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The Relationships Between Perceived Stress, The Big Five Inventory, The Five- Facet Mindfulness Questionnaire, and Yoga

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The Relationships Between Perceived Stress, The Big Five Inventory, The Five-Facet Mindfulness Questionnaire, and Yoga

by

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MSW Clinical Research Paper

Presented to the Faculty of the School of Social Work
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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

Much research exists on the relationships between personality and stress, and other research examines the relationships between stress and coping. However, few studies have examined the relationships between how personality, stress, and coping. This study investigated the relationships between stress, personality, mindfulness, and yoga practice. A survey including an abbreviated version of the Big Five Inventory (BFI-10), a short version of the Five-Facet Mindfulness Questionnaire (FFMQ-SV), the Perceived Stress Scale (PSS), and qualitative questions on yoga practice was created. Fifty-eight people participated. Results indicate that personality not only impacts how people perceive stress, but it may also impact how people cope with stress. These results suggest that incorporating mindfulness might be more helpful for some personality types than others. Additionally, this study offers suggestions for organizations to incorporate mindfulness practices. Finally, this research includes suggestions for further research.

Acknowledgements

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The Relationships Between Perceived Stress, The Big Five Inventory, The Five-Facet

Mindfulness Questionnaire, and Yoga

All people experience stress at some point in life. The National Institute of Mental Health

(NIMH; 2015) describes stress as the brain's response to a demand. While some amounts of

stress can be adaptive, prolonged stress can negatively affect the body (NIMH, 2015).

Importantly, Cohen, Karmack, and Mermelstein (1983) report that the effect of stressful events is

influenced by how people perceive those events. Furthermore, NIMH (2015) notes that some

people have more effective ways of dealing with stress. Abbasi (2011) reports people higher in

certain personality factors from the Big Five Inventory (BFI) are more likely to experience

higher levels of stress. People with higher levels of neuroticism are more likely to feel anxious,

experience stress, and experience negative affect (Abbasi, 2011).

Prolonged stress is associated with significant health risks, and learning to cope

effectively with stress may help reduce these risks (NIMH, 2015). Esia-Donkoh, Yelkpieri, and

Esia-Donkoh (2011) describe coping as a person's effort to reduce stress. The Mayo Clinic

(2015) reports that practicing yoga has been shown to reduce stress. Siegling and Petrides (2014)

suggest that there are a number of correlations between the Big Five Inventory personality traits

and the Five Facet Mindfulness Questionnaire (FFMQ). However, very little research addresses

the relationships between personality, perceived stress, and mindfulness. To better understand

how these factors are related, this research will investigate the relationships between personality,

mindfulness, yoga, and perceived stress as measured by the BFI, the FFMQ, additional questions

about yoga, and the Perceived Stress Scale (PSS).

Social work practice values individual strengths and uses the lens of person-in-

environment to best understand a person's experience. Much of social work practice involves

helping clients to respond to stress in adaptive ways. Therefore, if social workers can understand how personality, mindfulness, and perceived stress are related, they will be better able to serve clients by understanding how different people experience stress and respond to it.

Literature Review

Existing research shows strong links between stress and personality. Esia-Donkoh, Yelkpieri, and Esia-Donkoh (2011) report that coping refers to "the attempt to manage or deal with stress" (p. 293). Many studies suggest that mindfulness is an effective method for reducing stress. The following paragraphs will describe the existing research on stress, personality, mindfulness, and yoga and how they are related.

Stress

A variety of factors can trigger the brain's stress response (NIMH, 2015). These triggers can be mild to extreme and range from short-term to long-term. In fact, stress is not always bad, since the stress response is a survival instinct. The perception of stress is critical, as it influences how people respond to various stressors (Cohen, 1994). The Perceived Stress Scale (PSS) "is a measure of the degree to which situations in one's life are appraised as stressful" (Cohen, 1994, Perceived Stress Scale section, para. 1). However, when the stress response continues for too long, its effects can be deleterious on the body (NIMH, 2015). For example, in cases of chronic stress, neurotransmitters that are necessary for fight or flight reactions are not needed for everyday life. While certain levels of stress are considered to be normal and healthy, ongoing stress can have both physical and mental effects on the body. The immune system can be affected, and other major body systems do not work normally (NIMH, 2015). Furthermore, the Anxiety and Depression Association of America (2015) reports that while "stress is a response to a threat in a situation...anxiety is a reaction to the stress" (Stress section, para 2).

Furthermore, the construct of stress has much in common with the constructs of anxiety and depression. Lovibond and Lovibond (1995) report that the correlations between these three constructs are moderately high. However, they suggest that this is due to "common causes of anxiety, depression, and stress" rather than "overlapping constructs" (Lovibond & Lovibond, 1995, p. 342). Thus, Lovibond and Lovibond (1995) report that although the experiences of stress, anxiety, and depression might have much in common, they are indeed differing experiences. While this literature review will include a summary of some research that investigates anxiety and depression, the research will focus on the experience of stress.

Personality

Personality is thought to describe a person's overall character. According to the American Psychological Association (2015), "personality refers to individual differences in characteristic patterns of thinking, feeling and behaving" (Personality section, para. 1). While emotions may fluctuate over the course of the day, mood typically describes emotions that stay relatively stable across a period of a few days (Hill, 2012). Personality is thought to remain even more stable and is generally believed to remain consistent after adults reach a certain age (McCrae & Costa, 2003). However, McCrae and Costa (2003) report that while older research suggested that personality stabilized around age 30, newer research reports that while personality is generally stable, there are predictable changes that occur over the course of the lifespan. The authors also state that the process of aging influences personality changes. Specifically, neuroticism, extroversion, and openness to experience tend to decrease over the lifespan, while agreeableness and conscientiousness tend to increase. It is believed that these changes are not due to cultural influences, but rather to the process of aging (McCrae & Costa, 2003). A number of assessments and questionnaires exist that attempt to quantify the concept of personality. Two

of the most researched personality assessment tools are the Big Five Inventory and variations of the Five-Factor Model. These tools are often used interchangeably in personality research, and for the purposes for the purposes of this study they will be here as well.

McCrae and Costa (2003) report that the Five-Factor Model is a widely used tool used as a means for understanding personality by analyzing the different factors of personality. The Five-Factor Model of personality proclaims the five most basic components of personality are: "Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness..." (p. 3). Neurotic personalities are described as temperamental people who worry often and experience negative emotions frequently. Extraverted personalities are described as affectionate, outgoing, gregarious and fun-loving. Open personalities are described as imaginative and creative, and people with high levels of openness to experiences are thought of as generally open-minded. Agreeable personalities are described as friendly, good-natured and agreeable. Conscientious personalities are described as hardworking, organized, and determined (McCrae & Costa, 2003). This factor is often thought of as a measure of a person's work ethic.

All of these personality factors are believed to be on a spectrum. For example, extraversion is believed to be the opposite to introversion, and most people typically fall somewhere between the two extremes (McCrae & Costa, 2003). Again, while moods and emotions vary, and some personality changes occur at certain points in the lifespan, it is believed that these five factors generally "endure through adulthood and help to shape emerging lives" (McCrae & Costa, 2003, p. 3). Therefore, it is apparent that an individual's personality deeply impacts the way he lives and experiences his life.

Personality and Stress

As McCrae and Costa (2003) asserted, personality measures have strong implications for how a person experiences life. For example, according to Abbasi (2011), neuroticism "refers to a predisposition towards experiencing anxiety, tension, self-pity, hostility, irrational thinking, impulsivity, self-consciousness, depression, and low self-esteem" (pp. 1-2). Furthermore, neuroticism is associated with "inefficient ways of coping with stress" (Abbasi, 2011, p. 2). Neuroticism, like the other four personality factors of the model, "consists of two poles of a single dimension: emotional stability and negative emotionality" (Abbasi, 2011, p. 2). Therefore, people with higher levels of neuroticism will be more likely to experience anxiety, stress, and negative emotionality. In other words, higher levels of neuroticism mean higher levels of perceived stress.

A number of studies have found other relationships between personality and negative emotions. Hankin (2010) found a positive association between negative emotionality (neuroticism) and feelings of "anxiety, depression, anger, shame, and guilt" (p. 370). Negative emotionality is similar to neuroticism as defined by the BFI. The opposite was also true: positive emotionality was associated with cheerfulness and optimism. Hankin (2010) also suggests that individuals with higher levels of negative emotionality (neuroticism) are more likely to not only experience stressful events, but they also may be more likely to produce stressful situations and show cognitive vulnerabilities, leading to higher levels of perceived stress. Thus, personality traits are ingrained into a person's innate personhood and deeply impact how he/she experiences the world. Furthermore, this shows that personality impacts how people perceive and experience stress.

Akse, Hale, Engels, Raaijmakers, and Meeus (2007) also found relationships between personality and stress. Specifically, they found that adolescents who were "overcontrollers" but were not resilient were more likely to feel anxious than their peers. Akse et al. (2007) refer to resiliency as "the tendency to respond flexibly rather than rigidly to changing situational demands, particularly stressful situation" (p. 815). This was also conversely true; these researchers discovered that resilient adolescents who are identified as overcontrollers will be less likely to experience stress (2007). They also found a relationship between resilience and a number of personality factors from the BFI. Resilience was positively associated with conscientiousness, emotional stability, openness to experience, and extraversion (Akse et al., 2007). This research suggests that people who are resilient are less likely to experience stress. Therefore, people higher in resilience will experience lower perceived stress levels. Thus, people who were higher on neuroticism but also higher on measurements of conscientiousness, openness to experience, extraversion, and agreeableness, were less likely to experience stress. It can be expected that the inverse is true, and people who are lower on levels of conscientiousness, openness, extraversion, and agreeableness yet higher on neuroticism would be more likely to experience higher stress levels.

Some studies have even found that the FFM is associated with clinical personality disorders (Sprock, 2002). However, while the FFM data is usually gathered via self-report, diagnostic data is most often gathered in a clinical interview (Sprock, 2002). Therefore, the Structured Interview for the Five-Factor Model (SIFFM) was developed, and this allows researchers to more accurately investigate the correlations between personality disorders and personality factors (Sprock, 2002). Sprock (2002) reported that personality traits most correlated with personality disorders were neuroticism, extroversion, and agreeableness.

However, Sprock (2002) sums up contradictory research: while experts on personality might have a specific FFM prototype in mind when considering patients with personality disorders, "most patients are not prototypic" (p. 404). In other words, while there might be an idea for what the FFM might look like for patients with personality disorders, in real life things are not so cut and dry. Indeed, Sprock (2002) found that "case prototypicality was not a significant factor in interrater reliability" (p. 417). Furthermore, clinicians were generally more self-assured in their assumptions about the FFM ratings for antisocial and dependent/avoidant cases. However, in actuality, "the clinical utility of the FFM was rated lowest for the antisocial case and highest for the dependent/avoidant case" (Sprock, 2002, p. 417). In general, Sprock (2002) found that the FFM prototypes proposed by previous researchers were supported.

Coker, Samuel, and Widiger (2002) also examined the relationships between the FFM and personality disorders. Coker et al. (2002) assert that while neuroticism is typically associated with maladaptive personalities, all factors of the FFM might have some level of negativity. For example, "low conscientiousness has been consistently associated with antisocial, passive-aggressive, and borderline personality traits but studies have also reported that high conscientiousness is associated with obsessive-compulsive personality traits" (Coker et al., 2002, p. 386). Therefore, even traits that are traditionally thought to be positive, like conscientiousness, might have some downfalls. While neuroticism is stereotypically thought of as the most negative personality factor, Coker et al. (2002) contrarily state that all of the personality factors can sometimes be associated with negativity.

Klimstra et al. (2010) examined the relationships between the Big Five personality factors and depression. While depression is not the same measure as stress, stress certainly plays a role in the experience of depression. This author also found negative associations between

agreeableness, conscientiousness, emotional stability and depression. However, there was no association between openness to experience and depression. This research suggests that people with higher levels of agreeableness, conscientiousness, emotional stability (therefore, lower levels of neuroticism), could be less likely to experience depression. The research from Klimstra et al. (2010) is slightly at odds with the findings from research from Coker et al. (2002). While Klimstra et al. (2010) found definite negative connotations to certain factors (i.e., neuroticism), Coker et al. (2002) assert that all factors have negative sides. Perhaps this is due to the fact that Klimstra et al. (2010) looked specifically at depression, while Coker et al. (2002) looked at the class of personality disorders.

It is apparent that there are some associations between personality and stress. Furthermore, many researchers have found that specific personality factors from the BFI impact how likely people are to experience stress, and how they actually experience it. In general, neuroticism (negative emotionality) is the strongest predictor of stress. Klimstra et al. (2010) reported negative correlations between agreeableness, conscientiousness, emotional stability, and depression. This study will also look into a more general experience of stress, specifically perceived stress.

Coping

Numerous studies have investigated the importance of coping and specific coping factors. Esia-Donkoh et al. (2011) describe coping as a means of handling stress. However, coping is not always adaptive. These authors report that in order to cope effectively with stress, a person must first identify events and scenarios that are stressful, and then he/she must identify how he/she reacts to that stress. The two primary ways of coping are "problem-focused coping and emotion-focused coping" (Esia-Donkoh et al., 2011, p. 293). Problem-focused coping refers to coping

methods that attempt to find tangible solutions or change situations, while emotion-focused

coping describes the situation where a person tries to alleviate emotional distress caused by

stressful situations. The most beneficial means of coping depends on the type of stressful event.

However, both problem-focused coping and emotion-focused coping are thought to be adaptive

ways of dealing with stress (Esia-Donkoh et al., 2011).

On the other hand, avoidant coping refers to coping styles that are not effective ways of

dealing with stress. Avoidant coping might include focusing on negative emotions and venting

those feelings or disengaging behaviorally and/or mentally (Chao, 2011). In these examples, no

attempt is made to fix the situation or manage emotions. Instead the person chooses not to deal

with the problematic situation or emotions. Examples of avoidant coping include sleeping to

avoid dealing with stress, or attempting to distract oneself from stress rather than dealing with it

(Chao, 2011).

Mindfulness

One practice that is associated with coping is mindfulness. Strauss, Cavanagh, Oliver,

and Pettman (2014) describe mindfulness as a general state of awareness, stating, "mindfulness

refers to a state of consciousness that is characterized by the self-regulation of attention towards

present-moment experiences coupled with an accepting, non-judgmental stance towards those

experiences" (p. 1). While the term mindfulness refers to an overall state of mind, there are some

specific activities associated with mindfulness. Physical exercises like yoga, tai chi, and qigong

are associated with mindfulness (David & Hayes, 2012). However, the most researched practice

associated with mindfulness is mindfulness meditation (David & Hayes, 2012). Wildmind

Buddhist Meditation (2015) describes mindfulness as a state of higher attention. The Wildmind

Buddhist Meditation (2015) outlines a general path to mindfulness that incorporates a number of

steps. First, it is important to start "paying attention 'on purpose'" (What is Mindfulness section, para. 4). In this phase, one must start attending to input from all of the senses at a higher level. Next, one should draw focus to the present moment. Even when a person is thinking about the past or the future, mindfulness requires a person to be centered in the present moment. To be centered in such a manner, a person should simply acknowledge that thoughts are present, and allow them to leave the mind (Wildmind Buddhist Meditation, 2015). After learning to abide in the present moment, judgment must be removed. If judgments come, one must simply let them pass through the mind without focusing on them. A person must let go of emotional connection to such judgments. In this way, thoughts become observations that simply pass through the mind. In summary, "cognitively, mindfulness is aware that certain experiences are pleasant and some are unpleasant, but on an emotional level we simply don't react" (Wildmind Buddhist Meditation, 2015, What is Mindfulness section, para. 15).

David and Hayes (2012) report that a number of benefits are associated with mindfulness practices. The majority of benefits are cognitive or mental, such as reduced stress, decreased rumination on negative thoughts, improved memory and focus, decreased emotional reactivity, more flexible thinking, and increased satisfaction with relationships. However, mindfulness has also been associated with physical benefits, including improved immune system functioning and an increase in overall wellbeing (David & Hayes, 2012).

Yoga

The practice of yoga is also associated with mindfulness (Isaacs, 2008). Mindfulness yoga and other mindfulness practices have much in common: focusing on the breath, becoming aware of bodily sensations, sometimes repeating mantras, etc. (Isaacs, 2008). According to the Mayo Clinic (2015), the practice of yoga incorporates regulating breathing and stretching to

promote relaxation. Yoga has been shown to decrease stress and blood pressure, and the practice

of yoga is associated with cardiac benefits as well. While Hatha yoga, a slow-paced common

yoga practice, is known for reducing stress, there are benefits to practicing any form of yoga.

Most yoga practices incorporate a flow of yoga positions, also called "postures," that help build

strength and increase flexibility. Focusing on regulating and controlling breathing is another key

component of yoga, and the practice of yoga preaches "that controlling your breathing can help

you control your body and quiet your mind" (Mayo Clinic, 2015, Yoga: Fight stress and find

serenity, para. 5). Thus, the goal of yoga, to become in control of the mind and body, is nearly

synonymous with the aim of mindfulness.

The practice of yoga has been associated with a number of health benefits. Yoga has been

shown to relieve stress, boost mood, and increase overall fitness (Mayo Clinic, 2015).

Additionally, yoga practice has strong physical health benefits, including decreasing risk for

heart disease and high blood pressure. Furthermore, the practice of yoga has been shown to help

improve mental conditions such as "depression, pain, anxiety, and insomnia" (Mayo Clinic,

2015, Yoga: Fight stress and find serenity, para. 6) as well as helping to alleviate general stress.

Therefore, yoga is a form of mindfulness with measurable benefits.

For a person to successfully and adaptively cope with stress, he or she must choose to use

problem-focused coping, emotion-focused coping, or a combination of the two forms (Esia-

Donkoh et al., 2011). Depending on the scenario, yoga might serve either purpose. According to

the Mayo Clinic (2015), yoga has been associated with cardiovascular benefits. Thus, if a person

was experiencing stress related to cardiovascular health concerns, yoga might serve as both a

problem-focused and emotion-focused purpose. Yoga has also been associated with emotional

benefits, and it has been shown to help decrease symptoms of depression and anxiety (Mayo

Clinic, 2015). Therefore, the practice of yoga has the potential to serve as an effective way of coping with a myriad of stressful situations and emotions.

Mindfulness and Stress

Strauss et al. (2014) found that mindfulness-based interventions were more effective than control interventions at lowering symptoms of anxiety. Likewise, mindfulness-based interventions were also more effective than control interventions at reducing symptoms of distress (Strauss et al., 2014). It can be assumed that mindfulness-based interventions would therefore be effective at allaying more general feelings of stress.

Temme, Fenster, and Ream (2012) explored the effectiveness of integrative restoration (iRest), a form of meditation, at treating chemical dependency. They found that iRest increased overall levels of mindfulness, improved mood, and decreased risk for relapse (Temme et al., 2012). Therefore, iRest was shown to be an effective method of mindfulness for treating chemical dependency. Temme et al. (2012) suggest that the act of training the mind to attend to the internal and external activities helps to interrupt the process of habituation that can occur with thought processes. Mindfulness techniques allow people to train their brains to open up to new ways of thinking, allowing them to focus on healing when healing is needed. Self-regulation is another benefit that can be obtained from the practice of mindfulness. While practicing mindfulness, individuals are taught to observe thoughts and emotions without judgment, and this training is helpful for working through troubling mental processes (Temme et al., 2012).

Trigg (2013) completed a qualitative study examining the experiences of people with depression who used the practice of yoga as a complementary form of treatment. Trigg (2013) also found, like Temme et al. (2012), that the mental training to take a step back from thoughts, to observe them more objectively, was a useful tool for relieving stress. Additionally, "yoga

practice allowed participants to let go of feelings of negativity, be humble, and enjoy life's natural joys, rather than focusing on physical or emotional baggage" (Trigg, 2013, p. 214). For some participants, yoga helped boost mood, while others experienced a decrease in symptoms of depression. However, all participants reported that yoga made a positive impact. Specifically, three themes were prominent: "physical transformation, emotional transformation, and impact on relationships" (Trigg, 2013, p. 215).

Yoga is associated with mindfulness. The practice of yoga requires focusing on one's breath, and this experience forces a person to focus on the here and now rather than on life's daily stressors. Numerous studies suggest that yoga is effective at reducing feelings of anxiety and depression. Rhodes (2015) studied Hatha yoga as a treatment intervention for trauma survivors. Yoga was effective at reducing symptoms for a variety of psychiatric conditions, but it was most effective at reducing symptoms of anxiety. Interestingly, people who practice yoga might experience an initial increase in symptoms due to the "greater awareness to the body" (Rhodes, 2015, p. 64), but these symptoms would be expected to decrease and eventually resolve over time. This suggests that the initial period of being introduced to yoga might be stressful, as new learners become more aware of bodily sensations that were possibly associated with trauma memories. However, as the survivors become accustomed to experiencing the new postures and bodily sensations, they also become more experienced in the mindfulness concepts associated with yoga. In this way, the practices of breathing and letting go of thoughts as they pass through the mind eventually helps trauma survivors to heal (Rhodes, 2015).

Smith (2007) compared mental and physical health measures between different groups who underwent one of the following interventions: a psychoeducation course on relaxation, exercise yoga, meditative yoga, and walking. Smith (2007) found that while meditative yoga was

more effective at reducing stress compared to psychoeducation courses on relaxation, it was no more effective than exercise yoga (yoga focused on fitness rather than mindfulness) or walking. This suggests that even yoga courses that focus more on fitness than on mindfulness may still provide the same mindfulness relaxation effects. The similar effects of meditation yoga, exercise yoga, and walking suggest that the physical exercise component may be more important to healing than the mindfulness aspects of coping. It is also possible that there are differences in the Western view of mindfulness and the eastern view of mindfulness. Smith's (2007) research may align with a more Eastern view of mindfulness, which insinuates a stronger connection between mind and body than the Western view of mindfulness does. Furthermore, Smith's (2007) research suggests that yoga is effective at relieving symptoms of stress, but it may be one of many activities that are equally effective. On the other hand, it is possible that individuals who participated in walking as an intervention were mindful, or at least introspective, during their walks and were able to relax as a result.

Regardless, Smith's (2007) research shows that while mindfulness and yoga might be beneficial for some people, other exercises and practices might work for people who do not enjoy mindfulness activities. Additionally, Smith (2007) addressed limitations, such as inexperienced yoga instructors, that may have led to a weaker effect for meditation yoga than more expert yogis might have facilitated.

Personality and Mindfulness

Siegling and Petrides (2014) used a number of mindfulness scales and the BFI (along with other questionnaires) to look into the relationships between personality and mindfulness. When comparing the Five-Facet Mindfulness Questionnaire (FFMQ) to the BFI, they found that neuroticism was most strongly positively correlated with mindfulness compared to other

personality factors (Siegling & Petrides, 2014). Conscientiousness was the next strongest

relationship, and openness was the weakest relationship (Siegling & Petrides, 2014). The

relationship between openness to experience and the FFMQ is counter-intuitive. One might

expect that people open to experiencing new things would also show higher levels of

mindfulness. However, while openness was the factor with the lowest correlation to the FFMQ,

it was the third greatest predictor when comparing all of the mindfulness scale scores combined.

This is still surprising, since openness to experience suggests in the very name that

people high in openness scores would be open-minded to trying different ways to cope, such as

mindfulness activities. The Langer Mindfulness Scale (LMS) showed much different scores.

Neuroticism had the lowest positive correlation with the LMS, and openness was most strongly

correlated with the LMS. Agreeableness was not a strong predictor for the either the FFMQ or

the LMS.

Siegling and Petrides (2014) do not explain potential reasons why people higher on

certain personality factors might be more or less likely to report higher scores on mindfulness

scales. Rather, they point out that the FFMQ and LMS are two very distinct measures of

mindfulness. Interestingly, the FFMQ is expected to measure a more Eastern concept of

mindfulness, while the LMS is thought to measure the Western concept of mindfulness (Siegling

& Petrides, 2014). This suggests that the Western adaptation of Eastern mindfulness practices

has distinctly changed some components. Perhaps the Western version of mindfulness requires

higher levels of openness to experience because it isolates mindfulness into specific activities,

such as meditation or yoga, while the Eastern concept of mindfulness incorporates mindfulness

more into daily activities and an overall way of life. It is interesting that neuroticism is such a

strong predictor for the Eastern concept of mindfulness. Mindfulness research was

predominantly completed by researchers from the Western tradition, and it is possible that correlation between Eastern mindfulness and neuroticism actually reflects cultural differences rather than personality differences.

Personality, Mindfulness, and Coping

Yadav, Sarvottam, Magan, and Yadav (2015) observed a participant with chronic fatigue syndrome, and they set out to explore whether yoga was an effective mindfulness intervention for alleviating symptoms of chronic fatigue syndrome. According to Yadav et al. (2015), yoga was effective at improving wellbeing, reducing anxiety, and improving his overall clinical health. Additionally, Yadav et al. (2015) found that yoga decreased the participant's level of neuroticism, while raising his positive personality factor levels (openness, agreeableness, conscientiousness, and extraversion). Yadav et al. (2015) suggest that these changes were related to the participant's overall health improvement. A person's health will simultaneously improve his personality, since he will not experience the same level of stress from health factors. Yadav et al. (2015) assert that chronic fatigue syndrome and other chronic illnesses "lead to a vicious cycle encompassing physiologic changes, illness beliefs, reduced and inconsistent activity, sleep disturbance, and medical uncertainty" (p. 248). In summary, it is the belief of Yadav et al. (2015) that changes in personality were largely due to the improvement in overall stress levels. Whatever the cause, there does appear to be a relationship between the practice of yoga and changes in scores on personality measures.

Valente and Marotta (2005) did not directly study personality, but many of the factors they noted are intimately related with the five factors of the BFI. The introspective effects they mentioned, such as "enhancing spiritual development" (p. 79), might fall under the category of openness to experience, while the interpersonal effects, such as developing cultural sensitivity

might be related to openness as well as agreeableness (Valente & Marotta, 2005). Emotional

stability is closely related to neuroticism, since neuroticism is described as the tendency to

experience negative emotions (Abbasi, 2011). Therefore, just as Yadav et al. (2015) assert that

yoga influences personality, although Valente and Marotta (2005) did not directly measure

personality, their results also suggest that personality might be affected by yoga.

  While much research exists on the relationships between personality and stress, and on

the correlation between mindfulness and stress, there is a lack of sufficient research on the

connections between personality, stress, and mindfulness. This research project attempted to

address this gap to address the question: What are the relationships between personality,

mindfulness and yoga, and perceived stress? Based on the literature, it was expected that

openness would be positively correlated with higher scores on the FFMQ, neuroticism would be

positively correlated with higher scores on the PSS, and openness would be positively correlated

with more frequent yoga practice. Additionally, it was expected that higher scores on the PSS

would be negatively associated with more frequent yoga practice.

<h2 style="text-align:center">Conceptual Framework</h2>

  Research will inevitably be influenced by the conceptual frameworks used by the

investigators. Conceptual frameworks are influenced by theoretical orientations and likely by

researchers' personal experiences as well. This section of the paper will describe the conceptual

framework to clarify how this research was theoretically birthed, including psychodynamic

theory, cognitive behavioral theory, dialectical behavioral theory, personality theory, and

strengths-based theory. Psychodynamic theory suggests that unconscious stressors can cause

"psychic distress" (p. 322) that affects our lives (Forte, 2007). If people can express themselves

openly, they are able to eliminate this distress with cathartic experiences (Forte, 2007). This

research proposes that yoga is one possible means of emotional catharsis. While yoga is not an example of verbal processing or verbal release often associated with emotional catharsis, it is a non-verbal way of expressing the self. The practice of postures, regulating breathing, and repeating mantras has been shown to increase relaxation and decrease stress (Isaacs, 2008). The connection between mind and body allows people to connect with their emotions in a new way and relax with the meditation involved in yoga practice. Trigg (2013) found that through the practice of yoga, participants were able to let go of negative feelings and emotional baggage to be able to enjoy life's positive experiences in a new way. Trigg (2013) states that yoga is associated with an "emotional transformation" (p. 215). This transformation is akin to the process of catharsis to which psychodynamic theory refers. Yoga allows people to release negative emotions in a cathartic manner through the process of learning to connect the body with the mind.

Additionally, this paper is influenced by different variations of cognitive behavioral theory. According to Forte (2007), "Albert Ellis and Aaron Beck...showed us that our beliefs and our thinking processes are central to explaining emotional and behavioral problems" (p. 251). The belief that these cognitive processes can be altered, particularly in people experiencing high levels of stress, is central to the framework of this paper. Cognitive behavior therapy has been shown to be effective at reducing negative symptoms related to "depression, anxiety disorders, panic disorders, drug abuse, eating disorders, and personality disorders" (p. 252). Central to Ellis' version of cognitive behavior therapy, is the idea that negative self-thoughts can be replaced with positive thoughts to change a person's outlook (Forte, 2007). However, cognitive behavior therapy relies primarily on changing thought patterns, and it neglects one of the central themes significant to this study: mindfulness.

Marsha Linehan noticed this missing element and developed a form of therapy known as dialectical behavior therapy (DBT; Psych Central, 2015). DBT is often used specifically for the treatment of borderline personality disorder, but its theory is applicable for other cases as well. DBT utilizes the cognitive elements of cognitive behavior therapy while also incorporating mindfulness practices (Psych Central, 2015). DBT helps people to focus on strengths to build confidence. Additionally, it is a collaborative approach between staff and clients and typically includes both individual therapy and group therapy. DBT uses the practice of mindfulness to help clients regulate emotions and cope with stress (Psych Central, 2015). According to Psych Central (2015), the basic mindfulness techniques promoted by DBT are: "Observe, Describe, and Participate...Non-judgmentally, One-mindfully, and Effectively..." (p. 2). The latter three techniques are the aspects most associated with emotional responses, and former skills are more associated with cognitive aspects of the process of healing. DBT also teaches clients to build social relationships, increase tolerance to distress, and regulate emotions. This research study is primarily influenced by the elements of DBT that suggest that mindfulness practices might be a key part of the healing process. The practice of yoga combines physical exercises with breath regulation and meditation to help perform the same mindfulness skills taught by DBT.

This research is also influenced by the FFM of personality. This model suggests that a person's personality is comprised of five main factors that will affect how a person interacts with and experiences the world (McCrae & Costa, 2003). The most basic components of personality are: "Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness" (McCrae & Costa, 2003, p. 4). Each trait represents one end of a spectrum. For example, neuroticism is thought to represent the opposite end of the spectrum as emotional stability (Pychyl, 2000). It is believed that these five factors can provide a strong summary of a person's disposition (McCrae

& Costa, 2003). Further research described in the literature review provides insight into how personality may influence a person's perceived stress.

This research is also influenced by the strengths perspective. Saleebey (1996) reports that the central aspect of the strengths-based approach is that "all must be seen in the light of their capacities, talents, competencies, possibilities, visions, values, and hopes...The strengths approach requires an accounting of what they can do..." (p. 297). In summary, therapists should focus on client strengths and work to build up those strengths to help clients have the best chances for success. In light of this knowledge, therapists should attempt to understand what best works for each client in terms of coping. If yoga is effective at reducing stress for some clients, therapists should help clients build on that strength to continue improving their ways of reducing stress.

Anecdotal evidence from personal experience suggests that yoga is an extremely calming experience. I have tried a number of different types of yoga, including Bikram, gentle yoga, Vinyasa yoga, and yoga sculpt classes. Most classes end with the pose called "savasana," or "corpse pose." In this pose, a person lays on her back and practices clearing the mind in meditation. As a result, after each class, whether it is a sculpt class or a gentle yoga class, I always feel relaxed, although the effect is sometimes greater after slower paced classes. However, when I initially started practicing yoga, I experienced a slight increase in anxiety during savasana pose. I was unable to quiet my mind, and the process of trying to do so sometimes led to frustration that increased my anxious feelings. However, although I am certainly not perfect at the practice of meditation, I have learned to be comfortable with wherever I am on any given day for a yoga class, so I am able to experience relaxation instead of anxiety.

My own experiences with yoga have contributed to my interest in yoga as a practice for coping with stress.

Methods

Procedure

Participants were recruited using selective sampling to find people who had attended at least one yoga class in their lifetime. Participants were recruited using social media websites, such as Facebook and LinkedIn. A flier was posted on these sites (Appendix A).

Sample

Sixty-eight participants were recruited. However, ten of the participants only answered the question regarding informed consent and did not complete the survey. Therefore, 58 participants' answers were analyzed. Participants were required to be over 18 years old.

Protection of Human Subjects

This study did not focus on any protected populations. At the beginning of the survey, information on the purpose of the study and consent was presented to participants. Participants were asked to give consent by reading and checking "yes" or "no" on the consent form (Appendix A). If participants checked "no" they were taken to the end of the survey. Participants were given the option to withdraw from the study at any time and leave questions unanswered if they were uncomfortable answering them. Participants were asked to provide basic demographic information, but they were not asked to record their names. Data were stored with Qualtrics survey software and in an Excel file once the data were recorded. These files were password-protected.

Survey

This mixed-methods study used an online survey with closed and open-ended questions about personality, mindfulness and yoga, and perceived stress (Appendix B). The survey included an abbreviated version of the BFI, the FFMQ, the PSS, questions about participants' experiences with yoga, and demographic information. The survey included 55 questions and was comprised of five main parts. The first ten questions were an abbreviated version of the Big Five Inventory (BFI-10). These questions attempt to measure the five aspects of personality: Conscientiousness, Agreeableness, Neuroticism, Openness to experience, and Extroversion. The next 24 questions were a short-form version of the Five-Facet Mindfulness Questionnaire (FFMQ-SF). These questions were designed to measure aspects of mindfulness. The next ten questions were the PSS. These questions were designed to gain an understanding of how people perceive stress. The next three questions were original qualitative questions about participants' experiences with yoga. The final questions were basic demographic questions. The survey took approximately five to fifteen minutes for each participant to complete. A complete version of the survey can be seen in Appendix B.

Data was collected using Qualtrics survey software. Qualtrics is a program for survey data collection based online (Qualtrics, 2015). Participants were able to access the survey by using the website information provided in the fliers posted on social network websites (Appendix A). Participants responded to the survey using the Qualtrics program from their own personal computers, or by accessing the survey from public computers. The survey opened on January 23, 2016, and the final participant completed the survey on March 7, 2016. Raw data was entered into Excel. Correlations, t-tests, and p-values were obtained using Excel.

Measures

This survey used a variety of two to six-item Likert questions (used for consent, BFI-10, FFMQ-SF, PSS, yoga questions, and demographic questions). The Likert scale questions were both nominal and ordinal. The Likert scale questions were used to determine the degree of agreement or disagreement participants had with personality, mindfulness, and stress questions. Additionally, the Likert scale questions were used for nominal questions, such as consent, yoga questions, and demographic questions.

The consent form was included in the survey. A "1" response indicated "yes" for consent, while a "2" response indicated "no." If a person indicated that they did not consent, they were taken to the end of the survey.

The BFI questions measured how much participants agreed with statements describing their personalities. These questions were operationalized as follows: "I see myself as someone who..." with an adjective or statement describing personality traits. The scale response options were: "Disagree strongly," "Disagree a little," "Neither agree nor disagree," "Agree a little," and "Agree strongly." These factors were coded into five categories, the Big Five personality traits: Conscientiousness, Agreeableness, Neuroticism, Openness to experience, and Extroversion.

The FFMQ-SF questions measured participants' answers for mindfulness questions. These questions were operationalized with questions about how participants noticed their thoughts and feelings, for example: "I'm good at finding the words to describe my feelings." The scale response options were: "Never or very rarely true," "Not often true," "Sometimes true sometimes not true," "Often true," and "Very often or always true." A total score for this scale was obtained by finding the reverse scores for questions 14, 15, 17, 18, 21, 22, 24, 27, 29, 32, 33,

and 34 and adding all FFMQ question scores. Higher scores were associated with higher levels of mindfulness, while lower scores were associated with lower levels of mindfulness.

The PSS questions measured how participants perceived stress. These questions were operationalized as follows: "In the last month, how often have you..." followed by a statement about a stressor, for example: "In the last month, how often have you been upset by something that happened unexpectedly?" The scale response options were: "Never," "Almost Never," "Sometimes," "Often," and "Very often." A total score for this was obtained by reversing the scores for 39, 40, 42, and 43 and adding all of the PSS question scores. Higher scores were associated with higher levels of perceived stress, while lower scores were associated with lower levels of perceived stress.

Yoga questions were operationalized with three questions. The first question was "How often do you do yoga?" The scale options were: "Once a week or more," "A few times a month," "A few times a year," "I tried it, and I liked it, but I am not currently practicing," and "I tried it, and I didn't like it." The second question was "If you tried it and liked it but are not currently practicing yoga, why are you not practicing yoga?" The scale options were: "It is too expensive," "It takes too much time," "Injury," "Other" (with a blank for participants to provide more information). The third question was "Did yoga help you relax?" The scale options were: "Yes, and why" (with a blank for participants to provide more information" and "No, and why" (with a blank for participants to provide more information.

Demographic information was operationalized with questions about age, gender, and race. For the question, "How old are you?," scale options were: "18-29," "30-39," "40-49," "50-59," and "60 and older." For the question, "What gender do you identify with?," the scale options were: "Male," "Female," "Transgender," and "Prefer not to answer." For the question,

"What race do you identify with?," scale options were: "White/Caucasian," "African American,"

"Hispanic," "Asian," "Mixed racial background," and "Prefer not to answer."

Data Analysis Plan

 Correlations, t-tests, and p-values were obtained using Excel to measure the relationships

between the BFI, FFMQ, the PSS and yoga practice. Qualitative questions about yoga practice

were analyzed by this writer and coded for themes.

<div align="center">

Results

</div>

While much research exists on the relationships between personality and stress, and on

the correlation between mindfulness and stress, there is a lack of sufficient research on the

connections between personality, stress, and mindfulness. This research project attempted to

address this gap to address the question: What are the relationships between personality,

mindfulness and yoga, and perceived stress? Based on the literature, it was expected that

openness would be positively correlated with higher scores on the FFMQ, neuroticism would be

positively correlated with higher scores on the PSS, and openness would be positively correlated

with more frequent yoga practice. Additionally, it was expected that higher scores on the PSS

would be negatively associated with more frequent yoga practice.

Participant Demographics

Sixty-eight participants responded to this study, however only 58 participants completed

the survey. Therefore, 58 participants' responses were analyzed. As shown in Table 1.1, seven

participants (12%) identified as male, and 51 participants (88%) identified as female. As shown

in Table 1.2, fifty-seven participants (98%) identified as White/Caucasian, and 1 participant

(2%) identified as a person of mixed racial background. As shown in Table 1.3, thirty-six

participants (62%) were 18-29 years of age, 7 participants (12%) were 30-39 years of age, 1

participant (2%) was 40-49 years of age, 11 participants (19%) were 50-59 years of age, and 3 participants (5%) were 60 or older.

Table 1.1

Gender of Participants

Gender	Number of Participants
Female	51
Male	7
Total	58

Table 1.2

Race of Participants

Race	Number of Participants
White/Caucasian	57
Mixed Racial Background	1
Total	58

Table 1.3

Age of Participants

Age	18-29	30-39	40-49	50-59	60 and over	Total
# of Participants	36	7	1	11	3	58

Personality and Mindfulness

As shown in Table 2.1, there were relationships between personality traits and mindfulness, but only some were significant. There was a positive relationship between openness and total scores on the FFMQ, but it was not a significant relationship (p=.109). There was a negative relationship between extroversion and total scores on the FFMQ, but this was not a significant relationship (p=.758). There was a significant, positive relationship between agreeableness and total FFMQ scores (p=.030). There was a significant, positive relationship between conscientiousness and total FFMQ scores (p=.037). There was a significant, negative relationship between neuroticism and total FFMQ scores (p=.009).

Table 2.1

Big Five Inventory Trait Relationships with Five-Facet Mindfulness Questionnaire Scores

Personality Trait	r value	t-value	p-value
Extroversion	-0.04	-0.31	0.76
Agreeableness	0.29	2.23	**0.03**
Conscientiousness	0.27	2.13	**0.04**
Neuroticism	-0.34	-2.70	**0.01**
Openness	0.21	1.63	0.11

Personality and Stress

There was a significant, positive relationship between neuroticism and total scores on the PSS (p = .000). The relationships of PSS scores with other traits were not explored, since they were not addressed in the research hypotheses.

Mindfulness, Yoga, and Stress

There was a positive relationship between the number of times participants practiced yoga and scores on the FFMQ, but this was not a significant relationship (p = .558). There was a positive relationship between scores on the FFMQ and participants reporting that yoga helped them feel more relaxed, but this was also not a significant relationship (p = .182). Relationships with yoga appear to be negatively correlated on the table, but the negative correlation and t-test values reflect answers where higher number scores (e.g., 5) reflect less frequent yoga practice. A higher number response for whether or not yoga helped participants relax was associated with a "no" answer.

There was a significant negative relationship between higher scores on the FFMQ and scores on the PSS (p = .000). There was a positive relationship between PSS total scores and less frequent yoga practice, but this relationship was not significant (p = .296). There was a positive relationship between PSS total scores and participants stating that yoga did not help them relax, but this was also not a significant relationship (p = .217).

Participants included the following as reasons for not currently practicing yoga: too expensive, too much time, injury, they preferred other workouts, and difficulty fitting classes into schedule. Participants included the following as reasons that yoga helped them relax: engaging the body, breathing, and attention, movement of the body paired with a calming atmosphere, focusing on the body instead of the mind, the opportunity that yoga provided for the chance to check in with the body and mind, mindful breathing, focusing on the present moment, awareness of the breath, centering thoughts, time away from other things, personal time, connection of the body and mind, distraction from stressors, and the physical relaxation associated with stretching the body.

Discussion

Based on the literature, it was expected that openness would be positively correlated with higher scores on the FFMQ. Results of this project indicate that a positive relationship may exist between openness and the FFMQ, however it was not significant. It is possible that these scores are not as closely related as hypothesized, but this study lacks statistical power, due to the low number of participants. However, the results of this study supported the findings of Siegling and Petrides (2014) that openness was the weakest predictor of scores on the FFMQ. Furthermore, while these researchers found a weak relationship between openness and FFMQ scores, they found that openness was a strong predictor for higher scores on combined scores for the FFMQ and LMS. Therefore, it can be assumed that there is some positive relationship between the openness and mindfulness that is not observed in the FFMQ scores.

It was hypothesized that neuroticism would be positively correlated with higher scores on the Perceived Stress Scale. This research supported the findings of many others who reported that neuroticism was associated with stress.

It was hypothesized that the total scores for the PSS would be negatively associated with more frequent yoga practice. Additionally, it was expected that higher scores on the FFMQ would be associated with more frequent yoga practice. While the relationships between yoga practice and the PSS total scores, and whether or not yoga was helpful for participants to relax and PSS total scores were not significant, both of these relationships suggested that yoga is beneficial for reducing stress. Trigg (2013) also found that yoga was effective at reducing negative emotions, and it is likely that further research with more participants and a more representative sample would provide significant results to this effect. Furthermore, while there was not a significant relationship between PSS scores and whether or not yoga helped

participants relax, more people answered "yes" than "no" in response to whether or not yoga helped them relax.

The results from this study did not support Siegling and Petrides' (2014) finding that neuroticism was the most strongly positively correlated with mindfulness compared to other personality factors. The results of this study suggested that there is a negative relationship between neuroticism and FFMQ scores. However, the results of this study did support the findings of Siegling and Petrides (2014) that conscientiousness was positively correlated with FFMQ. Interestingly, while Siegling and Petrides (2014) did not find that agreeableness was a predictor for mindfulness, the results of this study suggested that agreeableness is significantly related to total scores on the FFMQ. This suggests that people who are more agreeable are also likely to be more mindful; perhaps people who are more agreeable are also more likely to try methods of mindfulness when other people recommend them.

Implications for Social Work Practice

Since the results of this study supported the work of Siegling and Petrides (2014), the results of this study indicate that people with different personalities experience stress differently. This highlights the social work value of meeting clients where they are, and by getting to know clients' personality types, clinicians might be able to better plan interventions that help different personality types. Furthermore, since more people responded that yoga did help them relax than people who answered "no," clinicians should consider integrating yoga and other mindfulness practices into their practices. Clinicians can use mindfulness practices, such as guided relaxation and deep breathing when they teach clients coping skills. Clinicians might also recommend mindfulness apps or yoga/meditation classes to clients when they teach coping skills.

Implications for Policy

Since yoga is shown to reduce stress and neuroticism is associated with higher stress levels, facilities that treat people with high levels of stress (e.g., hospitals, day treatment centers, residential treatment) should incorporate yoga practice and other mindfulness techniques into their curricula. Currently, some schools incorporate mindfulness activities into their schedules, and the early results are promising. Programs such as "MeMoves" help young children become more centered to prepare them for learning. Additionally, large mental health organizations, such as the National Alliance on Mental Illness (NAMI) should adapt policies that support ongoing research and funding for yoga and mindfulness programs. Meister (2015) indicates that mindfulness is helpful for building communication and reactions to stress for employees of corporations.

Implications for Research

Further research should seek to find a more representative sample of the general population. This study had only one non-white participant, and therefore the results cannot be generalized to the general population. Furthermore, the sample was not stratified in terms of gender and age. Education level was not obtained in this survey, so it is not clear whether the population was indicative of the general population in terms of level of education. Further research should use a stratified random sample to increase the likelihood of generalizable results. Further research should also seek to find more participants who have no experience with yoga to serve as a comparison group. Additionally, since the sample size (n = 58) for this study was small, the sample lacked statistical power. Therefore, further research should recruit more participants in order to hopefully increase the likelihood of finding significant results by

increasing the statistical power. Lastly, future research should look into the relationships between BFI traits other than neuroticism and PSS scores.

Strengths and Limitations

The BFI, FFMQ, and PSS questionnaires used for this research have been tested for validity and reliability by previous researchers. Therefore, these are strong measures that are likely to provide valid results. However, the qualitative questions about yoga were not tested for validity. Therefore, these questions may not have provided the same level of validity. The sampling method may have been slightly biased since participants are required to have some experience with yoga. Therefore, the results may not show the same level of clinical significance as a simple random sampling might have shown.

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Appendix A.

Recruitment Flier

The Relationships Between the Big Five Inventory, Five-Facet Mindfulness Questionnaire, Perceived Stress Scale, and Yoga Practice

You are invited to participate in a research study investigating the relationships between stress, personality, mindfulness, and yoga. I invite you to participate in this research. You were selected as a possible participant because you have participated in at least one yoga class and are over 18 years old. You are eligible to participate in this study because you have participated in at least one yoga class and are over 18 years old. The following information is provided in order to help you make an informed decision whether or not you would like to participate. Please read this form and ask any questions you may have before agreeing to be in the study.

Procedures

If you agree to participate in this study, I will ask you to do the following things: Complete a survey, including the Big Five Inventory, Five-Facet Mindfulness Questionnaire, Perceived Stress Scale, and questions about yoga practice. It is expected that this survey will take approximately 10-15 minutes. If you are uncomfortable with any questions, you may skip them.

Compensation

Participants will have the option to be entered into a drawing for a gift card to a yoga studio in the Twin Cities. One participant will win a gift card to a Twin Cities yoga studio. Other participants will not receive payment.

Contacts and Questions

My name is Erin Meyer Stamp. You may ask any questions you have now and any time during or after the research procedures. If you have questions later, you may contact me at 515-306-7498 or erin.meyer2011@gmail.com or contact Courtney Wells at wells7613@stthomas.edu or 651-373-6651. This project was approved by the Institutional Review Board at the University of St. Thomas. You may also contact the University of St. Thomas Institutional Review Board at 651-962-6035 or muen0526@stthomas.edu with any questions or concerns.

To participate in this study, please visit:
https://qtrial2015q4az1.az1.qualtrics.com/SE/?SID=SV_e3xlhCFW66hZL37

Appendix B.

Survey

Consent Form

The Relationships Between the Big Five Inventory, Five-Facet Mindfulness Questionnaire, Perceived Stress Scale, and Yoga Practice
835693-1

You are invited to participate in a research study investigating the relationships between stress, personality, mindfulness, and yoga. I invite you to participate in this research. You were selected as a possible participant because you have participated in at least one yoga class and are over 18 years old. You are eligible to participate in this study because you have participated in at least one yoga class and are over 18 years old. The following information is provided in order to help you make an informed decision whether or not you would like to participate. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by This study is being conducted by Erin Meyer Stamp, B.A., student of the School of Social Work St. Catherine University/University of St. Thomas and Courtney Wells, Courtney K. Wells, MPH, MSW, PhD, Adjunct Faculty of School of Social Work St. Catherine University/University of St. Thomas. This study was approved by the Institutional Review Board at the University of St. Thomas.

Background Information

The purpose of this study is to analyze the relationships between stress, personality, mindfulness, and yoga. The Mayo Clinic (2015) reports that yoga has been shown to reduce stress. Siegling and Petrides (2014) suggest that there are a number of correlations between the Big Five Inventory personality traits and the Five Facet Mindfulness Questionnaire (FFMQ). However, very little research addresses the relationships between personality, perceived stress, and mindfulness. To better understand how these factors are related, this research will investigate the relationships between personality, mindfulness, yoga, and perceived stress as measured by the Big Five Inventory, the FFMQ, additional questions about yoga, and the Perceived Stress Survey.

Procedures

If you agree to participate in this study, I will ask you to do the following things: Complete a survey, including the Big Five Inventory, Five-Facet Mindfulness Questionnaire, Perceived Stress Scale, and questions about yoga practice. It is expected that this survey will take approximately 10-15 minutes. If you are uncomfortable with any questions, you may skip them.

Risks and Benefits of Being in the Study

The study has risks. Participants will be asked to complete the Perceived Stress Scale. While unlikely, it is possible that taking this survey may make participants more aware of current stress levels and contribute to emotional distress. However, the questions are general questions about stress. If you experience any emotional distress after taking this survey and wish to speak to someone, you may contact the Crisis Connection at 612-379-6363.

There are no direct benefits for participants in this study.

Compensation

Participants will have the option to be entered into a drawing for a gift card to a yoga studio in the Twin Cities. One participant will win a gift card to a Twin Cities yoga studio. Other participants will not receive payment. If you wish to be entered into this drawing, you must email Erin Meyer Stamp at erin.meyer2011@gmail.com at the end of the survey.

Privacy

Your privacy will be protected while you participate in this study. The records of this study will be kept anonymous. You may always choose to skip questions or not to participate at all. Email addresses and names will be collected if participants want to be considered for the chance to win a gift card to a Twin Cities yoga studio. However, this information will be collected separately from the survey information. Email addresses and names will be deleted once a gift card winner is determined.

Confidentiality

The records of this study will be kept confidential. In any sort of report I publish, I will not include information that will make it possible to identify you. The types of records I will create include an electronic dataset. The electronic dataset derived from this survey will be kept in a password-protected file on Erin Meyer Stamp's computer. Only the researcher named in this form and committee members who have signed confidentiality agreements will have access to the surveys. Completed surveys will be kept in electronic files and will not contain any identifying information. All signed consent forms will be kept for a minimum of three years upon completion of the study. Institutional Review Board officials at the University of St. Thomas reserve the right to inspect all research records to ensure compliance.

Voluntary Nature of the Study

Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with the researcher, School of Social Work, the University of St. Thomas or the College of St. Catherine. There are no penalties or consequences if you choose not to participate. If you decide to participate, you are free to withdraw at any time without penalty or loss of any benefits to which you are otherwise entitled. Should you decide to withdraw, data collected about you prior to your withdrawal may still be used for this study. You

can withdraw by simply exiting the survey page. You are also free to skip any questions I may ask.

Contacts and Questions

My name is Erin Meyer Stamp. You may ask any questions you have now and any time during or after the research procedures. If you have questions later, you may contact me at 515-306-7498 or erin.meyer2011@gmail.com or contact Courtney Wells at wells7613@stthomas.edu or 651-373-6651. This project was approved by the Institutional Review Board at the University of St. Thomas. You may also contact the University of St. Thomas Institutional Review Board at 651-962-6035 or muen0526@stthomas.edu with any questions or concerns.

Statement of Consent

I have read the above information. My questions have been answered to my satisfaction. I consent to participate in the study. I am at least 18 years of age.

You may print a copy of this form to keep for your records.

CHECKING "YES" IN THE BOX BELOW INDICATES THAT YOU ARE GIVING CONSENT FOR PARTICIPATION IN THIS SURVEY.

CHECKING "YES" IN THE BOX BELOW INDICATES THAT YOU ARE GIVING CONSENT FOR PARTICIPATION IN THIS SURVEY.
- ○ YES (1)
- ○ NO (2)
If YES Is Not Selected, Then Skip To End of Survey

Q1 I see myself as someone who is reserved.
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q2 I see myself as someone who is generally trusting
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q3 I see myself as someone who tends to be lazy
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q4 I see myself as someone who is relaxed, handles stress well
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q5 I see myself as someone who has few artistic interests
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q6 I see myself as someone who is outgoing, sociable
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q7 I see myself as someone who tends to find fault with others
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q8 I see myself as someone who does a thorough job
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither Agree nor Disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q9 I see myself as someone who gets nervous easily
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q10 I see myself as someone who has an active imagination
- ○ Disagree strongly (1)
- ○ Disagree a little (2)
- ○ Neither agree nor disagree (3)
- ○ Agree a little (4)
- ○ Agree strongly (5)

Q11 I'm good at finding the words to describe my feelings
- ○ Never or very rarely true (1)
- ○ Not often true (2)
- ○ Sometimes true sometimes not true (3)
- ○ Often true (4)
- ○ Very often or always true (5)

Q12 I can easily put my beliefs, opinions, and expectations into words
- ○ Never or very rarely true (1)
- ○ Not often true (2)
- ○ Sometimes true sometimes not true (3)
- ○ Often true (4)
- ○ Very often or always true (5)

Q13 I watch my feelings without getting carried away by them
- ○ Never or very rarely true (1)
- ○ Not often true (2)
- ○ Sometimes true sometimes not true (3)
- ○ Often true (4)
- ○ Very often or always true (5)

Q14 I tell myself that I shouldn't be feeling the way I'm feeling
- ○ Never or very rarely true (1)
- ○ Not often true (2)
- ○ Sometimes true sometimes not true (3)
- ○ Often true (4)
- ○ Very often or always true (5)

Q15 It's hard for me to find the words to describe what I'm thinking
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q16 I pay attention to physical experiences, such as the wind in my hair or sun in my face
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q17 I make judgments about whether my thoughts are good or bad
○ Never or very rarely (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q18 I find it difficult to stay focused on what's happening in the present moment
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q19 When I have distracting thoughts or images I don't let myself be carried away by them
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q20 Generally, I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q21 When I feel something in my body, it's hard for me to find the right words to describe it
❍ Never or very rarely true (1)
❍ Not often true (2)
❍ Sometimes true sometimes not true (3)
❍ Often true (4)
❍ Very often or always true (5)

Q22 It seems I am "running on automatic" without much awareness of what I'm doing
❍ Never or very rarely true (1)
❍ Not often true (2)
❍ Sometimes true sometimes not true (3)
❍ Often true (4)
❍ Very often or always true (5)

Q23 When I have distressing thoughts or images, I feel calm soon after
❍ Never or very rarely true (1)
❍ Not often true (2)
❍ Sometimes true sometimes not true (3)
❍ Often true (4)
❍ Very often or always true (5)

Q24 I tell myself I shouldn't be thinking the way I'm thinking
❍ Never or very rarely true (1)
❍ Not often true (2)
❍ Sometimes true sometimes not true (3)
❍ Often true (4)
❍ Very often or always true (5)

Q25 I notice the smells and aromas of things
❍ Never or very rarely true (1)
❍ Not often true (2)
❍ Sometimes true sometimes not true (3)
❍ Often true (4)
❍ Very often or always true (5)

Q26 Even when I'm feeling terribly upset, I can find a way to put it into words
❍ Never or very rarely true (1)
❍ Not often true (2)
❍ Sometimes true sometimes not true (3)
❍ Often true (4)
❍ Very often or always true (5)

Q27 I rush through activities without being really attentive to them
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q28 Usually when I have distressing thoughts or images I can just notice them without reacting
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q29 I think some of my emotions are bad or inappropriate and I shouldn't feel them
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q30 I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q31 When I have distressing thoughts or images, I just notice them and let them go
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q32 I do tasks or jobs automatically without being aware of what I'm doing
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q33 I find myself doing things without paying attention
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q34 I disapprove of myself when I have illogical ideas
○ Never or very rarely true (1)
○ Not often true (2)
○ Sometimes true sometimes not true (3)
○ Often true (4)
○ Very often or always true (5)

Q35 In the last month, how often have you been upset by something that happened unexpectedly
○ Never (1)
○ Almost Never (2)
○ Sometimes (3)
○ Often (4)
○ Very often (5)

Q36 In the last month, how often have you felt that you were unable to control the important things in your life
○ Never (1)
○ Almost never (2)
○ Sometimes (3)
○ Often (4)
○ Very often (5)

Q37 In the last month, how often have you felt nervous and "stressed"
○ Never (1)
○ Almost never (2)
○ Sometimes (3)
○ Often (4)
○ Very often (5)

Q38 In the last month, how often have you felt confident about your ability to handle your personal problems
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q39 In the last month, how often have you felt that things were going your way
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q40 In the last month, how often have you found that you could not cope with all the things you had to do
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q41 In the last month, how often have you been able to control irritations in your life
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q42 In the last month, how often have you felt that you were on top of things
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q43 In the last month, how often have you been angered because of things that were outside of your control
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q44 In the last month, how often have you felt difficulties were piling up so high that you could not overcome them
❍ Never (1)
❍ Almost never (2)
❍ Sometimes (3)
❍ Often (4)
❍ Very often (5)

Q45 How often do you do yoga
❍ Once a week or more (1)
❍ A few times a month (2)
❍ A few times a year (3)
❍ I tried it, and I liked it, but I am not currently practicing (4)
❍ I tried it, and I didn't like it (5)

Q46 If you tried it and liked it but are not currently practicing yoga, why are you not practicing yoga?
❍ It is too expensive (1)
❍ It takes too much time (2)
❍ Injury (3)
❍ Other (4) _____

Q47 Did yoga help you relax
❍ Yes, and why (1) _____
❍ No, and why (2) _____

Q53 How old are you?
❍ 18-29 (1)
❍ 30-39 (2)
❍ 40-49 (3)
❍ 50-59 (4)
❍ 60 and older (5)

Q54 What gender do you identify with?
- ○ Male (1)
- ○ Female (2)
- ○ Transgender (3)
- ○ Prefer not to answer (4)

Q55 What race do you identify with?
- ○ White/Caucasian (1)
- ○ African American (2)
- ○ Hispanic (3)
- ○ Asian (4)
- ○ Mixed racial background (5)
- ○ Prefer not to answer (6)