BODY SHAME AND HEALTH INFORMATION SEEKING:
THE ROLES OF BODY RESPONSIVENESS AND PERCEIVED CONTROL OVER
HEALTH

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by
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ABSTRACT

Body shame predicts participation in poor health behaviors (e.g., smoking, restricted eating) because these behaviors may mitigate appearance concerns. The present research tests whether body shame can affect a wider range of health behaviors through additional mechanisms. In addition to appearance concerns, body shame may also diminish body responsiveness, or the valuing of internal bodily signals. Diminished body responsiveness may decrease the control one perceives having over one’s health, thereby impacting health behaviors that aren’t expected to improve appearance, like health information seeking. Pilot data revealed that trait body shame predicted increased acute health outcomes, and that diminished body responsiveness and decreased perceived control over health mediated this relationship. Study 1 tested this same model, but with health information seeking outcome variables. As expected, body shame predicted diminished body responsiveness. However, body shame was positively related to measures of health information seeking, and the proposed mediation was not significant. Because these effects may have been due to measurement issues with the hypothesized mediators, the model was retested in Study 2, but perceived control over health was manipulated. Trait body shame predicted diminished body responsiveness, which in turn predicted decreased health information seeking, but unexpectedly, this result occurred when perceived control over health was high, rather than low. This may suggest that, for participants with high trait body shame, the high perceived control over health condition was interpreted as self-blame for negative events that occur within the body, which stifled health information seeking, while the low perceived control over health condition let shame-prone participants off the hook for these negative health outcomes, which increased health information seeking. In sum, trait body shame predicted poor health behaviors not expected to mitigate appearance concerns, but not via the proposed mechanisms. Future directions include testing mediators between health information seeking and health outcomes, as well as interrupting the relationship between body shame and poor health behaviors and outcomes by increasing body responsiveness through mindfulness meditation.
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INTRODUCTION

Body shame, a self-conscious, internally-focused emotional response to the perception that one has fallen short of culturally-sanctioned body ideal, is a common experience for women in Western culture (Fredrickson & Roberts, 1997). Because part of this body ideal involves outward appearance, body shame predicts participation in detrimental health behaviors like smoking (e.g., Harrell, Fredrickson, Pomerleau, & Nolen-Hoeksema, 2006) and restricted eating (e.g., Augustus-Horvath & Tylka, 2009), because these behaviors serve to mitigate appearance concerns (Calogero, 2009; Fiissel & Lafreniere, 2006). However, is body shame’s contribution to poor health behaviors limited to those behaviors which alleviate concerns about appearance? Or, could body shame elicit detrimental health behaviors, even if they are not expected to improve appearance, like avoiding seeking information about health? The purpose of the current research was to test whether body shame results in detrimental health behaviors that are not expected to mitigate appearance concerns. Specifically, I examined whether trait body shame reduces the degree to which individuals seek information about health.

Why might body shame lead to harmful health behaviors that do not alleviate appearance concerns? Many aspects of the body that violate Western body ideals are corporeal, physical aspects, like internal bodily processes (Roberts & Goldenberg, 2007). Therefore, although these physical processes can provide helpful information about the body’s physical state, they may be viewed negatively (Fredrickson & Roberts, 1997) and therefore devalued. In other words, body shame may diminish *body responsiveness*, or the value placed on information that may be gleaned from internal bodily processes. Diminished body responsiveness results in individuals’ devaluing cues from their body (Daubenmier, 2005) and thus may lead individuals to perceive having less control over events occurring within their bodies, such as their health. In turn, decreased perceived control over health predicts detrimental health behaviors, including decreased health information seeking (e.g., Koo, Krass, & Aslani, 2006). Thus, I argue that body shame may elicit participation in harmful health
behaviors, such as the failure to seek health information, through the mechanisms of diminished body responsiveness and perceived control over health. The proposed research model is depicted in Figure 1. I will describe each step within the model in the next several sections of this dissertation, but prior to doing so, I will discuss briefly why I elected to focus on health information seeking behaviors.

I focused on health information seeking in this project for a number of reasons. First, health information seeking is a relatively low-cost, accessible behavior in which individuals can participate in order to educate themselves about their health and engaging in preventive health behaviors. If body shame reduces even the simple seeking of health information, then body shame may have consequences for health-related behavior that go beyond appearance concerns. Second, health information seeking is an in-the-moment behavior that can be measured easily in the lab. Finally, information can be sought about virtually any topic, health-related or otherwise. This versatility allowed me to readily develop materials that disentangled failure to engage in health-promoting behaviors due to appearance versus non-appearance related concerns. That is, I could measure (a) health information seeking that is unrelated to appearance concerns and (b) appearance-related and neutral information seeking, for comparison.

**Figure 1.** General mediational model for the current research, in which body shame leads to diminished health information seeking through the mechanisms of body responsiveness and perceived control over health.
Body Shame and Its Relationship to Health

Body shame is a negative self-conscious emotion that derives from the perception that one’s body falls short of a culturally-sanctioned body ideal, and that the elements of one’s body that do not meet this ideal represent incontrovertible flaws of the core self (Fredrickson & Roberts, 1997). Body shame is reliably evoked by self-objectification, or the internalization of the idea that women’s bodies are sexual objects to be evaluated on the basis of their appearance from an external viewer’s perspective (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998). Research suggests that self-objectification and the resultant emotional experience of body shame are both routine occurrences for many groups of women in Western culture, regardless of ethnic group (Buchanan, Fischer, Tokar, & Yoder, 2008; Frederick, Forbes, Grigorian, & Jarcho, 2007; Grabe & Hyde, 2006; Hebl, King, & Lin, 2004), sexual orientation (Haines et al., 2008; Kozee & Tylka, 2006; Hill & Fischer, 2008), age (Augustus-Horvath & Tylka, 2009; Grippo & Hill, 2008; Tiggeman & Lynch, 2001), feminist identity (Grippo & Hill, 2008; Hurt et al., 2007; Myers & Crowther, 2007), and socioeconomic status (Johnston-Robledo & Fred, 2008).

Because they are also subject to Western culture’s body ideals, body shame is an issue for men as well (Sanchez & Kiefer, 2007; Tiggemann & Kuring, 2004; Lowery et al., 2005). However, while men, particularly gay men (Martins, Tiggemann, & Kirkbride, 2007), may experience body shame, women may be more likely to routinely encounter situations which provoke the internalized body ideal and lead to body shame. This is because women’s bodies are scrutinized based their appearance more so than are men’s (Fredrickson & Roberts, 1997). Moreover, women’s bodies are more likely to be reduced to sexual objects than are men’s, both in interpersonal situations (Philippe, Gervais, Allen, Campomizzi, & Klein, 2012; Swim, Hyers, Cohen, & Ferguson, 2001) and in the mass media (Grauerholz & King, 1997; Lin, 1998; Milburn, Carney, & Ramirez, 2001; Ward, 2003). Because these situations may make self-objectification and body shame more likely for women than for men, this dissertation will focus on women.
Body shame is linked to a variety of harmful consequences for women. For example, trait body shame predicts poor psychological health outcomes such as eating disorders (Moradi, Dirks, & Matteson, 2005; Noll & Fredrickson, 1998), major depressive disorder (Grabe, Hyde, & Lindberg, 2007; Tiggemann & Kuring, 2004), and sexual dysfunction (Sanchez & Kiefer, 2007; Steer & Tiggemann, 2008). Body shame may impact psychological functioning in these ways because the routine elicitation of body shame leads to perceptions of psychological helplessness (e.g., Grabe et al., 2007; Tiggemann & Kuring, 2004), a factor in the development of these psychological disorders (Abramson, Seligman, & Teasdale, 1978; Koenig & Wasserman, 1995; McGuire & Wagner, 1978).

In addition to influencing psychological health outcomes, body shame may also affect physical health outcomes. Trait body shame and its precursor, self-objectification, predict engagement in harmful health behaviors as a means of mitigating appearance concerns. For instance, disordered eating is predicted by trait body shame (Augustus-Horvath & Tylka, 2009) and self-objectification (Daubenmier, 2005), and body shame mediates the link between self-objectification and appearance-related eating disorder symptoms, such as drive for thinness and fear of weight gain (Calogero, 2009). Moreover, body shame and self-objectification predict increased smoking behavior (Harrell et al., 2006), especially if an individual engages in that smoking behavior due to appearance concerns (Fiissel & Lafreniere, 2006).

These previous findings suggest that body shame represents such a state of dissatisfaction with one’s appearance that one will sacrifice physical well-being in order to allay that discontent. But what about health behaviors that do not mitigate these appearance concerns? Indeed, some detrimental health behaviors, such as avoiding doctor visits or failing to seek health information, may not be expected to alleviate concerns about appearance in any substantial way. Does body shame only lead to detrimental health behaviors that are expected to mitigate appearance concerns? Or, might body shame lead individuals to choose to participate in detrimental health behaviors even if these behaviors do not assuage concerns about appearance?
I argue that the answer is yes: body shame may promote engagement in detrimental health behaviors, even if those behaviors do not mitigate appearance concerns. I’ll discuss the specific path by which I argue that it does so in a moment, but for now, I propose that:

**H₁**: Trait body shame will be negatively associated with health information seeking (path 1 in Figure 1).

Moreover, I propose that the mechanism by which body shame may lead to decreased health information seeking is that body shame leads to diminished body responsiveness, which in turn leads to decreased perceived control over health, which ultimately leads to decreased health information seeking. In the next three sections, I will explain this process, beginning with the link between body shame and body responsiveness.

**Body Shame and Body Responsiveness**

Although body shame does involve the perception that the body does not meet an appearance ideal, thereby evoking appearance concerns (Calogero, 2009; Fiissel & Lafreniere, 2006; Sanchez & Keifer, 2007), there is more to our Western body ideals than outward appearance. Indeed, Western body ideal also involves proscriptions against the involuntarily, natural functions that the physical body produces. Despite the fact that these functions can be helpful in informing the individual about hunger, thirst, and illness, many of these physical functions (e.g., sweating, menstruating) are perceived as unclean or “creaturely,” thereby violating Western body ideals (Roberts & Goldenberg, 2007). As such, in addition to appearance concerns, body shame may motivate many negative attitudes toward the corporeal aspects of the body (Roberts & Waters, 2004), including the idea that information gleaned from the physical body is not valuable. Daubenmier (2005) defined the concept of *body responsiveness* as the interpretation of information obtained from the physical body as valuable and useful. In other words, body responsiveness requires individuals to “value [the] body’s feedback and train in ‘listening’ to the sensations of their bodies for guidance” (p. 208).
To be clear, body responsiveness is distinct from other constructs that involve cognizance of internal bodily processes, like body awareness. Body awareness is defined as “attentiveness to normal nonemotive bodily processes” (p. 802) that occurs at the trait level (Shields, Mallory, & Simon, 1989). Indeed, both body awareness and body responsiveness may be important constructs with regard to body shame, as both have been shown to be correlated negatively with self-objectification (Daubenmier, 2005). And, body responsiveness does involve a certain level of awareness of what is occurring within the body. However, in terms of acting as an intervening variable between body shame and health behaviors, body responsiveness specifically might be a more promising construct. For instance, Daubenmier (2005) found that body responsiveness mediated the relationship between self-objectification and self-reported disordered eating attitudes and behaviors in two studies, but that body awareness did not mediate this relationship in either of these studies. It other words, it appeared to be the valuing of information from the body, rather than just the awareness of processes within it, that linked body-shame-related variables to health behaviors. Therefore, I am focusing on body responsiveness for this dissertation.

Because body shame is reliably evoked by self-objectification, body shame, like self-objectification, would likely also be negatively correlated with body responsiveness. Indeed, because body shame cultivates negative attitudes about the physical function of the body, thereby lessening the perceived value of that bodily functioning, body shame may be expected to be associated with diminished body responsiveness. Specifically, I predict that

\[ H_2: \text{Trait body shame will be negatively associated with body responsiveness (path 2 in Figure 1).} \]

**Body Responsiveness and Perceived Control Over Health**

If an individual does not view her bodily functioning as a source of valuable information, she may feel that she has little control over events that occur within her body. Because physical health occurs within the physical body, diminished body responsiveness may lead an individual to feel out
of control of her health. While body responsiveness itself has not been examined with regard to perceived control over health, mindfulness meditation, which increases the value of bodily feedback, has been shown to increase body responsiveness (Daubenmier et al., 2011). Further, mindfulness meditation interventions have also been shown to increase perceptions of control over health.

For example, Tacón, Caldera, and Ronaghan (2004) examined the effects of a mindfulness meditation intervention on health locus of control, a construct similar to perceived control over health, in breast cancer patients. This intervention involved meditation, yoga, and a body scanning technique. External health locus of control scores decreased from pretest to posttest in participants who underwent the mindfulness intervention. Similarly, Rybarczyk, DeMarco, DeLaCruz, and Lapidos (1999) found that mindfulness meditation reduced the perception that health outcomes were due to chance in participants undergoing mindfulness meditation training compared to control. Finally, Astin (1997) found mindfulness meditation to increase perceived control in a variety of domains, including perceived control over health behaviors such as alcohol and drug use.

This research suggests that valuing the information one can glean from the physical functioning of the body, and thus body responsiveness, may result in increased perceptions of control over health. Assuming a linear relationship between body responsiveness and perceptions of control over health, then diminished body responsiveness, may result in decreased perceptions of control over the body. Therefore, for the proposed research, I hypothesize that

**H3**: Body responsiveness will be positively associated with perceived control over health (path 3 in Figure 1). In other words, diminished body responsiveness will be associated with reduced perceived control over health.

**Perceived Control Over Health and Information Seeking**

If an individual experiencing body shame does not value signals from her body and thereby perceives having less control over her health, this lack of control may affect whether she seeks out information about health. Indeed, health locus of control has been shown to predict health
information seeking. For example, individuals with high trait internal locus of control have been shown to seek out or intend to seek out more health information when compared to individuals with high external health locus of control (Grotz, Hapke, Lampert, & Baumeister, 2001; Koo et al., 2006; Wallston, Wallston, Kaplan, & Maides, 1976).

Moreover, experimental work manipulating perceived control demonstrates that an individual’s perception of whether she or he has control over a particular outcome predicts whether she or he will seek or avoid seeking information about that particular outcome. Specifically, individuals may avoid seeking information if they perceive that they have little control over the outcomes associated with that information (Sweeny, Melnyk, Miller, & Shepperd 2010). For example, Shiloh, Ben-Sinai, and Keinan (1999) presented participants with information about the controllability of a genetic disorder and measured whether they would be willing to seek a genetic test for the disorder. Participants in the low control condition were less likely to report a desire to seek the genetic test than participants in the high control condition. Trope, Gervey, and Bolger (2003) examined whether controllability impacted participants’ choice to seek information about their personalities that had been gathered during a prior research session. Participants in the low control condition (i.e., who had been told that personality characteristics are uncontrollable) were less likely to seek information about themselves than participants in the high control condition (i.e., who had been told that personality characteristics are controllable). Finally, Frey and Rosch (1984) tested whether controllability of reversing a decision that one had recently made affected willingness to seek negative feedback on the decision. Participants in the irreversible decision (i.e., low control) condition preferred to avoid seeking negative feedback about their decision than did participants in the reversible decision (i.e., high control) condition. Given these prior findings, I hypothesize that

\[ H_4 \]: Perceived control over health will be positively associated with health information seeking (path 4 in Figure 1). In other words, if perceived control over health is low, then health information seeking will also be low.
The Current Research

In sum, body shame may lead to diminished body responsiveness, which in turn may decrease perceptions of control over health. Further, due to this decreased sense of control over health, body shame may lead individuals to participate in detrimental health behaviors such as failing to seek health information, even if these health behaviors are not associated with appearance. Keeping these ideas in mind, I conducted a pilot study and two additional studies designed to test the following hypotheses:

- **H1**: Trait body shame will be negatively associated with health information seeking.
- **H2**: Trait body shame will be negatively associated with body responsiveness.
- **H3**: Body responsiveness will be positively associated with perceived control over health. In other words, diminished body responsiveness will be associated with reduced perceived control over health.
- **H4**: Perceived control over health will be positively associated with health information seeking. In other words, if perceived control over health is low, then health information seeking will also be low.

The Pilot Study provides preliminary evidence for body responsiveness and perceived control over health as mediators in the relationship between trait body shame and health outcomes. In Study 1, I examined whether trait body shame predicted decreases in non-appearance-related health behavior through the same mechanisms, using health information seeking as the outcome variable. In Study 2, I manipulated perceptions of control over health in order to examine a possible intervention in the relationship between body shame and health behavior. Specifically, if perceived control over health is the mechanism by which diminished body responsiveness leads to decreased information seeking, as suggested by the proposed model, then increasing perceptions of control over health would be expected to increase health information seeking.
In addition to the links described above, I also examined paths \(a\) and \(b\) in Figure 1. Path \(a\) represents the hypothesis that body shame would lead to decreased perceived control over health. This link is plausible given that body shame has been shown to lead to helplessness (Grabe et al., 2007), which is defined by diminished perceptions of control over outcomes (Hatfield et al., 2002; Maier & Seligman, 1976). I also tested path \(b\), or the hypothesis that body responsiveness would be related to health information seeking. Body responsiveness predicts participation in health behaviors such as regular yoga practice (Daubenmier, 2005), and therefore may be expected to be linked to other positive health behaviors, such as health information seeking. In short, the key part of this proposal is to test links 1 to 4 in the proposed model (see Figure 1). However, paths \(a\) and \(b\) are also plausible and may co-occur with the other links, and will therefore be examined as well.

**Alternative Hypotheses**

**Depression.** Some alternative explanations for the hypothesized results of the proposed studies come to mind. First, depressed mood could explain the expected effects of body shame on the proposed mediators and outcome variable. Major depressive disorder is positively related to body shame (Grabe et al., 2007; Tiggemann & Kuring, 2004) and may predict similar outcomes regarding body responsiveness, perceived control over health, and health information seeking.

Research on whether depression can predict information seeking has yielded mixed results. Some research suggests that depression predicts decreased information seeking (Flett, Vredenburg, Pliner, & Krames, 1987; Galler, Harrison, Biggs, Ramsey, & Forde, 1999), perhaps due to deficits in effortful information processing (Hartlage, Alloy, Vázquez, & Dykman, 1993). Nonetheless, moderately depressed individuals have been shown to seek more information and process that information more effectively than nondepressed individuals as a means of ameliorating uncertainty (Hildebrand-Saints & Weary, 1989; Walker & Sorrentino, 2000). Therefore, whether depression leads to increased or decreased information seeking may depend on the processes that are activated.
Keeping these mixed results in mind, it is possible that depression might lead to decreased information seeking through the mechanisms of body responsiveness and perceived control over health. Indeed, while body responsiveness has not been examined in relation to depression, correlates of diminished body responsiveness, such as self-objectification (Daubenmier, 2005) have (e.g., Grabe et al., 2007; Meuhlenkamp & Saris-Baglama, 2003). Therefore, depression may lead to diminished body responsiveness, which in turn could lead to diminished perceived control over health. Indeed, depression itself has been negatively related to perceived control over health (Christensen, Turner, & Smith, Holman, & Gregory, 1991). Consequently, the expected results regarding body responsiveness and perceived control over health could result from depressed mood rather than body shame. To rule out depression’s potential explanatory power in this model, I included a measure of depression in Studies 1 and 2.

**Cognitive Resources.** Another alternative explanation of the hypothesized results is that body shame decreases health information seeking because body shame leads decreased attention in general. Indeed, a hallmark of the body shame experience is that it depletes cognitive resources (Fredrickson & Roberts, 1997). Fredrickson et al. (1998) and Hebl et al. (2004) demonstrated that participants experiencing body shame scored lower on a math test compared to control, suggesting that body shame exhausts cognitive resources. Moreover, Quinn, Kallen, Twenge, and Fredrickson (2006) manipulated self-objectification, an antecedent of body shame, in female participants and measured their performance on a Stroop task containing color names, body-related words (e.g., body, stomach), and neutral words. Compared to control, participants in the self-objectification condition had longer response latencies for all categories of words, not just body-related words. This research suggests that body shame causes attentional deficits exist across the board.

However, cognitive resources may not be sapped entirely when body shame is evoked, as body shame predicts heightened appearance monitoring (Calogero, Pina, Park, & Rahemtulla, 2010; Chen & Russo, 2010; Buchanan et al., 2008). Rather than these resources being depleted, attention
may simply be focused elsewhere besides on the physical functioning of the body. To address this concern, I measured appearance-related information seeking in Studies 1 and 2. If body shame depletes cognitive resources in general, then it should reduce the capacity to seek out any information, including appearance-related information. However, if body shame results in avoiding health information specifically rather than the depletion of cognitive resources, as predicted, then it should reduce health but not appearance-related information seeking. Thus, by including both health and appearance-related information seeking, I can demonstrate that body shame leads to decreases in health information seeking specifically that cannot be attributed to depleted cognitive resources.

On the other hand, measuring appearance-related information seeking presents an additional issue. Individuals experiencing body shame tend to be interested in improving their appearance (Calogero, 2009). If body shame leads to more appearance-related than health-related information in the proposed studies, it could simply be that body shame creates a preference for appearance-related information over other types of information. In that case, health information may be ignored not because body shame causes diminished body responsiveness and lower perceived control, but because that information is not appearance-related. I want to show that body shame leads individuals to avoid health information specifically, as a function of diminished body responsiveness and perceived control over health. Therefore, I also included a neutral information seeking measure in Studies 1 and 2, comprised of topics unrelated to appearance or health, and that body shame was not expected to predict (e.g., traveling abroad). If body shame leads individuals to seek appearance-related information and ignore other types of information, then it should reduce health and neutral information seeking. However, if body shame results in avoiding health information specifically rather than just ignoring information that is not appearance-related, as I predicted, then it should reduce health but not neutral information seeking. Thus, I expect body shame to be uncorrelated with neutral information seeking while still predicting decreases in health information seeking.
Overview of Studies

Below, I discuss the Pilot Study, Study 1, and Study 2, all of which test the model I have proposed in different ways. The Pilot Study was an initial examination of the links among the trait body shame, body responsiveness, perceived control over health, and health-related outcomes. While this study did not include health information seeking, the results provide evidence for the structure of the model proposed herein regarding the roles that body shame, body responsiveness, and perceived control over health may play in health-related outcomes.

Study 1 was intended to build upon the findings of the Pilot Study by replicating its results and to extend the pilot findings to examine the predictive power of trait body shame, body responsiveness, and perceived control over health on health information seeking. Study 2 was designed to test a component of the proposed model by manipulating perceived control over health. If body shame leads to decreased information seeking by diminishing body responsiveness and in turn decreasing perceived control over health, then can experimentally increasing perceived control over health interrupt the effects of trait body shame on health information seeking?

Pilot Study

Pilot work provides some initial evidence for the proposed model. This study tested whether body shame predicted acute health outcomes, and whether this relationship was mediated by body responsiveness and perceived control over health. I hypothesized that trait body shame would predict diminished body responsiveness, which in turn would predict decreased perceived control over health, which would ultimately predict increased reports of acute health outcomes. While this study did not address health information seeking, it (a) establishes links within the proposed model and (b) demonstrates that trait body shame predicts health-related outcomes in general by way of the proposed mechanisms.
Method

Participants

Participants were 177 female undergraduate students enrolled in an introductory psychology course at Penn State ($M_{age} = 19.31, SD_{age} = 2.31$). In terms of ethnicity, 85.9% identified as Caucasian, 5.1% as Asian, 4.0% as African-American, 4.5% as Latina, and .5% did not report ethnicity. Participants received course credit in exchange for their participation.

Materials & Procedure

After providing informed consent, participants completed the following surveys online.

**Trait body shame.** Trait body shame was assessed using the body shame subscale of the Objectified Body Consciousness Scale (OBC-BS; McKinley & Hyde, 1996; see Appendix A). Eight items measured shameful feelings about the body (e.g., “I feel ashamed of myself when I haven’t made the effort to look my best”) and negative global assessments of the self (e.g. “Even when I can’t control my weight, I feel like an okay person (r”)”). Participants rated each item on a one (“never or almost never”) to seven (“always or almost always”) scale\(^1\) with higher scores indicating higher trait body shame. Cronbach’s alpha for this scale was .89.

**Body Responsiveness.** Body responsiveness was measured using Daubenmier’s Body Responsiveness Scale (2005; see Appendix B). Participants rated seven items (e.g., “I am confident that my body will let me know what is good for me,” “I suppress my bodily sensations (r)”) on a one (“not at all true about me”) to seven (“very true about me”) scale with higher scores indicating higher body responsiveness. Cronbach’s alpha for this scale was .76.

**Perceived control over health.** Perceived control over health was measured using 5 items from the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000; see Appendix A).

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\(^1\) The original OBC-Shame scale is a 5-point scale; however, for this study, OBC-Shame items were added to other body shame items that I was developing for another project. All items were rated on a 7-point scale in order to detect a finer degree of variability.
These items were selected based upon a factor analysis of this scale using the current data. Participants rated items such as “I am in control of my health” and “My health is a matter of unexpected ups and downs (r)” on a one (“strongly disagree”) to seven (“strongly agree”) scale, with higher scores indicating more perceived control over health. Cronbach’s alpha for this scale was .79.

Health outcomes. Health outcomes were operationalized as the number of acute conditions participants reported having experienced since their teenage years. Participants were presented with a number of acute medical conditions (e.g., strep throat, urinary tract infection), and were asked to indicate how many times they had experienced each of these conditions since they were a teenager, if at all. The number of times a participant experienced each of these acute conditions were these summed to generate a total acute conditions score for each participant. Higher scores on this measure indicated more acute health outcomes since teenage years.

Results

Correlations. Correlations (see Table 1) revealed a positive relationship between trait body shame and acute health outcomes. Body responsiveness was negatively related to body shame, and positively related to perceived control over health, and unrelated to acute health outcomes. Perceived control over health was negatively related to acute health outcomes.

Table 1. Scale information and correlation coefficients for variables in the Pilot Study.

<table>
<thead>
<tr>
<th>Scale information</th>
<th>bivariate correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M(SD)</td>
</tr>
<tr>
<td>1 Trait Body Shame</td>
<td>3.24 (.35)</td>
</tr>
<tr>
<td>2 Body Responsiveness</td>
<td>4.82 (.95)</td>
</tr>
<tr>
<td>3 Perceived Control over Health</td>
<td>5.21 (.16)</td>
</tr>
<tr>
<td>4 Acute Conditions</td>
<td>4.62 (4.06)</td>
</tr>
</tbody>
</table>

All scales besides Acute Conditions measured on 7pt scales, higher numbers indicating higher levels of the measured construct.

*** p < .001, ** p < .01

2 This same five-item factor also held in both waves of a longitudinal study examining these same variables over time.
**Mediation.** As recommended by Aiken and West (1991), all variables were centered. The PROCESS macro (Hayes, n.d.) was used to test the predicted mediation using 5000 bootstrap resamples to calculate 95% bias-corrected confidence intervals for the indirect effects. Trait body shame was the predictor, body responsiveness was the first mediator, perceived control over health was the second mediator, and acute health outcomes was the dependent variable. The indirect effect in this model, \( .108 \) (\( SE = .049 \)), 95% CI [.040, .243], was significant. To wit, trait body shame predicted diminished body responsiveness (\( b = -.27; p < .001 \)), diminished body responsiveness predicted decreases in perceived control over health (\( b = .35, p < .001 \)), and decreased perceived control over health ultimately predicted increases in acute health outcomes (\( b = -1.12, p < .001 \)). The total effect of trait body shame on health outcomes was significant (\( b = .68, p < .05 \)), and after the mediators were taken into account, the direct effect of trait body shame on health outcomes was also significant (\( b = .50, p < .05 \)). The results of the mediation analysis appear in Figure 2.

The same analyses yielded information on additional paths in the model. Specifically, while body responsiveness alone did not mediate the relationship between trait body shame and acute health outcomes, \( -.149 \) (\( SE = .049 \)), 95% CI [-.387, .036], perceived control over health did, \( .221 \) (\( SE = .106 \)), 95% CI [.050, .473].

![Figure 2](image_url)

**Figure 2.** Mediation analysis for the Pilot Study. Body responsiveness and perceived control over health mediated the relationship between trait body shame and acute health outcomes.

***p < .001, **p < .01, *p < .05
Discussion

The Pilot Study provides evidence for the links described in the proposed model. Specifically, trait body shame predicted increases in acute health outcomes through the mechanisms of diminished body responsiveness and decreased perceived control over health. Because poor health behaviors and poor health outcomes are often related, it may be reasonable to expect that trait body shame could also predict detrimental health behaviors through these same mechanisms. Importantly for this dissertation, if this is the case, then it would demonstrate that body shame may lead to poor health behaviors through mechanisms other than the mitigation of appearance concerns. This would suggest that body shame can contribute to a wider variety of negative health behaviors than have heretofore been shown (e.g., Augustus-Horvath & Tylka, 2009; Calogero, 2009; Fiissel & Lafreniere, 2006; Harrell et al., 2006). Therefore, the next step was to conduct a study that replicated and extended this work by examining the links between body shame, body responsiveness, perceived control over health, and health information seeking.

Study 1

The purpose of Study 1 was (a) to replicate the pattern of relationships found in the Pilot Study and (b) to test whether the same pattern exists when health information seeking is examined as an outcome variable. Because this study was an initial examination of the relationships of the variables of interest to health information seeking, I focused on establishing relationships among them at the trait level, rather than experimental tests of the proposed links within the model.

Study 1 also addressed potential alternative explanations for the hypothesized results. In order to test whether body shame decreases information seeking about health specifically, and not (a) information seeking in general as a result of depleted cognitive capacity and/or (b) information seeking about topics that are not appearance-related, I hypothesized that trait body shame would be positively correlated with appearance-related information seeking, and uncorrelated with neutral
information seeking. Finally, Study 1 controlled for depression to examine whether the effects of
body shame on the variables of interest occurred independent of the possible effects of depression.

Method

Participants

Participants were 177 female undergraduate students enrolled in an introductory psychology
course at Penn State ($M_{age} = 18.58$, $SD_{age} = .93$) receiving course credit in exchange for their
participation. In terms of ethnicity, 78.4% identified as Caucasian, 8.5% as Asian, 5.0% as African-
American, 3.5% as Latina, 2.0% as from mixed ethnicity, and 2.6% did not report ethnicity.

Materials

Trait body shame. Trait body shame was assessed with the same scale used to measure this
construct in the Pilot Study, except that the scale was changed to a 5pt. scale with the same anchors,
to reflect the published scale. Cronbach’s alpha for this scale was .87.

Body Responsiveness. Body responsiveness was assessed with the same scale used to
measure this construct in the Pilot Study. Cronbach’s alpha for this scale was .56. It is important to
note that this alpha is noticeably lower than in the Pilot Study ($\alpha = .76$) and in previous work ($\alpha =
.83$, $\alpha = .70$, Daubenmier, 2005; $\alpha = .77$, Impett, Daubenmier, & Hirschman, 2006).

Perceived control over health. Perceived control over health was measured using the
Multidimensional Health Locus of Control Scale (MHLOC; Wallston, Wallston, & DeVellis, 1978;
see Appendix D). Participants rated items such as “If I take the right actions, I can stay healthy,”
representing an internal health locus of control, and “No matter what I do, I’m likely to get sick,”
representing an external health locus of control, on a one (“strongly disagree”) to six (“strongly
agree”) scale. External locus of control items were reverse scored, and the mean of all items was
taken to produce a composite PCOH score. Because internal locus of control places control over
health under the power of the individual, and external locus of control places it elsewhere (e.g., with
chance or fate), higher scores on this scale indicated more perceived control over health. This scale
replaced the measure of perceived control over health from the Pilot Study, in order to use a measure of this construct commonly used in the published literature. Cronbach’s alpha for this scale was .77.

**Depression.** Depression was measured using Center for Epidemiological Studies Depression Scale (CESD-R; Eaton, Smith, Ybarra, Muntaner, & Tien, 2004, see Appendix E). Participants rated 19 items such as “I felt sad” and “I enjoyed life (r)” on a 5-point scale indicating how many times in the past two weeks the participant felt this way. Higher scores represent a higher level of depression. Cronbach’s alpha for this scale was .91.

**Information seeking.** Information seeking about health, appearance, and neutral topics was assessed by a computer program developed using the Qualtrics Research Suite, Version 39363, (Qualtrics, Provo, UT). Participants viewed seven online articles that describe health-related (three articles), appearance-related (two articles), and neutral (two articles) topics. Each article contained a title, an overview of the article’s content, and titles of five subheadings containing further reading. Clicking on the title of a subheading led participants to a short paragraph containing information about that subheading. Participants could select as many of the subheadings as they liked, up to five per article, and could elect to abandon the article in favor of proceeding to another article.

These materials appear in Appendix F. I developed them for Studies 1 and 2, selecting health-related, appearance-related, and neutral topics that I expected to appeal to college women. The general overview and information under the subheading for each article is four lines long and contains equivalent amounts of information. Pilot testing of this method of information seeking was conducted on a sample of 22 undergraduate women enrolled in introductory psychology ($M_{age} = 18.3$, $SD_{age} = .55$). From this, it was determined that there were no floor or ceiling effects with regard to interest in any of the health, appearance, or neutral articles, and that reading and answering questions about them could be achieved in a reasonable amount of time.

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3 The third health-related article was included in data collection by mistake. However, it was included in the data analyses for the current study because additional measures may make the measurement of health information seeking more reliable.
Specifically, information seeking about these three types of topics was measured in three ways: (a) behavioral information seeking, (b) time spent seeking information, and (c) self-reported desire for more information. For the behavioral information seeking measure, health (appearance, neutral) information seeking were operationalized as how many subsections of a health (appearance, neutral) article a participant selected to read about. The amount of time spent seeking health (appearance, neutral) information that participants engaged in was operationalized as the number of seconds participants spent on each subheading that they selected. Finally, to measure self-reported desire for more information for each type of information, participants rated the item “would you like more information about the topic you just read about?” on a 1 (“not at all”) to 5 (“very much so”) Likert-type scale.

Exploratory measures. After each article, participants completed an item assessing interest (“I found the article interesting”) and efficacy (“how likely is it that you would be able to carry out the advice provided in the article?”) on a one (“not at all”) through five (“very much so”) scale. Participants also completed ratings of positive (happy, positive, hopeful) and negative (sad, negative, fearful) affect on the same scale. These measures appear in Appendix G. Because these measures were exploratory in nature, they will be discussed only in the context of additional analyses.

Procedure

Participants were brought into a lab with 10 computers and seated one to a computer and separated by partitions. After informed consent was obtained, participants completed the information seeking task. Participants learned that the researchers were interested in college students’ opinions of information in the media and that they would read several articles about topics that may appeal to college students. Participants were then led by the experimenter through a short example of the task, after which each participant worked through the task on her own. Articles were viewed one at a time, and presented in three separate randomly assigned orders. One type of article (health, appearance, or neutral) started off each order, and no articles of a single type (e.g., health-related)
were presented back-to-back. The conditions did not differ significantly on any of the trait level variables or information seeking outcome variables\(^4\), indicating that no effects occurred based upon the ordering of the articles.

Participants were shown the title, overview, and subheadings for the first article. From there, participants selected which subheadings they would like to read more about. Once finished with that article, meaning that the participant had exhausted all of the subheadings in a given article or had elected to move on to another article, participants completed the exploratory interest, efficacy, and affective items. Once participants answered these questions, the next article title, overview, and subheadings appeared until they had seen all of them. Once finished with the information seeking task, participants completed the questionnaires assessing trait body shame, body responsiveness, and perceived control over health in random order.

Results

Correlations

Pearson correlations assessed the relationships among the variables of interest (see Table 2). The prediction that trait body shame would be negatively correlated with all three measures of health information seeking was not supported. In fact, analyses revealed that trait body shame was unrelated to time spent seeking health information \((r = .06, p = .34)\), but marginally related to health information seeking \((r = .12, p = .09)\) and significantly predicted desire for more health information \((r = .18, p < .05)\). The hypothesis that trait body shame would be negatively correlated with body responsiveness was supported \((r = -.25, p < .001)\). However, the hypotheses that body responsiveness would be positively correlated with perceived control over health \((r = .06, p = .39)\),

\(^4\) \(F\) Trait Body Shame \((2, 196) = .08, p = .92; F_{Body Responsiveness} (2, 196) = .04, p = .96; F_{PCOH} (2, 196) = .65, p = .52; F_{Depression} (2, 196) = .15, p = .86; F_{Health Information Seeking} (2, 192) = .75, p = .47; F_{Health Time Seeking} (2, 192) = .49, p = .61; F_{Desire for More Health Info} (2, 196) = 1.14, p = .32; F_{Appearance Information Seeking} (2, 194) = .41, p = .66; F_{Appearance Time Seeking} (2, 194) = .51, p = .60; F_{Desire for More Appearance Info} (2, 196) = .44, p = .65; F_{Neutral Information Seeking} (2, 194) = .16, p = .85; F_{Neutral Time Seeking} (2, 194) = .78, p = .46; F_{Desire for More Neutral Info} (2, 196) = 1.63, p = .20
| Table 2. Scale information and correlation coefficients for variables in Study 1. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trait Measures | scale information | bivariate correlations |
| | M(SD) | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| Trait Body Shame | 2.48 (.92) | 1.00 | | | | | | | | | | | |
| Body Responsiveness | 4.58 (.84) | -.25 *** 1.00 | | | | | | | | | | | |
| Perceived Control over Health | 4.05 (.60) | -.11 .06 1.00 | | | | | | | | | | | |
| Depression | 1.79 (.60) | -.54 *** -.33 *** -.09 1.00 | | | | | | | | | | | |
| Health Information Seeking | | | | | | | | | | | | | |
| Health Information Seeking | 3.13 (.97) | .12 † .04 -.06 .13 † 1.00 | | | | | | | | | | |
| Health Time Seeking | 32.36 (14.29) | .06 -.04 .02 .08 .71 *** 1.00 | | | | | | | | | | |
| Desire for More Health Info | 3.11 (.97) | .18 * .08 -.06 .14 † .45 *** .41 *** 1.00 | | | | | | | | | | |
| Appearance Information Seeking | | | | | | | | | | | | | |
| Appearance Information Seeking | 3.43 (1.02) | .28 *** .00 -.08 .21 ** .31 *** .34 *** .18 † 1.00 | | | | | | | | | | |
| Appearance Time Seeking | 44.07 (19.26) | .20 ** -.07 -.02 .18 * .20 ** .54 *** .16 † .77 *** 1.00 | | | | | | | | | | |
| Desire for More Appearance Info | 3.41 (1.07) | .33 *** -.09 -.09 .17 † .14 † .15 † .25 *** .58 *** .48 *** 1.00 | | | | | | | | | | |
| Neutral Information Seeking | | | | | | | | | | | | | |
| Neutral Information Seeking | 2.88 (.96) | -.02 .08 .01 .04 .35 *** .29 *** .12 .28 *** .25 *** .08 1.00 | | | | | | | | | | |
| Neutral Time Seeking | 30.80 (16.21) | .02 -.03 -.02 .09 .25 *** .59 *** .16 † .32 ** .56 *** .16 † .71 *** 1.00 | | | | | | | | | | |
| Desire for More Neutral Info | 2.96 (1.01) | .00 .01 .02 -.05 .13 † .13 † .25 *** .07 .13 † .20 ** .41 *** .38 *** 1.00 | | | | | | | | | | |

1measured on a 5pt scale OR out of a possible 5; 2measured on a 6pt scale; 3measured on a 7pt scale

***p < .001, **p < .01, *p < .05, †p < .10
which would be positively correlated with health information seeking ($r_{health\ info\ skg} = -.06, p = .44; r_{health\ time} = .02, p = .83; r_{desire\ for\ more\ health\ info} = -.06, p = .40$), were not supported.

I had sought to rule out the alternative possibilities that body shame might result in decreased information seeking in general because of depleted cognitive resources or an exclusive focus on appearance information. While I did not find that trait body shame was related to decreased health information seeking, I will still discuss the findings regarding trait body shame in relation to other types of information seeking, for the sake of completeness. The first possibility was that trait body shame may diminish health information seeking because it depletes cognitive resources. If this were the case, then body shame would be negatively correlated with all types of information seeking. However, trait body shame was significantly and positively correlated with appearance information seeking ($r = .28, p < .001$), time spent seeking appearance information ($r = .20, p < .01$), and desire for more appearance information ($r = .33, p < .001$). This suggests that trait body shame predicts more appearance information seeking, and therefore does not appear to deplete the cognitive resources needed to perform information seeking tasks.

Second, I sought to eliminate the possibility that body shame leads to decreased health information seeking because body shame creates an exclusive focus on appearance-related information. If this were the case, then both neutral and health information seeking would be negatively correlated with body shame. However, body shame was found to be unrelated to neutral information seeking ($r = -.02, p = .77$), time spent seeking neutral information ($r = .02, p = .82$), and self-reported desire for more neutral information ($r = .00, p = .94$). In sum, while trait body shame was positively related to appearance information seeking, it was also positively related to wanting to seek out more health information, and not related to neutral information seeking. Therefore, trait body shame does create a focus on appearance information, but does not do so to the exclusion of other types of information.

Mediation

**Health information seeking.** Given that neither trait body shame nor body responsiveness were related to perceived control over health, and that neither body responsiveness nor perceived control over
Figure 3. Mediation analyses for Study 1, controlling for depression. Body responsiveness and perceived control over health did not mediate the relationships between trait body shame and any of the health information seeking outcome variables.

* $p < .05$, † $p \leq .10$
health were related to any of the health information seeking variables, the hypothesized mediation was unlikely to occur. However, I performed these analyses for the sake of completeness (see Figure 3). After centering all variables, mediational analyses were performed using the PROCESS macro (Hayes, *n.d.*; 5000 bootstraps, 95% bias-corrected confidence intervals), where trait body shame was the predictor, body responsiveness was the first mediator, perceived control over health was the second mediator, and health information seeking was the outcome. Depression was entered into the mediation as a covariate.

Body responsiveness and perceived control over health did not produce a significant indirect effect between trait body shame and health information seeking, .000 ($SE = .001$), 95% CI [-.000, .005], and the direct effect of trait body shame on health information seeking once these two mediators were taken into account was not significant ($b = .08$, $p = .36$). Body responsiveness and perceived control over health did not produce a significant indirect effect between trait body shame and time spent seeking health information, -.001 ($SE = .012$), 95% CI [-.062, .007], nor was the direct effect of trait body shame on time spent seeking health information significant ($b = .52$, $p = .70$). Body responsiveness and perceived control over health did not mediate the relationship between trait body shame and desire for more health information, .001 ($SE = .001$, 95% CI [-.001, .005]; however, the direct effect of trait body shame on desire for more health information was marginally significant ($b = .17$, $p = .05$). Finally, while depression did predict diminished body responsiveness for all three mediational analyses ($b = .39$, $p < .001$), depression did not predict health information seeking ($b = .19$, $p = .20$), time spent seeking health information ($b = 1.34$, $p = .54$), or desire for more health information ($b = .16$, $p = .24$).

**Discussion**

Study 1 was intended to provide support for the proposed mediational model by replicating the results of the Pilot Study and testing health information seeking as an outcome variable. Contrary to hypotheses, trait body shame was uncorrelated with time spent seeking health information, and was actually

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5 I also ran these mediational models eliminating depression as a covariate. When not controlling for depression, trait body shame significantly predicted diminished body responsiveness in all three models ($b = -.22$, $p < .01$). However, the models still did not reveal effects on health information seeking, .001 ($SE = .002$), 95% CI [-.002, .009], time spent seeking health information, -.004 ($SE = .056$), 95% CI [-.108, .023], or desire for more health information .000 ($SE = .002$), 95% CI [-.002, .008].
positively correlated with behavioral information seeking and self-reported desire for more health
information, as was depression. Moreover, results did not support the predicted mediation, primarily because
of the non-significance of many of the proposed relationships.

I will begin with some potential reasons that relationships in the proposed mediation were not
significant. The first issue is the relationship between trait body shame and body responsiveness. Trait body
shame was negatively correlated with body responsiveness ($r = -.25, p < .001$), which replicates the pilot
data, albeit to a weaker degree ($r_{\text{pilot}} = -.39, p < .001$). However, once depression was controlled for in the
mediational analysis in Study 1, body shame did not predict body responsiveness, as it did in the pilot
mediation; thus, a key link in the model was not replicated. One possibility for this is that the body
responsiveness scale had low reliability in Study 1 ($\alpha = .56$) but not in the Pilot Study ($\alpha = .76$). Moreover,
the author of this scale has reported higher alphas as well ($\alpha = .83, \alpha = .70$, Daubenmier, 2005; $\alpha = .77$,
Impett et al., 2006). Therefore, for this particular sample, these items appear to be holding together less well
than in prior research, which might explain the failure of body responsiveness to operate as a mediator.

The second issue which may explain the lack of mediation is that the perceived control over health
was not associated with either body responsiveness or health information seeking. I chose the MHLOC to
replace the measure of control over health that I had used in the Pilot Study, because the MHLOC is a well-
validated scale historically used in health research. The means and standard deviations for this scale in Study
1 were comparable to those in past work; nevertheless, this scale did not correlate with any of the variables
of interest in Study 1. Of course, it is possible that health locus of control as measured by this scale is simply
not associated with body shame or body responsiveness, and this is why mediation did not occur. Indeed,
there is no precedent for this relationship in the published literature. However, in Study 1, health locus of
control scores were also uncorrelated with any of the health information seeking measures ($r_{\text{health info skg}} = -.06,$
$p = .44$; $r_{\text{health time}} = .02, p = .83$; $r_{\text{desire for more health info}} = -.06, p = .40$), and they were not correlated with
depression ($r = -.09, p = .22$). These null results are surprising given that previous work has linked higher
internal health locus of control scores on this scale to health information seeking (DeVito, Bogdanowicz, &
Reznikoff, 1982; Grotz et al., 2011; Wallston et al., 1978), and higher external locus of control scores on this scale with increased levels of depression (e.g., Cukor, Newville, & Jindal, 2008; Field & Kruger, 2008; Reynaert, Janne, Vause, Zdanowicz, & Lejeune, 1995; Wardle et al., 2004). I had combined these two scales for the current research with high scores representing internal health locus of control and lower scores representing external health locus of control, but even splitting the scores into these separate scales revealed the same null results. Specifically, internal health locus of control items were not correlated with health information seeking (r_{health info} = -.11, p = .14; r_{health time} = .02, p = .78; r_{desire for more health info} = -.04, p = .54), nor were external health locus of control items correlated with depression (r = -.07, p = .32). Moreover, in the current study, depression did predict marginal increases in health information seeking (r = .13, p = .08) and desire for health information (r = .14, p = .05), and similar results have been shown in the literature (e.g., Hildebrand-Saints & Weary, 1989; Walker & Sorrentino, 2000). Taken together, this evidence suggests that the measure of health locus of control for the current sample may be suspect.

The lack of observable mediation may have been due to issues with the body responsiveness and perceived control over health scales. But what explains the unexpected result that body shame predicted increases in health information seeking and the desire for health information? Moreover, does this evidence discredit my model, which predicts that trait body shame should lead to decreases in health information seeking? Not necessarily, as it is possible that body shame may predict both increases and decreases in a particular health-related outcome. As Hayes (2009) articulates, the direct effect of an IV on a DV can be expected to contain many processes, some of which may lead to increases in the DV, and others of which may lead to decreases in the DV. As such, one may expect the processes by which the IV leads to increases in the DV to be different from those that lead to decreases in the DV.

As a concrete example, consider the mixed results regarding information seeking and depression. Some studies demonstrate that depression predicts increases in information seeking (Hildebrand-Saints & Weary, 1989; Walker & Sorrentino, 2000), while others show that depression predicts decreases in information seeking (Flett et al., 1987; Galler et al., 1999). One difference between these studies may be
different processes by which depression may lead to these differential results. For example, depression may lead to decreased information seeking because of attempts to avoid threats to self-esteem (Flett et al., 1987), or perhaps because of lack of effortful information processing (Hartlage et al., 1993). On the other hand, depression may lead to increases in information seeking when that information offers to resolve uncertainty (Hildebrand-Saints & Weary, 1989; Walker & Sorrentino, 2000). In this way, these seemingly contradictory results are each possible, depending on the mediator or mediators that are activated by depression. Put in terms of the current study, body responsiveness and perceived control over health represent one possible process by which trait body shame may predict decreases in health information seeking. Other processes may exist for which body shame predicts increases in health information seeking, and these competing processes may mathematically alter the direct effect of body shame on health information seeking.

By what mechanisms might trait body shame increase health information seeking? One possibility is that participants may have expected health information to improve their appearance. Indeed, information about breast self-exams and sexual health deals with sexualized aspects of women’s bodies, like breasts (Johnston-Robledo, Wares, Fricker, & Pasek, 2007) and vaginas (Hammersa, 2009). Improving breast and vaginal health may be expected to improve appearance. Even information about the flu might be expected to improve appearance, as being sick is unlikely to be viewed as attractive. Moreover, messages conflating health and appearance are abundant in our society. Women’s health magazines often present improvements in appearance as measures of health (Aubrey, 2010; Duncan, 1994). Scientific literature also promotes such ideas. For example, evolutionary psychology assumes that attractiveness is tantamount to reproductive fitness, and that potential mates are sought based on physical attractiveness because it signals reproductive health (Rhodes & Zebrowitz, 2002; Zebrowitz & Rhodes, 2004). This is despite research demonstrating that the standard of attractiveness for the female body is a BMI that implies malnutrition or anorexia nervosa (Owen & Laurel-Seller, 2000), conditions which may be characterized by amenorrhea, a relatively infertile state (Mitan, 2004). This conflation of health and appearance do not seem to fall on deaf ears, as qualitative data reveal that college-aged women also confound attractiveness with health (Kwan, 2009; Reidel, 2011;
Wright, O’Flynn, & Macdonald, 2006). Perhaps participants with high trait body shame expected that the health information presented in Study 1 would help improve their appearance.

To examine whether trait body shame promoted health information seeking due to increased interest in appearance, mediational analyses using the composite ratings for interest in the appearance articles were conducted (PROCESS macro, Hayes, n.d.; 5000 bootstrap, 95% bias-corrected confidence intervals), controlling for depression. Interest in appearance information mediated the relationship between trait body shame and desire for more health information, .039 (SE = .023), 95% CI [.004, .100]. However, interest in appearance did not explain the relationship between trait body shame and health information seeking, .014 (SE = .019) 95% CI [-.018, .059], nor did it act as a mediator between trait body shame and time spent seeking health information, .328 (SE = .266) 95% CI [-.074, 1.000]. Therefore, it is possible that participants desired further information on the off-chance that it would help to improve appearance. Nevertheless, that appearance interest did not mediate between trait body shame and both behavioral health information seeking and time spent seeking health information suggests that the actual information available for the participants to seek may not have contained material that they felt would improve their appearance.

Another possible explanation for trait body shame’s positive correlation with health information seeking is that body shame might also increases uncertainty about health. While similar, controllability of and certainty about an outcome are distinguishable, with controllability referring to how much control an individual has over an outcome, and certainty referring to how likely it is that a particular outcome will occur (e.g., Shiloh et al., 1999). If body shame leads to a disconnect with the body (Fredrickson & Roberts, 1997), then instead of or in addition to lowering body responsiveness, body shame may simply cause uncertainty about what goes on inside the body, including health. However, unlike diminished control, uncertainty has been linked to increased health information seeking, because uncertainty is a negative affective state which information seeking presumably reduces (Berlyne, 1960; Trope, 1979).

For example, Rosen, Knäuper, and Sammut (2007) manipulated dispositional intolerance of uncertainty (via false feedback on an ostensible personality test), and found that participants who were led to
believe that they tolerated uncertainty less well sought more information about a fictitious sexually transmitted infection than participants who were led to believe that they tolerated uncertainty well. Additionally, Rosen & Knäuper (2009) manipulated situational uncertainty about whether or not participants had contracted a fictitious sexually transmitted infection. Participants in the high uncertainty condition were more likely to request further information about the fictitious STI than participants in the low uncertainty condition. Therefore, it is possible that body shame leads to an overall direct effect of increased information seeking through the mechanism of uncertainty about health. Depression predicts increases in information seeking when uncertainty is activated (Hildebrand-Saints & Weary, 1989; Walker & Sorrentino, 2000), and given that trait body shame is correlated with depression, this is a promising possibility. However, no measures of uncertainty about health were collected, and I therefore could not test for this possibility.

In sum, Study 1 tested whether trait body shame predicted decreased information seeking, and whether diminished body responsiveness and perceived control over health mediated this relationship. Contrary to hypotheses, trait body shame was unrelated to time spent seeking health information, and predicted increases in health information seeking and desire for more health information. Results did not support the predicted mediation, although measurement issues may explain the lack of mediation. Furthermore, multiple processes by which trait body shame may increase and decrease health information seeking may explain the positive direct effect for some of the health information seeking variables.

**Study 2**

In Study 1, I found that trait body shame was linked to increased health information seeking. This suggests that trait body shame may lead to increases in information seeking through different mechanisms, like uncertainty about health, which were not examined in Study 1. Nevertheless, this result does not rule out the possibility that body shame may *also* lead to *decreases* in health information seeking, through separate mechanisms. However, because the measurements of these potential mechanisms, body responsiveness and perceived control over health, were unreliable in Study 1, I was unable to determine whether or not trait body shame led to decreases in health information seeking through these mechanisms.
Thus, one purpose of Study 2 was to reassess whether trait body shame may lead to decreases in health information seeking through diminished body responsiveness and decreased perceived control over health. The body responsiveness measure remained the same, given its reliability in the Pilot Study for this research as well as in previous work by the author of the scale (Daubenmier, 2005; Impett et al., 2006). I eliminated the measurement issue with the perceived control over health measure in Study 1 by manipulating perceived control over health. This way, I could produce decreased perceived control over health, viewing its direct effect on health information seeking. Moreover, if decreased perceived control over health is a mechanism through which trait body shame leads to diminished health information seeking, then increasing perceived control over health should interrupt this relationship. Therefore, another purpose of Study 2 was to test whether increasing perceived control over health can suppress the potentially negative effects of trait body shame on health information seeking.

The hypothesized model for Study 2 appears in Figure 4. Specifically, I predicted that body shame would be negatively associated with body responsiveness, a replication of results from the Pilot Study and Study 1. Further, I expected that whether body responsiveness leads to health information seeking would depend on level of perceived control over health. Specifically, I hypothesized that when perceived control over health is low, there would be a positive link between body responsiveness and health information seeking, such that the less responsive one is, the less information one would seek. I hypothesized that when perceived control over health is high, the positive association between body responsiveness and health information seeking would disappear. That is to say, an individual’s level of body

![Figure 4. Hypothesized model for Study 2, in which body shame leads to diminished health information seeking through the mechanism of body responsiveness, but only in the case of low perceived control over health.](image-url)
responsiveness would not affect health information seeking, as increasing perceived control over health may empower the individual to engage with her health. As in Study 1, depression, depleted cognitive resources, and preference for appearance-related information were not expected to explain the predicted results.

**Methods**

**Participants**

Participants were 179 female undergraduate students enrolled in an introductory psychology course at Penn State ($M_{age} = 19.09, SD_{age} = 1.73$) receiving course credit in exchange for their participation. In terms of ethnicity, 74.9% identified as Caucasian, 12.3% as Asian, 5.6% as African-American, 3.9% as Latina, 2.2% as from mixed ethnicity, and 1.1% did not report ethnicity.

**Materials**

**Trait body shame.** Trait body shame was assessed with the same scale used to measure this construct in the Pilot Study and Study 1. Cronbach’s alpha for this scale was .84.

**Depression.** Depression was assessed with the same scale used to measure this construct in the Study 1. Cronbach’s alpha for this scale was .90.

**Body responsiveness.** Body responsiveness was assessed with the same scale used to measure this construct in the Pilot Study and Study 1. Cronbach’s alpha for this scale was .65.

**State perceived control over health.** As in Study 1, participants were told that the researchers were interested in the type of online content that appeals to college students. However, because a fundamental requirement for engaging with online content is reading comprehension, participants learned that they must first complete a basic reading comprehension task. This ostensible reading test was actually the perceived control over health manipulation, modified from the procedures of Levy, Stroessner, and Dweck (1998) and Chiu, Hong, and Dweck (1997, p. 27). Participants in the high perceived control over health condition were presented with a short summary of “scientific evidence” detailing how health is under personal control. Participants in the low perceived control over health condition were presented with a summary of “scientific evidence” describing how health is the product of chance (see Appendix H).
As a manipulation check, state perceived control over health was measured using the procedures of Levy et al. (1998), but modified to reflect control over health rather than control over changing one’s personality. Participants responded to items such as “An individual has a lot of power to change his or her health” on a 1 (strongly disagree) to 5 (strongly agree) Likert-type scale (see Appendix I), with higher scores on this scale indicating higher perceived control over health. These items appeared among filler questions, presented ostensibly as a reading comprehension measure regarding the perceived control manipulation (see procedure). Cronbach’s alpha for this scale was .73.

Pilot testing of this manipulation and scale on a sample of 46 undergraduate women enrolled in introductory psychology ($M_{age} = 19.09, SD_{age} = 1.03$) indicated that the manipulation was successful. Participants’ ratings of perceived control over health were significantly higher [$t(44) = 2.23, p < .05$] in the high perceived control over health condition ($M_{high} = 4.14, SD_{high} = .45$) than in the low perceived control over health condition ($M_{low} = 3.83, SD_{low} = .47$).

**Information seeking.** Participants’ information seeking about health-related, appearance-related, and neutral topics was measured in the same way as in Study 1. However, participants only read three rather than seven articles. This was because of concerns that the effect of the perceived control over health manipulation would wear off before the participants were able to complete the entire information seeking task. Therefore, participants were presented with the articles about performing a breast self-exam (health), slimming yourself with your wardrobe (appearance), and tips for traveling abroad (neutral).

**Exploratory measures.** Participants completed measures of interest and affect after each article, as they did in Study 1. However, additional efficacy items were added. Specifically, participants responded to three items (“I am able to do the tasks described in this article;” “It would be easy to do the tasks described in this article;” “Doing the tasks described in this article would be convenient”) on a one (“not at all”) through five (“very much so”) scale (Appendix G). These exploratory measures will not be discussed further.
Procedure

As in Study 1, participants were brought into the lab 10 at a time and completed the study alone on a computer. Computers were separated by partitions in order to ensure privacy. Participants were randomly assigned to either the high perceived control over health condition \((n = 88)\) or the low perceived control over health condition \((n = 91)\). After informed consent was obtained, participants completed the perceived control over health manipulation, followed by the state perceived control over health measure. Participants then completed the information seeking procedure and measures, followed by the trait body shame and body responsiveness questionnaires, presented in random order.

Results

Manipulation Check

In order to determine whether the perceived control over health manipulation was effective, I conducted an independent samples t-test comparing the two perceived control over health conditions on ratings of state perceived control over health. The conditions differed significantly \([t(177) = 11.16, p < .001]\) such that participants in the high perceived control over health condition reported believing that health is under one’s personal control \((M_{\text{high}} = 4.25, SD_{\text{high}} = .06)\) more so than participants in the low perceived control over health condition \((M_{\text{low}} = 3.01, SD_{\text{low}} = .09)\), suggesting that the manipulation was effective.

Correlations

As in Study 1, Pearson correlations were conducted to examine the relationships among trait body shame, body responsiveness, and health information seeking (see Table 3). As predicted, trait body shame was again associated with diminished body responsiveness \((r = -.38; p < .001)\). Trait body shame was not correlated with health information seeking \((r = .00; p = .99)\), time spent seeking health information \((r = .06; p = .42)\), or desire for more health information \((r = .00; p = .47)\).

These analyses also allowed me to rule out the idea that trait body shame results in decreased information seeking in general or a preference for appearance-related information only. Trait body shame was not correlated with appearance information seeking \((r = .10, p = .17)\) or time spent seeking appearance
Table 3. Scale information and correlation coefficients for variables in Study 2.

<table>
<thead>
<tr>
<th></th>
<th>scale information</th>
<th>bivariate correlations</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M(SD)</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>Trait Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Trait Body Shame</td>
<td>2.52 (.91)</td>
<td>1.00</td>
</tr>
<tr>
<td>(2) Body Responsiveness</td>
<td>4.72 (.86)</td>
<td></td>
</tr>
<tr>
<td>(3) Depression</td>
<td>1.63 (.52)</td>
<td></td>
</tr>
<tr>
<td><strong>Health Information Seeking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Health Information Seeking</td>
<td>2.94 (1.17)</td>
<td></td>
</tr>
<tr>
<td>(5) Health Time Seeking</td>
<td>35.63 (18.10)</td>
<td></td>
</tr>
<tr>
<td>(6) Desire for More Health Info</td>
<td>3.32 (1.14)</td>
<td></td>
</tr>
<tr>
<td><strong>Appearance Information Seeking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Appearance Information Seeking</td>
<td>3.53 (1.17)</td>
<td></td>
</tr>
<tr>
<td>(8) Appearance Time Seeking</td>
<td>45.03 (20.88)</td>
<td></td>
</tr>
<tr>
<td>(9) Desire for More Appearance Info</td>
<td>3.55 (1.22)</td>
<td></td>
</tr>
<tr>
<td><strong>Neutral Information Seeking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) Neutral Information Seeking</td>
<td>3.05 (1.07)</td>
<td></td>
</tr>
<tr>
<td>(11) Neutral Time Seeking</td>
<td>36.28 (19.74)</td>
<td></td>
</tr>
<tr>
<td>(12) Desire for More Neutral Info</td>
<td>3.09 (1.18)</td>
<td></td>
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</table>

1 measured on a 4pt scale; 2 measured on a 5pt scale OR out of a possible 5; 3 measured on a 7pt scale

***p < .001, **p < .01, *p < .05, †p < .10
information \((r = .12, p = .12)\), but it was significantly positively correlated with desire for more appearance information \((r = .19, p < .05)\). Moreover, trait body shame was uncorrelated with neutral information seeking \(r_{\text{neutral info skg}} = .10, p = .69\); \(r_{\text{neutral time}} = .12, p = .73\); \(r_{\text{desire for more neutral info}} = 19, p = .28\), and health information seeking \(r_{\text{health info skg}} = .00, p = .99\); \(r_{\text{health time}} = .06, p = .42\); \(r_{\text{desire for more health info}} = -.05, p = .47\). These correlations rule out the possibility that trait body shame causes a focus on appearance information that excludes other information, as this would result in negative correlations between trait body shame and non-appearance-related information seeking. Moreover, it rules out the possibility that body shame saps attentional resources, as body shame was not negatively associated with any measure of information seeking.

As in Study 1, depression was positively correlated with health information seeking \((r = .16, p < .05)\), this time significantly so. While it was uncorrelated with desire for more health information in this study \((r = -.01, p = .89)\), depression was significantly positively correlated with time spent seeking health information \((r = .19, p < .05)\). This suggests that depression was associated with increased information seeking, regardless of perceived control over health condition.

**Moderated Mediation**

The results of the moderate mediations of with all three health information seeking variables appear in Figure 5. After centering all variables, the PROCESS macro (Hayes, *n.d.*) was used to test for moderated mediation (5000 bootstrap, 95% bias-corrected confidence intervals). The hypothesized moderating effect of perceived control over health on the relationship between body responsiveness and health information seeking was tested using the moderated mediation procedure outlined by Preacher, Rucker, and Hayes (2008). First, the relationship between trait body shame and body responsiveness was tested for. Next, the macro tested for the relationship between body responsiveness and each health information seeking outcome variable, and in doing so entered perceived control over health as an interaction term. For all analyses, depression was entered as a covariate.
Figure 5. Moderated mediations for Study 2. Trait body shame predicted diminished body responsiveness, which in turn predicted decreased health information seeking and desire for more health information, but only when perceived control over health was high.

*** p < .001, ** p < .05, † p ≤ .05
I hypothesized that perceived control over health would moderate the relationship between body responsiveness and all three health information seeking variables. Specifically, for the low perceived control over health condition, I predicted that trait body shame would lead to diminished body responsiveness, which would in turn lead to reduced health information seeking, time spent seeking health information, and desire for more health information. However, in the high control over health condition, I predicted that while body shame would still lead to diminished body responsiveness, the relationship between body responsiveness and decreases in the three health information seeking variables would be attenuated. I expected these results to hold even when controlling for depression. I will break down the results of the moderated mediation models by type of health information seeking outcome variable in the next three sections.

**Health information seeking.** As expected, trait body shame predicted lower body responsiveness \((b = -.26, p < .001)\). Body responsiveness did not exert a main effect (i.e., did not predict) health information seeking \((b = .13, p = .26)\), nor did perceived control over health condition \((b = -.14, p = .12)\). However, the interaction between body responsiveness and perceived control over health predicted health information seeking \((b = .18, p = .08; \text{see Figure 6})\). However, contrary to the prediction that diminished body responsiveness would mediate the effect of trait body shame on health information seeking when perceived control over health was low, but not high, I found that the effect of body responsiveness on health information seeking occurred when perceived control over health was high, but not low. Specifically, for participants in the low perceived control over health condition, body responsiveness did not mediate the effect of trait body shame on health information seeking, \(.015 (SE = .046), 95\% \text{ CI} [-.061, .126].\) However,
for participants in the high perceived control over health condition, body responsiveness significantly mediated the effect of trait body shame on health information seeking, \(-.082 (SE = .049), 95\% CI [-.209, -.007]\).

Neither the direct effect \((b = -.08, p = .51)\) nor the total effect \((b = -.12, p = .28)\) of trait body shame on health information seeking was significant. Depression was a significant covariate in the model, and predicted diminished body responsiveness \((b = -.34, p < .05)\) and increased health information seeking \((b = .54, p < .01)\). Removing depression as a covariate rendered the interaction between body responsiveness and perceived control over health insignificant \((b = .17, p = .11)\) and yielded no mediation in either the low, \(.037 (SE = .063), 95\% CI [-.068, .182]\), or the high, \(-.085 (SE = .060), 95\% CI [-.221, .022]\), perceived control over health condition, suggesting that depression may obfuscate trait body shame’s influence on health information seeking.

**Time spent seeking health information.** As expected, trait body shame predicted lower body responsiveness \((b = -.26, p < .001)\). However, body responsiveness \((b = 2.10, p = .24)\), perceived control over health condition \((b = -.71, p = .61)\), and the interaction between body responsiveness and perceived control over health condition \((b = 1.10, p = .50)\) did not predict time spent seeking health information. Body responsiveness did not mediate between trait body shame and time spent seeking health information for either the low, \(-.263 (SE = .603), 95\% CI [-1.409, .997]\), or the high, \(-.847 (SE = .688), 95\% CI [-2.493, .313]\), perceived control over health conditions. Neither the direct effect \((b = -.06, p = .97)\) nor the total effect \((b = -.69, p = .69)\) of trait body shame on time spent seeking health information was significant. Again, depression was a significant covariate, predicting diminished body responsiveness \((b = -.34, p < .05)\) and time spent seeking health information \((b = 8.26, p < .01)\). Removing depression from the model did not reveal significant mediation for either condition (low: \(-.091 (SE = .841), 95\% CI [-1.606, 1.748]\); high: \(-.740 (SE = .868), 95\% CI [-2.566, .897]\)).
**Desire for more health information.** Once again, trait body shame predicted lower body responsiveness ($b = -.27, p < .001$). Body responsiveness significantly predicted desire for more health information ($b = .29, p < .01$); however, perceived control over health condition ($b = -.02, p = .78$) and the interaction between body responsiveness and perceived control over health condition ($b = -.09, p = .35$) did not. Despite the fact that both effects are in the same direction, hence yielding no interaction, tests of conditional indirect effects revealed that body responsiveness mediated the effect of trait body shame on the desire for more health information in the high, $-.104 (SE = .054), 95\% CI [-.237, -.019]$, but not in the low, $-.053 (SE = .042), 95\% CI [-.146, .022]$, perceived control over health condition. Neither the direct effect ($b = .01, p = .95$) nor the total effect ($b = .08, p = .46$) of trait body shame on desire for more health information was significant. In this case, depression was not a significant covariate, marginally predicting diminished body responsiveness ($b = -.35, p = .05$) and not predicting time spent seeking health information ($b = .14, p = .44$). Removing depression from the model yielded similar effects as reported above, which was mediation in the high, $-.131 (SE = .065), 95\% CI [-.277, -.019]$, but not the low, $-.065 (SE = .053), 95\% CI [-.176, .039]$, perceived control over health condition.

**Discussion**

The results of Study 2 demonstrate partial support for the proposed model. Trait body shame predicted decreases in health information seeking through the mechanism of diminished body responsiveness, but this result was found in the high perceived control over health condition instead of the low perceived control over health condition, as was expected. This effect occurred even when controlling for depression, and did not appear to be due to deficits in cognitive resources or an exclusive focus on appearance information. Although no effects were found for time spent seeking health information, diminished body responsiveness predicted less desire for health information, regardless of perceived control over health condition. Finally, depression was a significant covariate in the model, predicting health information seeking and time spent seeking health information.
I will begin by discussing the results for the behavioral health information seeking outcome measure. Specifically, if participants were high in body responsiveness, level of perceived control over health did not influence their tendency to seek health information. This may be explained by the potential role high body responsiveness may itself play in positive health behaviors. That is, if an individual values her body, she may seek information relevant to the physical functioning of her body *regardless* of whether she feels in control of her health or not. That is to say, perceived control over health may have had little to do with whether or not participants with high body responsiveness would seek out health information. Another possibility is that individuals with high body responsiveness would likely have a corresponding high level of perceived control over health, and may believe strongly that their health is under their own control. Given their high levels of control, individuals with high body responsiveness might not be swayed by a manipulation that suggests that health is not under their control.

Indeed, it is possible that participants may by default espouse the notion that health is under the control of the individual. Western culture is steeped in the idea that the individual can and should control her or his own health (Minkler, 1999), a message often targeted at women specifically in terms of taking control over their bodies (Madden & Chamberlain, 2004; Roy, 2007). As such, the high perceived control over health manipulation may have simply been what participants were used to hearing, and it therefore didn’t change their perceptions. Thus, when respondents read the high perceived control over health manipulation, they were in the normative condition. As a result, in the high perceived control over health condition, those high in body responsiveness sought more information than those low in body responsiveness. Thus, what was novel to participants was the idea that their health may be out of their control. However, because of these messages and because they may already feel in control of their health, participants with high body responsiveness may simply not have bought the low control over health manipulation.
This could have been the case even though the manipulation check appeared to work. Indeed, the high and low perceived control over health conditions did differ significantly and in the expected direction on ratings of perceived control over health. Moreover, univariate ANOVA reveals no main effect of body responsiveness \( F(1, 178) = .26, p = .61 \) and no interaction between body responsiveness and perceived control over health condition on ratings of perceived control over health \( F(1, 178) = .22, p = .64 \), which suggests that participants’ level of body responsiveness did not influence ratings of perceived control over health. However, because the perceived control over health manipulation was conveyed to participants as a reading comprehension check, it is possible that participants may have been responding in terms of what they read rather than in accordance with their actual beliefs.

To test for this possibility, I conducted a one-way ANOVA examining the effects of perceived control over health condition and body responsiveness on the single agreement item in the manipulation check ("I agree with the scientific evidence with which I was presented"). Body responsiveness did not influence ratings on this item \( F(1, 178) = .27, p = .61 \), nor did the interaction between body responsiveness and perceived control over health condition \( F(1, 178) = .03, p = .86 \); however, perceived control over health condition did \( F(1, 178) = 49.63, p < .001 \). Specifically, participants in the high perceived control over health condition \( (M = 4.00, SD = .74) \) were significantly more likely to agree with the statement they read than were participants in the low perceived control over health condition \( (M = 3.52, SD = 1.01) \). While this result rules out the possibility that participants with high body responsiveness remained impervious to the low perceived control over health manipulation, it does lend credence to the idea that the cultural default idea is that control over health lies within the individual.

If this cultural default exists, then why doesn’t it seem to have influenced individuals with low body responsiveness, who according to the pilot data, appear to have low perceived control over health? And moreover, why did decreasing perceived control over health in Study 2 result in
increased information seeking for these participants, despite research linking high perceived control to increased information seeking (Frey & Rosch, 1984; Grotz et al., 2011; Koo et al., 2006; Shiloh et al., 1999; Trope et al., 2003; Wallston et al., 1976)? Specifically, when perceived control over health was low, participants with low body responsiveness sought health information. However, when perceived control over health was high, participants with low body responsiveness did not seek health information. What could explain this result?

Perhaps participants with low body responsiveness interpret the messages about perceived control over health differently than individuals with high body responsiveness. Because diminished body responsiveness predicts decreased perceived control over health, I had assumed that increasing perceptions of control over health would empower these individuals to realize that they could affect positive outcomes with regard to their health. However, instead of interpreting the message that health is under the control of the individual as empowering, perhaps participants with low body responsiveness interpreted this message as self-blame. That is, if health is truly under an individual’s own control, then if an individual encounters poor health outcomes, she has only herself to blame. Persons with high trait body shame, who are also prone to low body responsiveness, already attribute the negative events occurring in their bodies to immutable flaws in the core self; it is reasonable to suspect that they may do the same for negative health outcomes. Paradoxically, even though self-blame seems to imply that the control lies within the individual, self-blaming attributions that implicate the unchangeable aspects of the self in negative outcomes have actually been associated with helplessness (Abramson & Sackheim, 1977) and diminished perceptions of control (Janoff-Bulman, 1979). In this way, it is possible to have low perceived control over health, as shown in the Pilot Study, while simultaneously taking responsibility for negative outcomes.

Moreover, taking responsibility for these negative outcomes by attributing them to immutable flaws of the core self has been shown to stifle behavior. For example, in classic research by Klein, Fencil-Morse, and Seligman (1976), authors manipulated the type of attribution participants made to
an unsolvable versus a solvable letter task. Depressed participants who were instructed to make external attributions to the unsolvable task demonstrated increased task performance compared to depressed participants who were instructed to make internal attributions for not being able to solve the unsolvable problems. If internal attributions for negative events suppress performance, then isn’t it possible that internal attributions for negative events occurring in the physical body may detract from performance on health information seeking tasks? Perhaps the high perceived control over health manipulation in Study 2 activated self-blame, or served as a reminder of cultural messages that are interpreted as self-blame, in participants with low body responsiveness, thus diminishing health information seeking.

On the other hand, what happens if we counter this cultural “wisdom” and suggest to people with low body responsiveness, who are used to blaming themselves for the negative, physical aspects of their bodies, that poor health may actually be the result of myriad influences outside of the self? Another way of viewing the interaction between body responsiveness and perceived control over health is to observe that participants with low body responsiveness in the low perceived control over health condition sought levels of health information comparable to participants with high body responsiveness. It is possible that the mere suggestion that health is not entirely up to the individual actually served to let participants with low body responsiveness off the hook in terms of self-blame for negative health-related outcomes. In the same way that performance improved when Klein et al. (1976) encouraged participants to make external attributions for failure, health information seeking may have improved for low body-responsive participants when they were reminded of the possibility that negative aspects of the body may be attributable to sources outside the self.

There was no effect of body responsiveness, perceived control over health, nor the interaction of the two on time spent seeking health information. It is possible that participants sought to maximize their ability to examine more subheadings by spending less time on each subheading, thus mathematically cancelling out an observable effect on time; however, the strong positive relationship
between health information seeking and time spent seeking health information ($r = .76, p < .001$) suggests that this was not the case. Although neither the mediation nor the interaction was significant, the direction of this interaction suggests that the pattern is similar to that for health information seeking, but the effect did not reach significance. Finally, although the interaction was not significant, body responsiveness mediated the relationship between trait body shame and desire for more health information in the high, but not the low, perceived control over health condition. This suggests that, albeit similar to their effect on health information seeking, the interaction between body responsiveness and perceived control over health condition did not reach significance in predicting desire for more health information.

Finally, depression was a significant covariate in two of the models, predicting diminished body responsiveness as well as both health information seeking and time spent seeking health information. Moreover, removing depression from the model investigating health information seeking resulted in the mediation to no longer be significant, suggesting that depression may mask the interaction between body responsiveness and perceived control over health.

In sum, the results of Study 2 suggest that trait body shame led to diminished body responsiveness, which in turn led to diminished health information seeking, but only if perceived control over health was high. This interaction between body responsiveness and perceived control over health, while unexpected, may have occurred for a number of reasons. First, participants with high body responsiveness, because they value their bodies, may seek out health information regardless of their level of perceived control over health. For participants with low body responsiveness, high perceived control over health may have signaled self-blame, which may have detracted from health information seeking. Low perceived control over health condition may have served to let participants with low body responsiveness off the hook for the negative events that may occur in their bodies, thereby allowing information seeking behavior to occur.
General Discussion

Prior work on the relationship between body shame and health suggests that individuals experiencing body shame engage in harmful health behaviors such as smoking (Harrell et al., 2006) and restricted eating (e.g., Augustus-Horvath & Tylka, 2009) because these behaviors mitigate appearance concerns (Calogero, 2009; Fiissel & Lafriniere, 2006). I suggest that body shame may result in harmful health behaviors even if the behaviors do not mitigate appearance concerns. This is because, while body shame does lead to concerns about appearance (Calogero, 2009; Fiissel & Lafreniere, 2006; Sanchez & Keifer, 2007), it also leads to a devaluing of internal bodily functions, or diminished body responsiveness (Daubenmier, 2005). This diminished body responsiveness in turn may result in decreased perceptions of control over health (Astin, 1997; Rybarczyk et al., 1999; Tacón et al., 2004), which ultimately may lead to harmful health behaviors, such as failing to seek information about health (Frey & Rosch, 1984; Shiloh et al., 1999; Trope et al., 2003). Based on pilot work, I conducted two studies that examined these relationships.

The Pilot Study demonstrated the nature of the proposed relationships among the variables of interest. To wit, trait body shame predicted diminished body responsiveness, which in turn predicted decreased perceived control over health, which ultimately predicted increased reports of acute health outcomes. While this study did not test health information seeking specifically, it did establish relationships among trait body shame, body responsiveness, and perceived control over health, providing evidence for a specific way in which they combine to predict health-related outcomes.

Study 1 was designed to replicate the results of the Pilot Study and to establish connections among trait body shame, body responsiveness, perceived control over health, and health information seeking. I expected that trait body shame would predict decreased health information seeking and that this relationship would be mediated by body responsiveness and perceived control over health. Study 1 also sought to rule out alternative explanations for the expected results, namely regarding depression, and diminished health information seeking based on decreased cognitive resources or an
exclusive focus on appearance information. However, with the exception of finding the predicted negative relationship between trait body shame and body responsiveness, none of the relationships in the hypothesized model were revealed. In fact, the direct effect of trait body shame on health information seeking was such that trait body shame seemed to lead participants to seek more information and to desire further information about health. Further, body responsiveness and perceived control over health did not produce an indirect effect that would show trait body shame leading to decreased health information seeking. This may be because the measures of body responsiveness and perceived control over health were not reliable in this study. To wit, the body responsiveness measure had a low alpha for this study, contrary to the alpha reported in the Pilot Study as well as in previous research (Daubenmier, 2005; Impett et al., 2006). The perceived control over health measure was not related to depression or health information seeking, even though (a) these relationships have been shown multiple times in the literature, and (b) depression and health information seeking were marginally related.

It also could be because trait body shame leads to increased health information seeking through different mechanisms. For example, health information may be expected to improve appearance. Indeed, interest in appearance information explained the significant relationship between trait body shame and desire for more health information. However, it did not mediate between trait body shame and actual health information seeking behavior, or trait body shame and time spent seeking health information, suggesting that the perception of the available information as appearance-improving did not explain these relationships after all. Another possible mechanism is uncertainty, which, unlike perceived control, has been linked to increased information seeking. Body shame may create uncertainty about the body and about health, thereby increasing health information seeking in order to mitigate that uncertainty. However, no measures of uncertainty were collected, rendering this possibility untestable in the present investigation.
Study 2 gave me another opportunity to examine perceived control over health in the proposed model, as this was not possible in Study 1 given measurement issues. Moreover, Study 2 tested whether manipulating perceived control over health could interrupt the potential negative effects of trait body shame on health information seeking. I hypothesized that trait body shame would predict diminished body responsiveness. However, if the mechanism by which body responsiveness leads to decreases in health information seeking is perceived control over health, as suggested by the proposed model, then increasing perceptions of control over health should increase health information seeking. I expected that participants in the high perceived control over health condition would seek more information about health than participants in the low perceived control over health condition. I also expected that this effect would not be attributable to depression level, depleted cognitive capacity, or exclusive preference for appearance-related information.

The results of Study 2 revealed partial support for the proposed model. Trait body shame predicted decreased health information seeking through the mechanism of diminished body responsiveness. I had expected that this would occur in the low perceived control over health condition; however, this result was found in the high perceived control over health condition. The graphed interactions for health information seeking suggest that this result was driven by participants who were low in body responsiveness. Specifically, participants with high body responsiveness sought health information regardless of the perceived control over health condition they were assigned to. On the other hand, participants with low body responsiveness in the high perceived control over health condition sought and reported desiring far less information than other participants, including participants with low body responsiveness in the low perceived control over health condition. It is possible that, for these participants, the perceived control over health manipulation was interpreted as self-blame, with low body-responsive participants in the high perceived control over health condition feeling blameworthy, and low body-responsive participants
in the low perceived control over health condition feel off the hook, for negative outcomes that may occur within the body.

Taken together, these results suggest that, although further tests of this model are certainly needed, trait body shame may indeed predict poor health outcomes as well as detrimental health behaviors that are not expected to mitigate appearance concerns, like failing to seek health information. However, the paths through which trait body shame may lead to health outcomes and health information seeking may involve different mechanisms. Body responsiveness functioned in similar ways across studies in that the predicted negative relationship between trait body shame and body responsiveness was found and replicated consistently. This provides strong evidence for the assertion that body shame is linked to the devaluing of information that one receives from one’s body. Although body responsiveness has been linked to self-objectification, a precursor of body shame, these are to my knowledge the first research studies linking body responsiveness to the emotional experience of body shame specifically making this a novel contribution to body shame research. However, perceived control over health did not function in the same way for health information seeking as it did for health outcomes. Specifically, low perceived control over health predicted poor health outcomes, yet improvement in health information seeking, for participants with high trait body shame and low body responsiveness.

**Limitations and Future Directions.** One clear limitation of the present research was the presence of measurement issues with the proposed mediators in Study 1. Specifically, the body responsiveness scale had a low alpha, and consequently, body responsiveness was not predicted by trait body shame once depression was controlled for. However, this was resolved in Study 2. While the alpha for the body responsiveness scale in Study 2 was still lower than previously reported, the body responsiveness measure was predictive in the model. Another issue of measurement was that the perceived control over health scale in Study 1 failed to correlate with any of the measures in Study 1 despite previous evidence for relationships between perceived control over health and both
depression and health information seeking. In Study 2, this issue was remedied by manipulating perceived control over health. However, manipulated perceived control over health functioned in an unexpected way. Specifically, increasing perceived control over health did not interrupt the relationship between body shame, body responsiveness, and health information seeking; in fact, it predicted decreased health information seeking for those low in body responsiveness. This suggests that, perceived control over health may operate in a way that I have not previously considered.

Contrary to the model, perceived control over health did not seem to matter for participants with high body responsiveness, as they sought health information regardless of perceived control over health condition. And, the perceived control over health manipulation functioned the exact opposite was the model predicted for participants with low body responsiveness. Specifically, when perceived control over health was high, low body responsiveness predicted diminished information seeking. It could be that the default state for participants coming into the study is high perceived control over health. Specifically, individuals may normatively assume that health is under the control of the person; however, level of body responsiveness may affect how that normative assumption is interpreted. Specifically, when under conditions of high perceived control over health, the cultural default, participants with low body responsiveness feel as they usually do, assigning blame to themselves for negative aspects of the body. However, when this normative assumption is undermined, and the blame for negative bodily events lies with other sources besides the individual, it is then that individuals low in body responsiveness may feel free to seek out information about these events. Obviously, more work on this issue needs to be done and this result replicated, but these results suggest some interesting implications.

First, in the future, researchers may want to examine whether messages that health is under the control of the individual activate self-blame in persons with high trait body shame and/or low body responsiveness. If so, then the abundance of such messages in our culture (Madden & Chamberlain, 2004; Minkler, 1999; Roy, 2007) may have implications for these individuals.
Specifically, if the results of Study 2 do mean that individuals may interpret increased control as self-blame, then these messages may suggest to such individuals that negative health events may be attributed to unchangeable aspects of the self, thus stifling health behavior. Of course, I am not recommending that these messages should instead promote the idea that individuals lack control over health. Indeed, the Pilot Study suggests that perceived control over health is actually linked to better health outcomes. I am merely suggesting that it is important to be mindful of all of the attributions that may be activated by these messages, and how they might influence health behavior.

Second, the results of Study 2 may suggest that perhaps a more fruitful route to interrupting trait body shame’s effects on health behaviors could be an intervention aimed at improving body responsiveness. Indeed, individuals with high body responsiveness seek health information regardless of how much control they perceive to have over their health, as suggested by the results of Study 2. Therefore, future research may investigate whether increasing body responsiveness may increase health information seeking, and potentially other positive health behaviors. This may be achieved using the mindfulness meditation interventions (Astin, 1997; Rybarczyk et al., 1999; Tacón et al., 2004) mentioned earlier in this dissertation, as such interventions have been shown to increase body responsiveness (Daubenmier et al, 2011).

These future directions address the complex ways in which body responsiveness and perceived control over health may interact to influence health information seeking. Nevertheless, another issue that may be addressed in future research is the idea that the model predicts in different ways for acute health outcomes versus health information seeking. Indeed, while the Pilot Study demonstrated that trait body shame led to poor health through the mechanisms of diminished body responsiveness and decreased control over health, Study 2 demonstrated that this path predicted increased information seeking, a positive health behavior. In considering why this model might predict positive health behaviors yet detrimental health outcomes, it is important to keep in mind that these are two different outcomes. Certainly, while health information seeking is predictive of some
health-related outcomes (e.g., Greenfield, Kaplan, Ware, Yano, & Frank, 1988; Orth, Stiles, Scherwitz, Hennrikus, & Vallbona, 1987), health information seeking and health outcomes are not the same thing. There are many intermediary steps between health information seeking and health outcomes, including the implementation of the health information that one might seek. Seeking health information online is relatively easy and convenient compared to, for example, performing monthly breast self-exams or attending regular gynecological visits. These behaviors are more time- and effort-intensive, making them more difficult to accomplish than information seeking. Given that relatively stable, internal attributions for negative events may lead to decrements in behavior (Klein et al., 1976), these tasks may be even more difficult for individuals with high trait body shame, who attribute falling short of a body ideal to unchangeable aspects of the self (Fredrickson & Roberts, 1997), many times because of events that occur within the physical body (Roberts & Goldenberg, 2007). Future research may examine whether the attributions made in trait body shame detract from the implementation of more effortful health behaviors, which in turn may lead to poorer health outcomes.

Finally, in terms of future directions, exploring the role of depression in this model may be interesting. Indeed, depression predicted increased information seeking in both studies, eliminated the effect of trait body shame on body responsiveness in Study 1 (although, as noted, this was partially due to issues with the body responsiveness measure), and acted as a significant covariate in the models in Study 2. Moreover, taking depression out of the model in Study 2 caused the model to become insignificant at both levels of the moderator, suggesting that depression may mask the effects of body shame on the outcome variables in this study. This suggests that trait body shame and depression, while distinct constructs, may function in a similar way in the proposed model. Indeed, trait body shame and depression are correlated (e.g., Grabe et al., 2006) and share similar features such as negative affect and the attribution of negative outcomes to the unchangeable aspects of the self (Abramson & Sackheim, 1977; Fredrickson & Roberts, 1997; Janoff-Bulman, 1979). Because of
these similarities, trait body shame and depression may function similarly in terms of predicting health information seeking in the proposed model. For example, as discussed after Study 1, depression and trait body shame may both predict increases in information seeking, as both may create uncertainty, a state which individuals may be motivated to mitigate by seeking information (Berlyne, 1960; Trope, 1979). However, while depression may cause individuals to seek out information to resolve uncertainty in the social environment (Hildebrand-Saint & Weary, 1989), trait body shame may cause individuals to be uncertain events that occur within their bodies, like their health, thus creating a need to seek information about it.

Trait body shame and depression may also function similarly in terms of predicting the mediators in the proposed model. While this is the first investigation linking depression and body responsiveness that I am aware of, it stands to reason that depression could lead to devaluing of body signals. For example, depression has been linked to diminished awareness of the internal workings of the body (Terhaar, Viola, Bär, & Debener, 2012). This may be because of anhedonia, or low arousal (Ferguson & Katkin, 1995), or it may be because individuals experiencing depression may not value this information because these individuals may develop a negative, distorted view of their own bodies (Beck, 1976; Noles, Cash, & Winstead, 1987). However, while depression may predict devaluing the body due to an overall negative view of the self including the body (Beck, 1976; Noles, Cash, & Winstead, 1987), trait body shame may predict devaluing the body based on those elements of the body which do not meet the ideal, most specifically its physical functioning.

Finally, trait body shame and depression may also predict a lack of control over health. Indeed, depression is correlated with diminished perceptions of control over health (e.g., Cukor et al., 2008; Field & Kruger, 2008; Reynaert et al., 1995; Wardle et al., 2004). Moreover, in Study 2, not covarying out depression eliminated the interaction between perceived control over health and body responsiveness in terms of predicting health information seeking. This may suggest that perceived control over health and depression also share variance when predicting health behaviors. Indeed,
depression may be characterized by a perceived lack of control over self-relevant outcomes (Janoff-Bulman, 1979). This general lack of perceived control may be expected to extend to health.

In conclusion, the studies described herein were designed to test whether trait body shame could contribute to detrimental health behaviors that are not expected to mitigate appearance concerns, and to test potential mechanisms by which this relationship may occur. Based on pilot data, I expected that trait body shame would lead to diminished body responsiveness, which would in turn lead to decreased perceived control over health, which would ultimately lead to less health information seeking. Based on the results of the studies presented herein, it appeared that trait body shame may predict detrimental health behaviors that are not expected to mitigate appearance concerns, like avoiding seeking health information, through the mechanism of diminished body responsiveness, but only – and surprisingly – when perceived control over health is manipulated to be high. To be sure, these results must be replicated in future studies. Future research directions include examining potential intermediary steps in the model between health information seeking and health outcomes in the context of trait body shame, as well as increasing positive health behaviors by increasing body responsiveness through mindfulness meditation.
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Appendix A

Trait Body Shame Questionnaire

INSTRUCTIONS: The items in this questionnaire refer to how people feel about their bodies. Please read each item carefully and indicate the extent to which it is characteristic of you, using the scale below. (NOTE: Study 1 used a 5-point scale with the same anchors)

not at all 1 2 3 4 5 6 7
very much

1. When my clothes don’t fit right, I feel ashamed of myself.
2. Comparing my appearance to the way that celebrities look makes me feel unattractive.
3. Being really sweaty makes me feel like a disgusting person.
4. When I can't control my weight, I feel like something must be wrong with me.
5. On days I know I don't look my best, I wish I could just be invisible.
6. If I don't feel thin, I feel as though I'm an inferior person.
7. I feel ashamed of myself when I haven't made the effort to look my best.
8. I would be very embarrassed if someone noticed my body odor.
9. I get angry at myself when my body doesn't look the way I think it should.
10. I feel like I must be a bad person when I don't look as good as I could.
11. I often wish I had a better body.
12. If someone else wants to evaluate me on the way that I look, that's their problem; not mine.
13. I would be ashamed for people to know what I really weigh.
14. I really would not care if someone noticed how sweaty I was after walking to class.
15. Sometimes, I feel like I need to work harder at keeping thin.
16. I worry that something is wrong with me when I'm not exercising as much as I should.
17. Looking through fashion magazines makes me wish I had a better body.
18. I often wish that people couldn't see the way I look.
19. When I am not exercising enough, I question whether or not I'm a good person.
20. Even when I can't control my weight, I think I'm an okay person.
21. When I'm not the size I think I should be, I feel ashamed.
22. I usually feel self-conscious about my body.
23. I feel bad when I don't feel like a thin person.
24. I get frustrated with myself when I gain weight.
25. I can get really upset if an item of clothing that I try on in the store doesn't fit right.
26. When I feel fat or bloated, I try to hide my body.
27. Seeing models in advertisements doesn't really make me feel bad about my body.
28. I feel hopeless when I think about changing my appearance.
Appendix B

Body Responsiveness Items

INSTRUCTIONS: The items in this questionnaire refer to how people feel about their bodies. Please read each item carefully and indicate the extent to which it is characteristic of you, using the scale below.

<table>
<thead>
<tr>
<th>not at all true about me</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>very true about me</th>
</tr>
</thead>
</table>

1. It is important for me to know how my body is feeling throughout the day.
2. I enjoy becoming aware of how my body feels.
3. I ‘listen’ to my body to advise me about what to do.
4. I suppress my bodily feelings and sensations. (r)
5. My mind and my body often want to do different things. (r)
6. My bodily desires lead me to do things that I end up regretting. (r)
7. I am confident that my body will let me know what is good for me.
Appendix C
Perceived Control over Health Items

INSTRUCTIONS: The items in this questionnaire refer to how people feel about their bodies. Please read each item carefully and indicate the extent to which it is characteristic of you, using the scale below. (NOTE: Study 1 used a 5-point scale with the same anchors)

<table>
<thead>
<tr>
<th>not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>very much</th>
</tr>
</thead>
</table>

1. My health is a matter of unexpected ups and downs (r).
2. I often feel vulnerable to sickness (r).
3. I am in control of my health
4. I am seldom physically ill.
5. From day to day, I never know how my body will feel (r).
Appendix D

Multidimensional Health Locus of Control Scale

INSTRUCTIONS: Each item below is a belief statement about your medical condition with which you may agree or disagree. For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement, using the scale below. The more you agree with a statement, the higher will be the number you circle. The more you disagree with a statement, the lower will be the number you circle. Please make sure that you answer EVERY ITEM and that you circle ONLY ONE number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

<table>
<thead>
<tr>
<th>strongly disagree</th>
<th>moderately disagree</th>
<th>disagree</th>
<th>agree</th>
<th>moderately agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. If I get sick, it is my own behavior which determines how soon I get well again.

2. No matter what I do, if I am going to get sick, I will get sick. (r)

3. Most things that affect my health happen to me by accident. (r)

4. I am in control of my health.

5. When I get sick, I am to blame.

6. Luck plays a big part in determining how soon I will recover from an illness. (r)

7. My good health is largely a matter of good fortune. (r)

8. The main thing which affects my health is what I myself do.

9. If I take care of myself, I can avoid illness.

10. No matter what I do, I'm likely to get sick. (r)

11. If it's meant to be, I will stay healthy. (r)

12. If I take the right actions, I can stay healthy.
Appendix E

Center for Epidemiological Studies – Depression Scale, Revised

INSTRUCTIONS: Below is a series of statements. For each statement, please indicate how often you have felt this way recently by selecting the option you most agree with, using the scale below.

Not at all or less than 1 day last week.  One or two days last week.  Three to four days last week.  Five to seven days last week.  Nearly every day for two weeks.

1  2  3  4  5

1. My appetite was poor.
2. I could not shake off the blues.
3. I had trouble keeping my mind on what I was doing.
4. I felt depressed.
5. My sleep was restless.
6. I felt sad.
7. I could not get going.
8. Nothing made me happy.
9. I felt like a bad person.
10. I lost interest in my usual activities.
11. I slept much more than usual.
12. I had trouble keeping my mind on what I was doing.
13. I felt fidgety.
14. I wished I were dead.
15. I wanted to hurt myself.
16. I was tired all the time.
17. I did not like myself.
18. I lost a lot of weight without trying to.
19. I had a lot of trouble getting to sleep.
20. I could not focus on the important things.
Appendix F

Information Seeking Task: Health-Related Article 1

Performing a Breast Self-Exam

Breast self-exam, or regularly examining your breasts on your own, can be an important way to find a breast cancer early, when it's more likely to be successfully treated. Not every cancer can be found this way, but it is a critical step you can and should take for yourself. Here are some tips for performing regular breast self-exams:

- **Committing to doing breast self-exams.** Regularly examining your breasts on your own can be an important way to find a breast cancer early. When cancer is found early, it is much more likely to be treated successfully. Not all cancers can be found this way, but it is a critical first line of defense that you can take for yourself.

- **Getting into the habit.** Try to get in the habit of doing a breast self-examination once a month in order to familiarize yourself with how your breasts normally look and feel. Examine yourself several days after your period ends, when your breasts are least likely to be swollen and tender. Mark the day on a calendar, so you won’t forget when you examined yourself last.

- **Remaining calm if you think you feel a lump.** Most women have some lumps or lumpy areas in their breasts all the time. In the United States, only 20% of women who have a lump biopsied turn out to have breast cancer. That being said, if you do feel a suspicious lump during a BSE, it is best to have it looked at by a trained medical professional.

- **Knowing your breasts.** Breasts tend to have different “neighborhoods,” some of which are naturally more lumpy and bumpy than others. It is important that you get to know the look and feel of your breasts' various neighborhoods. Does something stand out as different from the rest? Has anything changed? Bring these changes to the attention of your doctor.

- **Starting a journal.** Start a journal to keep track of what you find during your breast self-exams. This can be like a small map of your breasts, with notes about where you feel lumps or irregularities. Especially in the beginning, this may help you remember, from month to month, what is “normal” for your breasts.

From: [http://www.breastcancer.org/symptoms/testing/types/self_exam/](http://www.breastcancer.org/symptoms/testing/types/self_exam/)
Maintaining Your Sexual Health

Sexual health is an important part of your life as a young adult, and should be maintained whether or not you engage in sexual behavior. However, sexual health can be hard to talk about, especially in the transition from high school to college, and so it is easy to ignore. Here are some tips to help you get comfortable with maintaining your sexual health.

- **Getting annual Pap smears and STI testing.** Women should see a clinician or gynecologist at least once a year once they’ve become sexually active or are 18 years or older. During a pap smear, a clinician will take a sample of cervical cells to test for abnormalities or indications of cervical cancer. Pap smears usually only take a few minutes.

- **Maintaining your hygiene and vaginal health.** Maintaining sexual health also involves practicing good vaginal hygiene. Don’t be afraid to become comfortable with your body by exploring it. If you know what your vagina normally looks and smells like, you’ll be better able to know when there is a cause for concern.

- **Thinking about the future.** If you plan to have children in the future should take steps in advance to maintain your reproductive health. Eating a healthy diet and not smoking now predict good reproductive health in the future. Regular STI testing is important, too, because untreated STIs can lead to complications within the reproductive organs.

- **Knowing where to go for resources.** If you are sexually active, consider that many unplanned pregnancies or STI infections occur because people do not have the correct information about prevention and don’t know where to go for information. Many educational outlets exist, such as the university health clinic, your doctor, or the internet.

- **Using birth control correctly and responsibly.** If you are sexually active, many forms of contraception are available use in preventing unplanned pregnancies and STIs, such as condoms, abstinence, and birth control pills (note: birth control pills do not protect against the spread of STIs). Investigate your options and be sure to choose what works best for you.

Adapted from: [http://madamenoire.com/31561/ways-to-maintain-your-sexual-health/](http://madamenoire.com/31561/ways-to-maintain-your-sexual-health/)
Appendix F (cont.)

Information Seeking Task: Health-Related Article 3

When to Seek Treatment for Flu Symptoms

In college on a large campus, it’s easy to get sick during flu season. But, because certain symptoms are characteristic of a lot of different things, sometimes it’s hard to know when you should go to the doctor and when it might be better to tough it out. Here is some advice on whether you should seek medical advice for flu symptoms.

- **Interpreting congestion.** Congestion can come from many sources, like a virus or a bacterial infection, but also allergies and asthma. You should contact your doctor if you have congestion is accompanied by sore throat, aches, chills and runny nose, or when your congestion persists for more than two weeks despite over-the-counter treatment.

- **What to do about a headache.** Headaches can be caused by many factors like the flu, neurological conditions like a concussion, or even stress and strain. A headache associated with a sore throat or fever may be a sign of illness. A severe headache that is accompanied by stiff neck, vomiting, and sensitivity to light requires immediate medical attention.

- **Treating a fever.** A fever is typically a sure sign that infection has occurred, but it’s not always clear whether you should go to the doctor or let it go away on its own. When a fever is accompanied by headache, vomiting, or diarrhea, or lasts more than 48 hours, talk to a doctor. Adults with a fever of 103˚ or higher should visit the emergency room immediately.

- **Interpreting a sore throat.** Sore throat is a feature of many viral or bacterial infections, and may be worse right when you wake up. A sore throat that persists for more than 48 hours is a sign that you should visit a doctor. Also see your physician if your sore throat is accompanied by white patches in the throat, which is a sign of strep throat.

- **What to do about a cough.** A cough can result from things like allergies, environmental irritants, or illness. Seek medical care when cough produces mucous that is yellow or green and has lasted more than a week or is accompanied by a fever. Also, adults with heart issues like heart murmurs or heart disease should seek medical attention with a persistent cough.

  Adapted from: [http://coldflu.about.com/od/cold/p/coldfludiagnose.htm](http://coldflu.about.com/od/cold/p/coldfludiagnose.htm)
Slim Yourself with Your Wardrobe

It is widely known that small adjustments to what you are wearing can make you look pounds lighter. But sometimes it’s hard to know which key items in your wardrobe can help you accomplish a slimmed-down figure. Here are some tried-and-true tricks to help you look and feel better, just by changing your clothes.

- **Wear slimming undergarments.** Undergarments can slim down problem areas or add extra emphasis where needed, such as in the bust and the rear. Choose bras and underwear with nonbinding bands to avoid unwanted rolls. One shaper may not go with everything, so be prepared to stock up on various styles for different outfits.

- **Maintain balance & proportion.** If you are wearing something tight on your bottom half (like leggings or skinny jeans), then pair it with a loose-fitting top. If you are wearing something form-fitting on top, pair it with something that has some volume (like wide leg trousers or bootcut jeans). Simple as that!

- **Hide bulges with oversized cardigans.** Another cardigan option that slims is an oversized lightweight cardigan worn with skinny pants and heels. The skinny pants slim your lower legs, while the heels not only give you glamorous height, but also elongate your legs. Again, the cardigan does not add bulk and skims your sides to hide any bulges.

- **Lengthen your body with a monochromatic palette.** An outfit consisting of monochromatic colors instantly streamlines your shape and effortlessly lengthens the body. The colors do not have to be the exact same, as long as they are in the same color family. Darker colors tend to have even more of a slimming effect.

- **Trim your figure with layers.** A calculated combination of layers trims the figure. For example, try a cropped jacket over a baby doll top, paired with slouchy pants and wedges. The top covers up the tummy while the cropped jacket defines the waist and slims the upper arms. The dramatic length of the pants automatically makes legs look extra long.

Adapted from: http://www.divavillage.com/article.php?id=39487
Appendix F (cont.)

Information Seeking Task: Appearance-Related Article 2

Tips for Applying Eye Shadow

Wearing eye shadow is an easy way to make your eyes stand out. Applying eye shadow sounds easy, but most of us have had trouble getting our eye shadow to do what we want it to do. Here are some tips from professional makeup artists and beauty editors that can help us achieve the flawless eye shadow we see on magazine covers.

- **Choosing the right color.** Choosing an eye shadow that’s close to your eye color will actually bring out that color. Another trick is to choose a contrasting color, which will also make your eyes stand out. For example, if you have blue eyes, choose blue or gold. Many make-up companies now sell eye shadow palettes that work best for certain eye colors.

- **Using a makeup brush.** Throw away the cheaper blender that comes with the eye shadow, because these tend to distribute color unevenly and pull on the skin, which can contribute to wrinkles. Instead, invest in a high quality makeup brush made of soft bristles. This may be expensive, but a good brush will last a while, and you’ll see the difference it makes.

- **Setting shadow with a primer.** If you’re going to go to all this work to get great eye shadow, then you will want to be sure it stays on throughout the day. This can be achieved by using a primer, which will help to set the makeup and reduce smudging and fading throughout the day. Apply primer over the entire lid before you apply eye shadow.

- **Being sure to blend well.** Basically, your eye shadow palette consists of a light base that closely resembles your skin tone, a main color for the lid, and a highlighter for the crease, which is the darkest color of the palette. Always start with the base and apply across the entire eyelid, up to the brow bone. Then, apply the main color, and then the highlighter last.

- **Using a highlighter.** A highlighter is the darkest shade in your eye shadow palette, and can make or break your look. If you choose to go with a highlighter to the crease of your eye, being careful to blend only on the outside edge. Get too close to the eye and you’ll cause your eyes to look small. Get too close to your brow bone, and your look will be too dramatic.

Adapted from: [http://o5.com/12-tips-for-applying-eye shadow/](http://o5.com/12-tips-for-applying-eye shadow/)
Appendix F (cont.)

Information Seeking Task: Neutral Article 1

Tips for Traveling Abroad

Traveling abroad can be one of the most rewarding experiences of one’s adult life. Visiting another country can be a wonderful experience, but it is easy to go in unprepared. The following tips are intended to help you prepare for going abroad in order to make your next trip as enjoyable as it possibly can be.

• **Staying comfortable traveling.** One of the tasks you need to prepare for is that excruciatingly long flight or road trip. If you are flying try to purchase the best seat you can afford. Take along a book, comfy travel pillow and eye covers. And, if you’ll be walking at your destination, be sure to pack comfortable shoes and socks.

• **Keeping track of your documentation.** Each country has different entry requirements, so be sure that you have understood the requirements and get started on your documentation as soon as possible. Things can get lost in the mail, workers go on vacation, etc. Give yourself as much time as you can your nerves will thank you.

• **Keeping a journal.** If you can, take some time at the end of each day to chronicle details and observations you make during your trip. Take notes about the pictures you’ve taken. This will help you remember more details about the experiences you had in the months and years after your trip.

• **Studying up on cultural norms.** If eating something that’s a little different tends to make you nervous, be sure to know the right way to refuse a dish that’s offered to you. What are the cultural norms here? What do they call it and how do they spell it? Knowing a little beforehand can prevent you from an embarrassing situation.

• **Knowing what you can take back with you.** One of the greatest joys when traveling those long distances is being able to bring home a reminder of your time away. However, you do have a long distance to get back home. It is wise to choose items that can either be brought on as a carryon or can be packed nice and snug in your suitcase.

Adapted from: [http://www.hotelsbycity.net/help/tips/traveling/](http://www.hotelsbycity.net/help/tips/traveling/)
Finding the Right Apartment for You

Finding an apartment that’s right for you, especially in a small area where the rental pool is limited, can involve a lot of time, effort, and consideration. Apartment hunting itself can be a stressful experience, and with good reason. But, with enough planning, you can make your next apartment search go smoothly and successfully.

- **Deciding what you want.** Before you begin searching for apartments, make a list of must-haves that you want in an apartment. Ask yourself questions like, how many bedrooms and bathrooms do I need? and how much closet space do I need? Checking out listings for apartments that don’t meet these criteria will be a waste of time.

- **Staying focused and not getting discouraged.** When you start feeling frustrated with your apartment search, don't despair! Instead, stay focused and keep your eye on the prize. Remember just how excited you were when you started your search, and try to visualize how happy you'll be once you find the right place.

- **Setting realistic goals and expectations.** Searching for an apartment takes time, and it’s hard to find the perfect apartment without much effort. If you know this going in, you won't be disappointed if finding an apartment takes a while. If you don’t find a great apartment right away, just take it in stride and know that it's just a matter of time until you reach your goal.

- **Staying organized.** Once you start to see more than a few apartments, it’s easy to get them confused. Stay organized by taking good notes about your apartment hunting efforts. Make a chart that lists information such as the apartment’s location, number of bedrooms, pros and cons, etc. File away brochures, floorplans, and other materials you collect on your search.

- **Asking questions.** Choosing a place to live is a serious matter, so don’t be afraid to ask questions. Be persistent – if you will be paying money to live in an apartment, then you have a right to have your questions about it answered. If you don't like the answers you hear or you suspect that your broker or a landlord isn't being honest with you, move on.

Adapted from: [http://apartments.about.com/od/apartmenthunting/a/FindApartments.htm](http://apartments.about.com/od/apartmenthunting/a/FindApartments.htm)
Appendix G

Information Seeking Article Ratings (Exploratory)

Study 1

Please rate the article [Article Title]

1. How interesting was this article?
2. How likely is it that you would be able to carry out the advice provided in the article?
3. Would you like more information about the topic you just read about?

The article [Article Title] made me feel...

1. ...happy.
2. ...positive.
3. ...hopeful.
4. ...sad.
5. ...negative.
6. ...fearful.

Study 2

Please rate the article [Article Title]

1. How interesting was this article?
2. Would you like more information about the topic you just read about?
3. I am able to do the tasks described in this article.
4. It would be easy to do the tasks described in this article.
5. Doing the tasks described in this article would be convenient.
6. Would you like more information about the topic you just read about?

The article [Article Title] made me feel...

1. ...happy.
2. ...positive.
3. ...hopeful.
4. ...sad
5. ...negative.
6. ...fearful.
INSTRUCTIONS: This is a basic test of reading comprehension. Please read the following article closely and carefully and then answer the questions that appear after it.

**High Perceived Control Over Health Condition**

In their talk at the American Psychological Association's annual convention held at Washington D.C. in August, renowned researchers Dr. Evers and Dr. Thompson argued that, "while many people believe that they have very little control over their health, in reality, our health is largely dependent on factors that are within our control as individuals." They reported numerous large longitudinal studies confirming that "over time, factors over which an individual has direct control, such as regular exercise, healthy diet, and avoiding germs with proper hand washing determine whether or not someone will develop a disease or health condition." In short, the scientific evidence suggests that we as individuals do have quite a bit of control over our health.

**Low Perceived Control Over Health Condition**

In their talk at the American Psychological Association's annual convention held at Washington D.C. in August, renowned researchers Dr. Evers and Dr. Thompson argued that, "while many people believe that they have control over their health, in reality, our health is largely dependent on factors outside of our control as individuals." They reported numerous large longitudinal studies confirming that "over time, factors over which an individual has little control, such as genetics, environmental toxins, and stable immune factors determine whether or not someone will develop a disease or health condition." In short, the scientific evidence suggests that we as individuals do not have much control over our health.
Appendix I

Perceived Control Over Health Manipulation Check Items

INSTRUCTIONS: The following items regard the passage you just read. Please answer the following questions:

<table>
<thead>
<tr>
<th>strongly disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. I found the passage enjoyable to read. (*filler*)
2. I found the passage easy to read and comprehend. (*filler*)
3. I agree with the scientific evidence with which I was presented.
4. An individual has a lot of power to control his or her health.
5. As individuals, we actually have very little control over our health (r).
6. Though we can change some phenomena, it is unlikely that we can do much to change our health (r).
Jean M. Lamont
Vita

EDUCATION

Aug ’13 (anticipated) PhD, Psychology, Social Area, Graduate Minor in Women’s Studies, Specialization in Cognitive and Affective Neuroscience, Penn State University, University Park, PA
DISSERTATION: Body shame and health information seeking: The roles of body responsiveness and perceived control over health (advisor: Karen Gasper, PhD).

Aug ’11 MS, Psychology, Social Area, Graduate Minor in Women’s Studies, Specialization in Cognitive and Affective Neuroscience, Penn State University, University Park, PA
MASTER’S THESIS: Effects of state and trait body shame on health-related outcome measures. (advisor: Stephanie Shields, PhD).

May ’04 MA, Psychology, Clinical Concentration, Connecticut College, New London, CT
MASTER’S THESIS: The role of shame in the relationships among body image, menstrual attitudes, and childhood abuse trauma history (advisor: Joan C. Chrisler, PhD).

May ’00 BA, Psychology and English Literature, Denison University, Granville, OH
SENIOR THESIS: The involvement of depression level and gender role in females and males: Causal attributions for success and failure (advisor: Sarah Hutson-Comeaux, PhD).

SELECTED EXPERIENCE

beginning Aug ’13 Visiting Assistant Professor of Psychology, Bucknell University, Lewisburg, PA

May ’11 – Dec ’12 Graduate Instructor, Penn State University and World Campus, University Park, PA

Aug ’07 - Dec ’07 Visiting Instructor, Psychology, Denison University, Granville, OH

Jan ’05 - Mar ’08 Part-time Lecturer, Psychology, the Ohio State University, Newark Campus, Newark, OH

Jan ’06 - Mar ’08 Adjunct Faculty, Psychology, Central Ohio Technical College, Newark, OH

Jan ’10 – Jan ’11 Research Assistant, Psychology and Biobehavioral Health Depts., Penn State University, University Park, PA

Aug ’01 - May ’02 Research Assistant, Women & Infants Hospital, Providence, RI

PUBLICATIONS


SELECTED PRESENTATIONS


