THE EFFECTS OF MONITORING AND ABILITY TO ACHIEVE COGNITIVE STRUCTURE ON THE PSYCHOLOGICAL DISTRESS OF HIV TESTING

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ABSTRACT

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Human Immunodeficiency Virus (HIV) is a significant health concern and millions of people are tested for it in the United States each year. Many persons undergoing testing experience substantial psychological distress. The psychological distress associated with testing can be influenced by a person’s coping style. One coping style that has received research attention is information seeking. Information seeking has been shown to vary along two dimensions: Monitoring and blunting. Monitoring refers to a strategy wherein a person tends to seek out information concerning threatening events and blunting refers to a strategy wherein a person tends to avoid information and has a preference for distraction. Researchers have suggested that a person will benefit optimally when information presentation is congruent with information seeking preference.

There have been conflicting results in the literature as to whether a monitoring preference is associated with increases or decreases in distress when information is received about a threatening event. This suggests that another variable may influence one’s distress level. Consequently, it has been suggested that the ability to achieve cognitive structure (AACS) may play an important moderating role in the relationship between monitoring and psychological distress. AACS is the ability to organize information and integrate it with existing cognitive structures. The present study examined the association among information seeking style and the ability to achieve cognitive structure on psychological distress associated with HIV testing.

Results indicated that there was no interaction between monitoring and AACS on psychological distress. Results showed that the AACS was related to the participants’ level of psychological distress for both time 1 and time 2. However, the level of monitoring was not
related to the level of psychological distress at time 1 and time 2. The results of this study suggest that for individuals undergoing HIV testing, the AACS may be a better predictor of psychological distress than the level of monitoring. Limitations of the study, clinical implications, and suggestions for future research are also discussed.
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INTRODUCTION

Much research has been conducted in the field of health psychology in applying psychological concepts, such as coping (Lazarus & Folkman, 1984), in order to better understand how individuals manage stressful events, such as having an illness (Miller & Schnoll, 2000). The topics that have been addressed range from the prevention of disease to its early detection and long-term management. Individual differences in selecting and processing health-relevant risks and information, and the accompanying emotional consequences have also been examined (Miller & Schnoll, 2000). One health-relevant risk that is a significant health concern in today’s society is acquiring Human Immunodeficiency Virus (HIV).

Epidemiology of HIV and HIV testing

HIV, the infectious agent that causes Acquired Immunodeficiency Syndrome (AIDS), is a disease that leaves a person vulnerable to life-threatening infections. According to the Joint United Nations Programme on HIV/AIDS (2003), 40 million people worldwide were estimated to be living with HIV/AIDS in 2003 and an estimated 5 million people acquired the human immunodeficiency virus (HIV) in 2003, including 42,136 diagnoses in the U.S. (Center for Disease Control [CDC], 2003). The number of newly diagnosed cases of HIV had risen in the United States in 2002 for the first time in a decade (MSNBC News, 2003). One of the most devastating aspects of this disease is that there is no cure. However, a number of drugs have been developed that suppress HIV replication, thereby preventing the destruction of the immune system and allowing individuals to live longer.

Although precise data on the total number of HIV tests performed in the U.S. are not available, according to the CDC (2003), surveys have found that one third of adults have been tested at least once, including those tested through blood donation. It was further approximated
that 24.6 million persons are tested in the United States during a 12-month period, primarily in
private settings (CDC, 2003).

*Impact of HIV and HIV Testing on Emotional Activation*

HIV testing and early detection of the disease can lead to many advantages. Some of
these advantages include increased medical care against opportunistic infections, decreased
transmission of the virus if the infected person employs “safer sex” practices, increased time to
psychologically prepare for potential health changes, and decreased risk of occupational
transmission, in which health care workers can more consistently employ universal precautions
with known HIV-positive individuals. Despite these advantages, the thought of [undergoing a
test for HIV and] possibly learning that one has contracted HIV generates ideas of a lonely and
horrifying death and produces great fear and anxiety in most individuals (D’Eramo & Brand,
1993).

*Relationship Between Emotional Activation and Stress on Return for HIV Test Results*

People not returning to testing sites to receive the results of their HIV test has been a
problem that has been cited in the HIV literature (Lyter, Valdiserri., Kingsley, Amoroso, &
Rinaldo, 1987; Slutske, Klockner, & Fleming, 1992; Fichtner, Wolitski, Johnson, Rabins, &
Fishbein, 1996; Keenan & Keenan, 2001). Many studies have been conducted to examine the
number of people who do not return to the HIV testing sites to receive the results of their HIV
test. In 1987, investigators examining gay and bisexual men undergoing HIV tests found that
46% failed to return for the results of their HIV test (Lyter et al., 1987). From 1989-1990, an
Oregon Health Division monitored whether clients tested for HIV at public sites returned within
30 days and the results showed that 24% failed to return for their results (Slutske et al., 1992). In
1996, researchers conducted a study on STD clinic clients’ return for test results and found that
only 41.8% of participants returned to the clinic for their results (Fichtner et al., 1996). In 1998, it was found that 48% of persons who had undergone HIV testing at publicly funded sites in the United States failed to return for test results and posttest counseling (Keenan & Keenan, 2001).

According to one of these studies, some reasons that people had given for not returning for test results were the potentially harmful psychological impact if the results were positive and the fear of not being able to cope with the results (Lyter et al., 1985). So it appears that if one’s psychological distress is too high during the HIV test or during the waiting period for the results, it may lead one to not return for the test results. This may be due to the belief that one is not able to manage the anxiety of waiting for the test result or the anxiety of a positive test result.

This psychological distress associated with testing can be influenced by a person’s coping style. With the amount people being tested for HIV, it is important to identify what kind of coping strategies are associated with either increased levels or decreased levels of psychological distress. In turn, prevention and treatment strategies targeting coping style and psychological distress can be developed.

**Monitoring as a Correlate of Emotional Activation and Information Seeking**

One coping style that has received attention in the health psychology field is information seeking style. Miller (1991) suggested that when individuals are threatened by an aversive event, their information seeking behavior can vary along two dimensions: Monitoring and blunting. Monitoring refers to a strategy wherein a person tends to seek out information concerning threatening events. This includes monitoring the external environment and one’s internal bodily states for relevant signs of threat. In contrast, blunting refers to a strategy wherein a person tends to avoid information and has a preference for distraction. It has become clear that there are stable individual differences with regard to information seeking styles and individuals who differ on
this dimension tend to show distinctive patterns of information search (Miller, Rodoletz, Schroeder, Mangan, & Sedlacek, 1996).

Miller (1987) created the Miller Behavioral Style Scale (MBSS) to measure the extent to which individuals use a monitoring or blunting information seeking style. This scale was validated by demonstrating that under laboratory conditions, when threatened by an electric shock or performance evaluation, monitors searched for information regarding the threat while blunters tended to distract themselves. Subsequently, the MBSS has been extensively used in various medical contexts and populations, such as, cancer-related settings, dental surgery, and patients suffering from HIV (Miller et al., 1996). Although monitoring and blunting were initially considered to be at the opposite ends of one dimension, research findings suggest that these dimensions may be substantially independent (Van Zuuren, De Jongh, Beekers, & Swinkels, 1999; Van Der Zee, 2002). Consequently, recent research tends to focus on evaluating differences between high and low monitoring and/or high and low blunting.

The most consistent difference between high monitors and low monitors is that high monitors appear to seek more information and low monitors appear to seek less information, especially with regard to potentially disturbing news about their health and well being (Miller et al., 1996). Miller (1980) proposed that it is important to determine whether a person has a preference for seeking information or not seeking information because it may lead to characteristic ways of responding cognitively and emotionally to potentially threatening information. Rather than assuming that one mode of approach is better than the other, it is important to identify when, and under what circumstances, these strategies have adaptive consequences for the individual and when they do not (Miller, Combs, & Kruus, 1993).
Miller suggested that a person will benefit optimally when the way that information is presented is congruent with one’s information seeking preference. According to Miller, high monitors should have less emotional and physiological activation when a high level of information is available, whereas low monitors should have less emotional and physiological activation when a low level of information is available. Overall, there have been conflicting results in the literature as to whether high monitoring is beneficial or not for when information is received about a threatening event. For example, when high monitoring patients were provided with high amounts of preparatory information before a diagnostic procedure, they showed lower subjective and physiological arousal during the procedure than low monitoring patients who received minimal amounts of information (Miller & Mangan, 1983). Alternatively, it was shown that in some threatening situations, high monitors exhibited higher levels of distress relative to low monitors when receiving information (Miller, 1995).

The Monitoring Process Model (MPM) (see Figure 1) was then developed to clarify these conflicting results (Miller, Roussi, Caputo, & Kruus, 1995). According to this model, high and low monitors differ in the way that they encode or construe stressful situations. High monitors tend to scan for internal threatening cues, such as bodily symptoms, and external threatening cues, such as information that can be obtained via the environment, and to access them readily. In addition, high monitors seem to have lower thresholds for detecting their bodily cues, which may lead them to over-interpret new or changing physical symptoms (Miller et al., 1996). In turn, this may lead high monitors to encode neutral or ambiguous information that they receive as threatening and they may ruminate on this information, leading to exaggerated perceptions of personal risk. This high level of perceived risk may then result in heightened anxiety and distress (Miller et al., 1996).
At the physiological level, some studies have documented that adverse affective responding by high monitors is manifested in the form of increased muscle tension, stiffness, cardiovascular responsiveness, skin conductance, and pain reactivity (Miller & Schnoll, 2000). At the psychological level, some studies have documented that high monitors show consistently greater self-reported elevations in depression, anger, and anxiety during medical procedures (Miller et al., 1993).

There may be many different reasons for one to use a high monitoring information seeking style. One reason may be in order to identify and perform instrumental actions that will directly decrease the aversiveness of a stressor. However, at times, high monitors have been found to scan for informational cues even when there are no potential responses available that are able to mitigate the stressor (Miller et al, 1993). Another reason is to modulate negative affect. However, it has been shown that attending to threat relevant information may increase rather than decrease one’s negative affective state and this is most evident during the anticipatory and recovery phases of a stressful encounter. Yet, under some circumstances, such as looking at a frightening stimulus in a laboratory setting (Muris & Van Zuuren, 1993), high monitoring was found to be associated with decreased arousal during the actual impact of a stressful event (Miller et al., 1993). A third reason for using a high monitoring information seeking style is to reduce uncertainty. Information may provide accurate expectations about an event, such as the severity, probability, nature, course, and duration of the stressful event. This information may reduce uncertainty by identifying potential safety signals and subsequently helping to offset accompanying anxiety and arousal (Miller et al., 1993).

According to the coping literature, it is still unclear exactly which situations activate the negative arousal consequences of a high monitoring style (Miller et al., 1993). It is important to
explore when a high monitoring style helps individuals in the process of adjustment and when it interferes with adjustment (Miller et al., 1993).

*Effects of Monitoring on Coping with Detection of Disease*

The effects of engaging in a monitoring information seeking style have been studied in different clinical populations undergoing diagnostic testing (see Table 1). Warburton, Fishman, and Perry (1997) examined the relationship between information seeking style and emotional distress in individuals undergoing a test for HIV. Two-hundred and forty nine participants who were recruited as part of a larger longitudinal HIV research program were included in the study. The majority of the participants were at high risk for HIV infection due to sexual intercourse with a potentially infected partner. Before HIV testing, participants completed a battery of self-report instruments, including the Beck Depression Inventory (BDI), the Brief Symptom Inventory (BSI), and the Speilberger Trait Anxiety Inventory (STAI). The participants were also asked to predict if their test result would be positive or negative. The participants then returned every 6 months for repeat HIV antibody testing and at one of the follow up visits, participants filled out the MBSS to assess information seeking style.

Ultimately, none of the participants tested positive for HIV. However, results for psychological distress were different for those who predicted the result of their HIV test would be negative relative to those who predicted their test would be positive. Participants who predicted that their HIV test would be negative scored lower on the BDI, BSI, and STAI regardless of the type of information seeking style that they employed. Among those who predicted their HIV test would be positive, there was a pattern of results where participants who scored low on both information seeking strategies or those who scored high on both information seeking strategies had higher scores on the BDI, BSI, and STAI. The authors suggested that
when confronted with a threat, the use of one type of information seeking strategy may be associated with less psychological distress.

A strength of this study was that participants were threatened with a real-life stressor. This would allow for results to be generalized to a medical context, in which people feel a realistic threat to their health. One limitation of this study was that the amount of information that the participants had about the stressor was not known or assessed. Another limitation was that the sample was a very homogenous group, in which most participants were white, educated, and had adequate financial resources. This may limit the generalization of the results to other populations.

In another study using diagnostic testing, Miller and Mangan (1983) examined the effects of preparatory information and information seeking style when individuals were undergoing a colposcopy. Forty gynecological patients at risk for cervical cancer and about to undergo a diagnostic evaluation for abnormal cells were divided into monitors or blunter depending on their scores of the MBSS. Half of the monitors and half of the blunter were then randomly assigned to either the high-information or the low-information condition. Participants in the high-information group were given a 20-minute verbal and visual preparatory communication, explaining in detail both the forthcoming examination and the sensations that would be experienced. Participants in the low-information condition were given the standard minimal preparation and information about the procedure. Self-ratings of mood (anxiety, depression, and hostility) and readings of pulse rate were obtained upon arrival at the hospital, immediately after the information manipulation, and immediately after the examination. In addition, the doctor and an observer both recorded their observations of the patient’s level of overt tension during the procedure.
Results indicated that participants were significantly less psychophysically aroused (assessed via pulse rate) and had less tension/anxiety during the procedure when the amount of preparatory information they received was consistent with their information seeking styles. However, results also indicated that monitoring was associated with significantly greater ratings of negative moods before and after colposcopy, and greater pain/discomfort after colposcopy than blunting. One strength of this study was that the participants were threatened with a real-life stressor that could produce substantial emotional distress.

Miller, Roussi, Altman, Helm, & Steinberg (1994) also examined women who were undergoing a colposcopy. The authors investigated the psychological consequences of diagnostic follow-up for an abnormal cytologic smear in a population of low-income, minority women. The purpose of this study was to identify patterns of concerns and beliefs as a function of information seeking style. Participants consisted of 36 women who had received positive results of a cervical cytologic smear and were subsequently referred for further evaluation. The participants completed all the measures prior to their examination. These measures consisted of the MBSS, a 12-item questionnaire that assessed participants’ concerns and beliefs about their medical condition, and the Revised Impact of Events Scale (RIES), which is a 15-item self-report scale that measures intrusive and avoidant threat-related ideation.

Results indicated that high monitors were significantly more likely to be concerned and worried about the seriousness of their condition than low monitors. High monitors were also more concerned about the sensory and procedural aspects of their diagnostic examination than low monitors. In addition, high monitors were more likely to blame themselves for their condition and to believe that they had more responsibility for the course of their condition than low monitors. High monitors also engaged in greater intrusive thinking and greater avoidant
ideation than low monitors. The authors concluded that high monitors appear to be more psychologically vulnerable in a medical context because of how they attend to, construct, and interpret their disease status. One strength of this study was that the participants were assessed during a real-life medical situation. One limitation was that the amount of information that the participants had about the stressor was not known.

Miller, Buazaglo, Simms, Green, Bales, Mangan, and Sedlacek (1999) examined monitoring as it interacts with the framing of information designed to improve distress, knowledge, and adherence among women undergoing diagnostic follow-up for precancerous cervical lesions. The sample consisted of 76 women who were referred to a gynecologic oncology practice. Before their scheduled visit, participants filled out a demographic questionnaire and the MBSS. Subsequently, they were randomly assigned to one of the three groups. In the loss-framed information group, preparatory information was designed to emphasize the cost of not adhering to recommended screening behaviors. In the gain-framed condition, preparatory information emphasized the benefits of adhering to recommended screening behavior. In the neutrally-framed condition, participants received the basic preparatory information about adhering to recommended screening behaviors. On the day of the appointment, participants first completed measures of intrusive ideation, which was assessed by the RIES and screening adherence, which was assessed by a self-report screening measure that assessed how often participants canceled or rescheduled their appointments in 6-months. Then they listened to a 20-minute audio-taped informational message that varied depending on the group they were assigned. They then completed a knowledge measure, which was a knowledge questionnaire consisting of 20 true-false items about the informational message, and then the participants underwent the colposcopy procedure. After the procedure, participants were given
measures that assessed intrusive ideation and knowledge to take home and complete in the following week. A follow-up measure of adherence was obtained for those participants who returned to the same gynecologic oncology health care providers for the 6-month screening visit. Results indicated that low monitors exhibited significantly less intrusive ideation in the loss-framed condition than in the neutral-framed condition and high monitors reported significantly greater intrusive ideation in the loss-framed condition compared to the neutrally-framed condition. On a measure of adherence, low monitors in both the loss condition and gain-framed condition reported significantly less canceling/rescheduling than low monitors in the neutral condition. However, there were no effects for high monitors when looking at adherence. The authors concluded that high monitors appeared to engage in a more adaptive pattern of information processing with the neutrally framed condition. One limitation of this study was that the screening adherence measure that was used was derived from patient self-report, in a single item format, which may not be a valid measure.

Other studies have also used different clinical populations to examine the effects of engaging in a monitoring coping style. In one study that used a population who was at risk for ovarian cancer (Schwartz, Lerman, Miller, Daly, & Masny, 1995), the investigators examined predictors of psychological distress among women who had at least one first degree relative with ovarian cancer. Participants consisted of 103 women and the authors examined the relationship between monitoring, perceptions of ovarian cancer risk, intrusive thoughts regarding ovarian cancer, and psychological distress. These variables were assessed through a mailed survey. Monitoring was assessed via the MBSS and perception of risk was measured by a three-item scale that assessed participants’ perceived risk of developing ovarian cancer. Intrusive ideation was measured by the intrusive subscale of the Impact of Events Scale (IES), which assesses the
frequency and severity of intrusive thoughts related to having a first-degree relative with ovarian cancer. Psychological distress was measured by the Profile of Mood States (POMS), which is a 65-item likert-style adjective checklist that measures psychological distress, such as anxiety, depression, anger, vigor, fatigue, and confusion.

Results indicated that high monitoring was positively correlated with perceived risk, intrusive thoughts, and psychological distress. The authors concluded that high monitors may overestimate their objective risk status, which they believe may lead to experiencing unnecessary psychological distress.

One strength of this study was the examination of a possible mediating role of another variable, i.e. perceived risk and intrusive ideation, in linking monitoring and psychological distress. However, a limitation of this study was that the amount of information that the participants had about the stressor was not assessed, which may have an effect on the utility of their information seeking style on psychological distress.

A breast cancer risk population was also studied (Lerman, Schwartz, Miller, Daly, Sands, & Rimer, 1996), in which the authors examined the interacting effects of counseling and information seeking style on psychological distress. Participants consisted of 239 women who had a positive family history of breast cancer in at least one first-degree relative. These participants were identified by relatives who were receiving treatment for breast cancer. The participants were called for a telephone interview to assess sociodemographic factors, breast cancer risk factors, risk perceptions, and breast cancer screening practices. These participants were then asked if they would like to enroll in a free, personalized educational program about breast cancer. For all those participants who agreed, they were randomly assigned to either the breast cancer risk counseling (BCRC), which was the experimental condition, or the general
health counseling (GHE), which was the control condition. Before receiving the intervention, participants completed self-report questionnaires, consisting of the IES Scale, which assessed the experience of stress for a specific life event, the POMS, which assessed general distress, the MBSS, and a one-item scale that asked participants to rate their chances of developing breast cancer. After the intervention, participants were re-contacted 3 months later for a follow-up telephone interview to reassess risk perceptions and screening practices.

Results indicated that regardless of which condition the participants were assigned to (BCRC or GHE), monitors relative to blunters became more distressed over time. The authors concluded that this increased general distress among monitors may be due to their tendency to focus on and ruminate about threatening aspects of the intervention, regardless of the specific content of the intervention. One limitation of this study was that the participants may not represent the broader population of women with a family history of breast cancer because the affected relatives were receiving treatment at a comprehensive cancer center, in which these patients tend to have higher levels of education and income than patients treated in local community hospitals.

It has been suggested that when the amount of information is consistent with one’s coping style it is associated with a reduction of physiological and emotional arousal (Miller & Mangan, 1983). However, high monitoring appears to be more consistently associated with increased levels of subjective and behavioral distress, intrusive thinking and avoidant ideation, and psychological distress. A strength of these studies was that the participants were threatened with a real-life stressor. A limitation with some of these studies was that the amount or type of information that the participants received about the stressful event was not known. Another
limitation of these studies was that information seeking was only assessed via the MBSS, a self-report questionnaire, and no behavioral correlates of information seeking were assessed.

*Ability to Achieve Cognitive Structure*

In addition to differing in their preference for information, people can also vary in the way that they process the information that they receive. More specifically, individuals may differ in their ability to incorporate new and potentially threatening (disconfirming) information into a given personal construct or schema (Miller & Schnoll, 2000). This difference in ability may explain why some high monitors benefit from acquiring additional information while others are harmed by additional information. One researcher (Bar-Tal, 1994) has suggested that the ability to achieve cognitive structure (AACS) may play an important moderating role in the relationship between monitoring and psychological distress.

AACS can be defined as: (a) the ability to disregard information that either cannot be categorized or clashes with the individual’s existing knowledge; and/or (b) the ability to organize information to fit existing cognitive structures. An inability to resolve uncertainty has been implicated in producing stress, as well as preventing effective coping (Bar-Tal, 1994; Lazarus & Folkman, 1984). Stress may occur when an individual who establishes certain expectancies encounters novel and/or uncertain information (Bar-Tal, 1994). It has been suggested that resolution of uncertainty can be achieved by vigilant (high monitoring) behavior (Bar-Tal, 1994). However, it has also been suggested that information-seeking behavior does not necessarily increase certainty (Bar-Tal, 1994). Additional information can resolve uncertainty only to the extent that it is adequately structured or categorized. So, if there is an inability to structure or categorize the information received, new information may increase the psychological distress experienced by high monitors (Bar-Tal, 1994). It has been suggested that for information to be
instrumental in reducing stress and lead the individual to take action, it has to be structured and provide certainty (Bar-Tal, 1994).

Some studies examined whether monitoring information seeking strategies could be moderated by AACS. In one study (Bar-Tal, 1994), the researcher examined if information can reduce uncertainty only to the extent that it can be adequately structured or categorized. Seventy-seven participants with rheumatoid arthritis filled out questionnaires that measured their information seeking style, ability to achieve cognitive structure, psychological distress, and subjective health status. Each patient’s information seeking style was assessed via the MBSS and the ability to achieve cognitive structure was measured via the AACS. Psychological distress was assessed by a 28-item scale that measures emotional reactions to stressful situations and subjective health status was assessed by asking the participants to evaluate their health status on a 6-point scale.

The author observed that participants who used a monitoring information seeking style had different levels of psychological distress depending on their level of AACS. For those who scored low on the AACS, high monitors experienced significantly higher psychological distress than low monitors. For participants who scored high on the AACS, high monitors experienced significantly lower psychological distress than low monitors. From these results, the author suggested that when high monitors experienced greater distress, it may be due to their inability to achieve certainty rather than their tendency to focus on the negative aspects of the threatening event.

A strength of this study was the addition of the variable of the ability to achieve cognitive structure in order to assess if there is a moderator that can cause monitoring to be associated with either increased or decreased psychological distress. A limitation was that the data collected was
from a highly specific sample, which leads one to use caution when trying to generalize the results.

In another study that explored the effect of the ability to achieve cognitive structure on information seeking (Bar-Tal & Spitzer, 1999), the authors investigated the effects of the ability to achieve cognitive structure on individuals’ choices of information seeking and coping strategies and their effectiveness. Eighty-three undergraduate students were given questionnaires in order to study the relationship between coping strategies, information seeking, and the ability to achieve cognitive structure. The AACS was used to assess the ability to achieve cognitive structure, the MBSS was used to assess information seeking, and other coping strategies were assessed via the Ways of Coping Scales. In addition, a self-report inventory assessing perceived coping effectiveness was also given to participants.

Results indicated that monitoring was positively correlated with problem-focused coping ($r = .28$) and seeking social support ($r = .25$). However, no interaction was found between AACS and monitoring in regards to perceived problem-focused coping effectiveness. A limitation of this study identified by the investigators was that the participants were requested to report on their coping and information seeking in response to an interpersonal conflict rather than a health-related threat. Therefore, the participants could have interpreted the stressor in this study as a minor one.
THE PRESENT STUDY

HIV is a significant health concern in today's society and millions of people are tested for HIV each year. Early detection of those who are HIV positive can lead to many advantages, however, the psychological distress that is associated with HIV testing may cause some people to not return for their test results. It is possible that this psychological distress may be influenced by information seeking strategies. It has been suggested from past studies that when the amount of information is consistent with one’s information seeking style it is associated with a reduction of physiological and emotional arousal. However, at times, high monitoring was found to be associated with psychological distress after receiving information, which suggests that there may be something else that is affecting the utility of one’s information seeking style.

Since it is still unclear exactly which situations activate the negative arousal consequences of a high monitoring style, it is important to explore when a high monitoring style helps individuals in the process of adjustment and when it interferes with adjustment (Miller et al., 1993). It has been suggested that future research on monitoring should identify more precisely the conditions in which exposure to information about health threats will enhance versus impair adjustment among individuals with monitoring styles (Lerman et al., 1996). One possibility is that AACS may be a moderator of monitoring and psychological distress.

The present study examined a population undergoing pretest counseling (in which they are given information regarding HIV testing) and HIV testing. The purpose was to assess the impact of information seeking style and the ability to achieve cognitive structure on the psychological distress associated with HIV testing. It was hypothesized that those who use a high monitoring information seeking style and score high on the AACS will have a lower rating of psychological distress than those who use a high monitoring information seeking style and score
low on the AACS. In addition, exploratory analyses evaluated relationships between low monitoring, the AACS, and psychological distress. No specific hypotheses for these measures were generated because there were insufficient data that confidently predicted how the AACS and low monitoring style interacted in contexts where individuals are presented with information.
METHOD

Participants

Participants were recruited from two HIV clinics that are run by the Medical College of Ohio (MCO). One clinic is located on the campus of MCO and one clinic is located at a Planned Parenthood in the city of Toledo, Ohio. All individuals undergoing HIV testing were approached by the researcher and asked if they wanted to volunteer to participate in this study and they were given an information sheet that provided details about the study (see Appendix A). Participants received a ten-dollar voucher for participating.

One hundred and seventy four people were approached and 67 people agreed to participate in the study. There were no significant differences between gender or ethnicity between those who participated and those who did not participate. For those who participated, 45% of the participants were male and the mean age of all participants was 28.48 years (SD = 11.16). In regards to ethnicity, about half of the participants endorsed Caucasian (49.30%), followed by African American (29.90%), other (19.30%), and Native American (1.50%).

Measures

Self-Report Measures

Miller Behavioral Style Scale (MBSS). The Miller Behavioral Style Scale (MBSS), created by Suzanne Miller (1987), is a self-report inventory designed to assess monitoring (the preference of gaining information about the threat) and blunting (the preference for avoiding information about the threat) information seeking styles. The scale describes four threatening scenarios that are relatively uncontrollable (going to the dentist, being held hostage in a public building, threat of job loss, and being on an airplane during a rough flight). Each scenario is followed by four monitoring and four blunting coping options, in which participants place a
check beside each item that applies to them. Three scores can be obtained: a monitoring score, a blunting score, and an overall score. Scores can range from 0 to 16 on both the monitoring scale (4 scenarios with a maximum of 4 monitoring items endorsed) and the blunting scale (4 scenarios with a maximum of 4 blunting items endorsed). To obtain an overall score for the MBSS, the blunting score is subtracted from the monitoring score. Those who score above the normative mean are considered monitors and those who score below the normative mean are considered blunters.

The MBSS has been found to have adequate test-retest reliability that ranges from 0.70 to 0.80 (Miller & Mangan, 1983). The questionnaire has also been shown to be highly internally consistent (Cronbach’s alpha > .80) (Lerman et al., 1996), and stable over time (Miller, 1987). Its convergent, discriminant, and construct validity have also been extensively documented (Miller, 1987; Miller, Brody, & Summerton, 1988). In addition, the MBSS has been shown to be independent from such dimensions as state and trait measures of anxiety (Miller, 1987; Muris & De Jong, 1993).

*Ability to Achieve Cognitive Structure (AACS).* The ability to achieve cognitive structure (AACS) is measured by a 24-item questionnaire that assesses level of difficulty in achieving certainty, adopting a clear-cut solution, and providing structure to life. Some examples of questions are “I tend to delay the making of important decisions until the last possible moment, and even then I continue to be troubled by it”, and “Usually, I don’t have afterthoughts after making decision”. Participants are asked to rate each of the 24 items on a 6-point agreement scale (1 = completely disagree; 6 = completely agree). The composite score is the mean of the responses to the 24 items. This scale was validated in previous studies and showed high test-retest reliability (.86) and good predictive validity (Bar-Tal, Kishon-Rabin, & Tabak, 1997).
AACS has also been compared to the Repression-Sensitization (R-S) Scale, in which the R-S assesses the inability to assimilate perceptual material into perceptual systems. Researchers found a negative correlation (r = -.56) between the R-S scale and the AACS, which further validates the AACS (Bar-Tal et al., 1997).

*Brief Symptom Inventory (BSI).* The BSI is a self-report symptom inventory designed to reflect psychological symptoms. There are 53-items that load onto nine symptom dimensions: Somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The internal consistency of the nine dimensions range from .71 (psychoticism scale) to .85 (depression scale) and test-retest reliability range from .68 (somatization scale) to .91 (phobic anxiety scale). Each item of the BSI is rated on a 5-point scale of distress (from 0 to 4), ranging from “not-at-all” (0) to “extremely” (4).

*Beck Anxiety Inventory (BAI).* The BAI is a self-report inventory consisting of 21 items designed to assess symptoms of anxiety. Participants are asked to rate how much they were bothered by each symptom of anxiety during the past week on a 4 point scale. Each item is descriptive of subjective, somatic, or panic-related symptoms of anxiety. The scale obtained high internal consistency and item-total correlations ranging from 0.30 to 0.71 (median=.60). In addition, test-retest reliability reached 0.75.

*An Adapted Monitoring-Blunting Checklist (MBC).* The Monitoring-Blunting Checklist (MBC) is an adapted checklist (Muris, Van Zuuren, & De Vries, 1994) that consists of 6 monitoring and 6 blunting items that were constructed by the author (see Appendix B). An example of a monitoring item is “I tried to find information about HIV via the internet or in medical books”. An example of a blunting item is “I tried not to think about HIV by watching
television”. The items were based on the descriptions of monitoring and blunting provided by Miller (1991). This checklist was devised to reveal, retrospectively, the possible information seeking strategies that participants may have used during the week that they were waiting for the results of their HIV test.

**Demographic Questionnaire.** This self-report inventory consists of the participants providing information about their age, gender, ethnicity, and SES (see Appendix C). In addition, they will be requested to provide information about why they are seeking an HIV test at this time (e.g., unprotected sex, intravenous drug user, etc) and if this is their first HIV test or repeat HIV test.

**Procedure**

Upon arrival to the HIV clinic for HIV testing, all persons attending the clinic were asked by the researcher if they would like to participate in a study examining the effect of information seeking style on psychological distress during HIV testing. After informed consent was obtained, each participant was asked to complete the demographic questionnaire, the MBSS, the AACS, the BSI, and the BAI. On these questionnaires, participants were instructed to provide their own password so that questionnaires could be matched according to participant during data analysis. One week later, when they arrived at the clinic to receive their test results, participants completed the BSI, the BAI, and the adapted MBC. The participants were instructed to complete these questionnaires while they were waiting to receive their test results and they provided the same password on these questionnaires that they provided for the first set of questionnaires. Upon giving the researcher the completed questionnaires, the participants received compensation for their time and effort and they were given a debriefing of the study (see Appendix D).
OVERVIEW OF ANALYSES

Demographic information is presented on Table 1. The mean scores of all outcome variables (e.g., MBSS scores, AACS scores, BSI scores) are presented on Table 2. Data were evaluated by hierarchically regressing psychological distress at both times 1 and 2 (taken from the BSI scores) on relevant demographic variables (age, gender, ethnicity, SES), the MBSS scores, and the AACS scores (which were all collected at Time 1).

Psychological Distress Scores

The mean score on the BSI for time 1 was 43.48 with a standard deviation of 39.11. This BSI score is statistically higher than the normal population, \( z = 1.68, p = .05 \). The mean score on the BSI for time 2 was 38.32 with a standard deviation of 35.78, which is slightly higher than the normal population but is not statistically significant, \( z = 1.35, p = .09 \).

Predictors of Psychological Distress at Time 1

Associations Among Demographic Variables and Psychological Distress

There was no significant main effect of the demographic variables on psychological distress, \( F(4, 59) = 1.53, p = .21 \). This suggests that age, gender, ethnicity, and SES were not significantly associated with the level of psychological distress at time 1.

Associations Among Monitoring and AACS on Psychological Distress

There was no significant main effect of the MBSS total monitoring score on psychological distress, \( t(58) = -1.13, p = .26 \). However, there was a significant main effect of AACS score on psychological distress, \( t(58) = -4.44, p < .01 \). An examination of the relationship indicated that higher scores on the AACS were associated with lower scores on psychological distress. No significant interaction effect between the MBSS total monitoring score and AACS score was observed, \( F(1, 58) = .02, p = .90 \).
Predictors of Psychological Distress at Time 2

Associations Among Demographic Variables and Psychological Distress

There was no significant main effect of the demographic variables on psychological distress, \( F(4, 45) = 2.01, p = .10 \). This suggests that age, gender, ethnicity, and SES were not significantly associated with the level of psychological distress at time 2.

Associations Among Monitoring and AACS on Psychological Distress

There was no significant main effect of MBSS total monitoring score on psychological distress, \( t(45) = -.32, p = .75 \). However, there was a significant main effect of the AACS score on psychological distress, \( t(45) = -2.30, p = .03 \). Again, an inverse relationship between AACS and psychological distress was observed. No significant interaction was observed for the MBSS total monitoring score and AACS score on psychological distress, \( F(1, 45) = .01, p = .92 \).

Exploratory Analyses

Associations Among Monitoring and Anxiety

Correlations were conducted in order to examine if the MBSS total monitoring score was associated with anxiety. Results indicated that for time 1, there was no significant correlation between monitoring and anxiety ratings, \( r = 0.05, p = 0.67 \). However, for time 2, the correlation between the MBSS total monitoring score was small but significant, \( r = 0.29, p = .04 \).

Associations Among Reasons for Getting HIV Tested and Other Variables

Correlations were conducted in order to examine if different reasons for getting tested for HIV were significantly associated with other variables, such as monitoring, AACS, and psychological distress (see Table 5). Results indicated that getting tested because of unprotected sex was significantly correlated with AACS scores, \( r = -0.315, p< .05 \). Results also indicated that
psychological distress at time 2 was significantly correlated with those who were getting tested for more than one reason, $r = .390, p < .05$.

**Associations Among MBC, Monitoring, and Psychological Distress**

A correlation was conducted in order to examine if individuals who were identified as high monitors endorsed using more monitoring strategies throughout the week. Results indicated that there was not an association between the scores on the MBC and the level of monitoring, $r = .087, p = 0.551$. In addition, correlations were conducted to examine if scores on the MBC were associated with psychological distress. Results suggested that the MBC was associated with psychological distress at time 2, $r = 0.320, p = .029$. This suggests that engaging in more monitoring strategies throughout the week was associated with more psychological distress immediately before receiving test results.

**Attrition Analyses**

Although 67 individuals participated in time 1, only 49 of those individuals also participated in time 2. Independent samples t-tests were conducted in order to determine if those who did not participate in time 2 were different than those who did participate in time 2. These results indicated that these two groups were not different in regards to level of BSI scores, $t(61) = .315, p = .090$. 
DISCUSSION

For the first time in the past decade, there has been an increase in the amount of people who have been diagnosed with HIV in the United States (MSNBC News, 2003). This underscores the importance of individuals getting tested for HIV and, subsequently, 24.6 million people in the U.S. get tested for HIV each year (CDC, 2003). However, studies have shown that many individuals who are tested for HIV fail to return for their HIV test results (Lyter, Valdiserri., Kingsley, Amoroso, & Rinaldo, 1987; Slutske, Klockner, & Fleming, 1992; Fichtner, Wolitski, Johnson, Rabins, & Fishbein, 1996; Keenan & Keenan, 2001). Many researchers suggested that this may be occurring because some individuals’ psychological distress is too high (Lyter et al., 1985). This failure to return for HIV test results could be harmful to both the individual and society. For individuals, their HIV status remains unknown and they will not receive the needed treatment if they are HIV positive. For society, these individuals who are unaware of their HIV positive status could infect other individuals if they do not stop or decrease their risky behaviors by employing safer sex practices or stop engaging in needle sharing during IV drug use. Therefore, it is important to identify variables that may lead to increased levels of psychological distress during HIV testing in order to decrease the number of individuals who fail to return for their test results and, therefore, are not aware of their HIV status.

The hypothesis of the present study was that there would be an interaction between the level of monitoring and AACS. It was hypothesized that participants who had high scores both on monitoring and AACS would have less psychological distress than those who had high scores on monitoring and low scores on AACS. Contrary to the hypothesis, results indicated that there was no interaction between monitoring and AACS.
Results indicated that the ability to achieve cognitive structure (AACS) was related to the participants’ level of psychological distress for both time 1 and time 2. There was an inverse relationship between AACS scores and psychological distress scores, in which the higher the participants’ AACS scores the lower their psychological distress scores. This suggests that the participants who are better able to integrate information had lower psychological distress than those who are not able to integrate information. It may be that the ability to achieve cognitive structure was an important predictor of the level of psychological distress because all participants, regardless of their preference for information, received the same amount of information during pre-counseling for HIV testing. Past research has also found a main effect of AACS on psychological distress, in which high AACS scores were associated with less psychological distress (Bar-Tal, 1994). These results suggest that information can resolve uncertainty, leading to less psychological distress, only to the extent that information is adequately structured or categorized (Bar-Tal, 1994).

The results of the present study indicated that the level of monitoring was not related to the level of psychological distress at time 1 and time 2. Similar to the present findings, other researchers have also found that the level of monitoring was not related to psychological distress (Warburton, Fishman, & Perry, 1997). However, past studies have shown that monitoring is related to psychological distress (Miller & Schnoll, 2000; Miller et al., 1993). The reason why level of monitoring was not related to the participants’ level of psychological distress in the present study may have been related to the fact that setting for the study were HIV walk-in clinics that conduct voluntary HIV testing. Therefore, most participants may have already been quite knowledgeable about HIV and the information that they received may not have been distressing to them, regardless of their preference for information.
Past studies have shown that it may be important to match individuals’ preference with information with the amount of information that they receive (Miller & Mangan, 1983). However, in the present study, there was no matching between level of monitoring and amount of information that participants received, in which all participants received the same information during HIV testing. Yet, it was unknown exactly what information or how much information participants sought out or received during the week they were waiting for their test results, which may have had influenced their level of psychological distress. Results from the adapted Monitoring and Blunting Checklist (MBC) suggested that those individuals who used more monitoring strategies throughout the week reported more psychological distress during time 2. However, the number of monitoring strategies was not related to the level of monitoring. This suggests that regardless of preference for information, the higher number of monitoring strategies throughout the week was associated with higher psychological distress at time 2.

Limitations

There were some limitations in the present study. One limitation was that the sample may have been biased towards individuals experiencing less psychological distress because those who were more distressed during HIV testing may have refused to participate. In the present study, 39% of the individuals attending the HIV clinic agreed to participate (174 people were approached and 67 people agreed to participate in the study) and no differences in gender or ethnicity were found between those who participated and those who refused to participate. However, in regards to psychological distress of those who did participate in the study, the results do indicate that they were experiencing significantly higher levels of psychological distress than the general population.
Another limitation of the study was that all the participants received the same amount of information about HIV testing which made it impossible to examine if matching preference of information and amount of information had an effect on psychological distress. Future research could examine the difference between those who receive information during the HIV test and those who do not receive information during the HIV test and determine how this information interacts with information seeking style and AACS. In addition, another limitation was that although all participants received the same information during pre-test counseling, participants received the information from different pre-test counselors. Therefore, it is possible that the pre-test counselors may have framed the information differently depending on their own specific style, ex: framed the information in a positive way or in a negative way, which may have influenced the participants’ psychological distress level.

A third limitation was that there was no correlation between the number of monitoring strategies that participants used throughout the week (i.e., assessed via MBC) and preference for information (i.e., assessed via MBSS). This suggests that information seeking styles that participants endorsed on the MBSS were not consistent with what information seeking strategies they actually engaged in throughout the week they were waiting for their test results.

**Clinical Implications and Future Research**

The results of this study suggest that for individuals undergoing HIV testing, the AACS was a better predictor of psychological distress than the level of monitoring. This finding could have clinical implications in which those individuals who have a lower AACS could be identified and receive more help integrating and categorizing information during the pre-test counseling in order to decrease their psychological distress. This may be beneficial to the individual because the categorization process helps the individual reach certainty by allowing the
individual to drop inconsistent or irrelevant information while allowing for the acquisition of information that can lead to increased certainty (Fiske & Linville, 1980). Furthermore, this increased certainty may help decrease the individual’s psychological distress. For example, during pre-test counseling for HIV, if some specific information about HIV and HIV testing is irrelevant to the individual and/or the individual’s specific situation, the counselor can help that individual identify which information can be disregarded in order to increase his or her certainty, which may result in lower psychological distress. This could result in fewer individuals failing to return to receive their HIV test results due to high levels of psychological distress.

In addition to screening for HIV, research on monitoring and AACS can also be important when looking at the time of being diagnosed with HIV and the progression of HIV. It may be important to determine which types of information seeking styles and other individual variables (e.g., AACS) are associated with more psychological distress during HIV testing because it may be a predictor of those who will experience more psychological distress if they are actually diagnosed with HIV. It has been shown in the HIV literature that a high level of psychological distress is associated with less adherence to HIV treatment regimens (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000). It may be helpful for health practitioners to be able to identify early which individuals may be more prone to higher levels of psychological distress if they are diagnosed with HIV. This can allow the practitioners to use strategies or to refer patients to receive additional services in order to decrease the patients’ psychological distress so it does not interfere with adherence to HIV treatment.
Figure 1. The Monitoring Process Model (MPM) illustrating how high monitors may cope with potentially life threatening stressors leading to heightened anxiety and distress.

- Scan for threatening cues (internal or external)
- Lower threshold for detecting bodily cues
- Over-interpret new or changing physical symptoms
- Encode neutral or ambiguous information as threatening
- Ruminate on information
- Exaggerated perceptions of personal risk
- Heightened anxiety and distress
Table 1.

Summary of Studies of Different Clinical Populations Undergoing Diagnostic Testing

<table>
<thead>
<tr>
<th>Population</th>
<th>Number of participants</th>
<th>Task</th>
<th>Measure(s)</th>
<th>Outcome variables</th>
<th>Result(s)</th>
<th>Result(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal study on HIV testing</td>
<td>249</td>
<td>HIV test</td>
<td>MBSS, BDI, HRSD</td>
<td>Psychological distress, prediction of HIV test</td>
<td>High scores on both information seeking styles associated with higher distress</td>
<td>Low on one information seeking style and high on the other was associated with less psychological distress</td>
</tr>
<tr>
<td>Gynecological patients</td>
<td>40</td>
<td>Colposcopy</td>
<td>MBSS, pulse rate, self rating of mood, doctor’s rating of tension</td>
<td>Subjective distress, behavioral distress</td>
<td>Participants were less aroused when amount of information matched information seeking style</td>
<td>Monitoring was associated with greater subjective and behavioral distress than blunting</td>
</tr>
<tr>
<td>Gynecological patients</td>
<td>36</td>
<td>Colposcopy</td>
<td>MBSS, self report of concerns about medical condition, RIES</td>
<td>Concerns about medical condition, intrusive and avoidant threat related ideation</td>
<td>High monitoring more concerned and worried about health than low monitoring</td>
<td>High monitoring engaged in greater intrusive thinking and greater avoidant ideation than low monitoring</td>
</tr>
<tr>
<td>Gynecological patients</td>
<td>76</td>
<td>Diagnostic follow up for cancer</td>
<td>MBSS, RIES</td>
<td>Intrusive ideation, screening adherence</td>
<td>Low monitoring was associated with less intrusive ideation in loss framed condition</td>
<td>Low monitoring in loss framed condition and positive framed condition reported more screening adherence than neutral condition</td>
</tr>
<tr>
<td>Population</td>
<td>Number of participants</td>
<td>Task</td>
<td>Measure(s)</td>
<td>Outcome variables</td>
<td>Result(s)</td>
<td>Result(s)</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Women at risk for ovarian cancer</td>
<td>103</td>
<td>Self-report inventories</td>
<td>MBSS, self report of perception of risk, IES, POMS</td>
<td>Perception of risk, intrusive ideation, psychological distress</td>
<td>High monitoring positively related to perceived risk and intrusive thoughts</td>
<td>High monitoring was associated with psychological distress</td>
</tr>
<tr>
<td>Women with family history of breast cancer</td>
<td>239</td>
<td>Self-report inventories</td>
<td>MBSS, self report of chances of developing breast cancer, IES, POMS</td>
<td>Psychological distress</td>
<td>Monitoring was associated with more distress than blunters in both conditions (general vs. breast cancer risk counseling)</td>
<td></td>
</tr>
<tr>
<td>Rheumatoid arthritis patients</td>
<td>77</td>
<td>Interviews</td>
<td>MBSS, AACS, distress, subjective health status</td>
<td>Psychological distress</td>
<td>High AACS and high monitoring was associated with lower psychological distress</td>
<td>Low AACS and high monitoring was associated with higher psychological distress</td>
</tr>
<tr>
<td>College students</td>
<td>83</td>
<td>Self-report inventories</td>
<td>MBSS, AACS, Ways of Coping Scale, perception of coping</td>
<td>Coping styles, Coping effectiveness</td>
<td>Monitoring positively correlated with problem-focused coping and seeking social support</td>
<td>Interaction between AACS and monitoring did not affect problem-focused coping effectiveness</td>
</tr>
</tbody>
</table>
Table 2.

*Demographic Variables*

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30.00</td>
<td>44.80</td>
</tr>
<tr>
<td>Female</td>
<td>37.00</td>
<td>55.20</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>33.00</td>
<td>49.30</td>
</tr>
<tr>
<td>African American</td>
<td>20.00</td>
<td>29.90</td>
</tr>
<tr>
<td>Asian American</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Native American</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>Other</td>
<td>13.00</td>
<td>19.30</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below $20,000</td>
<td>37.00</td>
<td>55.20</td>
</tr>
<tr>
<td>$20,001 - $50,000</td>
<td>23.00</td>
<td>34.30</td>
</tr>
<tr>
<td>$50,001 - $80,000</td>
<td>6.00</td>
<td>9.00</td>
</tr>
<tr>
<td>$80,001 - $100,000</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>$100,001 and over</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>Reason for HIV test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unprotected Sex</td>
<td>18.00</td>
<td>26.90</td>
</tr>
<tr>
<td>Intravenous Drugs</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>Partner has HIV</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Reason for HIV test</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>Blood Transfusion</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>11.00</td>
<td>16.40</td>
</tr>
<tr>
<td>More than one reason</td>
<td>17.00</td>
<td>25.30</td>
</tr>
</tbody>
</table>
Table 3.

*Means and Standard Deviations of Outcome Variables*

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>28.48</td>
<td>11.16</td>
</tr>
<tr>
<td>Monitoring</td>
<td>8.73</td>
<td>3.19</td>
</tr>
<tr>
<td>Blunting</td>
<td>4.30</td>
<td>2.73</td>
</tr>
<tr>
<td>AACS</td>
<td>87.61</td>
<td>15.71</td>
</tr>
<tr>
<td>Total BSI (Time 1)</td>
<td>43.48</td>
<td>39.11</td>
</tr>
<tr>
<td>Som subscale of BSI</td>
<td>4.16</td>
<td>5.11</td>
</tr>
<tr>
<td>OC subscale of BSI</td>
<td>6.57</td>
<td>5.35</td>
</tr>
<tr>
<td>Int subscale of BSI</td>
<td>3.65</td>
<td>4.34</td>
</tr>
<tr>
<td>Dep subscale of BSI</td>
<td>5.49</td>
<td>5.93</td>
</tr>
<tr>
<td>Anx subscale of BSI</td>
<td>4.84</td>
<td>5.34</td>
</tr>
<tr>
<td>Hos subscale of BSI</td>
<td>3.87</td>
<td>3.83</td>
</tr>
<tr>
<td>Phob subscale of BSI</td>
<td>2.37</td>
<td>3.27</td>
</tr>
<tr>
<td>Par subscale of BSI</td>
<td>4.44</td>
<td>4.13</td>
</tr>
<tr>
<td>Psy subscale of BSI</td>
<td>4.11</td>
<td>4.42</td>
</tr>
<tr>
<td>Add subscale of BSI</td>
<td>3.78</td>
<td>3.79</td>
</tr>
<tr>
<td>Total BAI (Time 1)</td>
<td>10.67</td>
<td>11.82</td>
</tr>
<tr>
<td>Monitoring Checklist</td>
<td>1.84</td>
<td>1.52</td>
</tr>
<tr>
<td>Total BSI (Time 2)</td>
<td>38.32</td>
<td>35.78</td>
</tr>
<tr>
<td>Som subscale of BSI</td>
<td>3.38</td>
<td>4.75</td>
</tr>
<tr>
<td>Outcome Variable</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>--------------------</td>
</tr>
<tr>
<td>OC subscale of BSI</td>
<td>6.55</td>
<td>6.25</td>
</tr>
<tr>
<td>Int subscale of BSI</td>
<td>2.96</td>
<td>3.74</td>
</tr>
<tr>
<td>Dep subscale of BSI</td>
<td>4.64</td>
<td>5.47</td>
</tr>
<tr>
<td>Anx subscale of BSI</td>
<td>5.15</td>
<td>5.40</td>
</tr>
<tr>
<td>Hos subscale of BSI</td>
<td>3.70</td>
<td>3.61</td>
</tr>
<tr>
<td>Phob subscale of BSI</td>
<td>1.77</td>
<td>2.37</td>
</tr>
<tr>
<td>Par subscale of BSI</td>
<td>2.83</td>
<td>3.02</td>
</tr>
<tr>
<td>Psy subscale of BSI</td>
<td>3.57</td>
<td>4.20</td>
</tr>
<tr>
<td>Add subscale of BSI</td>
<td>3.77</td>
<td>3.36</td>
</tr>
<tr>
<td>Total BAI (Time 2)</td>
<td>11.37</td>
<td>11.78</td>
</tr>
</tbody>
</table>
Table 4.

Summary of Hierarchical Regression Analysis for Monitoring and AACS Predicting Psychological Distress for Time 1 (N = 67)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>13.53</td>
<td>10.16</td>
<td>0.19</td>
</tr>
<tr>
<td>Age</td>
<td>-0.36</td>
<td>0.48</td>
<td>0.46</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-0.05</td>
<td>1.27</td>
<td>0.97</td>
</tr>
<tr>
<td>Income</td>
<td>-7.17</td>
<td>6.77</td>
<td>0.29</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>-1.36</td>
<td>1.20</td>
<td>0.26</td>
</tr>
<tr>
<td>AACS</td>
<td>-1.04</td>
<td>0.23</td>
<td>0.00 **</td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring x AACS</td>
<td>0.00</td>
<td>0.01</td>
<td>0.90</td>
</tr>
</tbody>
</table>

*  p < 0.05
** p < 0.001
Table 5.

Summary of Hierarchical Regression Analysis for Monitoring and AACS Predicting Psychological Distress for Time 2 (N = 49)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>6.96</td>
<td>11.71</td>
<td>0.56</td>
</tr>
<tr>
<td>Age</td>
<td>-0.84</td>
<td>0.57</td>
<td>0.15</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-0.13</td>
<td>1.54</td>
<td>0.94</td>
</tr>
<tr>
<td>Income</td>
<td>-8.14</td>
<td>7.25</td>
<td>0.27</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>-0.46</td>
<td>1.42</td>
<td>0.75</td>
</tr>
<tr>
<td>AACS</td>
<td>-0.69</td>
<td>0.30</td>
<td>0.03 *</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring x</td>
<td>-0.00</td>
<td>0.02</td>
<td>0.92</td>
</tr>
<tr>
<td>AACS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < 0.05  
** p < 0.001
Table 6.

*Correlations between Reasons for Getting HIV Test and Other Variables*

<table>
<thead>
<tr>
<th>Reason for HIV test</th>
<th>Monitoring</th>
<th>AACS</th>
<th>BSI (time 1)</th>
<th>BSI (time 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unprotected sex</td>
<td>-.043</td>
<td>-.315*</td>
<td>.100</td>
<td>.173</td>
</tr>
<tr>
<td>IV drug use</td>
<td>.043</td>
<td>-.142</td>
<td>.173</td>
<td>.232</td>
</tr>
<tr>
<td>Partner has HIV</td>
<td>.111</td>
<td>-.027</td>
<td>-.049</td>
<td>.129</td>
</tr>
<tr>
<td>Regular check up</td>
<td>-.034</td>
<td>.049</td>
<td>.141</td>
<td>.107</td>
</tr>
<tr>
<td>Other</td>
<td>-.026</td>
<td>.163</td>
<td>-.109</td>
<td>.039</td>
</tr>
<tr>
<td>More than one reason</td>
<td>-.035</td>
<td>-.188</td>
<td>.188</td>
<td>.390*</td>
</tr>
</tbody>
</table>

*p<.05
REFERENCES


Information Sheet

Project Title: Coping with HIV Testing

Purpose
You are being asked to participate in a research study that is being conducted by researchers from Bowling Green State University and the Medical College of Ohio involving individuals who are undergoing voluntary HIV testing. The purpose of this study is to determine if different coping strategies that individuals use are associated with different kinds of emotion.

Procedure
Overall, your participation includes filling out two sets of questionnaires at different times during the HIV testing period: 1) waiting to get the HIV test, and 2): one week after the test before you receive the results. You will also be asked to fill out a short diary entry each day for one week.

If you are interested in participating, you will be asked to complete eight short questionnaires, which will take approximately 20-25 minutes to complete, immediately before your HIV test. These questionnaires will ask questions about coping, emotion, and other general information (i.e. gender).

You will then be given a small diary to take home with you, which will contain the materials to fill out one short diary entry each day for one week. The diary will ask you to write about your feelings waiting for your HIV test result. The diary will not contain any identifying information about you or this research project. You will be asked to bring in this diary when you return for your test results and give it to a staff member.
You will then receive six questionnaires when you are waiting for your appointment and they will take approximately 15 minutes to complete. These questionnaires will ask questions about coping and emotions. Upon handing in these questionnaires to a staff member, you will receive a $10 voucher for participating in this study.

Risks
The major risk of participating in this study is a loss of anonymity. The following actions will be taken to reduce the risk of other people not involved in this study learning that you are having a HIV test:

1. We will assign codes instead of names to identify you on surveys that you complete.
2. We will not keep any papers or forms that have your names on them.

Another risk of participating is thinking about things that could be upsetting. The process of thinking about having a HIV test and your feelings and experiences may be stressful. If you feel upset and want to talk to somebody, you can contact the counselor listed below who has experience working with people getting HIV tests.

- Ann Wayson Locher, MSN, RN (419-383-3741, alocher@mco.edu)

You can also contact one of the researchers at any time if you would like. The contact information for the researchers is listed below.

Benefits
Our study is designed to learn more about people who undergo HIV tests and how they cope with their experiences. The study is not designed to “fix” bad feelings or to take away stress. The study is designed to raise important and meaningful questions and to offer some perspectives that could help people in coping with HIV testing.

It is our hope that this research will help us understand the effect of coping strategies so it can be used in the future to help meet the needs of people getting tested for HIV. You will be given a $10 voucher for the time it will take you to participate in this study. Payment will be made through voucher at completion of this study.

Your rights
As a participant in this study you have certain rights. Your participation in this study is anonymous, which means we will not know who you are. We will not put your name on the surveys you fill out and we will destroy the questionnaires after they are no longer needed for this project. These materials will be kept in locked filing cabinet where other people who are not a part of our study cannot get to them.

Participation in this study is voluntary. You can stop participating in this study at any time and for any reason. If you decide not participate you will not be penalized. Your decision will not affect your future relations with the Medical College of Ohio, its staff, and associated hospitals. However, we will only pay you for your time if you complete all of the questionnaires and the diary.

Confidentiality
By agreeing to participate in this research study, you give the Medical College of Ohio, the principal investigator and all staff associated with this study your permission to use or disclose health information that can not be identified with you that we obtain in connection with this study. We will use this information for the purpose of conducting the research study as described in the research consent form.

The information that we use or disclose includes coping information and self-reported feelings that are obtained from the questionnaires and the diary that each participant completes. We may use this information ourselves, or we may disclose or provide access to the information to researchers working on this study as part of the research study. Under some circumstances, the Institutional Review Board and Research and Grants Administration of Bowling Green State University or the Medical College of Ohio may review your information for compliance audits.

Bowling Green State University and the Medical College of Ohio is required by law to protect the privacy of your health information, and to use or disclose the information we obtain about you in connection with this research study only as authorized by you in this form. There is a possibility that the information we disclose may be re-disclosed by the persons we give it to, and
no longer protected. However, we will encourage any person who receives your information from us to continue to protect and not re-disclose the information.

Your permission for us to use or disclose your personal health information as described in this section is voluntary. You have the right to cancel the permission you have given to us to use or disclose your personal health information at any time by giving written notice to William H. O’Brien, Ph.D. at Psychology Department at Bowling Green State University, Bowling Green, OH 43403 or Ann W. Locher, MSN, RN at Medical College of Ohio, 3000 Arlington Avenue, Toledo, OH 43614. However, a cancellation will not apply if we have acted with your permission, for example, with information that already has been used or disclosed prior to the cancellation. Also, a cancellation will not prevent us from continuing to use and disclose information that was obtained prior to the cancellation as necessary to maintain the integrity of the research study.

Except as noted in the above paragraph, your permission for us to use and disclose personal health information has no expiration date.

A more complete statement of the Medical College of Ohio’s Privacy Practices is set forth in its Joint Notice of Privacy Practice. If you have not already received this Notice, a member of the research team will provide this to you. If you have any further questions about privacy, you may contact the person identified in this notice.

In the event of injury
This study is considered low risk and no injury is expected. However, if an injury occurs as a result of your participation, treatment can be obtained at Medical College of Ohio Hospitals. You should know that the costs of such treatment will be your responsibility. Financial compensation is not available. In the event of injury, please contact Ann Wayson Locher, MSN, RN through the Medical College of Ohio operator at 419-383-4000.

Contact information of researchers and HSRB
You have the right to have any questions about the study answered by one of the researchers. The contact information for the researchers is included in this form. You also may request a copy of any results that we obtain from this study. Just let us know where to send the information and we will make sure that you get a copy. If you choose to email a researcher, please be aware that email is not a secure way to communicate. People not involved in the study might be able to read your email.

- William O’Brien, Ph.D. (419-372-2974, wobrien@bgnet.bgsu.edu)
- Ann Wayson Locher, MSN, RN (419-383-3741, alocher@mco.edu)

If you have questions about the conduct of this study or your rights as a research participant, you may contact the Chair of Bowling Green State University’s Human Subjects Review Board:

- Richard Rowlands (419-372-7716, hsrb@bgnet.bgsu.edu)

Consent to Participate

By completing the questionnaires you are indicating that you have been explained the conditions of this study and that you agree to them. If you do not wish to participate in this study for any reason, then you can stop completing the questionnaires at any time. If you do not complete all of the questionnaires and the diary, you will not be given the $10 compensation.
Demographic Questionnaire

1. **Gender** (please check one):
   - _____ Male
   - _____ Female

2. _____ Age

3. **Ethnicity** (please check one):
   - _____ Caucasian
   - _____ African American
   - _____ Asian American
   - _____ Native American
   - _____ Other, please specify __________________________

4. **Income per year** (please check one):
   - _____ below $20,000
   - _____ $20,001 – $50,000
   - _____ $50,001 – $80,000
   - _____ $80,001 – $100,000
   - _____ $100,001 and over

5. **Why are you getting an HIV test?** (please check all that apply):
   - _____ unprotected sex
   - _____ used intravenous drugs
   - _____ partner has HIV
   - _____ blood transfusion
   - _____ regular check up
   - _____ other, please specify __________________________

6. **Is this the first HIV test that you have gotten?** (please check one):
   - _____ Yes
   - _____ No. How many HIV tests have you gotten (not including this one)? _____
7. **How distressed are you about having this HIV test?**
   (please check one):
   
   _____ Not at all
   _____ A little bit
   _____ Moderately
   _____ Quite a bit
   _____ Extremely

8. **Please rate how likely you believe that the test will be positive on a scale of 0 – 100**
   (where 0 = you absolutely believe that the test will NOT be positive and 100 = you absolutely believe that the test will be positive).

   _____
Please check off all of the items that are similar to what you did during the past week (or today) when you thought about HIV (or about what your results might be).

___ I tried to think about pleasant memories or daydreamed

___ I asked friends or family members what information they knew about HIV

___ I tried to go to sleep

___ I thought about what I may have done in the past that put me at risk to getting HIV

___ I tried to find information about HIV, either through medical books, the internet, or other medical resources

___ I went out, for example, going to the movies, going shopping, to take my mind off things

___ I pushed all thoughts of HIV out of my mind

___ I paid attention to (or noticed) any bodily symptoms or sensations that I had which I felt were out of the ordinary

___ I had a drink or took some drugs (or medications) to make me feel better

___ I read books or watched movies that dealt with the issue of HIV

___ I talked to other people about how I was feeling about my HIV test

___ I told other people that I did not want to talk about my HIV test

___ Other, please specify___________________________________________________

_______________________________________________________________________
Coping with HIV Testing

The purpose of this study was to look at how individuals cope with HIV testing. We are interesting in seeing if different kinds of coping strategies result in different kinds of emotions during the testing period. Specifically, we are trying to determine if certain coping strategies more than others reduce negative emotions when undergoing HIV testing.

The benefit of this research is to better understand how different coping strategies may help people reduce their distress when they are in threatening health situations. This information can lead to the development of prevention and treatment strategies targeting coping style and psychological distress.

If you have any questions about this study or feel you need to speak to someone about your experience during this study, please call Ann Locher, R.N. at (419) 251-8060 or Eileen Delaney at (419) 372-4499.