997).

When the information is unlikely to result in negative consequences, people will evaluate how easily they can obtain that information. This decision may be especially relevant when

potential for negative consequences is low. In such instances, because the information is not likely to result in negative consequences, people may choose to seek that information only if it is readily available. If the information is not readily available, people may choose not to seek it. Because the information is unwanted, people may have a disincentive to learn it.

Besides these decisions, people will also determine whether they have control over the outcomes of the potentially unwanted information (potential to change outcomes). To determine the amount of control they have, people will evaluate whether they can change or influence the outcomes associated with learning the information.

Predictions

The predictions regarding the decisions about the potential unwanted information and the potential benefits from information phases are relatively straightforward: the more people want the information, the less likely they are to avoid it. When people perceive the benefits from information as high, they are likely to further evaluate it and may eventually seek it, unless the information has significant costs. Similarly, when people perceive the benefits from the information as low, they are likely to avoid it. In this case, people may not even begin to evaluate the costs of the information because they may deem it not necessary.

Predictions for the other decision phases of the model are more complex because they involve interactions of the various aspects of information and the personal characteristics of the individual who is making the decision. For example, I predict that when potential benefits are held constant, the decision to seek or avoid information is moderated by the potential for negative consequences. When potential for negative consequences is high, I predict that people will evaluate whether they can control the outcomes of learning that information and whether they have sufficient coping resources to withstand the information. The avoidance response should occur when people feel that they cannot change the outcomes of the information. In this

case, learning the information may only result in regret over this decision (lower right side of Figure 1). For example, an untreatable terminal illness is high in potential negative consequences and low in control.

On the other hand, when potential for negative consequences and potential to change outcomes are both high, people are unlikely to avoid information. In this case, people may feel that even though the information can reveal something serious or severe, they still have control over the outcomes associated with that information. For example, a woman who undergoes a mammogram may regard breast cancer as a serious disease, but at the same time may feel that breast cancer is curable and that therefore there are aspects of breast cancer that she can control.

Whether a person feels that s/he can cope with the consequences of learning unwanted information also influences whether people will avoid information that is potentially high in negative consequences (holding potential benefits from information constant). When perceived coping resources are high, people will likely seek the unwanted information. In such case, people may feel that even though the information may result in negative consequences, they possess adequate coping resources to face it. Thus, the woman undergoing a mammogram may feel that even though breast cancer is a serious disease, she has a number of options to control the outcomes and has friends and family to turn to for support. This woman therefore will likely seek the results of the breast cancer test. When perceived coping resources are low, people will likely avoid the information. This is especially likely if people judge their potential to change outcomes as also low. However, even if people can control the outcomes associated with the information, they may avoid it if they do not have adequate coping resources to face the information. For example, if a woman feels that she has no social support or is not emotionally ready to seek her

results, she may avoid the results (even if for a short while) even if she feels she can control the outcomes associated with learning the results.

When potential for negative consequences is low, and potential benefits are held constant, I predict that people will evaluate whether they can control the outcomes of learning the information and whether the information is easy to obtain. When potential to change outcomes is high, people will likely seek information. Because likelihood that negative consequences will occur is low, people may feel that even if information is unwanted, the outcomes are modest and controllable. For example, a student may believe that even if his exam grade is lower than he expects, he can still improve the course grade by preparing well for other exams (perceived control). When potential to change outcomes is low, people are unlikely to seek the information. Although they may believe that the information will not be bad (because potential for negative consequences is low), they may also feel that they cannot control the outcomes of the information. For example, the student may believe that a forthcoming exam grade will be bad and recognize that because the exam is over, there is nothing he can do to change that fact. This student then may delay learning his grade, thus engaging in temporary information avoidance.

Another factor that can influence people's decision to seek or avoid information when potential for negative consequences is low is ease of information attainment. When the ease of information attainment is high, people will likely seek information. I predict so because the information in this case is not likely to result in negative consequences, and people may not be as strongly motivated to avoid it as they would be if the information potentially had negative consequences. People should be more likely to seek information when potential to change outcomes and ease of information attainment are both high. However, even if potential to change outcomes associated with the information is low, people may choose to obtain it if it is readily

available and if they perceive it as potentially useful and valuable. For example, the student who believes his exam grade may be low and that he cannot control it because the exam is now over may still choose to see the grade if the professor is handing out the exams in class. Because the grade is readily available, the student may choose to see it and learn from his mistakes.

When potential to change outcomes and ease of information attainment are both low, and potential benefits are held constant, people will likely avoid the information. In this case, even if the potential for negative consequences is low, control over the outcomes is low and information is difficult to obtain. That is, if the student who anticipates a poor grade on an exam has to go to his professor's office to learn his grade, he may delay doing so until he is ready to face the potential consequences of failing the exam.

Summary and Implications

In sum, the choice of seeking or avoiding information depends on a number of factors. In deciding whether to seek or avoid the information, people assess whether learning the information may result in a benefits, whether the information is likely to have negative consequences, whether they can control the outcomes of that information, whether they have adequate coping resources, and whether they can easily obtain that information. To test the model, I conducted three studies. Studies 1 and 2 addressed medical avoidance, whereas Study 3 addressed interpersonal avoidance. Together, these studies provided a test of the decision processes suggested by the model.

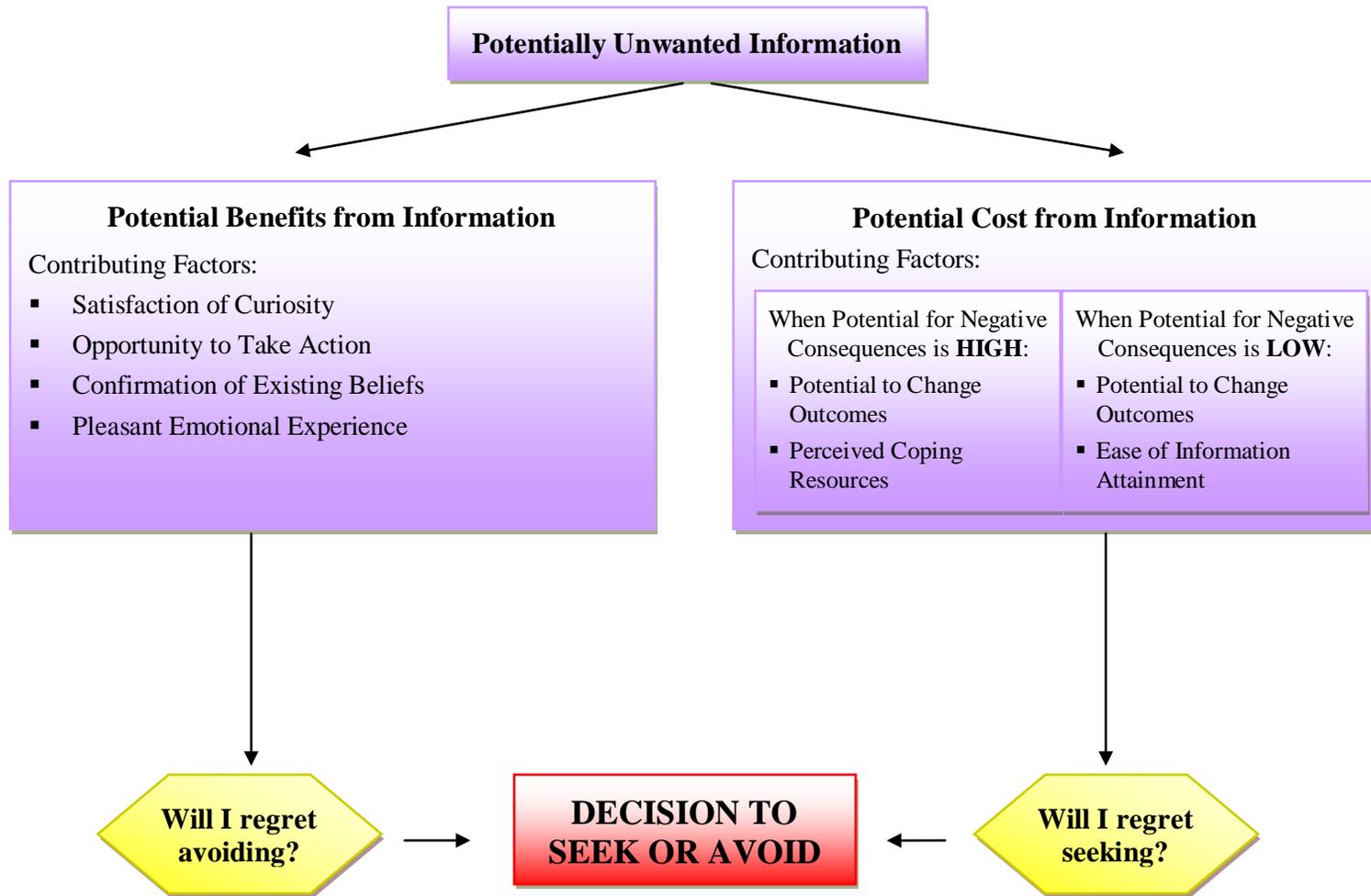


Figure 1-1. The Information Avoidance Model.

CHAPTER 2 REVIEW OF THE LITERATURE

Overview

Over three centuries ago, Francis Bacon famously argued that knowledge is power. This statement rings true in modern society, where knowledge often translates into high income and prestigious career. People with Master's, PhD, and MBA degrees often earn much more money and have better job options than people with a mere high school diploma or a Bachelor's degree (Day & Newburger, 2002; Pfeffer, 1977; Ronan & Organt, 1973). However, power is just one feature of knowledge. By helping prepare for future circumstances, knowledge can be a precursor to comfort. Knowing what the weather will be like leads people to choose a warm sweater on a cold morning or a pair of sunglasses when it is sunny outside. Knowledge can also ensure survival. Without knowledge of how to make fire, build shelter, farm, hunt, and distinguish edible foods from poisonous ones, our ancestors would not have survived. Finally, knowledge can quench curiosity and feed the desire to know for the sake of knowing (Loewenstein, 1994).

As valuable and important as knowledge is, people do not always seek it and sometimes avoid it. Occasionally, people are faced with information that they rather not receive. Some types of information may be difficult to handle and to cope with. For example, people submitting to HIV testing may never return to receive their test results for fear of learning that they are infected with this deadly virus. In one study, as many as 50% of those who underwent testing for HIV failed to return for their results (Rugg, Higgins, & Schnell, 1989). Other studies report that, of people surveyed in the United States, 12.5% to 33% of those who tested for HIV did not return to learn whether they were infected (Centers for Disease Control and Prevention, 1997; Molitor, Bell, & Truax, 1999; Tao, Branson, Kassler, & Cohen, 1999; Valdiserri, Moore, Gerber,

Campbell, Dillon, & West, 1993). Similar information avoidance responses can occur in other situations, even though the situations may have nothing to do with health. Some types of information may be emotionally upsetting and may lead to feelings of disappointment and regret. This is the reason why people sometimes may avoid learning how much they weigh, whether they have overpaid for a purchase, or how they performed on a difficult exam.

Within psychology, evidence that people sometimes avoid rather than seek information comes from research on selective exposure (Festinger, 1954; Mills, Aronson, & Robinson, 1959; Mills & Jellison, 1968; Sweeney & Gruber, 1984). Sometimes people may avoid unwanted information concerning their affiliations, because learning that information may require changes in attitudes and even self-concept. In one study, supporters and non-supporters of a political candidate were asked questions about a scandal involving that candidate. The candidate's supporters appeared to know less about the scandal than did non-supporters (Sweeney & Gruber, 1984). Another study demonstrated that when choosing among multiple options, people can minimize dissonance and regret by avoiding information about non-chosen options. Student participants who made a choice between two alternatives sought both positive and negative information about a chosen alternative, but they sought only negative information about a non-chosen alternative (Mills et al., 1959).

This review examines when and why people avoid information. I begin by defining the construct of information avoidance and describing different manifestations of information avoidance. I then examine avoidance of information that is potentially negative as well as avoidance of information that is potentially positive. My definition includes temporary and permanent avoidance, active and passive avoidance, avoidance with or without awareness, and avoidance of information about the self as well as information about others. Next I address why

people avoid information. I then describe a model that outlines the conditions that prompt information avoidance. I conclude with a discussion of individual differences in information avoidance.

What is Information Avoidance?

Defining Information Avoidance

Information avoidance reflects any behavior designed to prevent or delay the acquisition of potentially unwanted information. In some instances information avoidance entails covering one's ears, looking away, or physically leaving a situation to avoid learning the potentially unwanted information. In other instances, people may have to do more to avoid learning unwanted information, such as never returning to a clinic or a physician's office to learn the results of a medical test, or perhaps forgoing a medical test altogether.

Information avoidance involves avoiding unwanted information, not undesirable information. Although people generally are motivated to avoid undesirable information and seek desirable information, in some instances they may opt to avoid information that is potentially positive and desirable. For example, people may choose to avoid learning the sex of a forthcoming child, the outcome of a video-recorded sports event, what happens at the end of a much anticipated novel, or that friends are planning a surprise party for them. In all these cases, the avoided information can be quite pleasurable. However, avoiding (at least temporarily) the information can serve to heighten the pleasure, whereas seeking the information prematurely can spoil it.

Of course, many instances in which people choose not to seek information do not reflect information avoidance. People sometimes lack interest in the information, or lack the time and energy required to obtain it. For example, skipping an article in a newspaper because one is busy,

tired, or uninterested in the topic does not entail information avoidance. However, skipping an article because it may disclose something one would rather not know is information avoidance.

Information avoidance is distinct from information dismissal. With information dismissal, people reject information they have already encountered rather than avoid the information. Information dismissal often entails derogating the reliability or validity of the information (Jemmot, Ditto, & Croyle, 1986; Shepperd, 1993). Indeed, with information dismissal, people may actively pursue the information only to reject it later because they believe it to be undesirable or false. For example, a person may seek information about a subject of interest, yet dismiss that information if it runs counter to personal beliefs. In one study, participants who were diagnosed with a fictitious disease derogated the test that was used to diagnose them and rated it as less reliable than did participants who were not diagnosed with the disease (Jemmott et al., 1986).

Information avoidance is also distinct from inference avoidance. Inference avoidance is grounded in theorizing on self-deception and helps explain how people can hold two contradictory beliefs (e.g., p and not p) simultaneously. According to Greenwald (1997; see also Paulus & Seudfeld, 1988), one form of self-deception entails comprehending available information yet failing to draw the appropriate interpretation from the information. Information avoidance stands out in contrast to inference avoidance in that it entails failing to acquire the information altogether. For example, a woman who avoids looking at her credit card statement out of fear of learning that she has spent more money than she can afford is engaging in information avoidance. However, a woman who looks at her credit card statement, sees that she has spent too much money, yet refuses to recognize that she won't be able to pay her rent that month is engaging in inference avoidance.

Finally, information avoidance is distinct from situations in which people overlook or fail to recognize pertinent information. For example, sometimes people fail to seek or incorporate base rate information in decision making because they fail to see its importance (Ajzen, 1977; Bar-Hillel, 1980). Conversely, people sometimes pursue useless or irrelevant information that, were it already available, would have no influence on decisions (Bastardi & Shafir, 1998). Information avoidance is distinct from these instances of failing to seek information in that with the former, people wish not to know the information, whereas with the latter, people do not recognize that the information has value.

The Faces of Information Avoidance

Information avoidance varies along four different dimensions. First, information avoidance varies in the degree to which it is permanent. In some instances, people may permanently avoid the unwanted information. Indeed some situations naturally permit permanent information avoidance. Such is the case when the information is available for a limited amount of time and will not be available after than window of time passes. For example, a person may choose not to ask a dying spouse whether s/he was ever unfaithful. However, it is also the case that a person may never seek the information even though it is always available. Thus people may choose never to call their grade school to learn their IQ scores. However, information avoidance does not have to be forever. Although in many instances people wish to permanently avoid unwanted information, sometimes they merely wish to “delay” the acquisition of unwanted information until a later time. For example, a woman awaiting the results of a medical test may merely postpone picking up the results for a few days or weeks rather than foregoing picking up the results altogether. Likewise, a person may wait until after lunch to return the dreaded call from his or her boss. In both cases, the person intends to learn the information eventually, just not immediately.

People likely postpone learning the information until they have the resources to help them to cope with the information and to respond in an appropriate manner (Loewenstein, 2007). In some instances, people may anticipate that the information will be disruptive to ongoing or forthcoming activity and they may avoid that information until the activity is complete. For example, a professor with a manuscript under review who receives a long awaited email from the journal editor just before heading to teach a class may delay opening the email until after class to avoid the negative effect a possible unfavorable editorial decision might have on his/her teaching.

Of course, sometimes people may want to postpone the very decision of whether to seek or avoid information. People making important decisions often face intense internal conflicts, especially when the competing options are likely to bring about personal losses (Janis & Mann, 1977). The internal conflict may elicit defensive avoidance where people either procrastinate in making a decision or rationalize why it may be wise not to make any decision about a given situation (Janis & Mann, 1977). People may also display decision aversion—a preference to have the problem solved by someone else or by itself rather than making own decision (Beattie, Baron, Hershey, & Spranca, 1994). Decision avoidance may be a part of the information avoidance process.

Second, information avoidance varies in the degree to which it is active versus passive. At the active end of the continuum, people may avoid unwanted information through verbal or physical acts: by looking the other direction, by turning off the television or radio, or by asking the other person not to disclose the unwanted information. At the passive end of the continuum, people may merely choose not to seek unwanted information, thus avoiding the information through inaction. For example, people can fail to pick up their medical test results or decline

testing altogether (Centers for Disease Control and Prevention, 1997; Molitor, et al., 1999; Tao, et al. 1999; Valdiserri, et al., 1993), neglect retrieving their final grade in a class, or refuse to expose themselves to unwanted views or opinions (Sweeney & Gruber, 1984).

Third, information avoidance is not limited to information about the self. Sometimes people avoid learning information about others. However, in all instances we can think of, the avoided information has implications for the self. For example, people may avoid learning how much another person paid for an appliance, car, or house, especially when they have recently made a similar purchase. People may also avoid information about others to evade responsibility. For example, a person may avoid learning that a friend's spouse is cheating, because learning that would make him/her responsible for bringing bad news to the friend. Sometimes mere association with others may prompt people to avoid unwanted information about those others. For instance, people may avoid learning unsavory information about their favorite political candidate, because that information would require them to rethink their own opinion of the candidate, or even opinion of themselves as the supporters of that candidate (e.g., Sweeney & Gruber, 1984). Thus, information does not have to be about someone the person knows closely to elicit knowledge avoidance.

Fourth, information avoidance can occur without awareness. People may sometimes avoid information and may never realize that they did so. Freud hinted at this possibility nearly a century ago in describing resistance and defense. He believed that many of his patients resisted the recovery of childhood memories that had painful connotations they wished to avoid (Freud, 1920). Freud proposed that people unconsciously blocked unwanted or potentially upsetting information from emerging into awareness to safeguard themselves from depression and anxiety (Freud, 1924/1997).

Other psychologists have more recently studied processes akin to information avoidance without awareness. For example, the first stage of Greenwald's four-stage model of self-deception can be seen as a type of information avoidance operating below awareness. According to Greenwald, people respond to sensory cues represented in an object or a piece of information to decide whether to acquire or process the information further. People thus can avoid information by ceasing processing of the information; unwanted information thus remains unknown. Ironically, people may even remain unaware of the existence of unwanted information to the extent that they stop processing before information ever emerges into awareness (Greenwald, 1997).

People avoid information by preventing or delaying the acquisition of unwanted information. I regard information avoidance as encompassing avoidance of both positive and negative types of information. Information avoidance is distinct from avoidance of information because one is too busy, disinterested, or fails to perceive information as pertinent. Information dismissal and inference avoidance also do not qualify as information avoidance, because both phenomena subsume information acquisition, and information avoidance entails complete avoidance of the information.

Information avoidance can be passive or active in that it can be achieved by acting or failing to act, and can be both temporary (when people merely delay acquiring information) and permanent (when people choose to never acquire information). Although I mostly focus on conscious information avoidance, it can also occur without awareness: people can avoid information without realizing that they did so. Finally, information avoidance does not solely include information about the self. Information about close others or people a person relates or

looks up to (e.g., a favorite political candidate or a childhood hero) can also qualify as information avoidance.

What Motivates Information Avoidance?

Although people may avoid unwanted information for many reasons, all fall into three broad categories: (a) information may entail an unpleasant experience, (b) information may require a response, and (c) information may require a change in beliefs.

Learning Information Entails an Unpleasant Experience

People are motivated to maintain pleasant emotions (Isen, 2000) and to escape unpleasant ones (Isen, 1984). Unpleasant experiences may result in negative moods and in negative evaluations and thoughts about self and others (Forgas, 2001; Leith & Baumeister, 1996). Therefore, people may avoid information if they anticipate that learning this information will lead to an unpleasant emotional experience. For example, a man who has undergone an HIV test may anticipate the negative emotional implications of being diagnosed HIV-positive, such as realizing that he may die young and may be stigmatized for the rest of his life.

Learning unwanted information can result in negative feelings even if that information concerns positive events. For example, a person reading an exciting book can become disappointed if a friend inadvertently reveals the ending, because it may make the rest of the book less interesting to read. Or, expectant parents may feel that the doctor has spoiled the surprise if the doctor prematurely reveals the sex of their child.

Sometimes learning unwanted information may result in a physically painful experience. For example, a woman who is afraid of needles may avoid asking her doctor whether she needs to have a blood test performed. Because people are motivated to avoid pain (Higgins, 1997), they may choose to avoid or delay unwanted information that potentially leads to a painful experience.

Some types of unwanted information may produce feelings of shame or embarrassment. People are motivated to avoid feeling embarrassed or ashamed, because these feelings disrupt social situations and have unpleasant emotional consequences (Edelmann, 1987). I suspect that people will avoid unwanted information if they anticipate that it will cause them to feel ashamed or embarrassed. For example, a man who has undergone an HIV testing may feel embarrassed to pick up his results from the clinic because he may feel that the doctors and the nurses there know his diagnosis and may secretly criticize him. The man may solve this situation by never returning to obtain his results.

Information Requires a Response

One reason that people may avoid unwanted information is because the information may require a change in behavior. For example, consumers may avoid learning the ethical attributes of a product (e.g., labor practices in a place where a product was produced), because doing so may require them to refuse buying the product they want (Ehrich & Irwin, 2005).

Changing behaviors by modifying one's shopping preferences, restricting one's diet, or altering one's studying habits may be an uncomfortable break in people's routines. If unwanted information requires a response, people may want to delay it to prepare for the potentially needed response, or may avoid the information permanently if they feel that they cannot respond appropriately. For example, a woman who has undergone testing for diabetes may feel that she does not have the resources to provide a necessary response were she diagnosed with diabetes (e.g., she may not have time to exercise, or money to pay for medication). The woman may choose to delay learning her test results until she is ready to respond to a possible diagnosis of diabetes.

Sometimes, learning unwanted information may require admitting accountability for the outcomes. Accountability can be aversive when it threatens the self-image and desired identity

(Schlenker, Weigold, & Doherty, 1991). When a person is accountable, s/he may have to admit to suboptimal lifestyle choices or negative behaviors s/he committed; such revelation could require a change in the identity that person is trying to convey. For example, a man who fails to pick up his HIV test results may do so because discovering that he is HIV-positive may require him to change his sexual behaviors and may obligate him to inform his partner(s) about an embarrassing and potentially deadly condition.

Information Requires a Change in Beliefs

Sometimes people may avoid the information because it may force them to change cherished beliefs about themselves, someone they know, a group they belong to, or even change their worldview. People are motivated to maintain desired self-beliefs and resist changing them (Schlenker, 2000). Thus, people may be motivated to avoid the information that requires them to change positive self-beliefs. For example, a young man who has undergone HIV testing may cherish a belief that he is invincible and too young to get sick. The man may avoid learning the results of the test because the results can potentially challenge his beliefs.

Learning unfavorable information about a close or an important other (e.g., an admired political candidate or a favorite movie star) may be disappointing and require a change in beliefs about that person. For example, learning that one's partner has been cheating may lead to a conclusion that one's partner is not honest and trustworthy. A change in beliefs about a close person such as one's partner can be emotionally taxing. Therefore, people may avoid learning whether their partner has cheated on them.

Learning unwanted information about others may also have negative implications about self. For example, learning that a politician whom one supports accepted a bribe may require a person to rethink his/her view of that politician. Realizing that the politician is not an honest person may in turn denigrate the person's self-view as a supporter of that politician.

Sometimes, learning unwanted information may make people rethink their worldviews. Individuals often base their self-concepts on their beliefs and views (Montemayor & Eisen, 1977), and accepting a change to these views may be difficult. For example, a man who takes good care of his health may believe that only people who neglect their health can get diagnosed with cancer. The man may find it hard to accept that he can get affected by cancer, and may avoid undergoing screening for cancer to protect his beliefs from potential challenges.

Anticipated Regret and Information Avoidance

Regret likely plays a pivotal role in the decision to seek vs. avoid unwanted information. People often anticipate future regret before making a decision, and can modify their decisions based on whether they expect the decisions to result in regret (Zeelenberg, 1999). I suspect that people will aim for the course of action that they anticipate will produce least amount of regret in the future. This decision is inherently subjective, because people will base it on the type of information they encounter and on whether they find the regret over learning or avoiding the information to be more aversive. For example, if a woman anticipates that she will regret avoiding the results of a medical test in the future (because she may be missing a chance to improve her health outcomes), she may be likely to seek that information. However, another woman may feel that a positive test result will disrupt her peace of mind. This second woman may anticipate that she will regret seeking the results of the medical test and will be likely to avoid learning the test results.

Even if people do not consciously think of regret when making their decision regarding the information, they are also minimizing future regret by trying to make the best possible decision. For example, expectant parents may not explicitly think of whether they will regret learning the sex of their child ahead of time. However, they may believe that avoiding this information until

the child is born will result in an exciting surprise. By deciding to delay learning the sex of their child, these parents also minimize future regret over learning that information ahead of time.

Although regret may be especially important when people evaluate potential benefits from the information, it can also influence people's decisions at each decision phase of the model. People may keep potential regret in the back of their mind when they are evaluating various aspects of the potentially unwanted information, or they may only take it into account during their final assessment of the information, after they have considered other factors. Therefore, regret is a prevailing feature of the Information Avoidance Model.

The Role of Fear

When people are facing the unwanted information, they may experience fear of what they may learn. For example, a man undergoing testing for a serious disease may be too afraid to learn the results of the test. The results may imply that he will die soon or that he will have to undergo painful operations and may live with debilitating consequences. If the man fears these outcomes, he may never learn the results of the test, or choose to delay them until the initial bout of fear has settled.

Fear can motivate information avoidance, but people will not always permanently avoid frightening information. Some people may indeed never learn that they are infected with a serious disease or that their partner is cheating on them. However, I suspect that many people actually do eventually learn this information. It is important to note that, fear can arise not only from thinking of what one may learn, but also from thinking of the consequences of not learning the information. People may initially fear learning some potentially negative information, but they may fear what happens as a result of avoiding that information much more. For example, a man who underwent an HIV test may fear finding out that he is infected. However, he may also be terrified that he is unknowingly infecting others and missing an opportunity to prolong his life

by taking appropriate medications and precautions if he does have the disease. Therefore, fear of not knowing sometimes may be a stronger motivator than the fear of knowing, and one can outweigh the other depending on the circumstances and the person making the decision. Whether one type of fear or the other drives the decision to seek or avoid is therefore a subjective choice. I believe that people will choose the option which would result in the least amount of fear and discomfort, and this choice will depend on the person's beliefs and personality characteristics.

Although fear can play some role in information avoidance, I suspect that it will be a minor role. In this model, I am taking into account avoidance of both potentially negative information, such as learning one's partner is cheating, and potentially non-negative information, such as learning the sex of a forthcoming child. In instances when people encounter potentially unwanted but non-negative information, fear will not influence their decisions. People are unlikely to experience fear concerning non-negative information because such information does not present a threat. For example, people are unlikely to experience fear over prematurely learning the sex of their forthcoming child or the ending of an interesting novel.

It is important to note that although fear may be an initial reaction to the information or its consequences, regret will ultimately guide the decision to seek or avoid information. In other words, people will make a decision that minimizes future regret, and by doing so will also make a decision that is associated with the least amount of fear. For example, a woman who fears learning that she has diabetes may be reluctant to seek her blood test results. However, she may experience greater fear about not knowing that she has diabetes and missing an opportunity to make the right health choices. This woman may anticipate that she will regret making the decision associated with greater fear (i.e., avoiding her test results). Therefore, she may make a

decision that is associated with the least fear (i.e., seeking the test results) and by doing so can minimize her future regret.

Summary

Information avoidance can occur for three broad reasons. First, people are motivated to avoid information if the information might produce an unpleasant experience: regret, disappointment, guilt, sadness, anger, shame and embarrassment. Second, people are motivated to avoid information when it requires a response or action that the person would prefer not to perform. Third, people are motivated to avoid information when they anticipate that the information may challenge a cherished belief. Although fear may be an important initial response to unwanted information, anticipated regret over seeking or avoiding seems to be the major motivating force behind information avoidance.

The Information Avoidance Model

The Information Avoidance Model predicts when people will avoid information. The model consists of two broad calculations: potential benefits and potential cost, both of which contribute to the ultimate decision to seek or avoid the information. In addition, the following factors influence the decision to seek vs. avoid the information: potential for negative consequences,, potential to change outcomes, perceived coping resources,, and ease of information attainment. As a result of making a series of decisions, a person will either avoid or seek information. Importantly, the model is not sequential. That is, people can make the decisions in various orders, and do not necessarily make the decisions in the order I describe.

One crucial decision people make when encountering information is whether the information is unwanted. When people want the information, they will likely seek it. This choice is not presented in the model because the model only deals with instances when people encounter potentially unwanted information (see the top of Figure 1). The unwanted information is often

negative, such as potentially learning that one has a serious disease or is going bankrupt. People often are motivated to avoid such information. For example, people may choose to avoid testing for a serious or stigmatizing disease (Dawson, Savitsky, & Dunning, 2006; Shepperd & Grace, 2007), or forego learning unsavory information about a favorite political candidate (Sweeney & Gruber, 1984). Information can also be positive yet avoided at least temporarily in an attempt to enhance enjoyment. In such instances, people are motivated to maximize positive affect (e.g. enjoyment over learning positive information) and minimize negative affect (e.g. disappointment over learning the information ahead of time; see Westen, 1994). Some types of positive information that people may want to delay include learning the sex of a forthcoming child, discovering what happens at the end of an exciting book, or that friends are planning a surprise party for one's birthday.

Another decision people make about the information is whether it is potentially useful (potential for benefits from information, left side of Figure 1). The benefits in this model are defined as achievement of a pleasant experience, opportunity to change oneself or one's future behavior in a beneficial way, satisfaction of curiosity, and confirmation of existing beliefs. For example, a woman may regard the result of a blood sugar test to be unwanted because it may indicate that she has type II diabetes. Nevertheless, she may recognize the health benefit of receiving the result.

When benefits are constant, the decision that contributes to whether people seek or avoid information is whether seeking the information will result in significant costs (right part of Figure 1). The moderating factor in this part of the model is potential for negative consequences. This factor represents the combination of the likelihood and severity of the event; that is, it represents the likelihood that the event will be serious. For example, a woman who has

undergone the blood test for diabetes may evaluate how serious diabetes is for her (e.g. whether it will result in serious emotional and health consequences) and the likelihood that she will be diagnosed with diabetes (e.g., whether her lifestyle and eating habits potentially put her at risk for diabetes).

After determining potential for negative consequences, people may consider whether they can control the outcomes associated with learning potentially unwanted information (potential to change outcomes). Control in this model refers to the possibility of changing the consequences associated with unwanted information. For example, a woman in the diabetes example may feel that she can control the outcomes of the diagnosis if she has diabetes, such as changing her diet and taking medication.

Next, people can evaluate whether they have what it takes to face the unwanted information. Perceived coping resources comprise personal strengths as well as presence and support of close others, such as family and friends. For example, the woman in the diabetes example may feel that she has friends and family members who she can turn to for support if she has diabetes. The woman may also feel that her personal qualities, such as persistence and optimistic orientation, can help her cope with the diagnosis.

Finally, people can consider whether they can easily obtain the information (ease of information attainment). This decision includes considerations about the availability of information, and also whether one has a quick access to it. For example, a student who took a challenging exam may believe that his grade is easy to attain if the professor has graded the exams and is handing them back in class.

When people classify the encountered information as potentially unwanted, they may next want to assess the qualities of that information before deciding whether to seek or avoid the

information. One aspect of the information that people can assess is its usefulness. When people perceive that there is something they do not know (i.e., that there is a “gap” in their knowledge), they become interested in seeking information to fill that gap (Loewenstein, 1994). Presumably, people are more likely to avoid information when they perceive little to be benefited from the information. For example, the woman in the diabetes example may perceive the results of the test as potentially unwanted (the results can reveal she has diabetes) but also useful (the results can help her make better health choices). The woman may then decide to seek the test results because the results would inform her of whether she needs to make lifestyle changes and to take medication to maximize her health outcomes. However, another woman undergoing the diabetes test may focus on the emotional outcomes of learning the test results and may believe that learning the results will be a loss because they may reveal something unpleasant. This second woman may decide to avoid learning her results because she perceives the results as having little value for her.

Besides evaluating the potential benefits from learning unwanted information, people will also evaluate potential costs associated with that information. People are more likely to avoid unwanted information that is high in potential for negative consequences when they have no power to change the outcomes than when they have power over the outcomes (Dawson et al., 2006). I therefore predict that people are more likely to avoid information that is potentially high in negative consequences when they believe they have low control over the outcomes associated with that information than when they believe they have high control over the outcomes. The woman in the diabetes example is more likely to avoid obtaining the test results if she believes that she lacks money to purchase medication and change her diet than when she believes she can afford these measures.

Perceived coping resources should also influence people's decision of whether to seek or avoid unwanted information that is potentially high in negative consequences. One type of coping resources is self-efficacy. Self-efficacy theory suggests that when people believe they can succeed on a task or cope with a situation, they are more likely to succeed or cope than if they believe they will fail (Bandura, 1997). For example, a meta-analysis assessing over 20 studies that examined work-related performance and self-efficacy beliefs found a significant relationship between the two: people who believe they can achieve more actually do (Stajkovic & Luthans, 1998).

Social support is another important coping resource. Studies with cancer patients demonstrate that when people have adequate social support, they cope better with the disease and have better outcomes than those with little or no social support (Arora et al., 2007). People high in social support seem to be more competent and better problem-solvers than people low in social support (Sarason, Sarason, & Shearin, 1986). In relation to facing undesired outcomes, social support has two main functions: a main effect, and buffering effect (Sarason, Sarason, & Pierce, 1990). The main effect of social support refers to close other providing physical help (e.g., providing transportation to the hospital, helping with the homework) or financial help, and the buffering effect refers to emotional support. Many examples of the stress-buffering quality of social support come from the medical literature. For example, women with rheumatoid arthritis are more likely to cope better and demonstrate lower distress and higher well-being when their husbands are providing emotional support than when they fail to provide support (Manne & Zautra, 1989).

Based on the review of previous literature, I predict that people are more likely to avoid unwanted information that is high in potential for negative consequences when they have low

perceived coping resources than when they have high coping resources (lower left side of Figure 1). For example, a woman who underwent a diabetes test is less likely to avoid the test results when she has many supportive friends and family members than when she has no one to turn to for support.

When potential for negative consequences is low, I predict that people are more likely to avoid potentially unwanted information when they have low control over the outcomes and when the ease of information attainment is low than when both the control and the ease of information attainment are high. For example, a student who did not study for an exam is more likely to avoid learning his grade when he has to go to the professor's office to get the exam than when the professor is distributing the graded exams in class. In this instance, the student has low control over the outcomes because the grade has already been assigned, and the information is likely low in severity, because failing an exam is not a highly serious event.

Summary I

The Information Avoidance Model consists of calculations of benefits and costs, which involve several factors that people consider when deciding whether to avoid information: potential for negative consequences, potential to change outcomes, perceived coping resources, and ease of information attainment. In this model, benefits refers to perceived benefit from learning information. I suspect that people are more likely to avoid information when they regard it as useless than when they regard it as useful. Potential cost calculation is based on the four factors listed above. Potential for negative consequences refers to the likelihood that the information will be serious or severe. Potential to change outcomes refers to the amount of control people have over the outcomes associated with the unwanted information. Perceived coping resources refer to personal strengths and social support. Finally, ease of information attainment refers to the degree to which the information is readily available and to how easy it is

to obtain. I suspect that people may avoid potentially unwanted information when: (a) the costs of learning information outweigh the benefits, (b) potential for negative consequences is high and control over the outcomes is low, (c) potential for negative consequences is high and coping resources are low; (d) potential for negative consequences is low, and both control over the outcomes and ease of information attainment are low.

Individual Differences

Individuals likely differ in their tendency to engage in information avoidance. I have already noted some individual difference variables such as self-efficacy in the discussion of the model. Other individual differences variables that may play a role in information avoidance are personal differences in risk seeking, need for cognition, need for closure, fear of uncertainty, dispositional optimism, curiosity, and prior experience.

One factor that can potentially influence people's decision to seek or avoid information is risk-taking tendencies. Risk taking varies across age, gender, culture, occupations, and personality variables (Bromiley & Curley, 1992). For example, people who are younger generally commit more risk behaviors than people who are older (Vroom & Pahl, 1971). Men are more likely to take risks than women, and men are more risk taking with respect to sports and financial matters, while women are more risk taking with respect to career and marriage choices (Wallach & Kogan, 1959). With respect to personality variables, people who are high in sensation seeking are more likely to engage in risky activities, such as skydiving, than people who are low in sensation seeking (Bromiley & Curley, 1992). Presumably people who are more prone to risk-taking will be less likely to avoid unwanted information, even if the potential for negative consequences is high. I also predict that compared to low risk takers, high risk takers will be less likely to avoid unwanted information when they have low control over the outcomes and when they have low coping resources. I suspect that high risk takers may misperceive the

potential for negative outcomes as lower than it really is and may feel more in control of the situation than they really are. I also suspect that high risk takers may also overestimate their ability to cope and the resources that might be available to them.

I predict that risk taking tendencies should only be relevant with respect to seeking potentially unwanted negative information, and that they should not be relevant with respect to potentially unwanted positive information. Because there is no risk in learning potentially unwanted positive information, people's decisions to seek or avoid that information should not be influenced by their risk-taking tendencies. For example, high risk takers may be less likely than low-risk takers to avoid the results of a medical test, but they should not be less likely to avoid learning the sex of their forthcoming child than low risk takers.

Curiosity may also affect people's decisions to seek or avoid information. I suspect that the more curious people are, the less likely they are to avoid unwanted information. Curiosity may play a role when potential for negative consequences is low and also when it is high. Curious people may seek information with low potential of negative consequences to a greater degree than non-curious people, even if that information is uncontrollable and difficult to obtain. I also suspect that even if the information has high potential for negative consequences and potential to change outcomes is low, curious people may be more prone to seek it than non-curious people.

Another personality aspect that can influence people's perceptions of control and availability of coping resources is ego strength. Ego is "the phase of personality which determines adjustments to the outside world in the interest of satisfying inner needs in those situations where choice and decision are involved" (Symonds, 1951, p.4). Symonds (1951) describes six criteria of ego strength: (a) ability to control the environment, (b) ability to successfully mediate a relationship between the demands of the inner drives, the environment,

and the superego requirements, (c) ability to control impulses, (d) plasticity of personality, (e) ability to achieve own ideals, and (f) ability to maintain positive self-regard. People high in ego strength have fewer instances of feeling insecure and inadequate and are more able to think highly of themselves than people who are lower in ego strength (Symonds, 1951).

I predict that people who are high in ego strength are more likely to feel in control of the outcomes of unwanted information than people who are low in ego strength. Because people who are high in ego strength can regulate their responses to the situation well and can adjust to stressful situations quickly, they may cope better with learning unwanted information than people who are low in ego strength. Therefore, I predict that people who are high in ego strength are less likely to avoid potentially unwanted information than people who are low in ego strength.

The need for cognition is another individual difference variable that can affect people's decisions to seek or avoid information. People differ in the extent to which they desire to know: some people engage in and enjoy thinking more than others (Cacioppo & Petty, 1982). The need for cognition is associated with higher degree of seeking new information: in one study, participants evaluating a product asked for more information about that product if they were high in need for cognition than if they were low in need for cognition (Verplanken, Hazenberg, & Palenewen, 1992). I predict that people who are high in need for cognition will be less likely to avoid potentially unwanted information than people who are low in need for cognition. Compared to people who are low in need for cognition, people who are high in need for cognition may have a greater desire to have complete knowledge about a given situation. Because need for cognition does not imply a preference for more threatening information, I

predict that people high in that need will be equally interested in seeking potentially negative and potentially non-negative or positive information.

Whether people are high or low in the need for closure can also influence their decisions to seek or avoid information. Need for closure refers to finding an answer to the given topic that would minimize confusion and ambiguity (Webster & Kruglanski, 1994). On the one end of the continuum there are people who are high in the need for closure; these people value predictability and clarity. On the other end of the continuum there are people who are high in the need to avoid closure; these people want to avoid the unwanted consequences of obtaining closure and want to maintain the status quo (Webster & Kruglanski, 1994). I predict that people who are high in the need for closure are less likely to avoid unwanted information than people who are high in the need to avoid closure. People high in the need for closure want to be able to predict the future and dislike ambiguity (Webster & Kruglanski, 1994), and therefore when they discover there is something they do not know they may be motivated to seek that information.

People high in the need to avoid closure prefer to avoid the costs of closure and they want to preserve the status quo that the closure may disrupt (Webster & Kruglanski, 1994). Therefore, they may be motivated to avoid potentially unwanted information. Need for closure should be relevant for both potentially negative and potentially positive types of information, because it has to do with predictability and elimination of ambiguity (maintenance of status quo), and not with a potential for threat or harm.

Dispositional optimism may also be a relevant factor in people's decisions to seek or avoid information. Prior research indicates that dispositional optimism relates positively to coping with and recovery from illness (Scheier & Carver, 1985). In comparison with pessimists, dispositional optimists tend to believe they have more control over situations and tend to use better coping

strategies (Chang, 1998). I therefore predict that dispositional optimists are less likely than dispositional pessimists to avoid unwanted information. Dispositional optimists may perceive the unwanted information as having less potential negative consequences than the pessimists.. Additionally, dispositional optimists may perceive that they have greater control over the outcomes and may expect to cope better than the pessimists. However, I predict that dispositional optimists and pessimists will not differ in the degree to which they avoid non-negative or positive information, because learning such information does not require coping.

Yet another factor that can influence people's decision to seek or avoid unwanted information is prior experience. People who have previously experienced situations similar to the one they are currently experiencing may be more prepared for the outcomes than people without prior experience. Prior experience allows people to develop coping strategies and map the necessary coping resources. It also has a preparatory function: people who have endured an undesired or stressful event may approach it more calmly the next time, because they will know what to expect. For example, blood donors experience less stress during the donation if they have donated before (Ferguson, Singh, & Cunningham-Snell, 1997). Another study demonstrated that police officers who had many years of experience could anticipate work-related stressful events better, and also believed they could cope with these events better than did police officers with only a few years of experience (Anshel, Robertson, & Caputi, 1997).

Summary II

People differ in terms of their personality factors, availability of various resources, and previous experiences that could help them cope with unwanted information. Differences in risk taking, curiosity, ego-strength, need for cognition, need for closure, and dispositional optimism may influence people's perceptions of the amount of control they have over situations and their ability to cope. People also differ with respect to their previous experiences. Having experienced

the same or a similar situation in the past may help people locate the coping resources and provide them with adaptive coping strategies.

CHAPTER 3 RESEARCH DESIGN AND METHODS

Study 1

Study 1 examined women's avoidance of breast cancer risk information. Knowing one's breast cancer risk is potentially threatening information because it has implications for health and well-being. I tested the following hypotheses:

Hypothesis 1: Women are more likely to avoid learning their breast cancer risk when they perceive their ability to control their risk is low than when they perceive it as high.

Hypothesis 2: Women who avoid information about their breast cancer risk should have fewer perceived coping resources than women who seek information about their risk.

Hypothesis 3: Women who choose to avoid their risk would be less likely to anticipate regret about avoiding learning their risk, and women who choose to seek their risk would be less likely to anticipate regret about seeking their risk. Although this prediction about anticipated regret may seem obvious, it is not necessarily so. First, it is unclear whether people take regret into account when making a decision to seek or avoid the information. Therefore, it is crucial to examine the role that anticipated regret plays in Information Avoidance. Second, it might be the case that people who avoid information tend to worry more about making a decision and anticipate regretting both decisions to seek and avoid more than do people who seek information.

Because I predict a specific difference in anticipated regret over seeking and regret over avoiding information, this pattern is not necessarily obvious and remains to be tested in Studies 1 and 2. Because learning one's breast cancer risk has a high potential for negative consequences, Study 1 tested the right side of the costs box of the Information Avoidance Model (see Figure 1).

I manipulated participants' perceptions of controllability by providing different information about breast cancer: some participants received information indicating that breast cancer is

somewhat controllable, whereas other participants received information emphasizing the uncontrollable aspects of breast cancer. Finally, to assess participants' perceived coping resources, I asked questions tapping participants' beliefs in their ability to cope should they learn that they are at a high risk for breast cancer.

Method

Participants.

Participants were 102 undergraduate students from the University of Florida psychology participant pool. Participants signed up for and completed the study online and received research participation credit in compensation.

Procedure and materials

The study was conducted entirely online. On logging into the study, participants read and signed an electronic informed consent form that described the study as assessing thoughts and feelings about breast cancer. Participants who agreed to participate then proceeded to a screen that asked them to list as many breast cancer risk factors as they could think of (see Appendix A). The screen provided ten blank lines where participants could enter responses. This task served a dual purpose: to make participants think about breast cancer and to assess their knowledge about breast cancer. The next page directed participants to check which of 14 conditions (e.g. "wearing a sports bra" and "being overweight or obese") were true risk factors for breast cancer (See Appendix A).

Next, participants responded to a series of items concerning their health (Women's Health Questionnaire, Appendix A). Participants reported such information as their age and race, whether they drank or smoked, and whether any of their close relatives have had breast cancer. Many of these items represented the breast cancer risk factors used in the Gail Model to predict a woman's breast cancer risk (National Cancer Institute, 2008). Other items, such as whether the

woman was smoking or engaging in exercise, were potential breast cancer risk factors not included in the original Gale model.

On completing the Women's Health Questionnaire, participants read a brief passage informing them that women's breast cancer risk could be calculated using a risk calculator called the Gail Model (See Appendix A). They then reported whether they have heard about the Gail Model and whether they have ever had their own breast cancer risk assessed with the Gail Model. The purpose of these items was to identify and eliminate any participants who were familiar with the Gail Model or have attempted to calculate their breast cancer risk in the past.

After reading about the Gail Model, participants underwent the control manipulation. The purpose of the control manipulation was to prompt participants to focus on how breast cancer was controllable or how it was uncontrollable. This manipulation varied the potential to change outcomes aspect of the model. Participants in the controllable condition read a webpage that emphasized breast cancer risk factors that were controllable and how women could reduce their breast cancer risk through changes in diet and lifestyle (see Appendix A). Participants in the uncontrollable condition read a webpage that emphasized breast cancer risk factors that were uncontrollable, such as genetic changes, heredity, and environmental factors (see Appendix A).

Next participants saw a screen that offered them three options (See Appendix A). Participants learned that they had a chance to have their breast cancer risk assessed (presumably by having the computer calculate it from their responses to Women's Health Questionnaire). Participants chose between (a) learning their breast cancer risk estimate right away, (b) having their breast cancer risk estimate sent to them via email, and (c) not learning their breast cancer risk estimate. Participants' choices represented the main dependent measure for Study 1. After

they made their selection, participants explained why they have selected that particular option and did not select other options by typing a sentence or two in a box provided on the screen.

Next, participants went to a screen with items addressing their perceived ability to control whether they get breast cancer (e.g., “I can control whether I get breast cancer”), the degree to which they would be upset if they learned their risk is high (e.g., “I would feel upset if I learned that I was at high risk for breast cancer”), and the degree to which they considered breast cancer to be a serious disease (e.g., “For me, breast cancer is a serious disease”; see Appendix A). I assessed responses to these questions using a 5-point scale (1 = strongly disagree; 5 = strongly agree). Some of these items served as manipulation checks: I used the items assessing participants’ beliefs in seriousness of breast cancer to examine whether participants perceived the breast cancer as serious. The rest of the items assessed participants’ perceptions of their ability to cope with learning the information and their perceptions of anticipated regret about learning or failing to learn their breast cancer risk.

Finally, participants responded to items designed to measure their perceived coping resources (see Appendix A, page 7). These items asked about perceived social support (“I have someone to turn to should I learn that my risk for breast cancer is high”), and personal qualities that could help them cope with the news (“I can remain calm in the face of the news should I learn that my breast cancer risk is high”).

When they have completed these items, participants saw a page that informed them that the study was complete and thanking them for their participation. Participants then read the debriefing form and received a link to the Gail model website.

Results

Manipulation checks

To check the success of the control manipulation, I conducted several independent samples t-tests. Participants who received information about the controllable aspects of breast cancer (controllable condition, $n = 52$) perceived breast cancer as more controllable ($M = 3.25$, $SD = .93$) than did participants who received information about the uncontrollable aspects of breast cancer (uncontrollable condition, $n = 50$; $M = 2.30$, $SD = .91$), $t(100) = 5.23$, $p < .001$, $d = 1.05$. Moreover, participants in the controllable group ($M = 1.92$, $SD = .68$) were less likely than participants in the uncontrollable group ($M = 2.76$, $SD = .82$) to report that there was not much people can do to lower their chances of breast cancer, $t(100) = 5.61$, $p < .001$, $d = 1.12$.

Finally, participants in the controllable condition ($M = 4.23$, $SD = .88$) perceived breast cancer as less serious than did participants in the uncontrollable condition, ($M = 4.54$, $SD = .61$), $t(100) = 2.06$, $p = .042$, $d = .41$. However, there was no difference between participants in the controllable ($M = 3.87$, $SD = .77$) and the uncontrollable condition ($M = 3.72$, $SD = .64$) in perceptions regarding breast cancer treatability, $t(100) = 1.04$, $p = .302$, $d = .21$.

Dependent measures

To test participants' tendency of seek or avoid the information about their breast cancer risk, I conducted a chi-square test on participants' responses to the item asking them to indicate their choice about obtaining or not obtaining their risk estimate. In support of Hypothesis 1, more participants opted to avoid learning their risk in the uncontrollable condition (13 out of 50) than in the controllable condition (3 out of 52) (see Figure 2), $\chi^2(1, N = 102) = 7.89$, $p = .005$, $\phi = .28$.

I also tested whether participants who avoided learning their risk reported fewer coping resources than participants who sought their risk. I first ran a reliability analysis on the resources

items (Appendix A). The items demonstrated adequate reliability (Cronbach's alpha = .83). I thus combined the items in a single Resources Index. I next compared the scores on this index for participants who chose to seek ($n = 86$) vs. avoid learning information about their breast cancer risk ($n = 16$). Analyses revealed no difference in scores on the Resources Index between participants who indicated willingness to seek their risk of breast cancer ($M = 3.69, SD = .52$) and participants who did not want to learn their risk ($M = 3.53, SD = .64$), $t(100) = 1.12, p = .265, d = .22$. Therefore, contrary to Hypothesis 2, participants did not differ in the amount of perceived coping resources. However, several items from the Resources scale correlated with the decision to seek or avoid information. Items "I am confident that I can deal with the news should I learn that my breast cancer risk is high", and "It will be easy for me to deal with the news should I learn that my breast cancer risk is high" correlated negatively with the decision to avoid information: $r = -.21, p = .035$, and $r = -.23, p = .023$, respectively. Therefore, participants who felt confident about their ability to deal with the news of having breast cancer were less likely to avoid learning their risk than were participants who were less confident. These findings provide partial support to Hypothesis 2.

Additionally, I assessed participants' feelings about learning their risk of breast cancer. Compared to seekers ($M = 3.53, SD = .89$), avoiders ($M = 4.25, SD = .68$) anticipated feeling more distressed if they were to learn that their breast cancer risk was high, $t(100) = 3.05, p = .003, d = .61$. Avoiders also anticipated feeling more upset ($M = 4.38, SD = .62$) than did seekers ($M = 3.64, SD = .93$) if they were to learn that their breast cancer risk was high, $t(100) = 3.03, p = .003, d = .61$. Finally, avoiders expected to cope more poorly ($M = 3.25, SD = 1.24$) than seekers ($M = 2.74, SD = .96$) if they learned their risk for breast cancer was high, $t(100) = 1.85, p = .068, d = .37$, although the effect was marginal.

To test Hypothesis 3, I compared responses of participants in who opted to seek vs. avoid information about their breast cancer risk to the following items: “Imagine you chose to learn your breast cancer risk. How much would you regret this decision later?” and “Imagine you chose not to learn your breast cancer risk. How much would you regret this decision later?” Seekers anticipated less regret over learning their breast cancer risk ($M = 1.63, SD = .86$) than did avoiders ($M = 2.19, SD = .91$), $t(100) = 2.38, p = .019, d = .48$. On the other hand, seekers anticipated more regret over not learning their breast cancer risk ($M = 3.79, SD = 1.26$) than did avoiders ($M = 2.56, SD = 1.26$), $t(100) = 3.59, p = .001, d = .72$. These results indicate support for Hypothesis 3.

Discussion

Results of Study 1 indicate important practical implications for medical testing and diagnostics. If people are more likely to seek important medical information (such as their breast cancer risk) when the controllable aspects of the disease are emphasized and they perceive they have coping resources, then emphasizing these aspects in real medical settings may make people more likely to seek important health information. For example, emphasizing controllable aspects of a disease in a pamphlet and asking people questions that make them focus on their strengths and social resources may decrease the rates with which people avoid medical information and medical testing. However, Hypothesis 2 received only partial support. The data indicated that participants who chose to learn their breast cancer risk and participants who chose to avoid it did not differ in the amount of perceived coping resources. There are at least two interpretations of this finding. First, it is possible that perceived coping resources do not influence the decision to seek vs. avoid information. Second, items I used to assess coping resources may have been ambiguous and did not successfully capture participants’ perceptions of their coping resources.

Future studies using variations of the resources items could clarify which of these possibilities is more likely.

Study 2

Study 2 was designed to replicate Study 1 on a sample of middle-aged women. The hypotheses for Study 2 were identical to those of Study 1. However, I added a fourth hypothesis regarding how the results of Study 2 would compare with the results of Study 1. Specifically, I hypothesized that fewer women would display information avoidance in Study 2 (older women) than in Study 1 (younger women). Breast cancer is an issue of concern for all women. However, younger women may perceive breast cancer risk information more threatening because they have less knowledge about breast cancer. The greater knowledge among older women likely accumulates over time as women learn of friends and family members who experience breast cancer, or acquire information from visits with physicians and other health professionals during health examinations. The knowledge includes information about the extent to which breast cancer is preventable, controllable and treatable. By comparison, younger women lack this information and their ignorance likely contributes to the perception of breast cancer as more distressing. As noted earlier, a key reason of avoiding information is that it may produce undesired emotions. In addition, breast cancer typically strikes older women, not younger women. Thus, breast cancer is more imminent to the health of older women and they have more to gain from learning their breast cancer risk than do younger women. In sum, older women should be less inclined than younger women to avoid breast cancer risk information.

Method

Participants

Participants were 117 middle-aged women (ages 35 and older) recruited by the word of mouth who participated voluntarily and without compensation.

Procedure and materials

Procedure and materials for Study 2 were identical to those in Study 1. Participants received a link to the online questionnaire either via a handout or via email, and completed the study online.

Results

I excluded 13 participants from the analyses. Nine reported that they had had breast cancer, three expressed suspicion about the authenticity of the Gail Model, and one already knew her risk from her physician's assessment. The final sample comprised 104 participants (M age = 51.1 years, range 35 to 79).

Manipulation checks

Analysis revealed that the control manipulation was successful. Participants who received information about the controllable aspects of breast cancer (controllable condition, $n = 51$) perceived breast cancer as more controllable ($M = 3.18$, $SD = 1.03$) than did participants who received information about the uncontrollable aspects of breast cancer (uncontrollable condition, $n = 53$; $M = 2.60$, $SD = .85$), $t(102) = 3.41$, $p = .001$, $d = .68$. Unlike younger women (Study 1), older women in the controllable ($M = 1.80$, $SD = .75$) and uncontrollable conditions ($M = 2.04$, $SD = .73$) did not differ in their agreement with the statement that there is not much people can do to lower their chances of breast cancer, $t(102) = 1.61$, $p = .11$, $d = .32$.

Additionally, although younger women perceived breast cancer as less serious in the controllable condition than in the uncontrollable condition (Study 1), there was no such difference among older women ($M = 4.37$, $SD = .87$, and $M = 4.28$, $SD = .95$, respectively), $t(102) = .50$, $p = .617$, $d = .10$. There also was no difference between participants in the controllable ($M = 4.10$, $SD = .88$) and uncontrollable conditions ($M = 4.26$, $SD = .66$) in their perceptions regarding breast cancer treatability, $t(102) = 1.10$, $p = .275$, $d = .21$.

Information avoidance

Once again, Hypothesis 1 was that women would be more likely to avoid information about their breast cancer risk in the uncontrollable condition than in the controllable condition. Figure 3 presents the number of women seeking and avoiding their breast cancer risk information by condition. As predicted, analyses revealed a marginally significant tendency for more women to avoid learning their breast cancer risk in the uncontrollable condition (9 out of 53) than in the controllable condition (3 out of 51), $\chi^2(1, N = 104) = 3.14, p = .077, \phi = .17$.

Hypothesis 2 stated that avoiders would have fewer coping resources than would seekers. I first ran a reliability analysis on the resources items (Appendix A). The items demonstrated adequate reliability (Cronbach's alpha = .85). I thus combined the items to form a single Coping Resources Index. I next compared the scores on this index for participants who chose to avoid ($n = 12$) vs. seek their breast cancer risk ($n = 92$). Analyses revealed a marginally significant effect in support of Hypothesis 2. Avoiders reported fewer coping resources ($M = 3.6, SD = .58$) than did seekers ($M = 3.9, SD = .59$), $t(102) = 1.74, p = .08, d = .34$.

Additionally, I assessed participants' feelings about learning their risk of breast cancer. In contrast to the findings of Study 1, avoiders and seekers did not differ in how distressed ($M = 3.1, SD = .79$ vs. $M = 2.94, SD = .99$) or upset they would feel ($M = 3.25, SD = .87$ vs., $M = 3.04, SD = 1.15$) were they to learn that their breast cancer risk was high, both $t_s(102) < 1$. However, there was a marginally significant tendency for avoiders ($M = 2.67, SD = .78$) to be more likely than seekers ($M = 2.20, SD = .93$) to report that they would cope poorly if they learned that their breast cancer risk was high, $t(102) = 1.68, p = .09, d = .33$, although the effect was marginal.

Hypothesis 3 stated that avoiders would be less likely than seekers to report that they would regret the decision to avoid learning their breast cancer risk, while avoiders would be more likely than seekers to report that they would regret the decision to seek their breast cancer

risk. To test Hypothesis 3, I analyzed responses to two items: 1) “Imagine you chose to learn your breast cancer risk. How much would you regret this decision later?”, and 2) “Imagine you chose *not* to learn your breast cancer risk. How much would you regret this decision later?” Consistent with Hypothesis 3, avoiders anticipated more regret about learning their breast cancer risk ($M = 1.83$, $SD = .94$) than did seekers ($M = 1.29$, $SD = .69$), $t(102) = 2.45$, $p = .016$, $d = .49$. Conversely, avoiders anticipated less regret about *not* learning their breast cancer risk ($M = 2.58$, $SD = 1.73$) than did seekers ($M = 3.57$, $SD = 1.53$), $t(102) = 2.06$, $p = .042$, $d = .41$.

Comparing the results of studies 1 and 2

Hypothesis 4 stated that fewer older women than younger women would opt to avoid information about their breast cancer risk. Before testing this hypothesis, I compared older and younger women on a variety of background factors (see Table 1). Analyses revealed no difference in the number of older and younger women who drank or smoked. However, fewer older women reported using birth control pills, whereas fewer younger women reported exercising weekly, knowing someone who has had breast cancer, and knowing someone who has died from breast cancer than did older women. Thus, it appears that, compared to younger women, older women engage in more healthy behaviors (e.g. exercise), and have greater familiarity with breast cancer.

Next I tested whether younger women were more likely than older women to avoid information about their breast cancer risk (Hypothesis 4). Contrary to predictions, older and younger women did not differ in their avoidance of breast cancer risk information. Specifically, 16 of 102 younger women and 14 of 104 older women avoided learning their risk. This difference was not significant, $\chi^2(1, N = 206) = .754$, p ns, $\phi = .06$.

The null finding for Hypothesis 4 was surprising. The underlying rationale for Hypothesis 4 was that older women would perceive breast cancer information as less threatening because

they saw breast cancer as more preventable, controllable and treatable. In addition, older women would regard breast cancer as less distressing. Both Studies 1 and 2 included items assessing each of these constructs. To examine whether the data support the underlying rationale for Hypothesis 4, I computed a series of correlations between these variables and decision to avoid vs. seek breast cancer risk (see Table 2). Presumably, these variables would predict information avoidance. To be thorough, I also computed correlations between the avoidance decision and several other potential predictors (see the bottom half of Table 2). Although I computed correlations for younger and older women separately, my primary focus was on the combined sample. I also examined age differences for each of these variables (see Table 3) to see if younger and older women truly differed in their response to these items.

Examining first the correlations, Table 2 reveals that the decision to avoid learning one's breast cancer risk correlated negatively with perceived preventability of breast cancer, and correlated positively with anticipated negative emotions about own risk. However, the decision to avoid breast cancer risk was uncorrelated with perceiving breast cancer as treatable.

Turning next to Table 3, as predicted, older women rated breast cancer as more preventable and more treatable than did younger women. However, there were no age differences in perceptions of breast cancer controllability. Additionally, compared to younger women, older women anticipated being less upset and distressed if their breast cancer risk was high.

In sum, although I did not find support for Hypothesis 4, I found support for its underlying rationale. Analyses revealed age differences in all avoidance-related variables with the exception of perceived control. One potential reason for lack of age differences in avoidance, despite age differences in avoidance-related perceptions, is that the control manipulation overpowered any other differences between the samples. I return to this issue in the Discussion section.

Ancillary analyses

Although I did not explicitly predict age differences in anticipated regret, perceived breast cancer seriousness, anticipated worry about breast cancer, perceived ability to cope, and perceived coping resources, these variables are important because of their potential to predict avoidance. The bottom half of Table 2 displays the correlations between these variables and avoidance. The bottom half of Table 3 presents the comparisons of older and younger women on these variables. Perceived inability to cope and anticipated regret over learning one's risk correlated positively with avoidance. Conversely, the Coping Resources Index and anticipated regret over avoiding one's risk correlated negatively with avoidance. Perceived seriousness of breast cancer and worry about breast cancer were uncorrelated with avoidance.

As evident in Table 3, older women, compared with younger women, anticipated regretting learning their breast cancer risk less, anticipated coping better if their risk was high, and reported greater perceived coping resources. However, there were no age differences in anticipated regret over avoiding their breast cancer risk, anticipated worry, or perceived breast cancer seriousness. In sum, although both samples perceived breast cancer as equally serious, it seems that older women were better prepared to face their breast cancer risk. Older women's greater ability to cope and greater perceived coping resources could potentially explain their lesser anticipated regret over seeking their risk as compared to younger women.

Information avoidance and actual breast cancer risk

Information avoidance is particularly a cause for concern to the extent that women who are at risk for breast cancer may avoid information that is crucial for preventing, controlling or treating a potentially life threatening disease. Thus, an important question to examine is whether women who chose to avoid learning their breast cancer risk face a higher risk than do women who chose to learn their risk. To examine this question, I computed the actual breast cancer risk

of women in both samples by entering their responses to the breast cancer items into the Gail Model. Of note, the Gail model does not allow computation of breast cancer risk for women under age 35. To create a risk score for younger women, I entered an age of 35 for these women into the model. Entering an incorrect age for younger women introduces a degree of error in their predicted risk and the results for younger women should be viewed cautiously. Also, the estimates for both younger and older women are rough, because I did not collect data on one predictor in the Gale Model – age at the time of the first live birth.

I conducted several independent-samples t-tests to examine whether older and younger avoiders were at greater perceived and actual risk of breast cancer than seekers. Analyses revealed no difference between avoiders and seekers in *actual* five-year or lifetime risk. However, among older women, avoiders *perceived* their lifetime likelihood of acquiring breast cancer as higher ($M = 31.25, SD = 28.69$) than did seekers ($M = 19.16, SD = 17.79$), $t(102) = 2.04, p = .05, d = .40$. This finding is particularly troubling because it suggests that perceptions of high risk among older women could motivate them to avoid the potentially useful information about their health, instead of motivating them to learn it. However, because I did not test a causal relationship with these analyses, this possibility needs further testing.

Open-ended responses

An additional source of information about the reasons women sought or avoided their breast cancer risk comes from their open-ended responses to the item asking them to indicate why they chose to seek or avoid their risk information. Two raters coded these responses according to the list of categories for each type of decision (to seek, to delay, or to avoid the information). The analyses revealed adequate inter-rater joint probability of agreement, 73% for the younger women sample, and 75% for the older women sample. Table 4 presents the

categories and the number of responses in each category. Two responses fell into multiple categories and thus were excluded from the table.

Most women indicated that they sought information about their risk so that they could control their risk and prevent breast cancer or because they were curious about their risk. Some also felt that the information might be helpful to them. This finding supports the argument from the Information Avoidance Model that people sometimes seek information because of the benefits it provides. In this case, the benefits include taking action to prevent breast cancer, being informed about own health, and satisfying one's curiosity.

Although some women chose to delay the information about their risk, they constitute a minority in both samples. I thus focused on the reasons provided for avoiding information. The primary reason given for avoiding the information was to avoid unpleasant emotion. This finding also supports the argument from the Information Avoidance Model that avoiding undesired emotions is a chief reason for information avoidance. Notably, very few women avoided information because they did not feel at risk. This finding demonstrates that perceiving the information as useless is not a motivator for avoidance, at least in these studies.

Discussion

Study 2 generally replicated the findings of Study 1 and provided additional support for the information avoidance model. Similar to Study 1 and supporting Hypothesis 1, more older women engaged in information avoidance when breast cancer was portrayed as uncontrollable than when it was portrayed as controllable. In support of Hypothesis 2, avoiders reported fewer coping resources than did seekers. In support of Hypothesis 3, avoiders anticipated greater regret than did seekers about learning their breast cancer risk, and seekers anticipated greater regret than did avoiders about avoiding their breast cancer risk. Analyses revealed no support for Hypothesis 4; younger and older women did not differ in information avoidance.

My hypothesis that younger women would be more likely than older women to engage in information avoidance was based on the assumption that older women would regard breast cancer as more preventable, controllable, and treatable. Several findings were consistent with this assumption. First, I found that perceived control, breast cancer preventability and negative emotions associated with learning own risk correlated with decisions to seek or avoid breast cancer risk. Second, I found that, compared to younger women, older women regarded breast cancer as more preventable and anticipated feeling less upset and distressed about their risk.

Additionally, I found that several other variables (anticipated regret, perceived coping ability, and perceived coping resource) correlated with avoidance. After performing sample comparisons on these additional predictors of avoidance, I found that older and younger women differed with respect to three of these variables. Specifically, older women indicated higher ability to cope and greater perceived coping resources, as well as lower anticipated regret about seeking their risk. Perhaps older women anticipated coping better than younger women precisely because they anticipated feeling less negative emotions if their risk was high, and perceived breast cancer as more controllable and more treatable than did younger women. Additionally, the greater coping resources reported by older women could be a by-product of age: as people get older, they may amass greater coping resources through stronger ties with friends and family. Older women may also have had more time and more opportunities than younger women to learn to cope with difficult circumstances because of their longer lives.

Aside from the finding that the assumption underlying Hypothesis 4 received mixed support, there are several possible reasons why I found no age differences in avoidance of breast cancer risk information. First, it is possible that the proposed rationale (i.e., differences in experience with, and perceptions of, breast cancer) is irrelevant to avoidance. However, this

possibility is refuted by the correlation analyses that demonstrate that the proposed predictors are clearly related to avoidance. Second, it is possible that the controllability manipulation used in Studies 1 and 2 was so strong that it overpowered naturally occurring differences between the age groups arising from personal experience, coping resources, and knowledge about breast cancer. To test whether the controllability manipulation was responsible for the null effect, future studies could include an additional condition in which control is not manipulated.

Although they differed in their perceptions and feelings about breast cancer, younger and older women provided somewhat uniform reasons for seeking or avoiding their breast cancer risk. The open-ended responses revealed that most women sought their risk status because they found it useful and felt that it could give them an opportunity to be proactive about their health. Also, younger and older women avoided their risk because they wanted to avoid negative emotions. Both of these findings support predictions from the Information Avoidance Model.

In sum, Study 2 provided additional support to the Information Avoidance Model by replicating the results of Study 1. Additionally, Studies 1 and 2 together provided a unique opportunity for age-related comparisons in avoidance behaviors. Although I found that younger and older women did not differ in avoidance behaviors, they clearly differed on some of the predictors of avoidance. Future studies can test whether the controllability manipulation used in Studies 1 and 2 overpowered potential differences in avoidance between younger and older women. Finally, the open-ended items revealed that women cited gain as the main reason to seek the information, and avoidance of negative emotions as the main reason to avoid the information.

Study 3

Study 3 tested information avoidance in relationships. College-aged students participated with their partners and learned that they would have a chance to discover whether their partner was cheating on them. I examined both mild and serious cheating. I defined mild cheating as

displaying, through words or behaviors, availability toward someone outside the relationship. Examples of mild cheating included flirting with a person of the opposite sex (to simplify the study, I only sampled heterosexual couples) who is not one's partner or pretending to be single when one really is not. I defined serious cheating as a behavior that includes romantically kissing someone outside the relationship, and/or engaging in sexual activity with someone outside the relationship. I tested the following hypotheses:

Hypothesis 1: Participants with no prior experience with cheating (either mild or serious) by a previous or current partner will be more likely to avoid learning whether their current partner has cheated on them than participants who have experienced cheating by current or previous partner. Undoubtedly, many people who have never been the victim of cheating anticipate that they would be devastated by the experience. Learning of a partner's infidelity can be extremely painful and people with no prior experience may feel that they would be unable to cope, or that the pain would be so unpleasant that they would rather remain ignorant. Yet although it is painful, partner infidelity is informative in that it provides people insights into what people can handle emotionally. Although they may not have thought it possible, people survive being the victim of cheating and that survival experience informs them that they can survive cheating in the future, making people with experience with an unfaithful partner more willing to learn whether their current partner is cheating. Moreover, experience with a cheating partner may help people see the benefits of detecting cheating earlier rather than later (e.g., ending a relationship with a person who is not committed them).

Hypothesis 2: Participants who avoid information about partner's cheating will report having fewer coping resources than will participants who seek information about partner's cheating. Coping resources can aid people in dealing with potentially unwanted information,

making them better equipped to withstand possible bad news. As such, people with more coping resources should be more willing to learn of possible partner infidelity.

Hypothesis 3: Participants will display greater information avoidance when confronted with the possibility of learning about a partner's serious cheating than a partner's mild cheating. Learning that one's partner has engaged in mild cheating has different implications than learning that one's partner has engaged in serious cheating. With mild cheating, it is unclear whether the partner is merely flirtatious but still committed to the relationship, or deceptive and uncommitted. The prospect of serious cheating leaves less room for ambiguity and thus is potentially more painful: a partner who engages in serious cheating displays clear betrayal.

Method

Participants

Participants (N = 126) were students enrolled in the introductory psychology course and their romantic partners. Participants either received experimental credit for participation or participated on a voluntary basis with no compensation.

Procedure and materials

When couples arrived for their study session, the experimenter escorted each partner to a different room and seated each in front of a computer. The experimenter explained that the study concerned relationship fidelity and cheating and that participants would answer questions about their past and current relationships as well as questions about cheating. After this introduction, the experimenter left the room and participants completed the study on the computer (see Appendix B).

Participants were randomly assigned to mild or serious cheating conditions. The questionnaires for these conditions were identical except for one detail: participants in the mild condition learned in the middle of the experiment that they had an opportunity to learn whether

their partner has engaged in mild cheating on them whereas participants in the serious conditions learned that they had an opportunity to learn whether their partner has engaged in serious cheating on them. The questionnaires for both conditions contained definitions of mild and serious cheating, and participants in both conditions answered questions about being a victim of a mild and a serious cheating in the past.

The first two pages of the questionnaire asked participants about aspects of their current relationship, such as closeness, “How emotionally close are you to your partner?”, and trust, “How much do you trust your partner?” Next, participants reported on how well they would cope if they learned that their partner cheated on them. They provided ratings on eight items such as, “I have the resources to handle the news should I learn that my partner has cheated on me”, and “I am confident I can deal with the news should I learn that my partner has cheated on me”.

Next, participants answered questions about their experience with mild and serious cheating (e.g., “Have you ever had a previous partner cheat (mild/serious form) on you?”, “How would you feel if you learned your partner has cheated on you once (mild form)?”

Finally, participants saw a page with a message informing them that, while they were completing a questionnaire about their experiences with cheating and their relationship, their partner was completing a questions about his or her own cheating behavior. In reality, all participants completed the same “victim of cheating” questionnaire. Participants in the mild condition learned that their partner completed a questionnaire about mild cheating, and participants in the serious condition learned that their partner completed a questionnaire about serious cheating. Participants also received a message, ostensibly generated by the computer, saying that their partner has already finished his/her questionnaire.

On the next screen, participants were asked to imagine that they could see their partner's questionnaire responses. Participants had two choices: "Yes, I would choose to see my partner's responses" and "No, I would not choose to see my partner's responses". Once they answered this hypothetical question, participants saw a new screen informing them that, because their partner had already completed the questionnaire, they had the opportunity to see the partner's questionnaire responses if they wanted. Participants also learned that the experimenter would have no way of knowing whether they chose to see or not see their partner's responses. Participants were then presented with two choices: to see vs. not to see their partner's responses. After participants selected one of the options, an error screen appeared, telling them to see the experimenter.

At this point, the session was over, and participants were probed for suspicion and thoroughly debriefed. Before revealing the true purpose of the study, the experimenter asked participants whether they had any thoughts about the true hypotheses of the study. If participants experienced suspicion about the study procedures or any portion of the questionnaire, their responses were carefully noted. Next, the experimenter explained the study hypotheses and the rationale for using deception in this study. Importantly, participants never actually saw their partners' responses at any point in this study. In fact, because all participants completed the same "victim of cheating" questionnaire, there was no opportunity for participants to see their partner's reports of cheating.

Results

Because of the confidentiality agreement used in virtually all psychology studies, it was understandably challenging to convince participants that they would have access to their partner's responses. I tried to overcome this difficulty by informing participants during the consent period at the beginning of the experiment that some of their responses may not be

confidential due to the nature of the study. However, several participants nevertheless expressed suspicion about the study procedures. Sixteen participants expressed doubt about being able to see their partner's responses about cheating, and I excluded their data from the analyses. Of note, the findings were identical when data from these participants were included. The final sample comprised 110 participants (M age = 19.3 years, range 17 to 24).

Hypothesis 1 was that participants with no experience with a cheating partner would be more likely than participants with such experience to avoid seeing their partner's responses. I examined Hypothesis 1 using chi-square analyses; the results appear in Table 5. The results for the hypothetical item ("Imagine you could see your partner's responses....") were almost identical to the results for the actual decision item (item offering participants an actual opportunity to see the partner's responses). For the sake of brevity, I only discuss the results for the actual decision item. It is noteworthy that 26 participants were excluded from the analyses of past partner because they were unsure whether their past partner had cheated. Likewise, 18 participants were excluded from the analyses because they were unsure whether their current partner had cheated.

As evident in Table 5, the results supported Hypothesis 1 in three of four instances, with more participants opting to see their partner's responses when they had prior experience with a cheating partner than when they had had no such prior experience. Importantly, the pattern of frequencies in the one exception (mild cheating by a previous partner) was in the predicted direction. In short, participants opted to avoid seeing their partner's responses when they had no experience with a cheating partner, yet opted to see their partner's responses when they had experience with a cheating partner.

I next tested Hypothesis 2, that avoiders would report fewer coping resources than would seekers. I first conducted a reliability analysis of the eight resource items (items 11-18 in Appendix B). The scale had adequate reliability (Cronbach's $\alpha = .78$), and thus I combined the eight items to create a Coping Resources Index. I next compared responses on the Coping Resources Index of participants who chose (seekers) vs. did not choose to see their partner's responses (avoiders). Surprisingly, avoiders reported greater coping resources ($M = 3.16, SD = .67$) than did seekers ($M = 2.93, SD = .70$), $t(108) = 1.74, p = .084, d = .33$, although the effect was marginal. Hypothesis 2 was thus not supported.

Additionally, I conducted a chi-square to examine Hypothesis 3 (predicting greater avoidance in the serious cheating condition than in the mild cheating condition). In support of Hypothesis 3, more participants avoided learning their partner's responses (actual decision to seek) in the serious condition (24 out of 55) than in the mild condition (36 out of 55), $\chi^2(1, N = 110) = 5.28, p = .022, \phi = .22$.

Although I found support for two of the three hypotheses (that experience with cheating predicts avoidance and that serious cheating leads to greater avoidance than mild cheating), there could be additional factors influencing the results. Perhaps participants in longer, more serious relationships were more reluctant to seek their partner's responses because they felt their partner was faithful, or because they were unwilling to put their valued relationship at risk. Also, participant's perceptions about their ability to find a new partner and possible feelings about their partner's cheating could influence the decision to avoid. For example, participants who feel unable to find a new partner may be reluctant to learn about their partner's cheating because it would suggest that their partner is not committed to the relationship. Similarly, participants who anticipated feeling upset if their partner has cheated on them may be less willing to learn about

their partner's cheating. As I noted early on, a central reason people avoid information is to avoid undesired emotions. Finally, the extent to which participants trust their partner could also influence avoidance. Participants who trust their partners may regard seeking their partner's responses as a violation of their partner's trust, even if their partner will not know that they sought the information.

I computed several analyses to examine these possibilities. I first examined whether participants perceived serious cheating as more upsetting and more difficult to cope with than mild cheating. As expected, participants anticipated that they would cope better with mild cheating ($M = 3.83, SD = 1.59$) than with serious cheating ($M = 2.10, SD = 1.34$), $t(109) = 25.33, p < .001, d = 1.18$. Additionally, participants anticipated feeling more upset if their partner engaged in serious cheating once ($M = 6.32, SD = 1.10$) than if the partner engaged in mild cheating once ($M = 4.55, SD = 1.74$), $t(109) = 27.43, p < .001, d = 1.22$. Similarly, participants anticipated feeling more upset about partner's repeated serious cheating ($M = 6.71, SD = .94$) than about partner's repeated mild cheating ($M = 6.05, SD = 1.31$), $t(109) = 48.44, p < .001, d = .58$.

I next examined whether any other variables (e.g., trust, relationship length) correlated with to the decision to seek vs. avoid partner's responses. The only significant correlation to emerge was for trust. Trust correlated positively with the decision to avoid partner's responses for the entire sample, $r(108) = .23, p < .02$. That is, the more participants trusted their partners, the more likely they were to avoid learning partner's responses. Further probing revealed that trust correlated positively with avoidance in the mild condition, $r(53) = .32, p < .02$, but not in the serious condition, $r(53) = .14, p > .31$. None of the other items correlated with the decision to seek vs. avoid, all $r_s < .15$.

Discussion

Study 3 provided a further test of the Information Avoidance model, and helps elucidate the relationship between prior experience and information avoidance. The results suggest that prior experience plays a vital role in preparing people to face the potentially unwanted information. In support of Hypothesis 1, participants with no experience with a cheating partner were more likely than participants with such experience to avoid learning whether their partner was cheating on them.

Additionally, I found that participants who avoided information about their partner's cheating reported greater coping resources, albeit marginally significant, than did participants who sought such information. This finding is in contrast to the Hypothesis 2 and I return to this issue in the General Discussion.

Finally, in support of Hypothesis 3, I found that participants were more likely to avoid learning about their partner's infidelity in the serious condition than in the mild condition. One reason for this finding could be participants' desire to avoid negative emotions associated with serious cheating. I found that participants reported serious cheating as harder to cope with, and as more upsetting, than mild cheating. Although I did not include items testing participants' perceptions about the implications of mild and serious cheating, I hypothesize that participants regard serious cheating as more painful because there is less ambiguity in interpreting what it means. As noted earlier with mild cheating, it is unclear whether the partner is merely flirtatious but still committed to the relationship, or deceptive and uncommitted. Presumably the prospect of serious cheating is more painful because it leaves little room for ambiguity: a partner who engages in serious cheating displays clear betrayal.

Although studies typically find a modest correlation between intentions at behavior (Ajzen, 1991; Schifter & Ajzen, 1985), I found that participants' responses to the hypothetical item and

the actual decision item were virtually identical. One potential explanation for the close correspondence between intentions and behaviors in this study is that participants wanted to appear consistent to the experimenter. That is, they responded the same way in the actual and hypothetical condition because to do otherwise would make them look inconsistent. However, the instructions for the questionnaire in Study 3 clearly explained that even the experimenter would not know whether participants chose to seek their partner's responses. Of course, participants may have wanted to appear consistent to themselves rather than the experimenter. This possibility could be explored in future studies by including a condition in which participants do not provide hypothetical responses before their actual responses.

General Discussion

The goal of this dissertation was to test various aspects of the Information Avoidance Model. Studies 1 and 2 examined whether perceived controllability of breast cancer, anticipated regret about learning own risk, and the amount of perceived coping resources predicted avoidance. Perceived controllability clearly predicted women's avoidance behaviors. Women were more likely to avoid learning their breast cancer risk when they perceived their risk was uncontrollable than when they perceived their risk was controllable. Additionally, Studies 1 and 2 demonstrated that perceptions of anticipated regret were relevant to women's decision to avoid or seek their risk. In both studies, people who chose not to learn their breast cancer risk (avoiders) anticipated greater regret over learning than not learning their breast cancer risk. Conversely, people who chose to learn their breast cancer risk (seekers) anticipated greater regret over not learning than learning their breast cancer risk.

The predictions about the role of perceived coping resources received mixed support. Both Studies 1 and 2 found differences in perceived ability to cope with high breast cancer risk, with avoiders reporting lower ability to cope than seekers, the findings about perceived coping

resources were inconsistent. I found no difference between seekers and avoiders in perceived coping resources in Study 1, but found that several items from the coping resources scale correlated with avoidance. Also, I found the predicted difference in perceived coping resources in Study 2 – avoiders reported fewer coping resources than did seekers. However, the effect was marginal.

The Information Avoidance Model suggests that people seek information when they anticipate a gain from the information, and that people avoid information when they anticipate that the information will produce undesired emotions. Older and younger women in the two studies cited potential benefit as the reason to seek information, and cited the desire to avoid negative emotions as the reason to avoid the information. Thus, it appears that these predictions from the model reflect the actual drives behind people's decision to seek vs. avoid information.

I also examined age differences in information avoidance. Although, contrary to my predictions, older women did not engage in less avoidance than younger women, the samples differed on several avoidance-related items. Specifically, compared to younger women, older women perceived breast cancer as more preventable and anticipated feeling less upset and distressed about their risk. In addition, older women indicated higher ability to cope with their risk, and greater coping resources than did younger women. These age differences in perceptions could potentially lead to age differences in avoidance, even though I did not find such differences. As noted earlier, perhaps the control manipulation used in Studies 1 and 2 was too strong, overpowering any naturally occurring difference in information avoidance between the samples. Future studies, where participants do not undergo a control manipulation, can explore this possibility.

Study 3 contributed to the test of the Information Avoidance Model by examining the role of prior experience, coping resources, and seriousness of cheating (mild vs. serious) in avoidance decisions. Students were more likely to avoid learning whether their partner has cheated on them if they had prior experience with a cheating partner than if they had no such experience. However, I found no support for my predictions about coping resources. Indeed, contrary to predictions, avoiders reported having greater coping resources than did seekers. Finally, I hypothesized that participants would display greater avoidance in the serious than in the mild cheating condition, because, compared to serious cheating, mild cheating is more ambiguous to interpret and does not necessarily indicate betrayal. In line with this prediction, I found that participants displayed greater avoidance in the serious cheating condition than in the mild cheating condition.

Evaluating the Information Avoidance Model

Together, the three studies furnished support for several predictions from the Information Avoidance Model. First, they suggested that perceived control influences avoidance in a predicted manner: people who perceived low control over outcomes of learning information were more likely to avoid information than were people who perceived high control over the outcomes. Additionally, prior experience, an important individual difference variable, also predicted avoidance. In the Information Avoidance Model, prior experience plays a role of a coping resource: people who have had experience with a situation may be more prepared to face the same or similar situation than people without such experience.

The present studies also supported the model's predictions about regret. The Information Avoidance Model suggests that, compared to seekers, avoiders should anticipate more regret over seeking the information and less regret over avoiding the information. I found support for this prediction in Studies 1 and 2: women who avoided learning their breast cancer risk

anticipated greater regret over seeking the information about their breast cancer risk compared to women who sought their risk. Conversely, women who avoided their risk anticipated lesser regret over avoiding the information about their breast cancer risk compared to women who sought their risk. Finally the findings from the three studies also supported my predictions about the role of negative emotional experience as one motivator of avoidance. Participants who anticipated being upset or distressed about the information were more likely to avoid it than were participants who did not anticipate being upset or distressed about that information.

Inconsistent Findings

One surprising finding that emerged was the inconsistent difference between avoiders and seekers in their perceived coping resources. In Study 1, avoiders and seekers did not differ in perceived coping resources, but several items of the coping scale correlated with avoidance decision in a predicted fashion: greater coping resources lead to lesser avoidance. In Study 2, avoiders reported fewer coping resources than did seekers, as predicted. However, in Study 3, the effect was reversed: avoiders reported greater coping resources than did seekers.

There are several potential explanations for the mixed findings about coping resources. First, perceived coping resources may not be related to avoidance. However, I found that avoiders anticipated coping more poorly than did seekers, thus coping clearly plays some role in decision to avoid vs. seek the information. Second, it is possible that the scale used in the three studies inadequately measured participants' coping resources. The scale may be too general and too vague. Perhaps a narrower scale tailored to the topic of each study would better assess coping resources. Third, coping resources may not be important when people are making quick avoidance vs. seeking decisions. The current studies required participants to decide within several minutes to seek or avoid the information, and it is possible that people may rely more on other factors when they are making such a quick decision, such as prior experience or their

immediate emotional reaction to the information. Perhaps when people have longer time to ponder their decision to avoid vs. seek the information, they are more likely to consider coping resources. One way to test this possibility is to conduct a study with a varied decision timeframe that would allow examining the role of coping resources on quickly- vs. slowly-made decisions to avoid vs. seek information.

Implications

The findings from the three studies have implications for health and interpersonal domains. Knowing that greater perceived control can diminish information avoidance is potentially useful for health professionals. Health professionals may be more successful in persuading reluctant patients to undergo medical tests if they first present ways to reduce the risk for a particular disease or health condition. As in Studies 1 and 2, feeling in control of own risk may make patients more open to threatening information, and help them be more proactive about their health. Additionally, feeling in control of the symptoms of the disease may possibly make people more likely to seek medical attention earlier, when the chance of curability and/or survival is higher.

Likewise, being aware that prior experience helps decrease avoidance, counseling and health professionals could decrease their patients' avoidance behaviors by helping them focus on similar experiences from the past. Remembering how they overcame illnesses or interpersonal difficulties in the past can prepare people to face new challenges and make them more likely to seek important information.

The discussion of benefits of seeking the information gives rise to the question of whether information avoidance is always a bad decision. Whether avoidance is good or bad likely depends on the particular domain. In some instances, avoidance may be detrimental. For example, avoiding tests for a disease may deter people from taking preventive actions,

potentially putting health at risk. In this case, learning the information may be costly because it may elicit stress and worry, but the benefits of preventing a disease or even saving one's life by far outweigh the costs. Of course, this benefit only holds for treatable or preventable diseases and conditions. However, with modern medicine taking large steps forward, it is plausible to assume that for most diseases or health conditions, knowing one's risk and understanding how to treat symptoms or prevent adverse health outcomes is beneficial. Also, even if a disease is not treatable, seeking information early may promote better quality of life and longer survival time.

However, in other instances, avoidance may be a better option than seeking. For example, avoiding learning about a partner's cheating can be beneficial for a person who depends on one's partner financially or emotionally and cannot afford to lose the relationship. In such a case, learning that one's partner is unfaithful may lead to great costs in the form of negative emotions, but have no benefit if the person does not want to, or cannot, break up with the partner. Likewise, avoiding information about potentially pleasant situations may be a better option than seeking such information. For example, resisting temptation to peek at the end of an interesting novel, or to find out whether friends are planning to throw a surprise party in one's honor may save one from ruining the surprise and feeling disappointed. In sum, although knowledge can be power, there is room for ignorance-related bliss.

Limitations and Future Directions

Although the three studies were a successful initial step in testing the Information Avoidance Model, they had several weaknesses. First, the studies mainly focused on the costs of avoidance and did not systematically test the benefits of avoidance. Even though the open-ended response items in Studies 1 and 2 revealed support for predictions about benefits from learning information, they did not allow for coherent comparisons between seekers and avoiders. Because the Information Avoidance Model suggests that perceived benefits lead to less avoidance, the

presumed benefits of information avoidance are an important next step in future avoidance research.

Second, as already noted, the scale for perceived coping resources may not be sufficiently clear and precise. This scale needs to be revised to better test coping predictions from the model. One potential way of revising the scale is modifying it to reflect more closely the domain of each study. In addition, several items of the scale (e.g. “I expect other problems to come up in the near future that would make it difficult for me to deal with the news should I learn that my breast cancer risk is high”) may have been too wordy and too confusing for participants, and may need shortening. Future research clearly needs to establish a better assessment of perceived coping resources and to determine whether they are related to people’s decision to seek vs. avoid information, as predicted by the model.

Third, although I found support for my predictions about the role of anticipated regret in information avoidance, the way I tested these predictions may be problematic. I predicted that anticipated regret will influence people’s decision to seek vs. avoid information. However, because I assessed anticipated regret after participants indicated their decision to seek or avoid the information, it could be that their decision colored participants’ perceptions of anticipated regret. To overcome this problem, future studies could vary the order in which participants make the decision to seek vs. avoid information, and respond to the regret items, across conditions.

Fourth, the finding that seriousness of cheating influenced avoidance decisions in Study 3 begs future probing. I predicted that serious cheating condition would elicit greater avoidance because serious cheating is a clearer type of betrayal than mild cheating. It is yet unknown what motivates people to avoid information less when the implications from the information are unclear (e.g., mild cheating may indicate that the cheater is unfaithful, or may simply mean that

the cheater is flirtatious but still committed to the relationship). Future studies can assess whether the three motivators of avoidance (i.e., avoiding unpleasant experience, avoiding change in behavior, and avoiding change in cherished beliefs) are making a difference in people's decision to avoid ambiguous vs. unambiguous information.

Fifth, the breast cancer studies revealed a curious finding: although there were clear age-differences on several predictor of avoidance, there were no age differences in actual avoidance. It is possible, as already noted, that controllability manipulation overshadowed these age differences. To test whether the manipulation was responsible for a null finding of age differences in avoidance, future studies should have a no-manipulation (control) condition. Finally, any laboratory study faces issues of generality. This risk is perhaps even greater with online studies that do not replicate the experience of being at the doctor's office or in a situation when people normally have a chance to learn about partner's infidelity. Although the present studies successfully tested several predictions from the information avoidance model, replicating them in settings with greater mundane realism may provide a stronger test of the model's predictions.

Conclusion

The Information Avoidance Model represents a new way of thinking about information avoidance. The model outlines the factors that people may likely confront when facing potentially unwanted information. In broad brushstrokes, the model suggests that people first weigh the potential costs and benefits associated with learning information, and based on this evaluation decide whether they would regret seeking or regret avoiding the information more.

The three studies presented here furnished support for some of the predictions from the Information Avoidance Model and raised several intriguing questions about other predictors of information avoidance. The studies suggested that perceived control, prior experience, and

anticipated regret influenced people's decisions to avoid the information. However, the role of perceived coping resources, clarity of information, and perceived gain from learning information remains unclear. Future studies can further examine information avoidance by replicating the findings of current studies, overcoming the weaknesses of these studies, and answering the questions posed by these studies.

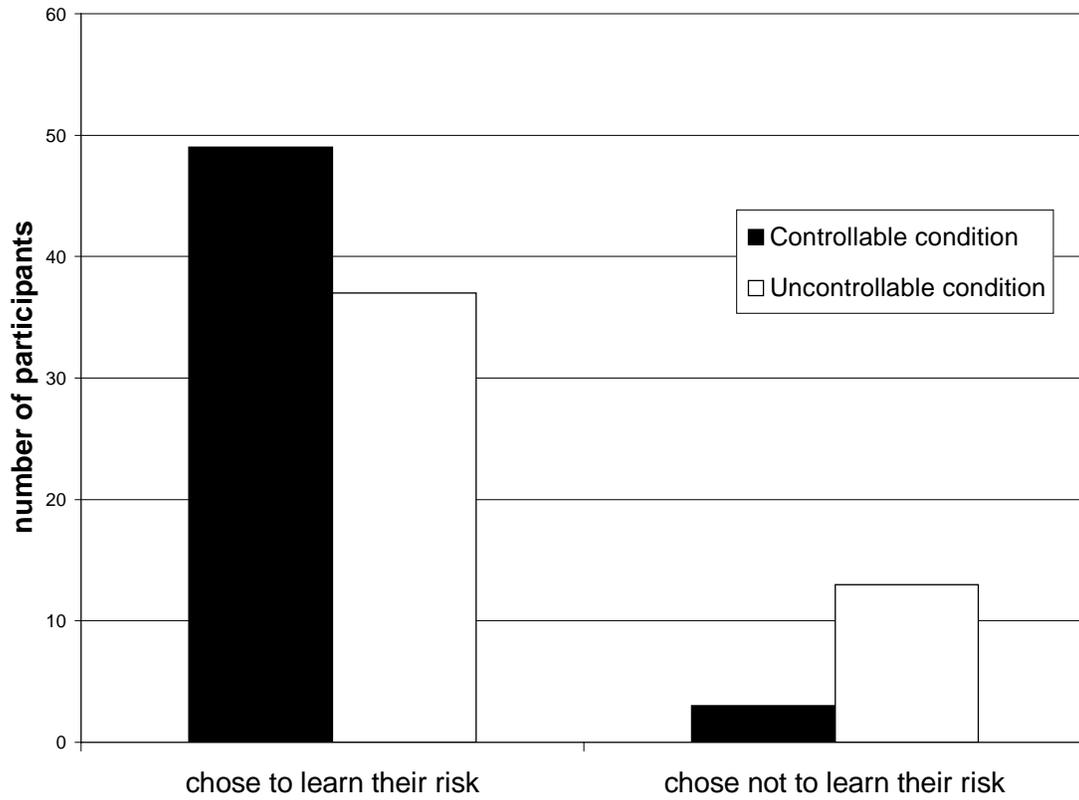


Figure 3-1. Differences in decision to seek vs. avoid own breast cancer risk between participants in the controllable and uncontrollable conditions, younger women sample.

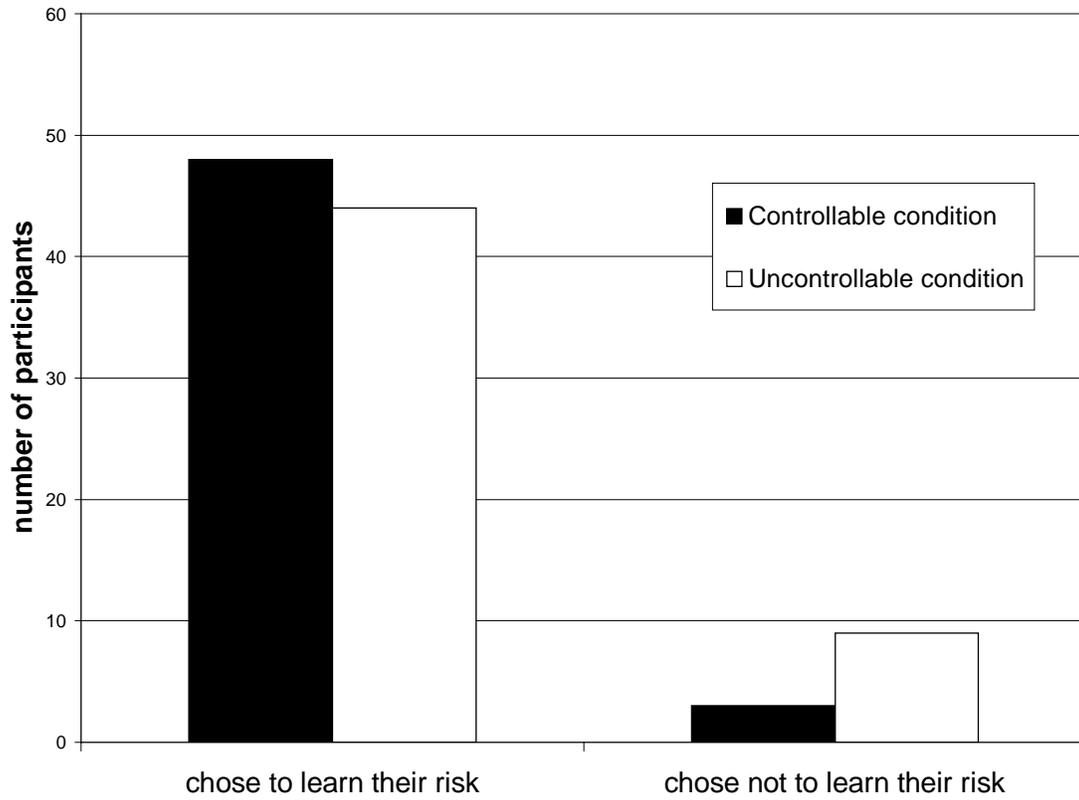


Figure 3-2. Differences in decision to seek vs. avoid own breast cancer risk between participants in the controllable and uncontrollable conditions, older women sample.

Table 3-1. Frequencies of engaging in health-related behaviors and experience with breast cancer

Item	Younger women		Older women		χ^2	<i>p</i>	ϕ
	Yes	No	Yes	No			
Do you drink alcohol?	62	40	63	41	< 1	ns	.01
Do you smoke?	5	97	4	100	< 1	ns	.03
Do you use birth control pills?	45	57	8	96	35.76	.001	.42
Do you exercise weekly?	60	42	75	29	4.03	.045	.14
Do you personally know someone who has had breast cancer?	63	39	91	13	18.07	.001	.30
Do you personally know someone who has died from breast cancer?	29	73	54	50	11.81	.001	.24

Note: Higher numbers indicate a greater number of women agreeing or disagreeing with an item

Table 3-2. Correlations between decision to avoid breast cancer risk and feelings and perceptions about breast cancer

Item	Group			
	Entire sample	Younger women	Older women	
There is not much people can do to lower their chances of getting breast cancer. (preventable)	<i>r</i>	-.13	.24	.04
	<i>p</i>	.067	.017	ns
I can control whether I get breast cancer. (controllable)	<i>r</i>	-.18	-.15	.22
	<i>p</i>	.009	ns	.02
Breast cancer is treatable. (treatable)	<i>r</i>	-.05	-.01	-.09
	<i>p</i>	.470	.911	.387
I would feel upset if I learned that I was at high risk for breast cancer.	<i>r</i>	.18	.29	.06
	<i>p</i>	.010	.003	ns
I would feel distressed if I learned that I was at high risk for breast cancer.	<i>r</i>	.18	.29	.05
	<i>p</i>	.008	.003	ns
Ancillary Correlations				
Imagine that you chose to learn your breast cancer risk. How much do you anticipate regretting that decision later?	<i>r</i>	.24	.23	.24
	<i>p</i>	.001	.019	.016
Imagine that you chose <i>not</i> to learn your breast cancer risk. How much do you anticipate regretting that decision later?	<i>r</i>	-.26	-.34	.20
	<i>p</i>	.001	.001	.04
How often do you worry about breast cancer?	<i>r</i>	-.01	-.11	-.09
	<i>p</i>	.877	.294	.366
For me breast cancer is a serious disease.	<i>r</i>	.04	.10	.03
	<i>p</i>	.617	.311	.707
I would cope poorly if I learned that I was at high risk for breast cancer.	<i>r</i>	.18	.18	.16
	<i>p</i>	.008	.068	.096
Coping Resource Index	<i>r</i>	-.17	-.16	-.17
	<i>p</i>	.016	.107	.085

Table 3-3. Comparing the feelings and perceptions about breast cancer of older & younger women

Item	Younger women <i>M (SD)</i>	Older women <i>M (SD)</i>	<i>t</i>	<i>p</i>	<i>d</i>
There is not much people can do to lower their chances of getting breast cancer. (preventable)	2.33 (.86)	1.92 (.75)	3.66	.001	.51
I can control whether I get breast cancer. (controllable)	2.78 (1.0)	2.86 (.99)	.51	ns	.07
Breast cancer is treatable. (treatable)	3.79 (.71)	4.81 (.77)	3.76	.001	.52
I would feel upset if I learned that I was at high risk for breast cancer.	3.75 (.93)	3.07 (1.1)	4.80	.001	.67
I would feel distressed if I learned that I was at high risk for breast cancer.	3.65 (.90)	2.94 (.96)	5.43	.001	.76
Ancillary Comparisons					
Imagine that you chose to learn your breast cancer risk. How much do you anticipate regretting that decision later?	1.72 (.88)	1.36 (.74)	3.18	.002	.44
Imagine that you chose not to learn your breast cancer risk. How much do you anticipate regretting that decision later?	3.60 (1.33)	3.45 (1.58)	.72	ns	.10
I would cope poorly if I learned that I was at high risk for breast cancer.	2.82 (1.00)	2.25 (.92)	4.24	.001	.59
Coping Resource Index	3.61 (.97)	3.83 (.59)	1.96	.050	.27

Note. Higher numbers indicate greater agreement with an item, greater regret, and greater coping resources.

Table 3-4. Comparing older and younger women's reasons to seek or avoid breast cancer risk

Category	Younger women	Older women
Reasons to seek information:		
Take action: focus on control/prevention/intervention, so that I can change behavior to reduce own risk and/or address risk factors	37	27
Take action: focus on treatment/survival, so that I can be vigilant, detect breast cancer early, start treatment, increase chances of survival	6	7
Interest/curiosity/just want to know	30	24
Do not feel at risk	0	7
Information might help/be useful/it helps to be informed	9	16
Other	3	10
Reasons to delay information:		
Avoid unpleasant emotion: do not want to worry/stress/experience fear right now	1	1
Not ready to see the information right now	2	1
Other	0	0
Reasons to avoid information:		
Avoid unpleasant emotion: do not want to worry/stress/experience fear right now	6	4
Do not want to know/better not to know/do not want to know now	3	2
Not ready to see the information right now	1	1
My risk is low/I am not at risk	2	1
Other	1	2

Note. The numbers indicate how many responses fell into each category.

Table 3-5. Information avoidance as a function of prior experience with a cheating partner

Item		Hypothetical choice					Actual choice				
		Avoid (n)	Seek (n)	χ^2	<i>p</i>	ϕ	Avoid (n)	Seek (n)	χ^2	<i>p</i>	ϕ
Did a previous partner cheat on you (mild form)?	Yes	30	45	.72	ns	.08	32	43	.74	ns	.08
	No	17	18				18	17			
Did a previous partner cheat on you (serious form)?	Yes	18	35	3.21	.070	.17	19	34	3.81	.050	.19
	No	29	28				31	26			
Did a current partner cheat on you (mild form)?	Yes	5	18	8.51	.005	.32	4	19	13.47	.001	.40
	No	35	26				38	23			
Did a current partner cheat on you (serious form)?	Yes	3	10	2.83	.090	.18	1	12	9.77	.002	.33
	No	38	41				43	36			

Note. Higher numbers indicate a greater number of participants agreeing or disagreeing with an item.

APPENDIX A
STUDY 1 AND 2 QUESTIONNAIRE

Listing Breast Cancer Risk Factors

We first want to assess your knowledge and understanding of breast cancer risk factors. Please list all the factors you can think of that increase a woman's risk for breast cancer. Please list only one risk factor for each line. We have 10 lines below but don't expect anyone to come up with 9 different risk factors. Just as many as you can think of.

1. Breast Cancer Risk Factor: _____
2. Breast Cancer Risk Factor: _____
3. Breast Cancer Risk Factor: _____
4. Breast Cancer Risk Factor: _____
5. Breast Cancer Risk Factor: _____
6. Breast Cancer Risk Factor: _____
7. Breast Cancer Risk Factor: _____
8. Breast Cancer Risk Factor: _____
9. Breast Cancer Risk Factor: _____
10. Breast Cancer Risk Factor: _____

Identifying Breast Cancer Risk Factors

Below are factors that might or might not increase a person's risk for *breast cancer*. Please circle YES if you think the item is a risk factor for *breast cancer*. Circle NO if you believe the item is not a risk factor.

A blow or hard hit to the breast area	No	Yes
Age of birth of first child	No	Yes
Age of first menstrual cycle	No	Yes
Breast feeding	No	Yes
Consuming caffeine	No	Yes
Having had benign breast biopsies	No	Yes
Having large breasts	No	Yes
Nipple piercing	No	Yes
Number of female family members (sister, daughter, mother) with breast cancer	No	Yes
Being overweight or obese	No	Yes
Physical inactivity (inactive lifestyle)	No	Yes
Using birth control pills	No	Yes
Wearing sports bras	No	Yes
Having breast implants	No	Yes

Women's Health Questionnaire

The following items ask you about your experiences in your life and the life of your family. Please answer to the best of your ability. Circle or write in your responses

1. Do you personally have a medical history of breast cancer or of ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS)?	NO	YES	
2. What is your age?	_____		
3. What was your age at the time of your first menstrual period?	7-11	12-13	Age 14 or older
			Don't know
4. How many of your first-degree relatives (mother, sisters) have had breast cancer?	0	1	More than 1
			Don't Know
5. Have you ever had a breast biopsy?	NO	YES	
6a. How many breast biopsies (positive or negative) have you had?	0	1	More than one
6b. Have you had at least one breast biopsy with atypical hyperplasia?	NO	YES	
6. What is your race? (circle all that apply)	White	Black	Hispanic
			Asian/Pacific Islander
	American Indian/ Alaskan Native		Other
			Unknown
7. Do you drink alcohol?	NO	YES	
8. If you answered YES, how much alcohol do you drink each month?	_____		
9. Do you smoke?	NO	YES	
10. If you answered YES, how much do you smoke each week?	_____		
11. Do you use birth control pills (BCPs)?	NO	YES	

12. If you answered YES to question 11, at what age did you start taking birth control pills?	_____	
	Age	
13. If you answered YES to question 11, how long have you been taking birth control pills?	_____	_____ yrs
	months	
14. What is your height?	_____ft	_____ inches
15. What is your weight?	_____ lbs	
16. Do you exercise weekly?	NO	YES
17. If you answered YES, how much do you exercise? (hours per week)	_____	
18. Over the last 6 months, how many times have you performed a breast self-exam?		
	0	1 2 3 4 More than 5
19. Have you had a medical checkup for detecting breast cancer performed at a doctor's office during the past two years?	NO	YES
20. Do you personally know someone who HAS HAD breast cancer?	NO	YES
21. Do you personally know someone who HAS DIED from breast cancer?	NO	YES
22. Estimate the likelihood (from 0% to 100%) that you will develop breast cancer in the NEXT 5 YEARS. Please estimate a single number, not a range.	_____%	
23. Estimate the likelihood (from 0% to 100%) that you will develop breast cancer in your LIFETIME. Please estimate a single number, not a range.	_____%	
24. Do you feel that you know your risk for breast cancer?	NO	YES
25. How confident are you that you know your breast cancer risk ?		
	1	2 3 4 5 6 7
	Not at all	Very

Gail Model Options

We are examining people's understanding of breast cancer risk factors and people's interest in learning their risk. As we noted earlier, according to the National Cancer Institute, **one in eight women** in the United States will develop breast cancer in her life. However, this is only an average. For some women, the risk is lower, and for other women the risk is much higher.

Based on the health questionnaire you completed earlier, we are able to compute your 5-year and lifetime risk of breast cancer. We are happy to share this information with you. However, we recognize that some women may not want to learn their risk right now, and other women do not want to learn their risk at all. We therefore are providing you with three choices. Please select **one** of these three options by checking one of the boxes below.

<input type="checkbox"/>	Option 1: If you are interested, we can enter your responses into the computer and determine your personal risk for breast cancer right away.
<input type="checkbox"/>	Option 2: Many women are understandably uncomfortable learning their breast cancer risk immediately. If you would like, we can send you personal feedback about your breast cancer risk via email (enter your email address below if you choose this option). My email is _____
<input type="checkbox"/>	Option 3: For a variety of reasons, some women do not wish to learn their breast cancer risk. If you do not wish to learn your breast cancer risk, select this option. We will not calculate it and you will not receive it.

We are interested in your thoughts regarding the decision to learn your personal risk of developing breast cancer. Please write down why you chose the option you chose and why you did not choose the other options.

Feelings Questionnaire

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I can control whether I get breast cancer.	1	2	3	4	5
I would cope poorly if I learned that I was at high risk for breast cancer.	1	2	3	4	5
I would feel upset if I learned that I was at high risk for breast cancer.	1	2	3	4	5
I would feel distressed if I learned that I was at high risk for breast cancer.	1	2	3	4	5
For me breast cancer is a serious disease.	1	2	3	4	5
Breast cancer is treatable.	1	2	3	4	5
Breast cancer is curable.	1	2	3	4	5
Some people are destined to get breast cancer.	1	2	3	4	5
There is not much people can do to lower their chances of getting breast cancer.	1	2	3	4	5
Imagine that you chose to learn your breast cancer risk. How much do you anticipate regretting that decision later? (This is a hypothetical question. To answer this question, imagine choosing to learn your personal risk in the previous part of the questionnaire, irrespectively of what option you actually chose.)	Not at all 1	2	3	4	Very 5
Imagine that you chose NOT to learn your breast cancer risk. How much do you anticipate regretting that decision later? (This is a hypothetical question. To answer this question, imagine choosing not to learn your personal risk in the previous part of the questionnaire, irrespectively of what option you actually chose.)	Not at all 1	2	3	4	Very 5
How likely do you think it is that you will develop cancer in the future? Would you say your chance of getting cancer is.	Very low	Somewhat low	Moderate	Some-what high	Very High
How often do you worry about cancer?	Never or Rarely	Sometimes	Often	All of the time	

The next set of questions asks you about your feelings concerning learning your breast cancer risk. Please answer them even if you chose NOT to receive your breast cancer risk.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I have someone to turn to should I learn that my risk for breast cancer is high.	1	2	3	4	5
I will be unable to cope well should I learn that my breast cancer risk is high.	1	2	3	4	5
I personally have what it takes to deal with the news should I learn that my breast cancer risk is high.	1	2	3	4	5
I have the resources I need to successfully handle the news should I learn that my breast cancer risk is high	1	2	3	4	5
I have the emotional help and support I need to deal with the news should I learn that my breast cancer risk is high.	1	2	3	4	5
I am confident that I can deal with the news should I learn that my breast cancer risk is high.	1	2	3	4	5
It will be easy for me to deal with the news should I learn that my breast cancer risk is high.	1	2	3	4	5
I can remain calm in the face of the news should I learn that my breast cancer risk is high.	1	2	3	4	5
I have few or no other problems in my life that could interfere with my ability to deal with the news should I learn that my breast cancer risk is high.	1	2	3	4	5
I expect other problems to come up in the near future that would make it difficult for me to deal with the news should I learn that my breast cancer risk is high..	1	2	3	4	5

Study 1-2 Control Manipulation

(controllable)

Below is some information about breast cancer. Please read the entire sheet carefully. We will be asking you some questions about what you read later on.

Exercise

A large scale study demonstrated that exercise such as swimming laps, aerobics and running are linked to lower risk of breast cancer. The study adds to a growing body of evidence that women can effectively lower their breast cancer risk. Researchers at the University of Southern California observed that exercise increases metabolism, improves immune functioning, and reduces body fat. These changes are linked to lower breast cancer risk. Women who reported that they engaged in strenuous activity for three or more hours a week had a 20 % lower risk of invasive breast cancer and a 31 % lower risk of early stage breast cancer, compared with women who did not exercise.

Healthy Diet.

A landmark study showed that keeping slim and avoiding unhealthy foods is one of the best ways to prevent breast cancer. Women can significantly decrease their risk of breast cancer by avoiding excessive amounts of red meat and wine, as well as fatty foods like bacon. The World Cancer Research Fund (WCRF) said the link between body fat and cancer is closer than generally realized, and that women can control their risk by controlling their diet.

Moderate Sun Exposure

Women who receive moderate sun exposure (about 15-20 minutes a day) can significantly reduce their risk of breast cancer, according to a study appearing in the American Journal of Epidemiology. Sunlight stimulates production of vitamin D and vitamin D prevents harmful cell mutation. The study followed 1788 women living the San Francisco Bay Area of California over eight years (1995-2003). Consistent yet moderate sun exposure was associated with a 47 % reduction in breast cancer risk. However, the key word here is “moderate”. Frequent exposure of 30 minutes or longer is not healthy and may increase risk of skin cancer.

Questions about breast cancer: T/F

1. Women can reduce their breast cancer risk if they engage in exercise three or more hours a week.
2. Exercise is a good way to control your risk for breast cancer.
3. Eating habits have nothing to do with breast cancer.
4. Women can control their risk of breast cancer by eating healthily and limiting their intake of red meat and wine.
5. Receiving about 15 minutes of sun exposure a day can help women reduce their risk of breast cancer.
6. Vitamin D helps your body fight harmful cell mutations.

(uncontrollable)

Below is some information about breast cancer. Please read the entire sheet carefully. We will be asking you some questions about what you read later on.

Risk Factors

Although many risk factors may increase a woman's chance of developing breast cancer, it is not yet known exactly how some of these risk factors cause cells to become cancerous. Hormones seem to play a role in many cases of breast cancer. However, the precise role of hormones is poorly understood. Moreover, while researchers have identified several breast cancer risk factors, some women with few or no risk factors nevertheless develop breast cancer. Thus, all women are at risk for breast cancer.

Changes in Genes

A significant portion of breast cancers are thought to be linked to changes (mutations) in certain genes. The BRCA1 and BRCA2 genes are most susceptible to mutation. Women with these gene changes have up to an 80% chance of getting breast cancer during their lifetimes. Other gene changes may raise breast cancer risk as well.

Heredity

Breast cancer risk is higher among women who have close blood relatives with breast cancer. The relatives can be from either the mother's or father's side of the family. Having a mother, sister, or daughter with breast cancer doubles a woman's risk. It's important to note, however, that 70% to 80% of women who develop breast cancer do not have a family history of this disease.

Age at First Menstruation

Women who began having periods early (before age 12) are at a greater risk for breast cancer than women who began having periods later.

The Role of Environment

Recent research has identified a variety of environmental factors that increase breast cancer risk. These environmental factors are largely out of personal control. They include environmental pollutants such as pesticides and PCBs. Many women are unknowingly exposed to these pollutants and consequently face increased risk of developing breast cancer.

Questions about breast cancer: T/F

1. Even women with few or no risk factors can develop breast cancer.
2. Mutation in BRCA1 and BRCA2 genes increases a woman's risk of breast cancer.
3. Women who began having periods before age 12 are at a lesser risk of developing breast cancer than women who began having periods after age 12.

4. If a woman has close blood relatives with breast cancer, her own risk of developing breast cancer increases.
5. Women cannot control environmental factors that may increase their risk of developing breast cancer.

The next questions ask about relationship infidelity (i.e., cheating). Cheating can take many forms. In its mild form it can involve a person in a relationship displaying, through words or behaviors, availability toward someone outside the relationship. For example, a person can engage in mild cheating by flirting with a person who is not his/her partner, dancing closely to the person who is not his/her partner, or pretending to be single when talking to a person who is not his/her partner. More serious forms of cheating occur when a person in a relationship romantically kisses someone outside the relationship, and/or engages in sexual activity (from heavy petting to sexual intercourse) with someone outside the relationship. The questions below ask about both the mild and serious forms of cheating.

9. How well would you be able to cope if your partner cheated on you (mild form)?

1	2	3	4	5	6	7
very						very
poorly						well

10. How well would you be able to cope if your partner cheated on you (serious form)?

1	2	3	4	5	6	7
very						very
poorly						well

11. I personally have what it takes to deal with the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly	Disagree	Neither	Agree	Strongly
Disagree		Agree Nor		Agree
		Disagree		

12. I have the resources to handle the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly	Disagree	Neither	Agree	Strongly
Disagree		Agree Nor		Agree
		Disagree		

13. I have the emotional help and support I need to cope should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly	Disagree	Neither	Agree	Strongly
Disagree		Agree Nor		Agree
		Disagree		

14. I am confident that I can deal with the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly	Disagree	Neither	Agree	Strongly
Disagree		Agree Nor		Agree
		Disagree		

15. It will be easy for me to deal with the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

16. I can remain calm in the face of the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

17. I have few or no other problems in my life (such as school-or work-related stress, or problems related to family and/or friends) that may interfere with my ability to deal with the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

18. I expect other problems to come up in the near future that can make it difficult for me to deal with learning the news should I learn that my partner has cheated on me.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

The questions below asks only about mild forms of cheating such as a person in a relationship displaying, through words or behaviors, availability toward someone outside the relationship. We will ask about serious cheating next.

19. Have you ever had a previous partner cheat (**mild** form) on you?

NO YES

20. Has you current partner ever cheated (**mild** form) on you?

NO YES NOT
SURE

21. Do you suspect that your current partner has or is cheating (**mild** form) on you?

NO YES NOT
SURE

How would you feel if you learned that your partner has cheated on you ONCE (**mild** form)?

1	2	3	4	5	6	7
I would be okay						I would be very upset

22. How would you feel if you learned that your partner repeatedly cheated (**mild** form) on you?

1	2	3	4	5	6	7
I would be okay						I would be very upset

The next questions ask about serious cheating such as a person in a relationship romantically kissing someone outside the relationship, and/or engaging in sexual activity (from heavy petting to sexual intercourse) with someone outside the relationship.

23. Have you ever had a previous partner cheat (**serious** form) on you?

NO YES

24. Has your current partner ever cheated (**serious** form) on you?

NO YES NOT
SURE

25. Do you suspect that your current partner has or is cheating (**serious** form) on you?

NO YES NOT
SURE

26. How would you feel if you learned that your partner has cheated on you ONCE (**serious** form)?

1	2	3	4	5	6	7
I would be okay						I would be very upset

27. How would you feel if you learned that your partner REPEATEDLY cheated (**serious** form) on you?

1	2	3	4	5	6	7
I would be okay						I would be very upset

28. Do you consider flirting with a person of an opposite sex who is not your partner a serious or a mild cheating?

1	2	3	4	5	6	7
I consider it Mild cheating						I consider it Serious cheating

29. Do you consider dancing closely with a person of an opposite sex who is not your partner a serious or a mild cheating?

1	2	3	4	5	6	7
I consider it Mild cheating						I consider it Serious cheating

30. Do you consider pretending to be single when talking to a person of an opposite sex who is not your partner a serious or a mild cheating?

1	2	3	4	5	6	7
I consider it Mild cheating						I consider it Serious cheating

31. Do you consider romantically kissing someone who is not your partner a serious or a mild cheating?

1	2	3	4	5	6	7
I consider it Mild cheating						I consider it Serious cheating

32. Do you consider engaging in sexual activity with someone who is not your partner a serious or a mild cheating?

1	2	3	4	5	6	7
I consider it Mild cheating						I consider it Serious cheating

<next screen>

You are almost done with the study. In this study, we are randomly administering different forms of questionnaires to different participants. For instance, while we asked you about your experiences with being a victim of cheating, your partner completed a different questionnaire. Your partner's questionnaire asked whether your partner has...

EVER CHEATED ON YOU (MILD/SERIOUS FORM)

The system indicates that your partner has...

FINISHED

The questionnaire at this point.

<next screen>

Imagine that you could see your partner's responses concerning whether or not s/he has cheated on you. Would you choose to do that?

Yes, I would choose to see my partner's responses

No, I would not choose to see my partner's responses

<next screen>

Because your partner has... COMPLETED the questionnaire, at this point you... HAVE a real opportunity to see his/her answers.

Please read this if you received a message that your partner has finished the questionnaire.

It is completely your choice whether you see your partner's responses or not. This option is completely anonymous and the experimenter will not be able to connect this choice with your name. In other words, the experimenter will not be able to identify which participants chose to see their partner's responses and which participants didn't.

<next screen>

You were transferred to this screen because the system indicates that your partner has completed the questionnaire and his/her responses are available. You can choose to see or not to see your partner responses by selecting one of the options below.

Please select one of the options below, then hit "NEXT" at the bottom of the page.

Yes, I would like to see my partner's responses to the questions about whether s/he has cheated on me (mild/serious form).

No, I do not want to see my partner's responses.

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BIOGRAPHICAL SKETCH

Darya Melnyk was born in 1983, in Kiev, Ukraine. She completed most of her high school education in Ukraine and moved to Gainesville, Florida, in 1999. She graduated from Gainesville High School in 2001. Darya earned her B.S. in psychology from the University of Florida in the Spring of 2005 and she earned her MS in psychology from the University of Florida in the Fall of 2007. Darya earned her Ph.D. in psychology from the University of Florida in the Spring of 2009.