A TEST OF THE ASSOCIATION BETWEEN GENERALIZED STRESS AND FINANCIAL WELL-BEING

by

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(Under the Direction of John E. Grable)

ABSTRACT

Financial service professionals work daily to systematically help change their client's behavior as a way to improve each client's financial well-being. The role of stress in describing overall life and financial well-being is a topic that has garnered researcher, practitioner, and policy maker attention over the past two decades. Generalized stress has been found to be an important factor in describing someone's subjective evaluation of their life situation. Little is known about the association between generalized stress and financial well-being. The purpose of this study was (a) to identify the associations among variables known to be associated with financial well-being, (b) to test the pathways toward financial well-being in a proposed model that included a generalized stress variable, and (c) to examine the direct, indirect, and total effect of generalized stress on financial well-being. Using the National Financial Well-Being Survey (2017), this study employed a structural equation modeling technique to analyze the data. The tests described in this dissertation were framed using a financial well-being model first introduced into the literature by Shim, Xiao, Barber, and Lyons (2009). Generalized stress was hypothesized in this study to be negatively related to financial well-being because (dis)stress is generally thought to alter an individual's decision-making approach, resulting in sometimes in the implementation of

problematic strategies and behavior. To date, few studies have focused on the association between generalized stress and financial well-being. This dissertation adds to the existing body of literature by documenting a significant negative association between generalized stress and financial well-being. In addition to evaluating the association between generalized stress and financial well-being, this study proposes a new conceptual framework that can be used to guide future financial well-being research. The model suggests that financial well-being can be better described through the incorporation of generalized stress, in addition to financial knowledge, financial attitude, financial subjective norms, perceived financial behavioral control, socioeconomic status, financial capability, and problematic financial behavior. The major findings of this study are expected to provide insights into interventions that financial service professionals, policy makers, and researchers can incorporate into practice.

INDEX WORDS: Financial attitude, Financial behavior, Financial knowledge, Financial well-being, Generalized stress, Perceived financial behavioral control, Structural Equation Modeling

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Financial well-being, which is defined as a state of feeling secure in one's current and future personal financial situation or status, wherein a person has the ability to meet ongoing financial obligations and make financial choices to sustain their life (Consumer Financial Protection Bureau [CFPB], 2015), is an integral factor associated with enhancing the quality of life of individuals and households. In the context of financial planning, financial counseling, financial therapy, and related fields, financial well-being is generally considered to be one of the primary outcomes associated with implementation of the financial planning process (Irving, 2012).

An important, and as of yet, unanswered question asked by financial planners, financial counselors, financial therapists, financial educators, researchers, and policy makers is how financial service professionals can systematically help change client behavior in such a way that a client's financial management outcomes can be improved across time, thus improving household financial well-being. Many behavioral theories and intervention techniques have been developed and applied to address this question. Nearly all such theories, when related directly to the personal finance domain, tend to be focused on gaining a better understanding of human behavior. Some theories and models attempt to predict individual and household financial behavior. A prevailing assumption imbedded in most theories and frameworks is that financial knowledge is needed to promote positive financial behavior. Stated another way, much of the existing literature presupposes that individuals and households that exhibit the soundest financial behavior also exhibit the highest levels of financial knowledge.

This assumption, however, has not been completely verified in the literature. While much of the previous literature has postulated that financial knowledge and skills (i.e., financial capacity) are positively associated with necessary and prudent financial behavior, there is some evidence to suggest that the association may not be as strong as commonly suspected (e.g., Fernandes, Lynch, & Netemeyer, 2014). Anecdotally, the media report, almost on a daily basis, stories that describe financial failure, bankruptcy, and general financial instability that is experienced across a variety of household types—rich, poor, educated, less educated, etc. This hints at the possibility that some other factor may be at play in describing financial well-being and financial outcomes at the individual and household level.

While various personal characteristics including perceptions, psychological resources, attitudes, and behavioral controls are believed to be associated with financial well-being and financial behavior, little attention among academicians has been paid to the effect of stress on the determination of financial behavior. Generalized stress, which is defined as a person's psychological and physiological response stimulated by actual or anticipated life events and conditions perceived as a threat (Fink, 2016; Sapolsky, 2004), is known to be associated with personal, household, family, environmental, and other factors that place a demand on the personal system. Nearly all studies that have examined the stress, financial behavior, and well-being association have assumed a causal relationship between problematic financial behavior and increased stress levels. It is worth noting, however, that this assumption has been tested primarily with measures of financial stress (i.e., perceiving one's financial situation to be inadequate or worrisome (Grable, 2015). Although researchers have used several different terms (e.g., economic stress, economic hardship, financial hardship, financial distress, financial strain) to refer to financial stress, nearly all researchers view financial stress as one's subjective evaluation and

feeling about their financial situation. These evaluations and feelings are then thought to be associated with perceptions of financial well-being. There is some evidence to support a causal assertion from stress to well-being. According to the American Psychological Association (APA, 2010), nearly three out of four Americans have experienced anxiety resulting from money management issues. Money anxiety (i.e., worry) is most often called financial stress, although financial anxiety is sometimes referred to as economic strain, economic pressure, economic hardship, economic stress, or financial distress (Kim & Garman, 2003). One outcome associated with the present study is to extend the analysis of stress beyond financial stress to evaluate the association between generalized stress and financial well-being.

Background

The level of stress felt by an individual (and more generally within a household) is directly related to the number, type, and severity of stressors experienced by the individual (or household). A stressor is any life event that impacts an individual in a way that changes the person's social equilibrium (Joo & Grable, 2004). Stressors can be either positive or negative, but in general, stressors tend to be deleterious. For example, consider the daily mental and physical stimuli that build up over time to create physiological strain in the human body. When the personal system is overwhelmed with one or more stressors, a feeling of being mentally and physically conquered can occur. Estimates suggest 30% to 70% of Americans suffer from excessive stress resulting from daily stressors (APA, 2010).

In the social sciences, a stressor is defined as an environmental stimulus or event that prompts a reaction (Grable, 2015). When viewed from a financial planning and household perspective, stressors can be further defined as generalized or financial. Financial stressors are those caused by a lack of monetary resources. For example, unemployment, job losses, reduced or

irregular income, and forced early retirement are examples of financial stressors. People with limited financial resources are likely to be in economic/financial hardship because they have to live with severe budget constraints while still needing to engage in various financial activities for daily living. Other types of financial stressors include unexpected or unprepared for expenses due to accidents, getting divorced, getting married, giving birth, migration, unexpected home/vehicle repairs, illness, or other negative social events. In most cases, unexpected or unprepared for expenses prevent individuals and households from holding to normal financial plans. Financial stressors tend to be a burden forcing people to obtain loans and/or rely on revolving sources of credit (e.g., credit cards, payday loans, title loans). Researchers have reported that perceived financial inadequacy leads to financial stress. Being unable to pay bills, being unable to afford basic living necessities, being unable to engaging in social activities, and being unable to support dependents are examples perceived financial inadequacy. Financial disruptions such as foreclosures, repossessions, bankruptcy, investment losses, or becoming a fraud victim are also known to be financial stressors. Financial stressors can be additive and cumulative (Kim, Sorhaindo, & Garman, 2006).

As noted above, much of the research linking financial well-being to stress has been conceptualized using financial stress at a model input. Financial stress is a special form of stress. It is generally assumed within the literature that financial stress is inherently negative and harmful. This assumption is premised on the linkage from financial stressors, as causal agents, to financial stress. Typical individual and household financial stressors include the overuse of credit, being unable to balance income and expenses, being burdened with medical debt, needing to obtain debt consolidation loans on occasion, and worrying about the safety of one's own job and investments. Those who have trouble paying household expenses are known to be more likely to file for

bankruptcy, face foreclosure, and incur ongoing legal problems (Joo & Grable, 2004; O'Neill, Prawitz, Sorhaindo, Kim, & Garman, 2006). These are objective examples of outcomes associated with financial stressors that build up over time.

This dissertation is focused on describing the effect of generalized stress rather than financial stress. The causes of generalized stress extend beyond financial matters. Generalized stressors obviously include financial events (Britt, Mendiola, Schink, Tibbetts, & Jones, 2016; Joo & Grable, 2004; Rettig, Leichtentritt, & Danes, 1999) (e.g., investment losses, foreclosures, bankruptcy, excessive consumer debt, credit problems, unpaid bills, calls from creditors, debt consolidation loans, job losses, retirement, divorce, illness), but the concept is much broader. Generalized stress encompasses the manner in which someone perceives their life situation in the aggregate. Stressors, as such, include events and stimuli from a variety of sources.

While it is assumed that experiencing stressors is unhealthy, it is important to note, however, that stress resulting from stressor is not always harmful (Buchanan & Preston, 2014). Selye (1974) penned the term eustress to define positive arousal resulting from environmental stimuli that evokes helpful outcomes; however, when discussing financial stress, most experts agree that the cumulative effects of financial stressors tend to be negative over the long run (Clark-Lempers, Lempers, & Netusil, 1990; Conger, Ge, Elder, Lorenz, & Simons, 1994; Ennis, Hobfoll, & Schröder, 2000; Gutman, McLoyd, & Tokoyawa, 2005; Hope, Power & Rodgers, 1999; Kahn & Pearlin, 2006).

Stress researchers suggest that individuals who are exposed to repeated and uncontrollable stressors are more likely to experience "learned helplessness," which can be a troublesome coping phenomenon (Sapolsky, 2004.). In effect, learned helplessness arises when a cycle of behavior and stress leads a person to continually repeat the same mistake and to feel hopeless in the face of

ongoing behaviors. When someone reaches the point of helplessness the notion of endogeneity becomes irrelevant. Whether the stress felt by the individual is caused by bad behavior or whether the stress leads to worse behavior becomes less important, as a topic of interest, compared to understanding how the feeling of stress alters the way the person interacts with the environment. Consider, for example, a person who possess deep knowledge and appreciation behaving in a certain way. If the person exhibits a high stress level, the person's behavior may be negatively impacted, even if the person is cognitively aware of the potential negative behavioral outcomes. The mechanism underlying this possibility has not been fully explored in the literature.

Learned helplessness is known to lead to cognitive dysfunctions related to perceiving, thinking, and even learning, not because of a lack of cognitive skills but because of a lack of a person's willingness or ability to exercise such skills (Sapolsky, 2004). Thus, people experiencing helplessness may not attempt to do something in response to one or more stressors, even when coping action is necessary to improve the situation (Sapolsky, 2004). From a financial planning and household finance perspective, those who are "stressed out" to the extent of helplessness will be less likely to seek help, learn the necessary skills to deal with stress, or implement plans for the future. It is reasonable to think that stress may hinder a person's use of financial knowledge to perform financially desirable behavior and alter decision-making, which can then lead to suboptimal financial outcomes.

As will be discussed in greater detail in Chapter 2, over the past three decades, researchers have made great strides in identifying and mapping the relationship between and among financial stressors, financial stress, financial behavior, and well-being. It is generally thought that those who experience a high number of financial stressors experience financial stress, which, in turn, leads to lower levels of well-being. In the entire literature, however, little discussion has been made about

the association between generalized stress and financial well-being. The distinction between generalized and financial stress is not unimportant. From a stress research perspective, financial stressors (and financial stress) cannot be thought of synonymous with generalized stressors (or generalized stress). In fact, financial stress is not the same as generalized stress (Prawitz, Garman, Sorhaindo, O'Neill, Kim, & Drentea, 2006), although financial stress does provide a pathway to inform evaluations of generalized stress. While most researchers are aware of the difference between financial and generalized stress, there are surprising few studies that have examined the financial well-being from a generalized stress perspective. This dissertation aims to provide some clarity on this association by presenting a new conceptual model showing how generalized stress is associated with financial well-being

Purpose of Study

The purpose of this study is to provide empirical evidence regarding the negative effect of generalized stress on financial well-being. The foundation of this dissertation is built on an adaptation of the financial well-being model developed by Shim, Xiao, Barber, and Lyons (2009). In this study, generalized stress—as indicated by an individual's perception of their overall situation—is presumed to be negatively associated with behavioral factors related to one's household financial situation and financial well-being.

Introduction to Conceptual Framework

To understand how generalized stress is associated with financial well-being, this study first conceptualized how levels of financial well-being are attained by identifying multiple pathways among antecedent factors of financial well-being and predisposing factors of financial well-being. The factors and pathways of financial well-being used in this study was based on Shim et al.'s (2009) financial well-being model. Adapting financial domain factors in Shim et al.'s

framework, this study adopted the following concepts as determinants of financial well-being: financial knowledge, financial attitude, financial subjective norms, perceived financial behavioral control, financial capability, and financial behavior. Generalized stress was also evaluated and tested in this study. Specifically, generalized stress, as shown in the conceptual framework, was thought to be a factor associated with financial well-being. The conceptual framework of this study (Figure 1.1) consists of three components: behavioral antecedents, predisposing factors, and the consequence of predisposing factors.

The antecedent factors—financial knowledge, financial attitude, financial subjective norms, perceived financial behavioral control, and socioeconomic status—are assumed to be preexisting characteristics of an individual. As noted in the literature, these variables are considered to be important determinants of financial well-being. The predisposing factors include financial capability and financial behavior. While the antecedent factors signify acquired cognitive ability, subjective perceptions, and established human capital, the predisposing factors reflect behavioral

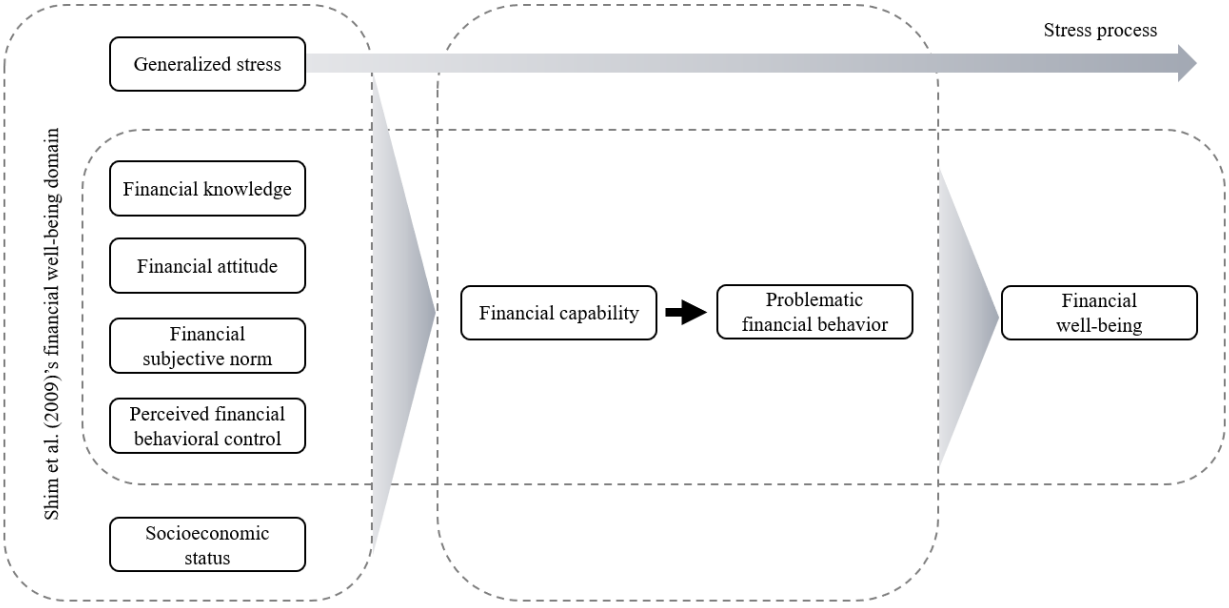

Figure 1.1. The Conceptual Framework of the Study

aspects regarding one's personal financial situation. Thus, predisposing factors can be seen as outcome variables associated with exercising one's knowledge and human capital. Lastly, financial well-being is the outcome variable in the framework. Financial well-being is conceptualized to be the consequence of the antecedent factors and predisposing factors. The variable of main interest in this study—generalized stress—functions throughout the pathways. In other words, generalized stress thought to be directly associated with the behavioral variables (i.e., financial capability, problematic financial behavior) and the consequence of these variables (i.e., financial well-being).

Rationale Underlying the Conceptual Framework

A Holistic Model of Financial Well-being

Shim et al. (2009) proposed a conceptual model of financial well-being (Figure 1.2.). This model was designed by integrating several developmental and behavioral theories to demonstrate the pathways to life success. The model was originally developed for young adults to depict how they can successfully undergo life transitions while effectively managing personal financial challenges. The researchers argued financial well-being is strongly connected to overall life satisfaction, academic success, and physical and psychological health. Thus, they noted that one way young adults can enhance their financial well-being is by acquiring financial knowledge, forming sound financial attitudes, and building up good financial behaviors. The assumptions imbedded in the model are not only limited to young adults. The model is applicable to anyone at different life stages.

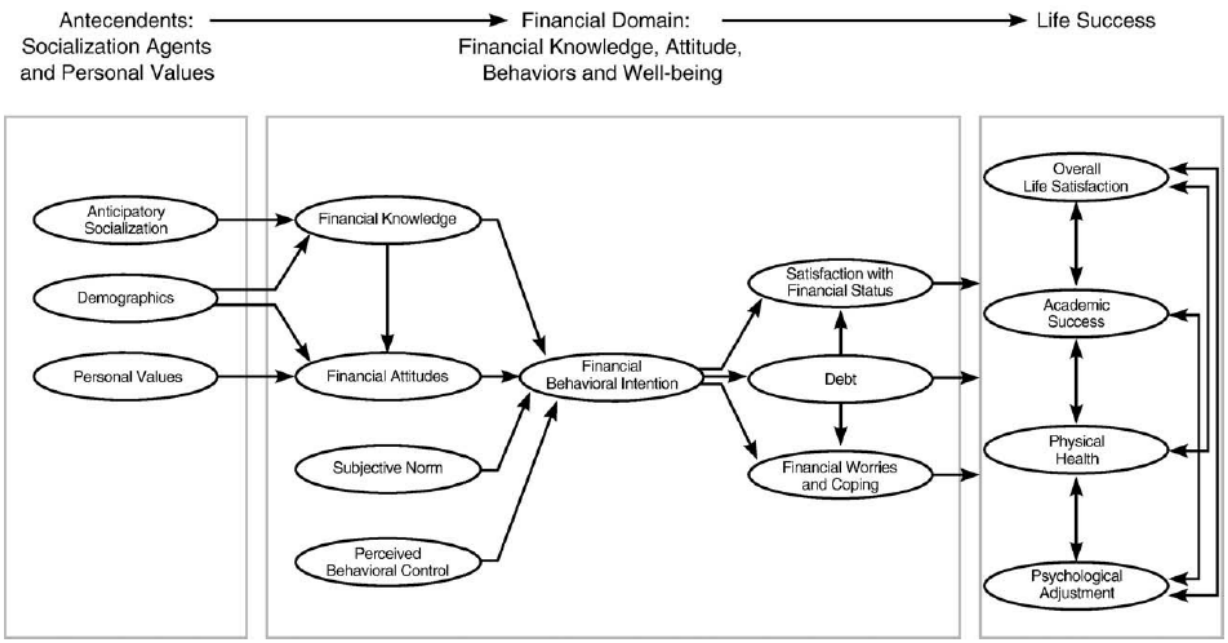

Figure 1.2. The Student Financial Well-being Model (Shim, Xiao, Barber, & Lyons, 2009)

Shim et al. (2009) created their model by adapting and expanding the theory of planned behavior (TPB) to demonstrate how financial well-being is determined and is linked to further life success indicators. The model posits that individual differences in socio-demographic factors, personal values, financial knowledge, financial attitudes, subjective norms, and perceived behavioral control are related to financial behavioral intention. If true, the model predicts that positive financial practices (implicitly predicted by behavioral intention) are likely to lead to higher levels of financial well-being, indicated by financial satisfaction, debt status, financial worries, and coping. The significance of Shim et al.'s framework is that they recognized one's financial well-being results from a series of operations of related factors.

Understanding Stress Responses

In order to fully understand the functioning of the conceptual model using to guide this dissertation, it is important for reader to understand the basic elements in the framework.

Generalized stress is a key notion underlying the framework.

The term *stress* was originally used in the field of engineering to describe external forces that put strain on a structure and lead to a deformation of the structure when it reaches its maximum level of durability. Hans Selye (1936) borrowed this term to explain unspecific noxious conditions that interfere with an organism's normal body function and eventually cause health impairments. Since then, stress has come to be associated with physiological responses.

Physiologists argue that one's body system works in ways to maintain stability. This regulatory scheme of the body is called *homeostasis,* in which an organism functions work to maintain normality for daily living. If any stimulus from the external environment breaks the internal homeostatic balance, bodily systems attempt to adapt to the challenge(s) and achieve a new level of stability. The most prominent physiological change is the release of stress hormones, such as adrenaline, norepinephrine, and glucocorticoids (or cortisol). These hormones are pumped into the bloodstream and circulate through the body, causing numerous physiological changes (Harvard Health Publishing, 2018). Consequently, the body's systems reestablish their setpoints, fitting into the stress condition and increasing mobilization of energy to resist potential damages (McEwen, 2004; Sapolsky, 2004.) Such physiological adjustments are called *allostasis*. Allostasis is necessary for an organism to survive during a stressful situation.

Cannon (1932) described the physiological stress response as the "fight-or-flight" syndrome. For example, if an animal faces a life-threatening challenge (e.g., natural disaster, encounter with a predator, or exposure to a sudden climate/temperature change), the animal must decide whether to fight against the stressor or flee from the stressor. Either way, Cannon reported that the animal's body needs a sudden burst of energy to react to the stressor promptly. Hormonal changes help the body mobilize glucose that is stored in body cells and deliver the glucose to

exercising muscles as quickly as possible. This results in an increase in heart rate, blood pressure, and breathing rate. The fight-or-flight response is an immediate bodily reaction that requires energy to react to stressful events.

Today, human physiological stress response occurs in the same way even if the stressor is not life-threatening, physical, or real (Sapolsky, 2004). This means that stress induced from a psychological threat (e.g., public speaking, time pressure, or loss of a loved one) can also lead to the same physiological stress response as a physical threat (Lovallo, 2015).

Essentially, physiological arousal during a time of stress is beneficial because it helps an organism better cope with the challenges associated with the threat. However, chronic and repeated stress exposure may put the body at risk in terms of health (Lovallo, 2015; Sapolsky, 2004). Selye (1936) noted that prolonged stress results in exhaustion of body functions. Ideally, the internal regulatory system's reactivity (i.e., endocrine alterations) should be turned off and return to a normal condition when the stressor disappears. However, if the stressful condition is sustained, the body will experience allostatic overload. The allostatic overload eventually damages the cardiovascular system, suppresses the immune system, degenerates neural functions, impedes digestion, and inhibits growth and tissue repair (Goldstein, 2004; Sapolsky, 2004; McEwen, 2004). This is why stress may lead to severe health problems. It is also possible that stress can lead to reduced perceptions of financial well-being.

The Relationship between Stress and Cognitive and Behavioral Alteration

Neuroscientists have revealed that stress influences cognitive functioning, such as learning, remembering, thinking, reasoning, and decision making (Marin et al., 2011). Stress influences memory processing (Griggs, 2010). Hormonal changes occur as physiological stress responses provoke mobilization of glucose into bloodstream. The increase level of glucose in the brain fuels

more energy to the brain's neurons; as such, the reaction enhances cognitive performance. In this context, memory formation and information retrieval are elevated because stress stimulus helps keep the brain alert and focused. However, if stress becomes elevated and prolonged, the cognitive process reverses. A chronic stress response eventually disrupts the function of a person's hippocampal neurons, disconnects neural networks, and inhibits the birth of new neurons (Sapolsky, 2004). Individuals who suffer from chronic and repetitive stress may have an issue in learning, applying, or embodying their cognitive ability. Indeed, Evans and Schamberg (2009) found people who grew up in poverty during childhood significantly exhibited lower levels of working memory performance than their counterparts (i.e., people who raised in middle-income families) in later life.

Stress not only interferes with cognitive functioning, but stress also biases one's decision-making. Theories on decision making have explained that human behavior is determined by dual routes of thinking: one is called System 1 and the other is labeled System 2. System 1 operates quickly and automatically with little or no sense of control (Kahneman, 2011). The decisions and behaviors made under System 1 are likely to rely on heuristics, intuitions, feelings, and past experiences (Starcke & Brand, 2012). System 1 processing is beneficial when an immediate reaction is required because it provides a shortcut in thinking, thereby increasing decision-making efficiency (Yu, 2016). System 1 processing is deeply involved with daily activities, routines, and habits. On the other hand, System 2 runs slowly with more mental efforts and complex cognitive computations (Kahneman, 2011). The decisions and behaviors based on System 2 processing are considered to be rational, analytical, strategic, and well-calculated (Starcke & Brand, 2012). Thus, System 2 is associated with planning and goal-directed behaviors. In general, these two mental systems work compatibly depending on the characteristics of the tasks and challenges faced by an

individual. The purpose of the labor division between System 1 and System 2 is quite clear: minimizing effort and optimizing performance (Kahneman, 2011). Nevertheless, there are certain circumstances in which System 1 overrules System 2. When this happens over long periods of time, people tend to make suboptimal decisions.

Stress is a critical factor that shifts the balance between System 1 and System 2 processing. Many researchers have concluded that stress prompts habitual behavior, which is fueled by System 1 processing (Gray, 1999; Schwabe & Wolf, 2009; Starcke & Brand, 2012; Yu, 2016). If a person is in a stressed situation, intuitive-experiential thinking plays a more prominent role than rational-analytical thinking when making decisions. A stressed person becomes indifferent to the value of outcomes coming from goal-directed behavior (Schwabe & Wolf, 2009). This leads stressed people either to use dysfunctional strategies or to seek immediate rewards in response to a specific decision situation (Starcke & Brand, 2012).

The behavioral and neurobiological evidence from the extant literature supports the notion that stress shifts brain functions. Studies have demonstrated the activity in the prefrontal cortex is decreased while activity in subcortical regions is increased (Schwabe & Wolf, 2013; Wood & Rünger, 2016; Yu, 2016). These two neural circuits support System 2 and System 1 processing, respectively. Shifts in brain functions result in cognitive and behavioral alterations under stress. Specifically, stress moves a person from a goal-directed model, which demands a slow and deliberate cognitive process, to a model based on habitual behavior, which is based on fast and heuristic thinking (Bogdan, Santesso, Fagerness, Perlis, & Pizzagalli, 2011; Lenow, Constantino, Daw & Phelps, 2017; Starcke & Brand, 2012). As mentioned above, decision making under System 1 does not generally result in optimal outcomes over the long run (Gray, 1999). Those who exhibit generalized stress can be thought to rely on less goal-directed, systematic approaches when

making financial decisions.

Shifting cognitive function means that self-control can also be impaired (Smeets, van Ruitenbeek, Hartogsveld, & Quaedflieg, 2019; Yu, 2016). Cognitive control, or the ability to modulate behavior, is critical to helping individuals pursue goals while staying focused on strategic behaviors (Radenbach et al., 2015; Yu, 2016). This explains why researchers consistently report that stressful environments are likely to reduce cognitive control and increase the use of heuristics or emotional-intuitive choices that may induce suboptimal outcomes (Starcke & Brand, 2012).

The present study, which was directed by the conceptual framework in which generalized stress is a key element of the model, focused on the effect of stress on the process of achieving financial well-being. Specifically, generalized stress was expected to be associated with behavioral factors related to individual and household financial factors. An important assumption underlying the framework is the notion that one's financial capability may be less effectively realized when a person is highly stressed. People may be more likely to engage in problematic financial behavior when they are under a stressful situation. Above all, stress can be thought of as being directly associated with the perception of financial well-being, regardless of the actual condition.

Research Objectives and Hypotheses

This dissertation evaluates the association among several variables known to be related to financial well-being. Specifically, this study proposes pathways showing how financial well-being is achieved through a set of determinants, including financial knowledge, financial attitude, financial subjective norms, perceived financial behavioral control, socioeconomic status, financial capability, and financial behavior. These factors, each of which has robust coverage in the existing literature, have been found to be important determinants of financial well-being. In the existing literature, the relationships among these variables tend to be quite consistent (see Chapter 2 for a

more detailed discussion of the relationships). This study also investigates how generalized stress is associated with these factors, as well as financial well-being. In this regard, the following hypotheses were tests:

H1: The effect of generalized stress on financial well-being will be mediated by an individual's financial capability and problematic financial behavior.

H2: The effect of financial knowledge on financial well-being will be mediated by an individual's financial capability and problematic financial behavior.

H3: The effect of financial attitude on financial well-being will be mediated by an individual's financial capability and problematic financial behavior.

H4: The effect of financial subjective norms on financial well-being will be mediated by an individual's financial capability and problematic financial behavior.

H5: The effect of perceived financial behavioral control on financial well-being will be mediated by an individual's financial capability and problematic financial behavior.

H6: The effect of higher socioeconomic status on financial well-being will be mediated by an individual's financial capability and problematic financial behavior.

H7: Financial capacity will relate to problematic financial behavior and financial well-being

H8: Problematic financial behavior will be negatively associated with financial well-being.

Definitions

The following terms and phrases appear throughout this dissertation. When these terms and phrases appear, the following descriptions (unless otherwise noted) represent the definitional context used in this study:

Financial Attitude: one's subjective perception of personal finances (Joo, 2008); financial

attitude in this study indicates a person's positive mindset toward personal financial planning and management.

Financial Capability: the ability to effectively manage one's personal financial situation by applying adequate financial knowledge and performing desirable financial management behavior (Xiao, 2016).

Financial Knowledge: a person's cognitive ability to understand the basic concepts and to process numerical information of personal finances (Almenberg & Widmark, 2011; Huston, 2010; Huhmann & McQuitty, 2009; Remund, 2010).

Financial Stress: perceiving one's financial situation to be inadequate or worrisome (Grable, 2015); sometimes referred to as economic stress, economic hardship, financial hardship, financial distress, and financial strain—the subjective evaluation and feeling about one's financial situation

Financial Subjective Norms: one's personal feeling of approval or disapproval from others about financial behavior; parents are a major source of social norms associated with personal finances (Shim et al., 2009).

Financial Well-being: a state of feeling secure about the current and future status of one's personal financial situation, wherein a person has the ability to meet ongoing financial obligations and make financial choices to sustain their life (CFPB, 2015).

Generalized Stress: the psychological and physiological responses stimulated by actual or anticipated life events/conditions perceived as threat (Fink, 2016; Sapolsky, 2004).

Perceived Financial Behavioral Control: an individual's perceived ease or difficulty in performing a personal financial behavior (Shim et al., 2009)

Problematic Financial Behavior: undesirable human behavior regarding financial

management that eventually reduces one's financial well-being (Joo, 2008; Xiao, 2008).

Study Delimitations and Limitations

The primary delimitation associated with this study is that data were not collected by the researcher. The researcher used data from the National Financial Well-Being Survey (NFWBS) that designed and collected by the Consumer Financial Protection Bureau (CFPB). The survey has been conducted only one time since it was first designed. As such, this study is restricted to a cross-sectional analysis. Thus, the results from this study cannot be assumed to be causal.

The major limitations associated with this study are linked with the characteristics of the dataset used to test the conceptual framework. While distinct measures of financial well-being, financial behavior, and generalized stress exist separately, it is difficult to find generalizable data that include measures of each concept. Since this study used secondary data to test the conceptual framework, the variable selection was delimited to the available data and information within the dataset. This restriction meant that several proxy variables were used to manifest some concepts. For example, financial capability is notoriously difficult to measure and assess, with few existing scales or measures available to measure the concept validly and reliably. In this study, financial capability was proxied by an individual's preparedness for a monetary emergency. It was assumed that a financial capability exists in tandem with the ability to meet unexpected expenses. Measures of generalized stress are also difficult to obtain. Ideally, stress should be measured as a physiological response or through assessments of hormonal imbalance or change. Such measures, however, are difficult to obtain. In this study, stress was indicated by a self-reflection variable that indicated an individual's perception of stress. As will be discussed in Chapter 2, although not an ideal measure, self-assessments have been found to be closely related with objective measures. Nonetheless, this measurement issue is a potential limitation of this study.

Summary

Stress is not only a major source of health impairment, stress also can undermine personal and household financial well-being by weakening or distorting behavioral tendencies. By identifying the associations among generalized stress and predisposing factors of financial well-being and financial well-being itself, the present study was anticipated to help to create a better understanding of the role plays in describing financial well-being. Results from this study are anticipated to provide insights into interventions that can be used by financial service professionals when working with stressed clients. To achieve this outcome, the present study extends existing theory to propose a more comprehensive framework of financial well-being. Previous literature has neglected the potential effect of generalized stress in relation to personal and household financial outcomes. Some financial service professionals and educators may question why financial plans or financial literacy are not easily implemented in the real world. Incorporating a stress factor into the conceptualization of financial well-being may help answer this question.

The remainder of this dissertation is organized as follows: Chapter 2 provides a review of literature regarding stress, financial well-being, and other relevant factors of interest in this study. Chapter 3 provides a description of the data used, the operationalization of the research model, a review of tested variables, and the methodology used to test the conceptual framework. Chapter 4 describes the results of analyses. Finally, Chapter 5 focuses on the discussion, implications, and conclusions arising from this study. Future directions will be also provided.

CHAPTER 2

REVIEW OF LITERATURE

This chapter reviews empirical studies published in the academic literature that have focused on uncovering relationships among the following variables: generalized stress, financial well-being, and some of the most important determinants of financial well-being. Given the extensive and deep literature on generalized stress and the role stress plays in describing human outcomes, this chapter is focused on reviewing the literature related to the variables of interest in the conceptual model underlying this study (as described in Chapter 1).

Historical Context

The literature discussing the effects of financial stressors on financial well-being is extensive. Generally, this literature suggests that those who have experienced a high number of financial stressors—events that place financial and/or emotional strain on a household (e.g., job loss, death of spouse or partner, unexpected bills, etc.)—exhibit lower financial well-being. It is important to note, however, the very few previous studies have examined the association between *generalized* stress and financial well-being. Nearly all previous studies have instead focused on examining the role of negative (and sometimes positive) financial behaviors, economic externalities, and unexpected financial obligations have in explaining individual and household financial stability and well-being. The lack of studies conceived to evaluate the role of generalized stress in describing financial well-being presents a considerable gap in the literature.

As will be discussed later in this chapter, the mechanisms that describe financial well-being are broad. As shown in the literature, a person's financial well-being can certainly be impacted by

the number of financial stressors experienced over a given period, but is also possible that financial well-being can be explained by the degree to which generalized stress is experienced. The stress process, which may or may not be related directly to the number or type of financial stressors experienced at the household level, may be related to financial well-being through a number of pathways. Generalized stress may have a direct and indirect effect on the determinants of financial well-being, including financial knowledge, financial attitudes, financial subjective norms, financial behavioral control, financial capability, and problematic financial behavior (i.e., financial stressors). A key outcome from this dissertation is to provide evidence on this possibility.

The model shown in Figure 2.1 was introduced in Chapter 1. The model is premised on the assumption that generalized stress is intertwined with the numerous pathways leading to financial well-being. The model is an adaption of a framework originally proposed by Shim et al. (2009). The Shim et al. model was originally developed for college students to guide how students can successfully make life transitions into adulthood. The model describes the pathways to overall life success in which financial well-being functions as a core precondition of overall life satisfaction, achievement, physical health, and psychological well-being. The Shim et al. framework intensively focuses on the relationships among financial variables, including financial status, financial knowledge, financial attitudes, financial behavior, and other factors related to financial well-being. This dissertation expands the Shim et al. framework and focuses on adults rather than college age students.

Specifically, the Shim et al. (2009) framework was adapted to include generalized stress as a potential determinant of cognitive functioning and behavior. Specifically, the model shown in Figure 2.1 is premised on the hypothesis that generalized stress impairs cognitive control that is typically used for modulating behavior. Thus, it is possible that generalized stress can affect the

manner in which an individual exploits financial knowledge that is necessary to make appropriate financial decisions. In other words, generalized stress may distract someone from engaging in desirable financial behavior while reducing confidence in dealing with financial challenges. As a result, the conceptual model that is tested in this dissertation assumes that generalized stress decreases financial capability, increases problematic financial behavior, and lowers financial well-being.

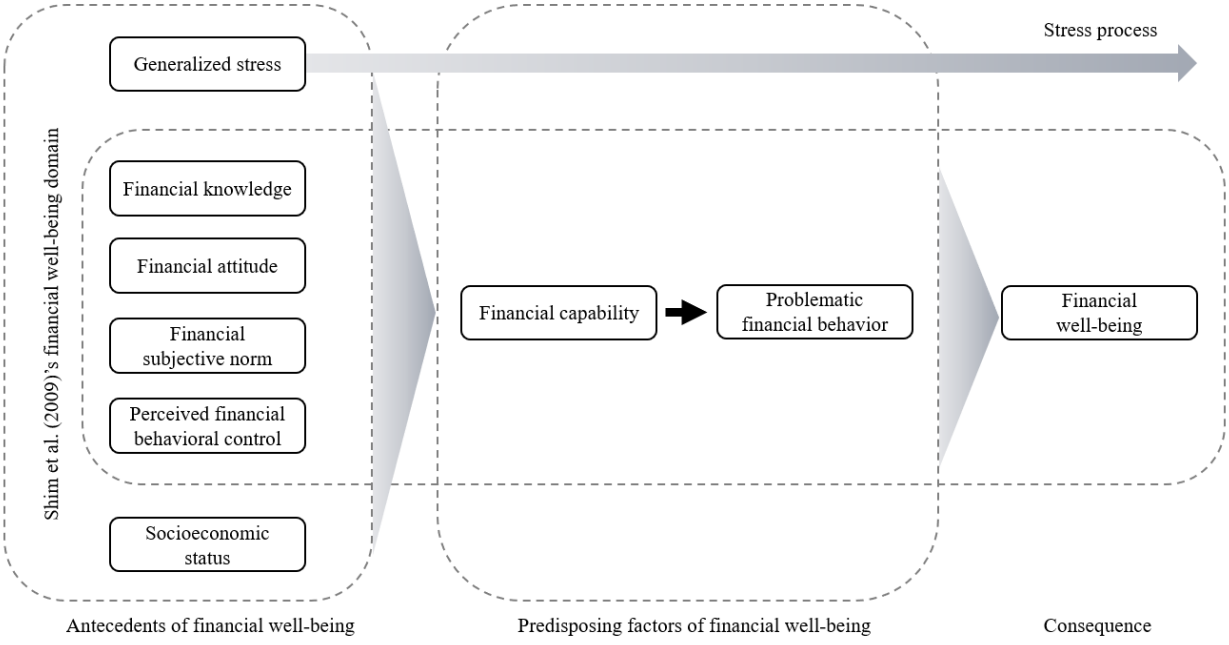

Figure 2.1. The Conceptual Framework of the Study

The remainder of this chapter is focused on providing context for each of the variables shown in Figure 2.1.

Financial Well-Being

Financial well-being is a composite concept that includes diverse dimensions of an individual's financial life. Financial well-being can be broadly conceptualized as a state of being financially healthy, happy, and free from worry (Joo, 2008). As this definition does not reflect the dynamics and complexities associated with aspects of a person's overall financial situation, Joo (2008) proposed a more comprehensive definition of financial wellness. She offered a definition that views financial well-being from a functional perspective. Elements included in Joo's definition of financial well-being (i.e., wellness) include objective financial status, financial satisfaction, financial behavior, and subjective perceptions about one's personal financial situation. This broad conceptualization indicates that financial well-being can be achieved when individuals are satisfied with their financial situation, hold positive financial attitudes, and exhibit healthy financial behavior(s). At the same time, a person's objective financial status (e.g., strong financial ratios, stability of income, and wealth) must also be robust. Joo argued that, from a researcher's standpoint, financial well-being should be measured objectively as well as subjectively. Others have taken a different stance on the conceptualization of financial well-being. Prawitz, Garman, Sorhaindo, O'Neill, Kim, and Drentea (2006) noted that researchers should focus primarily on the subjective aspects of financial well-being. They argued that objective indicators may be useful when predicting an individual's perception about their financial situation, but objective measures do not effectively measure a person's depth of feelings. Viewing financial well-being as the inverse status of financial stress, Prawitz et al. theorized that financial well-being is more akin to holding positive feelings about and reactions to one's financial condition.

More recently, the CFPB (2015) developed an explicit definition and a standard measure of financial well-being. The CFPB's definition of financial well-being is as follows: "… a state of

being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow them to enjoy life" (CFPB, 2015). The CFPB identified financial well-being as being determined by financial behaviors, financial knowledge, personal traits, and social and economic environment, as well as with life stages (CFPB, 2018).

Regardless of how financial well-being has been conceptualized or defined, nearly all previous empirical studies have used financial well-being as a final goal or outcome measure resulting from other financial decision-making activities. This dissertation follows the same approach by examining the determinants of financial well-being, in which various financial, individual, and environmental factors interplay with each other in ultimately describing a person's sense of financial well-being.

Generalized Stress, Financial Behavior, and Financial Well-Being

An important outcome associated with this dissertation involves describing the association between generalized stress and financial well-being. In the context of this study, generalized stress can be thought of as *psychological and physiological responses stimulated by actual or anticipated life events/conditions perceived as threat* (Fink, 2016; Sapolsky, 2004). There is lack of evidence showing a direct association between generalized stress and financial well-being. However, the association between generalized stress and financial well-being can be assumed via financial behavior. As stress researchers have suggested, stress is connected to brain functions. Stress causes changes at the physiological, neural, and psychological brain and bodily functions. Thus, stress reactions are closely related to the subsequent decision making or behavioral performance (Starcke & Brand, 2012).

The adverse effects of stress on behavioral decisions are well-documented. By reviewing

about 15 years of stress and decision-making literature, Starcke and Brand (2012) concluded that stress might adversely affect daily decisions and significant life-changing choices because stress tends to alter the way situations are framed, which then alters the manner in which decision are made. Starcke and Brand pointed out that stress can result in a lower level of well-being (e.g., health) in the long run by leading to decision outcomes that are problematic and suboptimal. Suboptimal decision making is fueled by the intuitive-experiential brain system that deals with heuristics, biases, and other non-rational choices. If people are in a stressed state or situation, intuitive-experiential thinking plays a more prominent role compared to rational-analytical thinking when a person is forced to make a decision. Generalized stress may lead people to seek an immediate solution that seems to be beneficial at the moment but, when evaluated with perspective, turns out to be detrimental in the long run (Gray, 1999; Starcke & Brand, 2012).

Studies have found that people's decision often shifts when the person is feeling stressed. Food consumption studies, for example, emphasize that stressed people not only overeat but they are also prone to choose unhealthy food that contains high fats and sugars (Errisuriz, Pasch, & Perry, 2016; Gibson, 2006; Louis, Chan, & Greenbaum, 2009; Zellner et al., 2006). Why might this be the case. Researchers have hypothesized that people obtain an immediate emotional resolution by consuming high caloric foods and sweets when they were stressed (Gibson, 2006; Starcke & Brand, 2012). Others have noted that the stress response leads people to lose control over healthy efforts, which results in consumption behavior to favors foods that should be avoided (Zellner et al., 2006). From a food consumption and behavior perspective, it can be said that stress reduces one's cognitive or behavioral control and increases intuitive, emotional rewards.

Similar behavior has been discussed in relation to money and financial decision making. Wood and Neal (2009) probed the nature of habit and its influence on consumer behavior. Wood

and Neal referred to habits as a specific form of automaticity in which responses are likely to follow past behavior. In consumption, people often engage in repetitious buying behavior and exhibit habitual behavior when faced with a familiar context. This is true regardless of the person's goals and intentions. Wood and Neal noted the influence of habits on consumer behavior becomes intensified by daily life demands. For example, habitual consumption often occurs when people are distracted, under time pressure, and lacking self-control resources. If someone finds that they are in one (or more than one) of these three situations, they are likely to rely on habits rather than execute a new action. Essentially, stress exposure prompts habit behavior over systematic goal-directed behavior.

Using experimental methods, Gray (1999) found that highly stressed individuals earn the least money compared to those who are low stressed or not stressed when tasked with monetary decisions. Gray argued that a long-term choice is the result of the aggregation of minor choices enacted over time. That is, many choices made at a single point in time eventually influence extended decision-making and longer-term behavioral outcomes. When viewed this way, Gray argued that the best choice at a given time might non-optimal choices. He also observed research participants repeatedly favoring options that bring an immediate benefit (but had higher subsequent costs overall) when the choice was made in an emotionally aversive setting. Gray's findings suggest that stress biases decision makers in favor of choice options with perceived immediate benefits at the expense of choice options with long-term optimality. He concluded by stating that negative emotional states, including stress, can impair performance by making people focus on short-term thinking.

In another study, Von Helverson and Rieskamp (2013) examined whether stress influences financial decision-making that involves risk. Specifically, the researchers let participants choose

two gambles in which the probability of gain and loss was structured as 40 different decision sets. The gambles with higher variability were considered as risky. The results from their experiment indicated that stressed participants became more risk seeking when the gambles were considered as low risk; however, participants became more risk averse when the gambles involved relatively high risk. Kandasamy et al. (2014) essentially confirmed these findings by showing that chronic stress leads to greater risk aversion.

Grable et al. (2020) examined how generalized anxiety or stress is related to risky financial management behavior. Using a sample of 110 clients who sought clinical services, the researchers found those who expressed higher levels of generalized stress were more likely to engage in problematic financial behavior. The researchers also discovered the moderating effect of generalized stress because stress showed a larger negative effect on financial behavior when the respondents exhibited higher levels of financial knowledge. Grable and his colleagues' study indicates generalized stress can be a barrier to an individual's commitment to better financial behaviors.

Previous studies provide ample evidence that generalized stress can result in behavioral changes and decision-making alterations. Those changes include prompting habit behaviors, seeking immediate solutions, making decisions without considering long-term effects, and avoiding risk. The behavioral alteration scheme is attributed to the impairment of cognitive control due to the stress response. Stress-related behavioral changes can ultimately decrease long-term well-being. For example, stress-induced food intake behaviors appear to cause a metabolic syndrome, resulting in increased BMI, obesity, and greater risk of disease over time (Dallman, 2010; Gibson, 2006). Yet, the direct evidence that generalized stress is associated with financial behavior is less evident. The literature that does address the relationship suggests that an elevated

stress level likely results in financial behavior that is different from behavior exhibited by less stressed individuals. Further, behavioral outcomes should be enhanced for those in a less stressed situation.

Financial Knowledge and Financial Well-Being

Financial knowledge has been extensively studied in the personal and household finance literature. Financial knowledge has consistently been shown to be positively associated with financial well-being (Brüggen, Hogreve, Holmlund, Kabadayi, & Löfgren, 2017; Joo, 2008; Joo & Grable, 2004). Financial knowledge refers to a person's cognitive ability to understand the basic concepts of personal finances and to process numerical information important to the prudent management of money (Almenberg & Widmark, 2011; Huston, 2010; Huhmann & McQuitty, 2009; Remund, 2010). For decades, financial knowledge has been found to be a strong predictor of positive behavioral practices (i.e., having an emergency fund, paying bills on time, retirement saving, following a monthly budget). Financial knowledge typically induces actions that limit engagement in problematic or risky financial behavior (i.e., borrowing with high interest rates, overspending, compulsive buying). Those who exhibit high financial knowledge tend to report lower debt levels and increased personal wealth through saving and investment choices (Borden, Lee, Serido, & Collins, 2008; Donnelly, Iyer & Howell, 2012; Hastings & Mitchell, 2011; Henager & Cude, 2016; Joo & Grable, 2004; Norvilitis et al., 2006; Robb & Woodyard, 2011; Shim et al., 2009). Financial knowledge is generally thought to have a significant direct association effect on financial decisions and behavior, thereby increasing financial well-being.

Unfortunately, while financial knowledge is generally associated with better financial behavior and financial outcomes, this is not always the case. Some researchers have documented a gap between financial knowledge and positive behavior (e.g., Fernandes et al., 2014; Mandell &

Klein, 2009). This lack of clear pathway from knowledge to behavior may be more of a result of the disparity of the content or the number of items used to assess financial knowledge across studies (Huston, 2010; Knoll & Houts, 2012) rather than a true non-effect. Stated another way, the lack of an association between financial knowledge and positive financial outcomes seen in some studies may be related to the types of measures used to assess knowledge and well-being. Another explanation for the inconsistent effect of financial knowledge on financial well-being seen in some studies comes from dispositional factors. It is possible that the confounding effects of omitted psychological factors in some previous studies may explain why financial knowledge does not always show a significant impact. For example, Fernandes, Lynch, and Netmeyer (2014) found the effects of financial knowledge diminished when controlling for psychological traits. This indicates that an individual's psychological profile (as aspects of such a profile) should be considered together with financial knowledge when describing financial well-being.

Financial Attitudes, Financial Subjective Norms, and Perceived Financial Behavioral Control

Shim et al. (2009) argued that a person's motivation and ability to make behavioral choices are key elements that help determine a person's level of financial well-being. Shim et al. considered three behavioral elements as important antecedents of actual financial behavior: financial attitudes, financial subjective norms, and perceived financial behavioral control. These three factors are core elements in the conceptual model tested in this dissertation (see Figure 2.1). Shim et al. borrowed the conceptualization of these three elements from Ajzen (1991) and Fishbein and Raven (1962). Each factor is described in more detail below.

Financial Attitude and Financial Well-Being

Attitude refers to a person's affective appraisal of an object expressed as being favorable

or unfavorable (Ajzen, 1991; Fishbein & Raven, 1962). Ajzen (1991) noted that one's attitude toward a certain behavior matters in shaping the intention to perform or not to perform that behavior. In other words, a person's attitude functions as a motivational factor related to engagement in behavior. If a person evaluates a target behavior as good, beneficial, pleasant, valuable, or enjoyable, then the person will be more likely to perform the behavior (Ajzen & Fishbein, 1977; Ajzen, 2002). For instance, individuals who hold positive financial attitudes are assumed to engage in desirable financial behaviors.

It is important to note, however, that financial attitude has been conceptualized inconsistently across studies. Some researchers have considered financial attitudes as personal beliefs about money itself. For example, Yamauchi and Templer (1982) characterized money as a tool revealing social power and prestige or as a goal that helps someone prepare for future financial security. When viewed this way, money attitudes reflect an individual's perception of power, achievement, self-esteem, success, anxiety, security, saving, and planning (Shih & Ke, 2014). Others have identified a financial attitude as a personal mindset toward certain financial management behaviors. When regarded this way, financial attitudes tend to be measured as an individual's viewpoint toward saving, debt management, retirement planning, and/or credit card use (Borden et al., 2008; Griffin, Loe, & Hesketh, 2012; Han & Sherraden, 2009; Norvilitis et al., 2006; Traut-Mattausch & Jonas, 2015). Regardless how attitudes are conceptualized, the association between financial attitude(s), financial behavior(s), and financial well-being are commonly hypothesized in a linear manner. The existing literature shows that holding a positive financial attitude is related to engaging in positive financial behavior that promotes financial well-being, while holding a negative financial attitude is associated with engagement in problematic financial behavior, thereby lowering financial well-being (Gutter & Copur, 2011; Norvilitis et al.,

2006; Sabri, Wijekoon, & Rahim, 2020; Shih & Ke, 2014**)**.

Financial Subjective Norms and Financial Well-Being

A subjective norm is an individual's perception of social pressure to perform or not to perform a given behavior (Ajzen, 1991). A subjective norm is a personal feeling of approval or disapproval from others about performing a certain behavior. If a person perceives a behavior being evaluated as favorable, pervasive, or even vital among important referents (e.g., family, friends, or colleagues), then the person will be more likely to perform the behavior. Thus, a subjective norm is dependent on a person's tendency to comply with the expectations and thoughts of others (Ajzen, 2002). In a personal or household financial context, the stronger someone perceives a subjective norm, the more likely the person is to engage in positive financial behavior related to the norm, especially when significant others anticipate them to do so (Shim et al., 2009; Xiao & Wu, 2008). For example, Griffin, Loe, and Hesketh (2012) found that social influence is a significant factor that makes employees engage in retirement planning over and above the effect of demographic variables. Respondents who thought that they were expected to plan for retirement (i.e., expectations were signaled by other employees and corporate management) were more likely to contribute to a retirement plan. Using a sample of first-year college students, Xiao, Tang, Serido, and Shim (2011) demonstrated how risky credit behavior is formed. They noted that subjective norms, as measured by parents' and friends' expectations that someone should spend within a budget, pay credit card balances in full, and save money for the future, were shown to have a direct positive effect on credit usage. Xiao and his associates (2011) reported that the more likely someone is to comply with social norms, the less likely the person is to engage in risky credit behavior. Interestingly, in their study, only parental norms showed a significant effect. This implies that parents are the major source of social norms in financial matters for young people (Shim et

al., 2009). Serido, Shim, Mishra, and Tang (2010) noted that parents' expectations facilitate their children's responsible financial behaviors. Serido and her associates confirmed the notion that perceived parental financial communications and expectations is significantly related to financial well-being through positive financial behavior (i.e., saving and budgeting). Based on the previous literature, the relationship between subjective norms, financial behavior(s), and financial well-being can be inferred as positive.

Perceived Financial Behavioral Control and Financial Well-Being

Perceived behavioral control is an important variable in the theory of planned behavior (see Ajzen, 1991). Perceived behavioral control refers to an individual's perceived ease or difficulty related to performing a behavior of interest (Ajzen, 1991). Perceived behavior control is known to be an important motivational factor that helps shape behavior. The concept stems from a person's confidence about their ability to accomplish activities and achieve outcomes (Ajzen, 1991; 2002). In this sense, Ajzen (1991) pointed out that perceived behavioral control is compatible with the concept of self-efficacy, which is defined as "judgements of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p.122). According to Bandura (1977), self-efficacy can be defined as the exercise of control one has about a specific task; this definition highlights how self-efficacy relates to action. For example, if a person exhibits a higher level of sense of control with respect to a behavior, then the person is prone to execute the behavior. From a personal and household finance perspective, individuals who exhibit a higher level of financial self-efficacy are assumed to engage in more desirable financial behaviors (Shim et al., 2009). Empirically, some researchers have noted that higher degrees of self-efficacy, or a greater sense of control someone has in relation to financial matters, is significantly associated with an enhanced likelihood of saving, planning for retirement, and engaging in best practices related to

household financial management tasks (e.g., credit management, having an emergency fund, holding appropriate levels of insurance), completing a credit counseling program, and engaging in preventive credit card debt behavior (Griffin et al., 2012; Lown, Kim, Gutter, & Hunt, 2015; Robb & Woodyard, 2011; Xiao et al., 2011; Xiao & Wu, 2008). To summarize the existing literature, it is reasonable to conclude that financial self-efficacy and perceived financial behavioral control should be closely related to financial well-being (Sabri et al., 2020; Shim et al., 2009).

Socioeconomic Status and Financial Well-Being

In the model tested in this dissertation (Figure 2.1), socioeconomic status refers to a person's social standing. Traditionally, socioeconomic status is measured by proxy using education, income, or occupation as indicators of status (APA, 2020; Glymour, Avendano, & Kawachi, 2014). A person who attains higher education and progresses in obtaining higher-paying jobs is generally thought to be moving up in socioeconomic status. Socioeconomic status is commonly thought to be positively associated with financial well-being, primarily because those with advanced academic degrees, higher incomes, and more wealth are assumed to be in a better position to meet daily financial obligations and to prepare for future expected and unexpected expenses.

Consumer finance research typically includes socioeconomic status variables as controls to determine the effect these factors have on outcome variables (Joo & Grable, 2004). The most frequently used socioeconomic status variable is income. Previous literature in the domain of personal and household finance has documented that income is highly related to better financial practices and outcomes (Robb & Woodyard, 2011), saving behavior (Traut-Mattausch & Jonas, 2011), retirement planning (Lusardi & Mitchell, 2011; Petkoska & Earl, 2009), debt levels (Borden et al., 2008; Shim et al., 2009), credit card usage (Kim & DeVaney, 2001; Lusardi, 2011), financial satisfaction (Joo & Grable, 2004), and financial well-being (Gutter & Copur, 2011; Sabri et al.,

2020).

In general, findings from previous studies suggest that higher income is associated with positive financial behavior, while lower income is negatively correlated with positive financial behavior. For example, Perry and Morris (2005) found that people with higher incomes are more likely to engage in responsible financial management behavior. The main effect of income in their study was still significant when income was included as a moderator variable with race/ethnicity. Shim et al. (2009) reported that there are two kinds of income factors affecting debt levels for college-age individuals (Shim et al., 2009). One is income and the other is parents' income. Shim et al. reported that parents' income is negatively associated with credit card debt, whereas student income is positively associated with credit card debt. Shim and her associates noted that higher student income could be interpreted to mean that students are working more hours to meet their financial obligations.

In relation to financial well-being, Joo (2008) described income as one a form of objective criteria determining financial well-being. She noted that having sufficient income is necessary to support financial goals and personal desires. Joo pointed out that while it is possible that income itself might not always be directly associated with financial well-being, it is almost certainly true that income adds to the total explanatory power of a model of financial well-being (i.e., there may be an indirect effect of income on financial well-being as well as a direct effect). For example, income is often used to estimate financial ratios at the household level (e.g.., debt-to-income ratio), establish financial heuristics (e.g., saving rules), and assess overspending (e.g., spending more/less than income).

Attained education level is another representative socioeconomic variable. Education is thought to be an indicator of a person's ability to (a) understand information, (b) use knowledge,

and (c) apply skills necessary to obtain life goals. Higher educational attainment tends to be strongly correlated with higher levels of income. Thus, education can be both an intellectual and practical resource helping a person manage financial challenges. Hong and Hanna (2014) reported that people with more education are more likely to have a longer financial planning horizon. Having an extended financial planning horizon is beneficial in the context of establishing saving plans, investing for greater returns, and managing debts. Education is also known to be directly associated with saving behavior (Gutter, Garrison, & Copur, 2010), engaging in positive financial practices (Joo & Grable, 2004; Robb & Woodyard, 2011), and developing positive credit card practices (Kim & DeVaney, 2001). All these financial behaviors are likely to have positive effects on financial well-being.

Socioeconomic status is closely related to health status. Health-related research frequently reports that low socioeconomic status is linked to poor health (Glymour et al., 2014; Grundy & Holt, 2001; Hiscock, Bauld, Amos, Fidler, & Munafò, 2012). For example, if a person cannot afford to pay their medical bills and healthcare services, then the person will be in worse position when it comes to managing health problems (Jeon, Essue, Jan, Wells, & Whitworth, 2009). Conversely, it is also true that good health status is beneficial for those who want to work longer in the labor market. Economists use the concept of human capital to refer to an ability to produce economic utility from human labor. Health, together with education, is considered to be the most obvious type of human capital (Bryant & Zick, 2005). Staying in good health means fewer days of sickness, higher job commitment, and longer work-life expectancy, thereby maximizing productivity on the job. From an economists' perspective, health is compatible with income.

In a noteworthy personal and household finance study, O'Neill, Prawitz, Sorhaindo, Kim, and Garman (2006) found that people who exhibit better health report fewer negative financial

events, including paying few or no late fees, never receiving an overdue notice from creditors, and not maxing out a credit card. O'Neill et al. also noted that respondents who report health improvement over time likewise report feeling higher levels of financial well-being. Examining the endogenous relationship between health and financial outcomes is an issue worth considering. Lyons and Yilmazer (2005) concluded that negative health conditions lead to more financial burdens, while financial burdens are unlikely to lead directly to poor health. A similar study by Kim and Lyons (2008) found that health problems significantly put households in financial strain in terms of solvency, liquidity, and asset accumulation. Based on the previous literature, it is reasonable to expect health status to be an important factor that can be used to help explain the degree to which someone exhibits financial well-being.

Financial Capability and Financial Well-Being

Financial capability can be narrowly defined as someone's ability to effectively manage their personal financial situation. In order to be financially capable, a person must possess the ability to figure out what actions are desirable and undesirable for achieving financial goals. Thus, financial capability can be defined broadly as a concept that highlights an individual's engagement in desirable financial behaviors with knowledge, skills, and confidence in performing such behaviors (Taylor, 2011; Xiao, 2016). Researchers generally have defined financial capability within the scope of this definition. For example, Taylor (2011) pointed out that financial capability is associated with understanding how to manage financial resources, identifying appropriate financial products and services, and making appropriate financial decisions. Taylor viewed financial capability as reflecting a person's knowledge of financial matters, ability to manage money, and ability to take control of day-to-day financial matters.

The Financial Industry Regulation Authority (FINRA) regards financial capability as a

composite concept that encompasses an individual's financial knowledge, resources, access to resources, experience, and habits (FINRA, 2019). FINRA's website documentation cautions that financial capability should not be measured with a single indicator; rather, it should be evaluated with multiple factors related to making ends meet, planning ahead, managing financial products, and financial literacy (Lusardi, 2011).

Others have also taken steps to define financial capability. Xiao (2016) considered financial capability as the ability to apply financial knowledge and perform desirable financial behaviors to achieve financial goals. When viewed this way, financial capability can be seen as an overarching concept involving financial knowledge, desirable financial behavior, and perceived financial abilities (Xiao, Chen, & Chen, 2014; Xiao & O'Neill, 2016). Huang, Nam, Sherraden, and Clancy (2015) argued that financial capability is concerned with a person's ability to act and the opportunity to act. The ability to act denotes an individual's financial knowledge and skills, whereas the opportunity to act refers to external conditions and settings that provide access to financial services. Huang et al. considered these two components to be interrelated. They observed that financial knowledge and skills help people benefit from financial access appropriate to their situation. External conditions and settings create opportunities for people to apply their financial knowledge and skills. The interaction plays an important role in describing positive financial behavior.

Much of the previous literature implies that financial capability is a comprehensive term that entails both financial literacy and financial behavior. However, in practice, the measure of financial capability varies from study to study. Some researchers have used behavioral variables reflecting multiple domains of financial management (Atkinson, McKay, Collard, & Kempson, 2007; Kempson, Perotti, & Scott, 2013; Taylor, 2011). These variables include tracking expenses,

budgeting, choosing financial products, using information, and avoiding overspending. Others have employed proxy variables measuring financial knowledge, financial behavior, and confidence in managing finances (Huang et al., 2015; Xiao et al., 2014; Xiao & O'Neill, 2016). When measured this way, the variables are treated as independent elements rather than a composite or latent measure of financial capability. The variety of and disparity in the measurement of financial capability indicates that capturing the concept with a single variable is not easy. Researchers sometimes do, however, use a single variable to measure financial capability. Lusardi, Schneider, and Tufano (2011) did so by using the ability to raise an emergency fund as an indicator of financial capability. According to Lusardi and her associates, the inability to raise $2,000 in a month is evidence of a household's financial tightness or fragility. People tend to mobilize all possible financial resources in response to a financial emergency. This coping mechanism may include drawing from precautionary savings that requires strategic management of money. Using credit, another possible coping method, may indicate that an individual or household is financial capable and managing credit wisely. Exhibiting confidence in being able to raise an emergency fund represents that an individual has the cognitive and behavioral ability to manage their personal financial situation.

As noted above, it is generally assumed as true in the literature that a higher level of financial capability should enhance financial well-being (FINRA, 2019; Xiao, 2016). Consider a study by Xiao, Chen, and Chen (2014). They concluded in their study that desirable financial behavior and higher levels of financial knowledge increase financial satisfaction, which is a subjective indicator of financial well-being. Sherraden (2013) pointed out that financial capability contributes to overall financial well-being; however, low financial capability can cause severe financial problems, especially among low- and moderate-income families. When viewed

holistically, the literature strongly supports the implication that financial capability and financial well-being should be positive associated.

Problematic Financial Behavior and Financial Well-Being

While researchers have consistently reported that engaging in desirable financial behavior contributes to financial well-being, it is also known that engaging in undesirable financial behavior reduces an individual's sense of financial well-being (Joo, 2008). Undesirable or problematic financial behavior can either cause adverse reactions to financial constraints or be consequential to behavior resulting from financial hardship. Using alternative financial services, such as payday loans, pawn shops, and auto title loans, is an example of adverse coping in response to desperate financial needs (Shim et al., 2009). Some consumers have limited access to credit from mainstream financial institutions. Those in this situation may have no other options but to rely on alternative financial services despite the high interest rates are charged (Lee, Park, & Heo, 2019). Collins and Gjertson (2013) found non-savers were more likely to use payday loans and pawnshops in response to unexpected expenses. Lusardi et al. (2011) also indicated taking payday loans or borrowing from pawn shops were among some of the coping strategies people use to meet unexpected financial needs.

Relying on alternative financial services may offer an immediate resolution to a financial problem because payday loans, for example, smooth borrowers' income and help households absorb expenditure shocks (Lim et al., 2014). However, the extant literature indicates that negative coping behavior most often leads to a decrease in financial well-being. Lim et al. (2014) reported that using payday loans is related to consumers' welfare deterioration in general. These types of loans tend to be associated with involuntary bank account closures, filing for bankruptcy, bill-paying difficulty, and negative assessments of one's current and future financial situation. More

importantly, as noted by Lim et al., payday loans exacerbate borrowers' stress because these loans create the repeat need for another loan. On the other hand, Nicolini and Cude (2019) showed that financial well-being reduces the likelihood of using a pawnshop by 17%. This finding implies that pawnshop use is also likely to decrease financial well-being.

Failing to meet financial obligations is another problematic financial behavior that may affect financial well-being. Financial obligations that a person must meet on a regular basis include payments for rent/mortgages, utilities, insurance premiums, and other loans. Failing to pay these bills may cause the repossession of property, foreclosure, utility shutoffs, and paying higher rates of interest (National Consumer Law Center, 2019). The consequences associated with non-payments can make a household's financial situation even more strained. Researchers have found negative financial behavior, including failing to meet financial obligations, to be closely related to financial stress, lack of financial satisfaction, and lower overall financial well-being (Archuleta, Dale, & Spann, 2013; Gutter & Copur, 2011; Joo & Grable, 2004; Prawitz et al., 2006; Shim et al., 2009). As such, it is reasonable to conclude that financial well-being should be negatively associated with the engagement in problematic financial behavior.

Summary

As discussed in this chapter, financial well-being, as an outcome measure representing an individual's or household's financial situation, is known to be associated with several antecedent and predisposing factors. Antecedents of financial well-being include financial knowledge, financial attitudes, financial subjective norms, perceived financial behavioral control, and socioeconomic status. Predisposing factors of financial well-being include financial capability and problematic financial behavior. In general, the literature suggests that those who report the highest levels of financial well-being have high correspondingly high levels of financial knowledge,

positive financial attitudes, and supportive financial norms. They also exhibit perceptions of behavioral control, as well as high attained education and income. Higher levels of financial well-being are also known to be positively associated with financial capability and negatively related with the engagement in problematic financial behavior.

This dissertation expands the current literature by describing the effect of generalized stress on financial well-being. Based on the existing literature, it was hypothesized in this study that generalized stress will have a total negative effect on financial well-being. The remainder of this dissertation is focused on presenting a review of the methodology used to test the conceptual model. Chapter 3 provides a detailed description of the way the model was operationalized and tested. Chapter 4 provides a summary of key results. The final chapter contextualizes the results from a policy, research, and financial planning and financial counseling perspective.

CHAPTER 3

METHODOLOGY

The purpose of this chapter is to introduce the dataset, variables, and methods of analysis used to test the research hypotheses. This chapter is followed by a presentation of results. The dissertation concludes with a discussion of results with special attention paid to implications for research, practice, and policy.

Purpose of Study and Presentation of Research Questions and Hypotheses

As noted in Chapter 1, the purpose of this study is to provide empirical evidence regarding the effect of generalized stress on financial well-being either directly and/or indirectly through financial capability and behavior. This study is specifically interested in testing whether generalized feelings of stress are associated with perceptions of financial well-being. In this regard, the data and statistical methods described in this chapter were chosen to evaluate the conceptual framework (Figure 3.1) and associated research hypotheses.

This study was designed to examine how generalized stress is associated with financial well-being. A key takeaway from this study is to determine if perceptions of stress—typically as the result of exposure to prolonged and accumulative stressors—is important in describing someone's subjective evaluation of their financial well-being. As shown in the existing literature, chronic and additive stressors may alter an individual's decision-making strategies and behavior. Likewise, behavioral dynamics regarding personal finances are likely to be impacted by someone's level of stress. Even though the causal relationship is hard to identify, the association between stress and financial well-being hypothesized in this study is one that is most often encountered in

the literature.

The present study hints at the possibility that expanded pathways of financial well-being exist. As illustrated in Figure 3.1, the integration of generalized stress into Shim et al.'s (2009) holistic model of financial well-being may provide additional insights into the way well-being is shaped. While the original Shim et al. financial well-being framework focused on college students, the current study adapts the model to a broader population—adults living the United States. In addition, the conceptual framework tested in this dissertation introduces the possibility that generalized stress may be associated with financial well-being. Based on existing behavioral theories and stress processes, the conceptual framework describes how antecedent factors (e.g., generalized stress, financial knowledge), predisposing factors (e.g., financial capacity), and the consequence factor (i.e., financial well-being) may be interrelated.

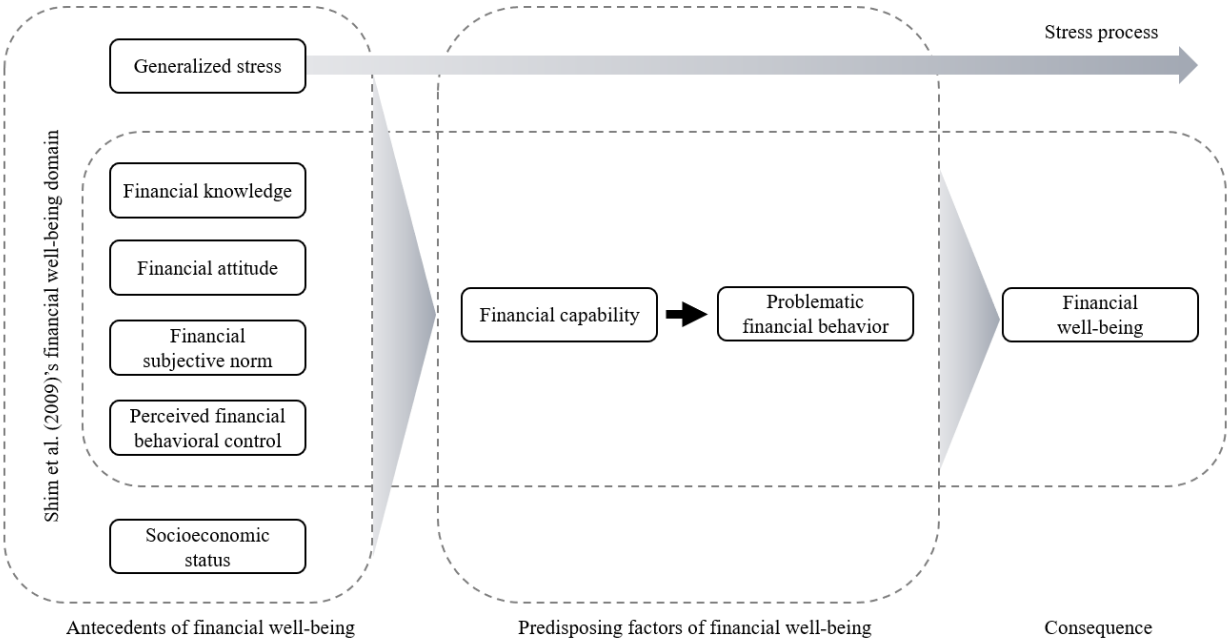

Figure 3.1. The Conceptual Framework of the Study

The following research questions were tested as the primary outcome associated with this dissertation:

(a) Is generalized stress deleterious to financial well-being?

(b) Are antecedent factors associated with financial well-being directly, indirectly, or in some combination (i.e., a total effect)?

(c) Do predisposing factors mediate the relationship between antecedent factors and financial well-being?

As discussed later in this chapter, specific research hypotheses as operationalized in the dissertation's conceptual framework (Figure 3.2) were tested as a way to answer these research questions.

The conceptual framework used to direct this dissertation was redrawn to facilitate testing. As shown in Figure 3.2, the hypothesized framework was built using indicator variables for the concepts shown in Figure 3.1. The framework was tested using a structural equation modelling technique. The hypothesized framework provides a mechanism to expand discussions related to better understanding the determinants of financial well-being. The framework emphasizes the fact that financial well-being is not a discrete concept, but rather that financial well-being includes elements that are related to physical and mental health.

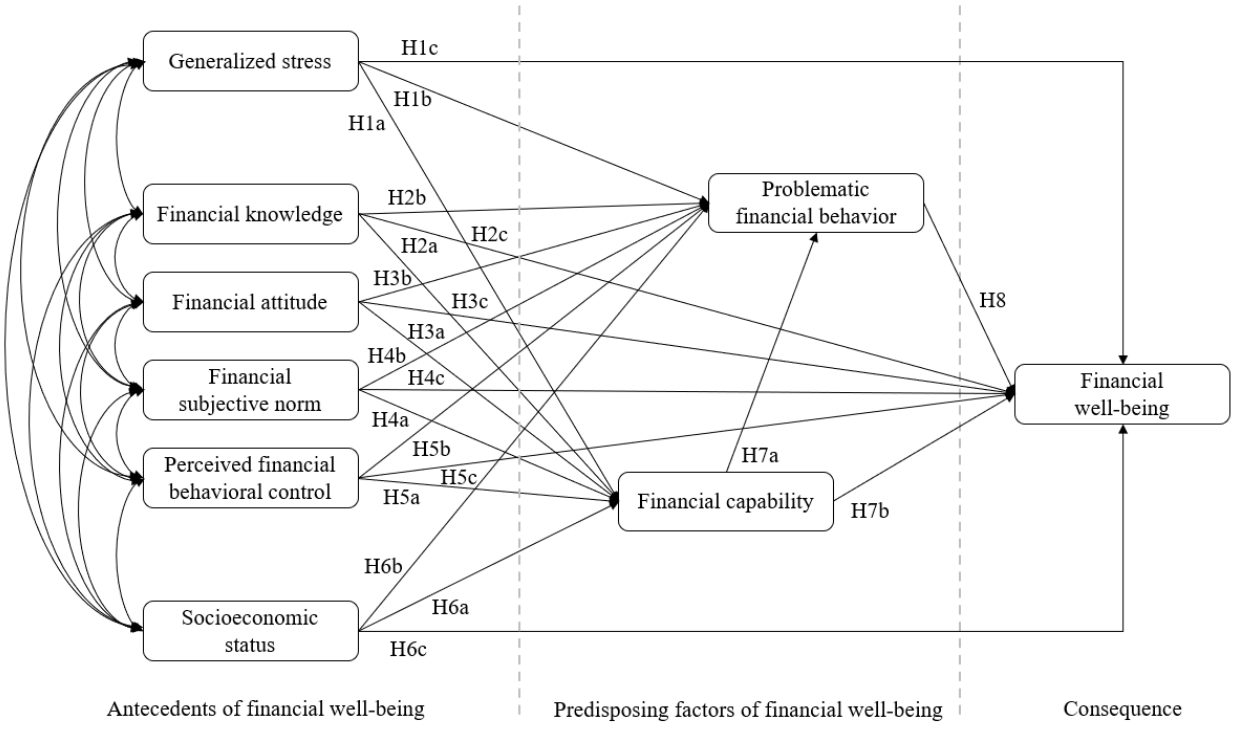

Figure 3.2. Hypothesized Framework

Research Hypotheses

As illustrated in Figure 3.2, each of the concepts in the model are shown to be linked as pathways from one variable to another. Each of the single-arrow lines represents a unique hypothesis in the framework. Findings from this study can be used to help identify not on the pathways leading to financial well-being but also the direction of each pathway. Specifically, the following research hypotheses were tested in this study:

H1: The effect of generalized stress on financial well-being will be mediated by a respondent's financial capability and problematic financial behavior.

H1a: Generalized stress will be negatively associated with financial capability.

H1b: Generalized stress will be positively associated with problematic financial behavior.

H1c: Generalized stress will be negatively associated with financial well-being.

H2: The effect of financial knowledge on financial well-being will be mediated by a respondent's financial capability and problematic financial behavior.

H2a: Financial knowledge will be positively associated with financial capability.

H2b: Financial knowledge will be negatively associated with problematic financial behavior.

H2c: Financial knowledge will be positively associated with financial well-being.

H3: The effect of financial attitude on financial well-being will be mediated by a respondent's financial capability and problematic financial behavior.

H3a: Financial attitude will be positively associated with financial capability.

H3b: Financial attitude will be negatively associated with problematic financial behavior.

H3c: Financial attitude will be positively associated with financial well-being.

H4: The effect of financial subjective norms on financial well-being will be mediated by a respondent's financial capability and problematic financial behavior.

H4a: Financial subjective norm will be positively associated with financial capability.

H4b: Financial subjective norm will be negatively associated with problematic financial behavior.

H4c: Financial subjective norm will be positively associated with financial well-being.

H5: The effect of perceived financial behavioral control on financial well-being will be mediated by a respondent's financial capability and problematic financial behavior.

H5a: Perceived financial behavioral control will be positively associated with financial capability.

H5b: Perceived financial behavioral control will be negatively associated with problematic financial behavior.

H5c: Perceived financial behavioral control will be positively associated with financial well-being.

H6: The effect of higher socioeconomic status on financial well-being will be mediated by a respondent's financial capability and problematic financial behavior.

H6a: Higher socioeconomic status will be positively associated with financial capability.

H6b: Higher socioeconomic status will be negatively associated with problematic financial behavior.

H6c: Higher socioeconomic status will be positively associated with financial well-being.

H7: Financial capacity will relate to problematic financial behavior and financial well-being

H7a: Financial capability will be negatively associated with problematic financial behavior.

H7b: Financial capability will be positively associated with financial well-being.

H8: Problematic financial behavior will be negatively associated with financial well-being.

Description of Data

Data for this study were obtained from the CFPB's National Financial Well-Being Survey (NFWBS). The survey was conducted to validate the organization's financial well-being scale (the CFPB Financial Well-Being Scale) using a national sample of adults representing the U.S. population. The NFWBS has three objectives: (a) to deliver a preliminary overview of the current state of financial well-being of American adults as well as its subpopulations; (b) to test a set of hypotheses that financial knowledge and financial behaviors can contribute to financial well-being when controlling for several social and personal variances; and (c) to support additional research on identifying factors that help to describe the financial well-being of consumers and promote successful policy approaches to improve financial outcomes for American families (CFPB, 2017).

All data in the survey were collected from U.S. adults aged 18 or older at the time of the survey. Data collection was performed between October and December in 2016 via the internet. The NFWBS contains substantial information on individual characteristics, household and family characteristics, income and employment, savings, financial safety nets, financial experiences, financial behaviors, and financial attitudes. As will be described in more detail later in this chapter, indicator variables from the NFWBS were used to measure each concept shown in Figures 3.1 and 3.2.

NFWBS Sampling Procedures

The survey respondents were selected to represent the U.S. adult population in reference to Current Population Survey (CPS) benchmarks. The sampling procedure was designed as a two stage process. First, the sample was drawn from the GfK KnowledgePanel®, which is the largest probability-based internet panel in the United States. The panel has 55,000 members recruited using a random digit dialing (RDD) procedure. For the purpose of the NFWBS, the sample included 5,000 from the general population and 999 from an oversampling of those aged 62 or older. Second, due to low response rates, 395 additional respondents were drawn from the panelists to achieve a minimum sample size on key analytic populations (e.g., those below 200 percent of the federal poverty level, African Americans, non-Hispanics, and Hispanics). In total, 6,394 respondents completed the survey. Among the 6,394 respondents, 1,530 were aged 18-34, 2,253 were aged 62 and older, 4,498 were White non-Hispanic, and 1,520 were living at less than 200% of the federal poverty level. As the sample was not selected with equal probability, this dissertation applied study weights to adjust the final sample to match the U.S. population (CFPB, 2017). The present study reports all descriptive data and model coefficients as unbiased weighted results.

Operationalization of Conceptual and Hypothesized Framework

Measures

Generalized stress. Generalized stress was assessed by noting respondents' answer to the following statement: "*I have a lot of stress in my life.*" Responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*.

Financial knowledge. The survey included nine items from a financial knowledge scale developed by Knoll and Houts (2012) (see Table 3.1). The scale questions ask about investment, diversification of risk, life insurance, housing, and debt management issues. Each item was used to test how well each respondent knew a topic. Correct answers were coded as 1, whereas incorrect answers were coded as 0. To measure respondents' financial knowledge, the number of correct answers was summed to generate a knowledge index score. Higher index scores indicated higher levels of financial knowledge. The internal consistency of the financial knowledge index was .63.

Financial attitude. Financial attitude was proxied by a respondent's subjective belief about economic mobility in the United States. Respondents were asked to indicate to what extent they agreed or disagreed with the following statement: "*Everyone has a fair chance at moving up the economic ladder.*" It was assumed that the stronger an individual held this belief, the more likely the respondent was to hold a positive attitude about personal financial matters. Specifically, it was assumed that high scores were an indication that a respondent was likely to make efforts to prudently manage their household's personal finances to reach a higher economic status. Stated another way, it was assumed that the measure reflected a respondent's favorable or unfavorable attitude toward financial planning and management. The answers were coded on a seven-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree.*

Financial subjective norms. Financial subjective norms was a latent construct comprised

of five financial socialization variables. The financial socialization variables were used to describe how well a respondent had communicated with their parents and family members regarding personal finance topics. As was discussed in the review of literature, family is the very first agent of socialization in which an individual learns and adopts social beliefs, values, and norms. Thus, it was assumed in this study that higher levels of financial socialization would be associated with holding stronger positive subjective norms regarding the importance of household financial management. Respondents were asked to answer whether their family: (a) "*discussed family financial matters with me*"; (b) "*spoke to me about the importance of saving*"; (c) "*discussed how to establish a good credit rating*"; (d) "*taught me how to be a smart shopper*"; and (e) "*taught me that my action determine my success in life.*" The answers to each item were coded 1 in the affirmative, otherwise 0.

Perceived financial behavioral control. Perceived financial behavioral control was conceptualized as a latent construct using seven indicators that capture a respondent's perceived behavioral capacities regarding their financial management situation. Respondents were asked to indicate how well each of the following statement described them: (a) "*I know how to get myself to follow through on my financial intentions*"; (b) "*I know where to find the advice I need to make decisions involving money*"; (c) "*I know how to make complex financial decisions*"; (d) "*I am able to make good financial decisions that are new to me*"; (e) "*I am able to recognize a good financial investment*"; (f) "*I know how to keep myself from spending too much*"; and (g) "*I know how to make myself save*." Each item was measured on a five-point scale ranging from 1 = *not at all* to 5 = *completely*.

Socioeconomic status. Socioeconomic status was conceptualized as a latent construct that captures higher human capital. Household income, educational attainment, and health status were

used as indicators of socioeconomic status. Household income was coded using nine categories (a) *less than $20,000*; (b) *$20,000 to $29,999*; (c) *$30,000 to $39,999*; (d) $*40,000 to $49,999*; (e) *$50,000 to $59,999*; (f) *$60,000 to $74,999*; (g) *$75,000 to $99,999*; (h) *$100,000 to $149,999*; and (i) *$150,000 or more*. These categories were recoded to create a dichotomous income variable. The U.S. Census Bureau's median income in 2016 (the year the survey data were collected) was used as the criterion for recoding. Those categories greater than $60,000 were coded as 1, indicating above-median income, otherwise 0. Education was also recoded as a dichotomous variable to indicate 1 = *college or higher degree* and 0 = *less than a college level of education*. Health status was measured by using each respondent's subjective appraisal of their health status. The ratings ranged from 1 = *poor* to 5 = *excellent*.

Financial capability. Financial capability was proxied by respondents' confidence associated with dealing with an unexpected monetary demand. Respondents were asked: "*How confident are you that you could come up with $2,000 in 30 days if an unexpected need arose within the next month?"* The answers were 1 = *I am certain I could not come up with $2,000*; 2 = *I could probably not come up with $2,000*; 3 = *I could probably come up with $2,000*; and 4 = *I am certain I could come up with the full $2,000.* Higher ratings were indicative of greater financial capability.

Problematic financial behavior. Problematic financial behavior was conceptualized as a latent construct with four indicators. Two indicators were related to consumer borrowing behavior. Respondents were asked whether they had used a (a) *payday loan or cash advanced loan* or (b) *pawn loan or auto title loan in the past 12 months*. The answers were coded 1 if they had used these types of personal loans, otherwise 0. Another indicator measured non-payment behavior. Respondents were asked to *report how often one or more of their utilities had been shut off due to*

non-payment in the past 12 months. The answers were coded as 1 = *never*, 2 = *sometimes*, and 3 = *often*. The last indicator asked about credit rejection. Respondents were asked *whether they applied for credit and had been turned down*. Responses were coded as 1 = *yes* and 0 = *no*.

Financial well-being. The CFPB (2015) introduced a financial well-being scale that contains 10 items as a way to measure the financial well-being of U.S. adults. Each item was developed based on a series of consumer interviews and systematic tests to ensure accuracy and comprehensiveness of financial well-being. The items included in the scale are: (a) "*I could handle a major unexpected expense*"; (b) *I am securing my financial future*"; (c) "*Because of my money situation, I feel like I will never have the things I want in life*"; (d) "*I can enjoy life because of the way I'm managing my money*"; (e) "*I am just getting by financially*"; (f) "*I am concerned that the money I have or will save won't last*"; (g) "*Giving a gift for a wedding, birthday or other occasion would put a strain on my finances for the month*"; (h) "*I have money left over at the end of the month*"; (i) "*I am behind with my finances*"; and (j) "*My finances control my life*." Respondents were asked to use a five-point scale to indicate their level of agreement with each statement. The final scale was scored was estimated using an Item Response Theory (IRT) analysis. IRT is a statistical method that allows researchers to estimate scores that reflect individual differences in response. Thus, the final score using the IRT technique is considered to be more precise than a simple summed score. The financial well-being scale score ranged between 0 and 100. Higher scores represented higher levels of financial well-being.

Table 3.1 shows each of the variables evaluated and tested in this dissertation. The table provides the variable name, which corresponds to a specific concept in Figure 3.2, the measurement question or statement, and the coding procedure.

Table 3.1. Summary of Measures Selected from the CFPB's NFWBS

Variable name	Measures	Coding/recoding
Generalized stress	I have a lot of stress in my life.	1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree
Financial knowledge	Considering a long time period (for example 10 or 20 years), which asset described below normally gives the highest return? 1. Savings accounts 2. Bonds 3. Stocks	1 = Correct 0 = Incorrect
	Normally, which asset described below displays the highest fluctuations over time? 1. Savings accounts 2. Bonds 3. Stocks	1 = Correct 0 = Incorrect
	When an investor spreads his or her money among different assets, does the risk of losing a lot of money increase, decrease or stay the same? 1. Increase 2. Decrease 3. Stay the same	1 = Correct 0 = Incorrect
	If you were to invest $1,000 in a stock mutual fund, it would be possible to have less than $1,000 when you withdraw your money. 1. True 2. False	1 = Correct 0 = Incorrect
	'Whole life' insurance has a savings feature while 'term' insurance does not. 1. True 2. False	1 = Correct 0 = Incorrect
	Housing prices in the US can never go down. 1. True 2. False	1 = Correct 0 = Incorrect

		Suppose you owe $3,000 on your credit card. You pay a minimum payment of $30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges? 1. Less than 5 years 2. Between 5 and 10 years 3. Between 10 and 15 years 4. Never, you will continue to be in debt	1 = Correct 0 = Incorrect
		If interest rates rise, what will typically happen to bond prices? 1. They will rise 2. They will fall 3. They will stay the same 4. There is no relationship between bond prices and the interest rate	1 = Correct 0 = Incorrect
		A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. 1. True 2. False	1 = Correct 0 = Incorrect
Financial attitude		Everyone has a fair chance at moving up the economic ladder.	1 = Strongly disagree 2 = Disagree 3 = Somewhat disagree 4 = Neither agree nor disagree 5 = Somewhat agree 6 = Agree 7 = Strongly agree
Financial subjective norms	fsn1	While growing up at home, my family Discussed family financial matters with me.	1 = Yes 0 = No
	fsn2	While growing up at home, my family Spoke to me about the importance of saving.	1 = Yes 0 = No
	fsn3	While growing up at home, my family Discussed how to establish a good credit rating.	1 = Yes 0 = No
	fsn4	While growing up at home, my family Taught me how to be a smart shopper.	1 = Yes 0 = No

	fsn5	While growing up at home, my family Taught me that my actions determine my success in life.	1 = Yes 0 = No
Perceived financial behavioral control	pfbc1	I know how to get myself to follow through on my financial intentions.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
	pfbc2	I know where to find the advice I need to make decisions involving money.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
	pfbc3	I know how to make complex financial decisions.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
	pfbc4	I am able to make good financial decisions that are new to me.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
	pfbc5	I am able to recognize a good financial investment.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
	pfbc6	I know how to keep myself from spending too much.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
	pfbc7	I know how to make myself save	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
Socioeconomic status	income	Household income	1 = median income or above 0 = below median income
	edu	Respondent's highest education received	1= College or higher 0= Less than college

	health	Respondent's health status	1 = poor 2 = fair 3 = good 4 = very good 5 = excellent
Financial capability		How confident are you that you could come up with $2,000 in 30 days if an unexpected need arose within the next month?	1 = I am certain I could not come up with $2,000 2 = I could probably not come up with $2,000 3 = I could probably come up with $2,000 4 = I am certain I could come up with the full $2,000
Problematic financial behavior	pfb1	Used payday loan or cash advance loan in the past 12 months.	1 = Yes 0 = No
	pfb2	Used pawn loan or auto title loan in the past 12 months.	1 = Yes 0 = No
	pfb3	One or more of my utilities was shut off due to non-payment in the past 12 months.	1 = Never 2 = Sometimes 3 = Often
	pfb4	I applied for credit and was turned down	1 = Yes 0 = No
Financial well-being		I could handle a major unexpected expense	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
		I am securing my financial future.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
		Because of my money situation, I feel like I will never have the things I want in life.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely

I can enjoy life because of the way I'm managing my money.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
I am just getting by financially.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
I am concerned that the money I have or will save won't last.	1 = Not at all 2 = Very little 3 = Somewhat 4 = Very well 5 = Completely
Giving a gift for a wedding, birthday or other occasion would put a strain on my finances for the month.	1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always
I have money left over at the end of the month.	1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always
I am behind with my finances	1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always
My finances control my life.	1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always

Operationalized Model

Figure 3.3 illustrates the operationalized model that was tested in this study. The figure shows the measurement and structural components of the model. In the model, Financial Subjective Norms (FSN), Perceived Financial Behavioral Control (PFBC), Socioeconomic Status

(SES), and Problematic Financial Behavior (PFB) were hypothesized to be latent constructs, while Generalized Stress (GS), Financial Knowledge (FK), Financial Attitude (FA), Financial Capability (FC), and Financial Well-being (FWB) were observed variables. The dependent variables were PFB, FC, and FWB. The independent variables were GS, FK, FA, FSN, PFBC, and SES.

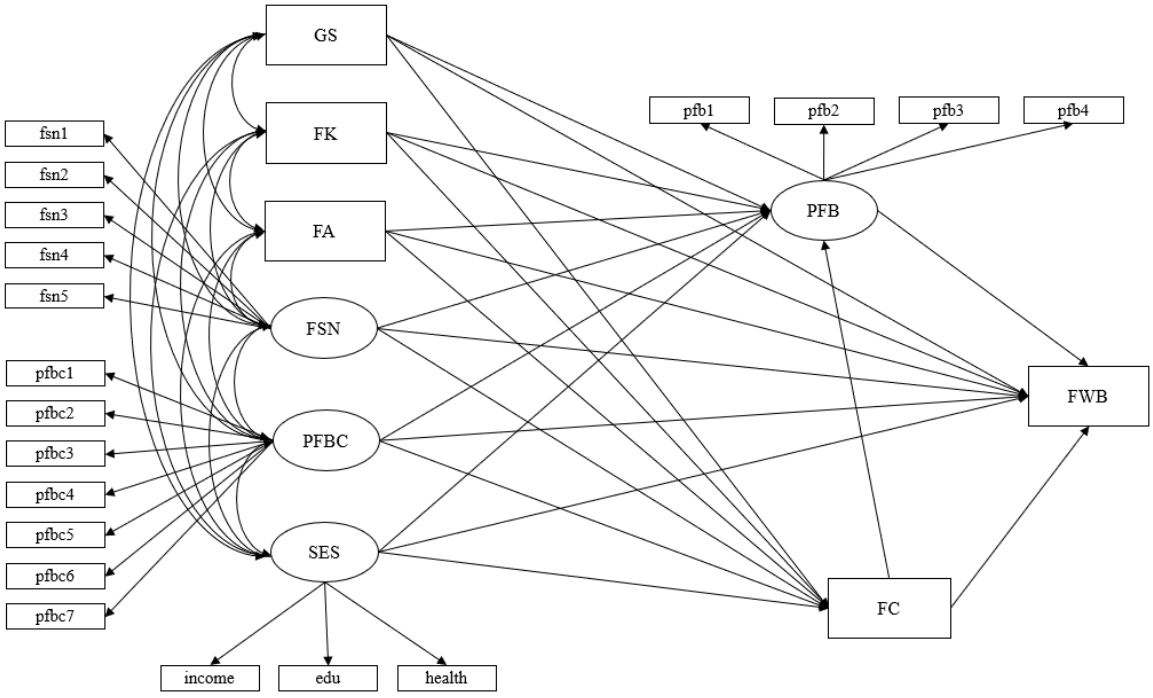

Figure 3.3. Operationalized SEM Model

Data Analysis Procedure

The statistical analytical technique applied in this study was structural equation modeling (SEM). SEM is a type of multivariate technique that is commonly used to test a series of multiple regressions at one time. While other statistical methods estimate only a single relationship between independent variables and a dependent variable, SEM examines a set of interrelated associations among the variables. For example, some research questions in the social sciences may postulate a subsequent relationship in which a hypothesized dependent variable becomes an independent

variable leading to anther dependent variable. SEM enables a researcher to address all such relationships by estimating a series of multiple regression equations simultaneously. Thus, the approach is particularly powerful when testing an entire theory or framework that demonstrates causal relationships among multiple variables (Hair, Black, Babin & Anderson, 2014). Due to its analytical strength, SEM has been widely applied in various disciplines, including psychology, education, health sciences, family studies, marketing, and other fields (Kline, 2015).

The application of a SEM consists of two components: the measurement model and a structural model. A measurement model specifies the dependence relationship between several observable indicators (observed variables) and the latent variable(s). A latent variable is an unobservable concept that cannot be measured directly but can be represented by a set of indicators. If the relationship depicts that the indicators are theoretically associated with a single latent concept, then the indicators can be hypothesized to measure the latent concept reasonably and accurately. The latent construct—an operationalization of a latent variable—is assessed by a confirmatory factor analysis. The confirmatory factor analysis only focuses on the link between latent variables and the factor's observed variables within the framework of SEM (Byrne, 2013). A SEM model can include one or more latent constructs.

The structural model specifies the relationships among the latent constructs hypothesized as either independent variables or dependent variables within the theoretical framework. A structural model shows and tests the paths between the independent variables and the dependent variables. Multiple regressions are used to estimate these relationships. Through the procedure, covariances, direct effects, indirect effects, and total effects can be identified.

The steps in a SEM analysis include: (a) model specification, (b) identification, (c) estimation, (d) evaluation, and (e) modification (Crockett, 2012; Weston & Gore Jr, 2006). At the

model specification stage, researchers conceptualize a testing model by specifying the measurement and structural model. The initial presentation of the SEM model should show all the hypothesized relationships among the variables. Thus, the quality and validity of a model specification is strongly dependent upon the theoretical foundation of the model (Crockett, 2012; Kline, 2015). For example, the Theory of Planned Behavior is often used as the basis of frameworks tested using SEM techniques. The reason is that the pathways among the variables in the theory have been thoroughly conceptualized and tested, making subsequent use of the theory an appropriate choice when attempting to describe behavioral outcomes like well-being (Baker, Little, & Brownell, 2003; Savalei & Bentler, 2010).

Once a model has been conceptualized, the model parameters need to be identified and estimated. This is most often done by a computer software program. This step involves fitting the data to the proposed model and determining the unknown parameter values (Weston & Gore Jr, 2006). Although there are several estimation methods, maximum likelihood (ML) is the most popular and recommended (Savalei & Bentler, 2010).

The evaluation of a SEM model is made based on model fit indices to ensure significance and strength of estimated parameters (Weston & Gore Jr, 2006). As SEM focuses on the relationships among variables, the primary purpose of a model fit assessment is to determine how well the entire model fits the data as specified (Hair et al., 2014). The model indices chosen for this study (based on statistical norms) were a chi-square test (χ^2), the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), and the comparative fit index (CFI). The final step when evaluating a SEM is model modification. As SEM seeks the model that best fits the data, researchers need to adjust the estimated model to improve the model fit (Crockett, 2012; Weston & Gore Jr, 2006).

SEM offers several advantages over traditional assessment techniques (e.g., correlational and regression models). First, SEM makes it possible to design more complex multivariate relationships among variables compared to other analytical methods (Card & Little, 2007). By including multiple independent variables and dependent variables in one model, SEM tests a set of relationships among the variables as a whole. SEM allows researchers to approach various social and behavioral research questions in a more comprehensive way. Second, SEM demonstrates not only how latent constructs are operationalized but also how multiple independent variables and dependent variables are related directly and indirectly to each other. As a result, it helps researchers and theorists to understand complex research problems explicitly and intuitively (Remler & Van Ryzin, 2011). Third, SEM accommodates measurement error associated with dependent measures. Measurement error is an unexplained variance when estimating the effect of an independent variable on a dependent variable (Hair et al., 2014). Traditional multiple regression methods cannot correct for a certain level of measurement error; however, SEM remedies measurement error by explicitizing the error variance parameters (Byrne, 2013; Card & Little, 2007; Hair et al., 2014). This approach provides estimates of model parameters more reliably.

Summary of Model Testing Procedures

The following steps were taken to ensure a robust test of the operationalized model. First, the original data released for public use was recoded. Categorical variables were transformed as binary variables. Data from respondents who refused to answer a question were treated as missing values. To account for missing values, a full information maximum likelihood (FIML) procedure was used. FILM does not replace or impute missing values; rather FIML estimates model parameters and standard errors using all available data (Enders & Bandalos, 2001). Second, descriptive statistics were estimated to provide a description of respondents. Third, the model was

run and evaluated using model fit indices. The following fit indices standards (Hu & Bentler, 1999) were used to determine how well the data fit the model: RMSEA lower than .06, CFI equal to or greater than .95, and SRMR lower than or equal to .08. Two statistical programs were used. Stata 15.0 was used to recode variables and produce unweighted descriptive statistics. Mplus 7.0 was used to conduct the SEM with sample weighting.

Summary

This chapter provided (a) an overview of the conceptual. hypothesized, and operationalized frameworks tested in this study; (b) a presentation of the overall research questions and associated research hypotheses; (c) a description of the data, including sampling and data collection procedures; (d) a description of the measurement of each variable; (e) a description of the statistical method used to test the operationalized model; and (f) a summary of the data analyses procedure. The remainder of this dissertation describes the results from the analyses and a discussion of findings from a research, practice, and policy perspective.

CHAPTER 4

ANALYSES AND RESULTS

This chapter describes the results of the study. The report of the results begins with the sample description, followed by findings from the evaluation of the measurement model and the structural model. The results of the structural equation model (SEM) analysis are summarized and presented in a way that matches the study's research questions. This chapter ends with a summary of the results.

Review of the Statistical Analysis Procedure

The purpose of this study was to provide empirical evidence regarding the negative effect of generalized stress on financial well-being. The models tested in this study were built on an adaptation of the financial well-being model developed by Shim et al. (2009). In this study, generalized stress—as indicated by an individual's perception of their overall situation—was presumed to be negatively associated with behavioral factors related to one's household financial situation and financial well-being. Several research hypotheses, as described in the previous chapter, were used to validate the conceptual model of financial well-being. Specifically, the pathways in the operationalized model were evaluated with a focus on the role of generalized stress. All analytical work was conducted using STATA 15.0 and Mplus 7.0. The statistical procedures described in this chapter included the estimation of descriptive statistics and SEM tests. The SEM analysis procedure consisted of an evaluation of the measurement model and an estimation and test of a structural model. The measurement model was assessed using a confirmatory factor analysis to ensure the validity of the latent constructs. The structural model was evaluated using

multiple regressions that were conducted simultaneously to test the hypothesized relationships. Model fit indices were reviewed to determine whether the model fit the data well or not. Lastly, the direct, indirect, and total effects of the variables in the model were estimated to examine how each variable was associated with financial well-being.

Descriptive Statistics

This study used the total sample of the NFWBS. The survey included 6,394 U.S. respondents who were aged 18 or older at the time of the survey. Table 4.1 shows descriptive information about the sample. The table also provides descriptive statistics of the variables of interest in this study. Based on the sample characteristics, the majority of the respondents were White (70.4%), married (59.8%), and had no children who were financially dependent (63%) on the household head. While about 40% of respondents were between the ages of 35 to 61, 35% of respondents were 62 years of age or older. Gender was relatively evenly distributed between males (52.4%) and females (47.6%). About 38% of respondents reported being a college graduate. Most of those in the sample were working (46.6%) either full-time or part-time, earning more than the median U.S. income. Overall, respondents reported being in relatively good health, on average (M = 3.45, SD = 0.92). The mean score for the generalized stress variable was 3.15 (SD = 1.09), meaning that respondents reported experiencing moderate levels of stress in their life at the time of the survey. The level of financial knowledge and the financial attitudes of respondents were relatively high (M = 6.30, SD = 1.88 and M = 4.70, SD = 1.66, respectively). Regarding past financial experiences, only 35% of respondents had discussed their family's financial situation with their parents when growing up. For example, a family's credit rating was not discussed very often when the respondents were growing up (37.00%). However, respondents indicated that their parents had spoken about the importance of saving (65.50%), taught them about how to be a smart

shopper (60.9%), and taught them how to act to achieve success in life (75.6%). The mean scores for the perceived financial behavioral control variables were skewed to the higher side. Regarding financial capability, respondents were observed to have slightly higher levels of confidence in coming up with $2,000 in one to month to meet a financial emergency. Problematic financial behavior (e.g., used payday loans) was not common among those in the sample. Finally, the mean score on the financial well-being variable was approximately 56%.

Table 4.1. Descriptive Characteristics of Sample (N = 6,394)

Variables	%	Mean (S.D.)	Min, Max
Age			
18-34	23.93		
35-61	40.84		
62 or more	35.24		
Gender			
Male	52.42		
Female	47.58		
Race			
White	70.35		
Black	10.71		
Hispanic	13.68		
Other	5.25		
Education			
Less than higher education	62.31		
Earned Bachelor's or more	37.69		
Marital status			
Married	59.84		
Widowed/divorced/separated	16.41		
Never married	18.0		
Other	5.76		
Employment status			
Self-employed	6.66		
Full-time	39.71		
Part-time	6.90		
Non-working	17.46		
Retired	29.26		
Household income			
Less than median income	43.96		
Median income or more	56.04		

Household size			
1	19.22		
2	42.29		
3 or more	38.49		
Number of dependents			
One or more	37.02		
No dependents	62.98		
Health status		3.45 (0.92)	1, 5
Generalized stress		3.15 (1.09)	1, 5
Financial knowledge		6.30 (1.88)	0, 9
Financial attitude		4.70 (1.66)	1, 7
Financial subjective norms			
Discussed financial matters (yes)	34.60		
Spoke about saving (yes)	65.47		
Discussed credit rating (yes)	36.53		
Taught about a smart shopper (yes)	60.89		
Taught successful life actions (yes)	75.75		
Perceived financial behavioral control			
Following through on intentions		3.62 (0.93)	1, 5
Finding the advice		3.54 (1.04)	1, 5
Making complex decisions		3.25 (1.02)	1, 5
Making good decisions		3.32 (0.95)	1, 5
Recognizing an investment		3.06 (1.01)	1, 5
Keeping from overspending		3.77 (0.93)	1, 5
Making myself save		3.70 (0.98)	1, 5
Financial capability		3.30 (1.08)	1, 4
Problematic financial behavior			
Used payday loans (yes)	2.71		
Used pawn loans (yes)	1.78		
Experienced utility shut offs		1.08 (0.32)	1, 3
Experienced credit rejection (yes)	10.16		
Financial well-being		56.08 (14.07)	14, 95

Measurement Model

The measurement model was tested to ensure that the observed variables were valid indicators of each latent factor. In the measurement model, confirmatory factor analysis tests were used to evaluate the construct validity of the latent constructs. The model was evaluated using the following model fit indices: a chi-square test (χ^2), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root mean square residual

(SRMR). The overall fit of the model was $\chi^2_{(146)}$ = 2,242.72, RMSEA = 0.05, CFI = 0.91, and SRMR = 0.04. Considering the criterion for each value, it was determined that the model showed good fit to the data.

Tables 4.2 and 4.3, and Figure 4.1, illustrate the result from the confirmatory factor analysis. The factor loadings explain the correlation between each indicator variable and the latent factor. That is, the squared loading denotes the amount of each variable's variance accounted for by the factor (Hair et al., 2014). The cut-off values for appropriate factor loadings suggested by researchers vary; however, it is generally considered a best practice to use factor loadings greater than .50 as indicative of practical significance (Hair et al., 2014; Peterson, 2000). However, loadings between .30 to .40 are also thought to be minimally acceptable, especially when the sample size is 350 or greater (Hair et al., 2014; Kline, 2014). The results of the confirmatory factor analysis in this study showed all factor loadings to be at least .30 or higher, indicating that the latent factors (i.e., FSN, PFBC, SES, PFB) were fairly represented by their observed variables. Also, all factor loadings were statistically significant at the .001 level.

Table 4.2. Confirmatory Factor Analysis Factor Loadings

Latent Constructs and Indicators	Factor Loadings
Financial social norms (FSN)	
Discussed financial matters (fsn1)	0.557***
Spoke about saving (fsn2)	0.741***
Discussed credit rating (fsn3)	0.615***
Taught about a smart shopper (fsn4)	0.714***
Taught successful life actions (fsn5)	0.658***
Perceived financial behavioral control (PFBC)	
Following through on intentions (pfbc1)	0.822***
Finding the advice (pfbc2)	0.688***
Making complex decisions (pfbc3)	0.774***
Making good decisions (pfbc4)	0.824***
Recognizing an investment (pfbc5)	0.732***
Keeping from overspending (pfbc6)	0.715***
Making myself save (pfbc7)	0.765***

Socioeconomic Status (SES)	
Income (income)	0.624***
Education (edu)	0.554***
Health status (health)	0.471***
Problematic financial behavior (PFB)	
Used payday loans (pfb1)	0.397***
Used pawn loans (pfb2)	0.345***
Experienced utility shut offs (pfb3)	0.487***
Experienced credit rejection (pfb4)	0.510***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

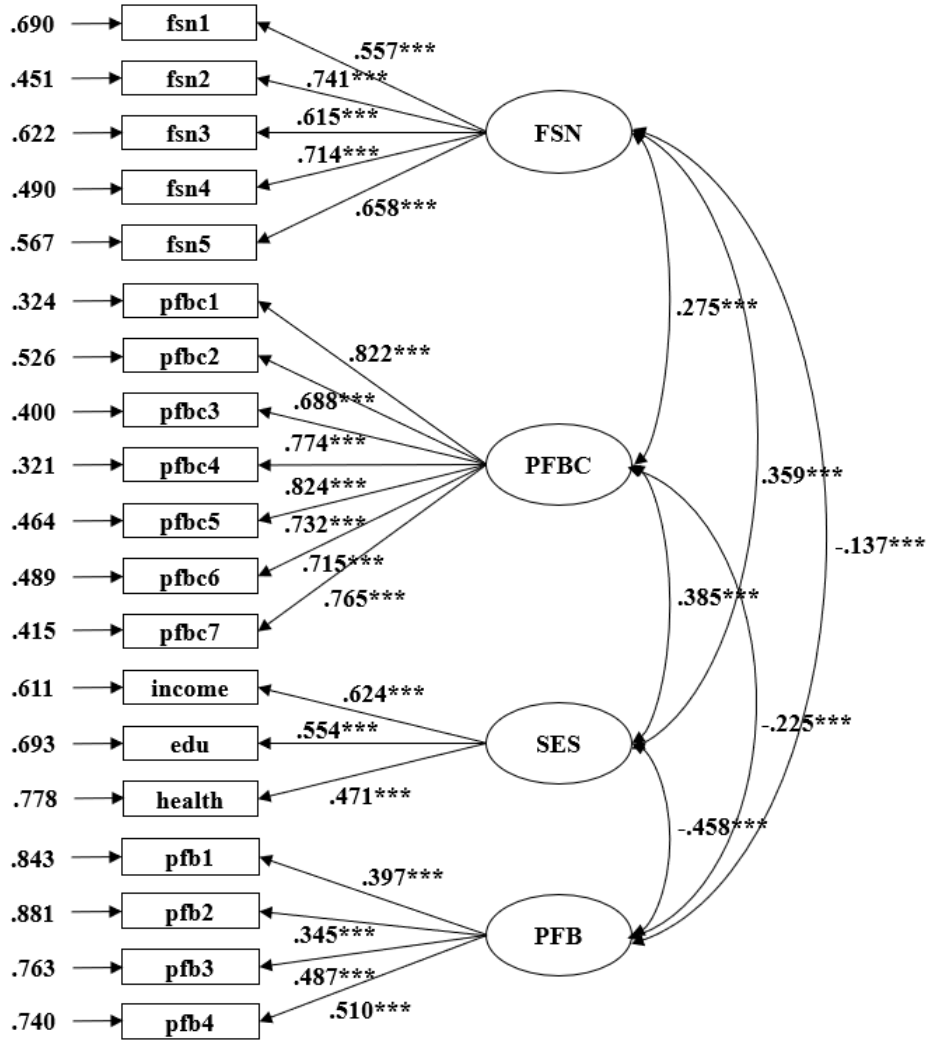

Figure 4.1. Confirmatory Factor Analysis of the Measurement Model

Note: FSN = financial social norms, fsn1 = discussed financial matters, fsn2 = spoke about saving,

fsn3 = discussed credit rating, fsn4 = taught about a smart shopper, fsn5 = taught successful life actions, PFBC = perceived financial behavioral control, pfbc1 = following through on intentions, pfbc2 = finding the advice , pfbc3 = making complex decisions, pfbc4 = making good decisions , pfbc5 = recognizing an investment, pfbc6 = keeping from overspending, pfbc7 = making myself save, SES = socio economic status, PFB = problematic financial behavior, pfb1 = used payday loans or cash advanced loans, pfb2 = used pawn loans or auto title loan, pfb3 = experienced utility shut offs, pfb4 = experienced credit rejection; * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4.3. Estimated Covariance Matrix for the Latent Variables

	FSN	PFBC	SES	PFB
Financial social norms (FSN)	1.000			
Perceived financial behavioral control (PFBC)	0.275	1.000		
Socioeconomic Status (SES)	0.359	0.385	1.000	
Problematic financial behavior (PFB)	-0.137	-0.225	-0.458	1.000

Structural Model

Based on the results from the initial factor analysis procedure, a test of the structural model was undertaken to evaluate the research hypotheses. The overall model fit of the structural model was assessed using the model fit indices described above. At this stage of the analysis, the model fit indices were used to assess the structural model's fit to the data and to determine if a more robust specified (i.e., post-hoc) model could be identified. In this regard, the initial model (Figure 4.2) demonstrated a good fit to the data ($\chi^2_{(221)} = 2{,}902.904$, RMSEA = 0.044, CFI = 0.910, SRMR = 0.040).

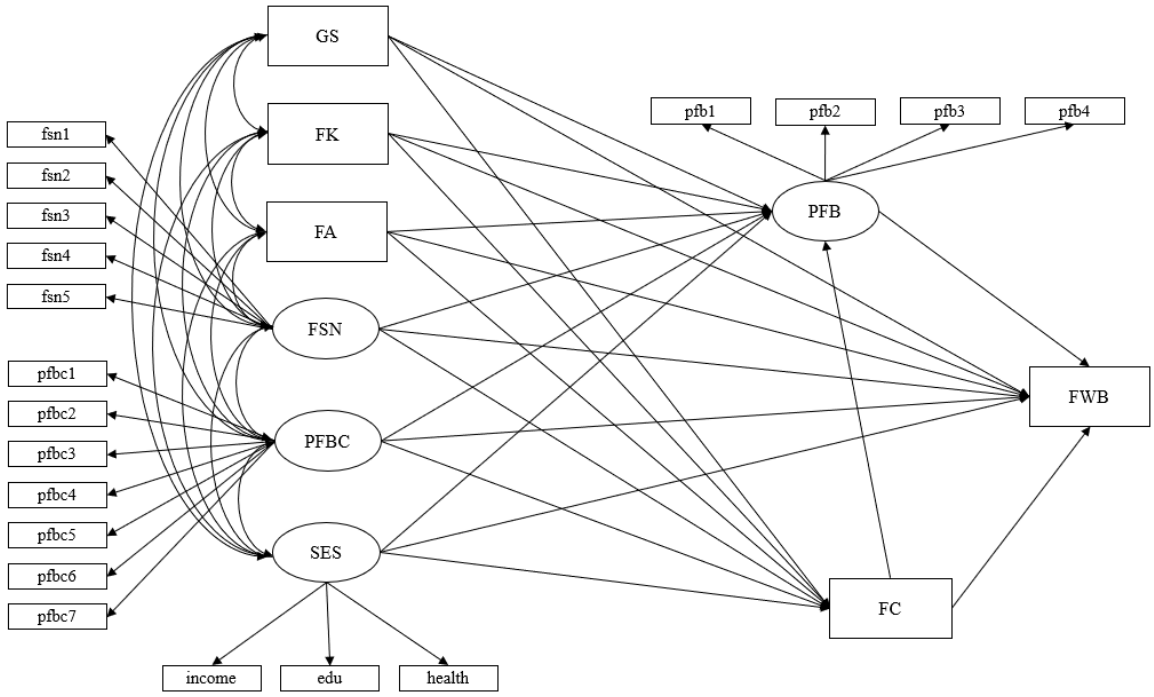

Figure 4.2. The Initial Operationalized SEM Model (Base Model)

Even though the initial model-fit statistics indicated an acceptable fit to the data, a specification procedure was used to estimate a more robust model. The specification search procedure allowed some of the variables in the model to co-vary along with the modification indices. The optimized model shown in Figure 4.3 was identified using this procedure. This post-hoc model showed a much better model fit ($\chi^2_{(221)}$ = 1,354.727, RMSEA = 0.029, CFI = 0.961, SRMR = 0.035). As a result, the model shown in Figure 4.3 was subsequently used in all hypotheses tests.

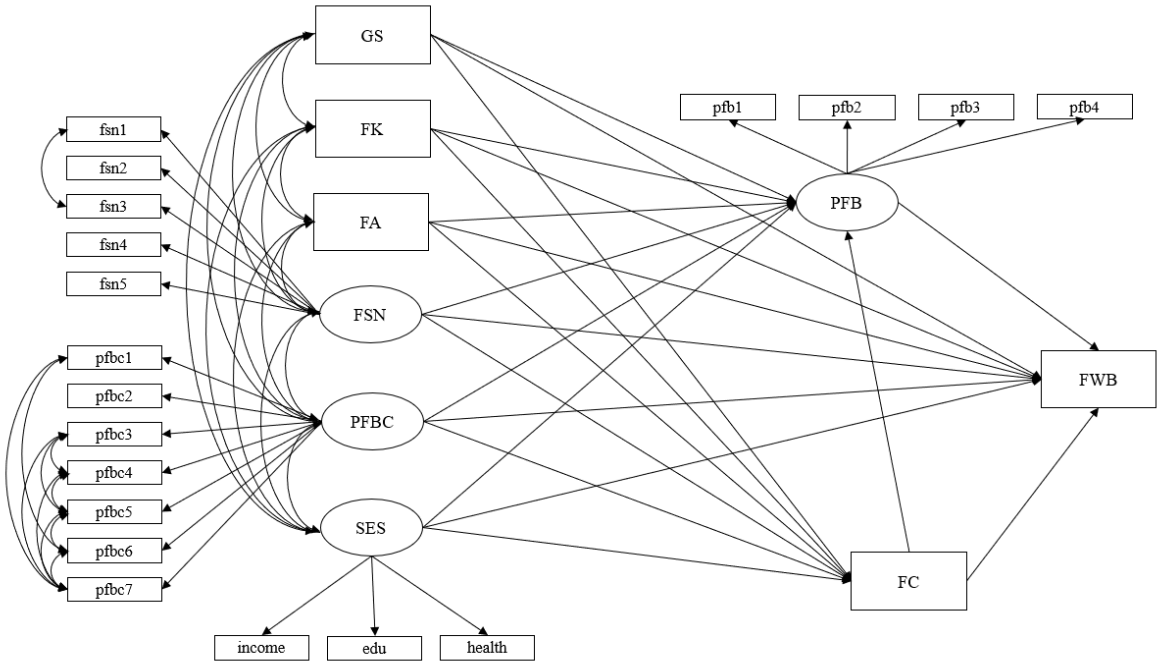

Figure 4.3. The Final Specified SEM Model (Post-Hoc Model)

The overall model fit improved after the modification procedure (see Table 4.4). Specifically, the chi-square value decreased from 2,902.90 to 1,354.73. AIC decreased from 295,961.10 to 293,356.65. BIC was also reduced from 296,330.39 to 293,765.38. The smaller values of these indices indicated a better model fit. In accordance with expectations, CFI increased from 0.91 to 0.96, while both the RMSEA and SRMR decreased from 0.044 and 0.040 to 0.029 and 0.035, respectively. These revised indices confirmed that the model fit the data fit exceedingly well.

Table 4.4. Goodness-of-Fit Statistics Across the Base and Post-Hoc Models

Model fit indices of structural models	Base Model	Post-Hoc Model
Chi-square test of model fit		
Value	2,902.904	1,354.727
Degree of freedom	221	210
p-value	0.0000	0.0000

Chi-square test of model fit for the baseline model		
Value	29,969.154	29,969.154
Degree of freedom	273	273
p-value	0.0000	0.0000
CFI/TLI		
CFI	0.910	0.961
TLI	0.888	0.950
Loglikelihood		
H_0 value	-147,877.549	-146,564.325
H_1 value	-145,458.221	-145,458.221
Information criteria		
Number of free parameters	103	114
Akaike (AIC)	295,961.099	293,356.651
Bayesian (BIC)	296,657.700	294,127.646
Sample-size adjusted BIC	296,330.393	293,765.383
Root mean square error of approximation (RMSEA)		
Estimate	0.044	0.029
90% confidence interval (CI)	0.042, 0.045	0.028, 0.031
Standardized root mean square residual (SRMR)		
Value	0.040	0.035

Figure 4.4. show the tests results for the final post-hoc model. Recall that each single-headed arrow in the model represents a model hypothesis. The coefficient data associated with each line in the model (the double-headed arrows represent hypothesized correlations among variable) indicates the direction (i.e., positive or negative) of the variable relationships.

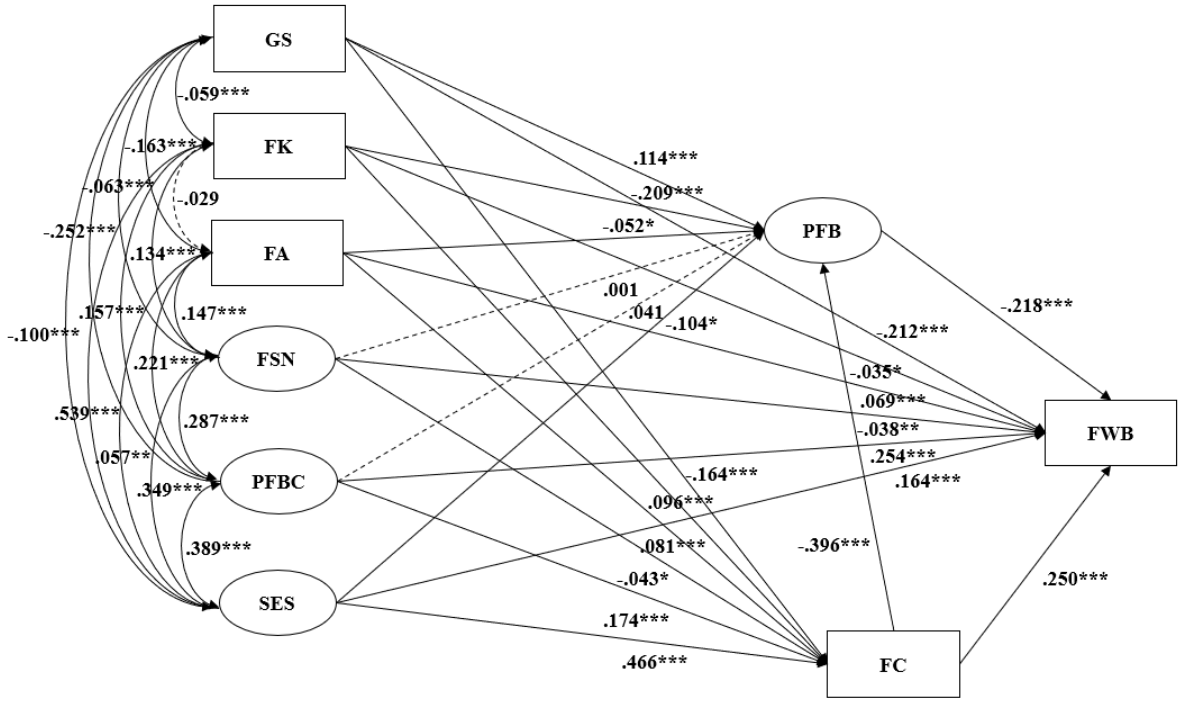

Figure 4.4. SEM Test Results for the Post-Hoc Model

Note. GS = generalized stress, FK = financial knowledge, FA = financial attitude, FSN = financial social norms, PFBC = perceived financial behavioral control, SES = socio economic status, FC = financial capability, PFB = problematic financial behavior, FWB = financial well-being; * $p < .05$, ** $p < .01$, *** $p < .001$.

The hypothesis test results are summarized in the first column of Table 4.5. The estimates shown in the second column of the table indicate the direction of the variable association. For example, hypothesis H1a stated that there would be a negative association between generalized stress (GS) and financial capability (FC). This hypothesis was supported (see last column of Table 4.5). In this case, the coefficient was -.164, which was significant at the $p < .001$ level. As shown in Table 4.5 and Figure 4.4, nearly all of the of the coefficients in the model were significant at the 0.05 level.

Table 4.5. Standardized Parameter Estimates (Weighted) and Hypothesis Test Results

Path/Covariance	Estimates	S.E.	*t*	Results
H1a: GS → FC	-0.164***	0.014	-11.749	supported
H1b: GS → PFB	0.114***	0.024	4.781	supported
H1c: GS → FWB	-0.212***	0.013	-16.973	supported
H2a: FK → FC	0.096***	0.020	4.896	supported
H2b: FK → PFB	-0.209***	0.031	-6.832	supported
H2c: FK → FWB	-0.035*	0.016	-2.196	Not supported
H3a: FA → FC	0.081***	0.014	5.748	supported
H3b: FA → PFB	-0.052*	0.025	-2.130	supported
H3c: FA → FWB	0.069***	0.012	5.710	supported
H4a: FSN → FC	-0.043**	0.017	-2.437	Not supported
H4b: FSN → PFB	0.001	0.027	0.048	Not supported
H4c: FSN → FWB	-0.038**	0.014	-2.792	Not supported
H5a: PFBC → FC	0.174***	0.020	8.868	supported
H5b: PFBC → PFB	0.041	0.033	1.252	Not supported
H5c: PFBC → FWB	0.254***	0.017	15.382	supported
H6a: SES → FC	0.466***	0.025	18.845	supported
H6b: SES → PFB	-0.104*	0.043	-2.443	supported
H6c: SES → FWB	0.164***	0.023	6.998	supported
H7a: FC → PFB	-0.396***	0.039	-10.209	supported
H7b: FC → FWB	0.250***	0.020	12.324	supported
H8: PFB → FWB	-0.218***	0.026	-8.430	supported
GS <-> FK	-0.059***	0.015	-3.903	n/a
GS <-> FA	-0.163***	0.016	-10.261	n/a
GS <-> FSN	-0.063***	0.017	-3.705	n/a
GS <-> PFBC	-0.252***	0.017	-14.995	n/a
GS <-> SES	-0.100***	0.020	-4.938	n/a
FK <-> FA	-0.029***	0.015	-1.935	n/a
FK <-> FSN	0.134***	0.017	7.750	n/a
FK <-> PFBC	0.157***	0.017	9.272	n/a
FK <-> SES	0.539***	0.015	36.899	n/a
FA <-> FSN	0.147***	0.016	9.010	n/a
FA <-> PFBC	0.221***	0.017	12.967	n/a
FA <-> SES	0.057**	0.020	2.840	n/a
FSN <-> PFBC	0.287***	0.018	15.948	n/a
FSN <-> SES	0.349***	0.020	17.701	n/a
PFBC <-> SES	0.389***	0.020	19.691	n/a

Note. GS = generalized stress, FK = financial knowledge, FA = financial attitude, FSN = financial social norms, PFBC = perceived financial behavioral control, SES = socio economic status, FC = financial capability, PFB = problematic financial behavior, FWB = financial well-being; * $p < .05$, ** $p < .01$, *** $p < .001$.

Evaluation of the Research Hypotheses

The conceptual framework and the resulting post-hoc model included 21 variable association hypotheses. A summary of the hypothesis tests is provided in Table 4.5. The following discussion highlights the findings from the tests.

Three of the hypotheses were used to describe the effect of generalized stress on financial capability, financial behavior, and financial well-being. Each hypothesis was supported. Generalized stress was found to be negatively associated with financial capability (H1a) but positively associated with problematic financial behavior (H1b). Generalized stress was also shown to be negatively associated with financial well-being (H1c). These findings provide support to the notion that generalized stress does appear to have a negative impact on financial well-being both directly and indirectly by restraining someone's financial capability and increasing problematic financial behavior.

Other important relationships were observed in the tested model. Financial knowledge was found to be positively associated with financial capability (H2a) and negatively associated with problematic financial behavior (H2b). However, financial knowledge showed a negative association with financial well-being (H2c). This finding suggests that a person who exhibited a higher level of financial knowledge was more likely to report a lower level of financial well-being. This finding will be discussed in more detail in Chapter 5.

Each of the hypothesis associations with the financial attitude variable was supported. Financial attitude was observed to be positively associated with both financial capability (H3a) and financial well-being (H3c). Financial attitude exhibited a negative relationship with problematic financial behavior (H3b).

None of the hypotheses related to financial subjective norms were supported. Financial

subjective norms were found, contrary to the stated hypothesis, to be negatively related to financial capability (H4a) and financial well-being (H4c). The relationship between financial subjective norms and problematic financial behavior was not significant (H4b). It is possible that subjective norms, while generally important in describing behavioral intentions, are not particularly well suited to directly describing financial well-being. This possibility will be described in more below and in detail in Chapter 5.

Partial support was found for the hypotheses related to perceived financial behavioral control. Perceived financial behavioral control was found to be positively associated with financial capability (H5a) and financial well-being (H5c). However, there was no significant relationship between perceived financial behavioral control and problematic financial behavior (H5b).

Support for the three socioeconomic status hypotheses was observed in this study. Higher socioeconomic status was found to be positively significantly associated with financial capability (H6a), negative related with problematic financial behavior (H6b), and positively associated with financial well-being (H6c).

Finally, support was obtained for the final set of hypotheses. A lower level of financial capability was linked to problematic financial behavior (H7a), while a higher level of financial capability was observed to be positively associated with financial well-being (H7b). Lastly, the negative hypothesized association between problematic financial behavior and financial well-being (H8) was supported.

Direct, Indirect and Total Effect

SEM modeling techniques provide an interesting insight into the effect of observed and latent variables on an outcome measure. Using data from SEM tests, it is possible to estimate direct, indirect, and total effects of one or more variables on an outcome variable. It is also possible to

identify mediation effects. Table 4.6 shows the direct, indirect, and total relationships of each of the model variables on well-being in the tested post-hoc model.

Overall, all the variables of interest in this study showed a significant *total* effect on financial well-being (i.e., the total effect is comprised of direct and indirect effects). First, generalized stress had both a direct (b = -0.212, $p < 0.001$) and indirect effect on financial well-being. Generalized stress showed an indirect effect on financial well-being through three paths (*note*: the paths are shown in the first column of the table): (a) through financial capability (b = -0.041, $p < 0.001$), (b) through problematic financial behavior ((b = -0.025, $p < 0.001$), and (c) through both financial capability and problematic behavior (b = -0.014, $p < 0.001$). The total effect of generalized stress on financial well-being was -0.292, indicating that generalized stress impacted financial well-being adversely.

Financial knowledge was shown to have a negative direct effect on financial well-being (b = -0.035, $p < 0.05$) and a positive indirect effect on financial well-being through three paths. The total effect of financial knowledge on financial well-being was positive (b = 0.043, $p < 0.01$). This means a higher level of financial knowledge can be used to describe financial well-being.

The financial attitude variable was shown to have a positive effect on financial well-being both directly (b = 0.069, $p < 0.001$) and indirectly (b = 0.039, $p < 0.001$). The total effect was positive (b = 0.108, $p < 0.001$).

Financial subjective norms was found to have a negative direct effect (b = -0.038, $p < 0.01$) on financial well-being. This variable also had a negative indirect effect on financial well-being through two paths (b = -0.011, $p < 0.05$ and b = -0.004, $p < 0.05$). Consequently, the total effect of financial subjective norms on financial well-being was negative (b = -0.053, $p < 0.001$). The direct, indirect, and total effect of financial subjective norms were unexpected because those effects on

financial well-being were hypothesized to be positive.

Perceived financial behavioral control was found to have both a direct ($b = 0.254$, $p < 0.001$) and an indirect effect on financial well-being through two paths. The total indirect effect of perceived financial behavioral control was 0.049 ($p < 0.001$), whereas the total effect was 0.304 ($p < 0.001$).

The direct effect, the total indirect effect, and the total effect of socioeconomic status on financial well-being was 0.164 ($p < 0.001$), 0.179 ($p < 0.001$), and 0.343 ($p < 0.001$), respectively. This suggests that those with elevated levels of socioeconomic status are more likely to report feelings of well-being.

Financial capability was found to have a direct effect ($b = 0.250$, $p < 0.001$) and indirect effect ($b = 0.086$, $p < 0.001$) on financial well-being. The total effect was 0.336 ($p < 0.001$), which indicated that respondents who were financially capable were also more likely to report feeling of well-being.

Lastly, problematic financial behavior was observed to have a negative direct effect on well-being of -0.218 ($p < 0.001$). This finding was not unexpected given that those who exhibit worse financial behavior are also more likely to report worse feelings about their financial well-being.

The importance of the financial capability and problematic financial behavior variables in describing financial well-being was of particular importance in this study. These variables were hypothesized to have both a direct and mediating effect on financial well-being (financial capability was also hypothesized to have an indirect effect on financial well-being through problematic financial behavior). Financial capability was found to be a mediating variable between each of the other variables on financial well-being. However, problematic financial behavior, as a

mediating factor, was less important. Problematic financial behavior did not play a mediating role between financial subjective norms and financial well-being or perceived financial behavioral control and financial well-being.

Table 4.6. Direct, Indirect, and Total Effects (Standardized)

Path	Direct effect	Indirect effect	Total effect
GS → FWB	-0.212	-	-0.292
GS → FC → FWB	-	-0.041	
GS → PFB → FWB	-	-0.025	
GS → FC → PFB → FWB	-	-0.014	
FK → FWB	-0.035	-	0.043
FK → FC → FWB	-	0.024	
FK → PFB → FWB	-	0.046	
FK → FC → PFB → FWB	-	0.008	
FA → FWB	0.069	-	0.108
FA → FC → FWB	-	0.020	
FA → PFB → FWB	-	0.011	
FA → FC → PFB → FWB	-	0.007	
FSN → FWB	-0.038		-0.053
FSN → FC → FWB	-	-0.011	
FSN → PFB → FWB	-	(n.s.)	
FSN → FC → PFB → FWB	-	-0.004	
PFBC → FWB	0.254		0.304
PFBC → FC → FWB	-	0.043	
PFBC → PFB → FWB	-	(n.s.)	
PFBC → FC → PFB → FWB	-	0.043	
SES → FWB	0.164	-	0.343
SES → FC → FWB	-	0.116	
SES → PFB → FWB	-	0.023	
SES → FC → PFB → FWB	-	0.040	
FC → FWB	0.250	-	0.336
FC → PFB → FWB	-	0.086	
PFB → FWB	-0.218	-	-0.218

Note. GS = generalized stress, FK = financial knowledge, FA = financial attitude, FSN = financial social norms, PFBC = perceived financial behavioral control, SES = socio economic status, FC = financial capability, PFB = problematic financial behavior, FWB = financial well-being.

Summary

This chapter was written to report the findings from the SEM tests of the conceptual framework. This chapter began by describing the sample characteristics. The chapter's focus then shifted to providing details about the confirmatory factor analysis that was used to validate the use of the latent variables in the test model. The discussion then moved on to describing the test of the base SEM model. It was determined that while the base model was acceptable in terms of data fit, it was possible to derive a more robust post-hoc model. It was this later model that was used to test this dissertation's research hypotheses. The post-hoc model was evaluated using goodness-of-fit indices. It was determined that the post-hoc model fit the data very well. Based on the results of the tests, the direct, indirect, and total effects of each variable in the model on financial well-being were described.

In general, the hypotheses underlying the conceptual framework were supported. The findings from this study provide evidence that generalized stress is an additional factor that researchers should consider when evaluating individual financial well-being. Generalized stress was found, in this study, to be negatively associated with financial well-being directly and indirectly. The implications of this finding, as well as a discussion of other relevant findings from the tests, will be described in more detail in Chapter 5. Chapter 5 will also provide a summary of study limitation and recommendations for future research directions.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

This chapter provides a discussion of the major findings from the analyses presented in Chapter 4. The chapter also specifies study implications for diverse stakeholders, a review of the strengths and limitations of the study, and directions for future study.

Contribution to the Literature

As described in detail in Chapter 1, the purpose of this study was to provide empirical evidence regarding the negative effect of generalized stress on financial well-being. The results of the analyses described in Chapter 4 were based on an adaptation of a financial well-being model first introduced by Shim et al. (2009). In this study, generalized stress—as indicated by an individual's perception of their overall situation—was found to be negatively associated with behavioral factors related to a person's household financial situation and financial well-being.

The results from this study add to the existing body of literature in financial planning, financial counseling, and related disciplines by showing that *generalized stress* appears to be negatively associated with household financial well-being. This finding advances the literature by confirming the hypothesis that negative perceptions held by an individual about their overall life situation—not just negative feelings about their financial situation—are negatively related to perceptions of well-being. In addition to evaluating the usefulness of generalized stress in describing financial well-being, this study also provides insights into the associations between and among other antecedent factors, predisposing factors, and financial well-being. The remainder of this chapter provides a review of the implications related to the findings from this study.

The Role of Generalized Stress

Generalized stress in this study was hypothesized to be negatively associated with the pathways leading to financial well-being. The conceptual model used in this study depicted generalized stress as functioning as an antecedent factor associated with financial well-being both directly and indirectly through predisposing factors (i.e., behavioral factors). The results from the SEM analyses provided support for the research hypotheses that generalized stress is (a) negatively associated with financial capability, (b) positively associated with problematic financial behavior, and (c) negatively associated with financial well-being. A key takeaway from this study is that researchers, policy makers, and those who provide advice to others about the management of household financial resources who fail to account for someone's stress level may arrive at a biased view of the person's true level of financial well-being. Not only was generalized stress found to have a direct negative association with financial well-being, generalized stress was shown to be indirectly associated with financial well-being through problematic financial behavior and financial capability (i.e., problematic financial behavior and financial capability were observed to act as mediators between generalized stress and financial well-being). In this study, three indirect paths were identified. Together with the direct effect, the indirect effects through these paths were found to increase the total adverse effect of generalized stress on financial well-being. Study result showed that the total effect of generalized stress on financial well-being was high, just slightly lower than the effect of socioeconomic status and perceived financial behavioral control.

The results from this study provide an additional lens to understand the pathways to achieving financial well-being. Specifically, generalized stress was found to be negatively associated with both financial capability and a higher likelihood of engaging in problematic financial behavior. The notion of endogeneity arises in relation to these associations. It is possible

that engaging in worse financial behavior and maintaining lower levels of financial capability may increase a person's feeling of stress. Given the cross-sectional nature of the data used in this study, it was not possible to test the direction of causality; however, regardless of the potential for endogeneity in the data, the manner in which the study was conceptualized reduced limitations arising for causality issues. Whether or not generalized stress is caused by low financial capability and/or poor financial behavior does not alter the final relationship between generalized stress and financial well-being. This study's results suggest that engaging in better financial behavior, and exhibiting higher levels of financial capability, can mediate the negative effect of generalized stress on financial well-being. Alternatively, engaging in problematic financial behavior and allowing one's financial capabilities to falter can exasperate the negative association between generalized stress and financial well-being. These relationships are consistent with what stress researchers have concluded with regards to the impact of stress on other types of behavioral decisions; that is, stressed individuals are more likely to engage in suboptimal behavior rather than systematic goal-directed behavior (Grable et al., 2020; Gray, 1999; Schwabe & Wolf, 2009; Starcke & Brand, 2012; Yu, 2016). In this study, generalized stress was found to increase vulnerability in the context of financial well-being.

Other Variable Associations

While the findings from this study related to generalized financial stress are noteworthy, other variable associations were also found to be of importance. Financial knowledge, financial attitude, financial subjective norms, perceived financial behavioral control, and socioeconomic status were identified as having a significant association with financial well-being. Each of these variables was shown to have a direct or indirect association with financial well-being through the behavioral factors in the model. The results from this study, in relation to these variable

associations, generally align with findings from previous research.

As described in the literature review, and shown in this study, higher levels of financial knowledge tend to be associated with a greater ability to manage one's personal financial situation (i.e., financial capability). In this study, financial capability was proxied by the degree of confidence someone had in relation to coming up with $2,000 in 30 days to pay for unexpected expenses. This variable represents how well an individual manages their personal financial situation. In this study, those who exhibited higher levels of financial knowledge were observed to be more financially capable. This result was not unexpected. In fact, this is the presumed relationship as described in the literature (e.g., Babiarz & Robb, 2014; Henager & Cude, 2016; Hilgert & Hogarth, 2003; Robb & Woodyard, 2011). It was also shown in this study that greater financial knowledge was associated with a lower likelihood of engaging in problematic financial behaviors (e.g., payday loan use). This finding was also in alignment with the previous literature (e.g., Kim & Lee, 2018; Lee et al., 2019; Xiao et al., 2011). However, the negative relationship between financial knowledge and financial well-being seen in this study was contrary to some reports in the literature. In this study, someone who reported a high level of financial knowledge was more likely to indicate, on average, reporting a lower level of financial well-being. This variable relationship may be rooted in the cognitive disparity between the subjective appraisal and the expectation of one's current financial situation. For example, if someone is more knowledgeable, they may make more conservative judgements about their financial situation and have a higher standard (or expectation) of financial well-being. Consider a report by Garðarsdóttir and Dittmar (2012). These researchers noted that individuals who know more about their material financial situation report lower levels of well-being. It is possible that increased knowledge is accompanied by increased worry. Other researchers have reported similar findings, particularly in

relation to financial security (e.g., Netemeyer, Warmath, Fernandes, & Lynch, 2018). Future studies should explore this issue in greater detail. For instance, it is possible that while financial knowledge is important in describing behavior and behavioral outcomes, actual skill development and use may be a better descriptor of financial well-being. Several researchers have emphasized the importance of actual skills when connecting financial knowledge and financial well-being (e.g., Huston, 2010; Shim et al., 2009).

A set of noteworthy findings from this study relate to the mediation role of the behavioral factors examined in this study. The tests of the direct, indirect, and total effects of the variables in the model(s) showed that financial knowledge—although this variable was negatively and directly associated with financial well-being—exhibited a positive overall relationship with financial well-being through the other behavioral factors in the model (i.e., financial capability and problematic financial behavior). This implies that behavioral formation predisposes people to achieve financial well-being. Previous studies provide some support for this assertion. For example, it has been pointed out that the psychological profile of individuals should be accounted for when examining the salient impact of financial knowledge (Fernandes et al., 2014). The present study is meaningful in adding to the literature because the results confirm the notion that financial knowledge, accounting for other behaviors and traits, such as generalized stress, financial attitude, financial subjective norms, and perceived control, appear to be related to financial behavior and financial well-being.

Findings related to the financial attitude variable were also striking. Financial attitude was found to be both directly and indirectly associated with financial well-being. The observed relationship was consistent with the previous literature (e.g., Joo, 2008; Shim et al., 2009). Financial attitude in this study was proxied by respondents' subjective belief regarding their

economic mobility. It can be inferred from the findings that the stronger someone believes they have a chance to move up in socioeconomic status, the more likely that person is to hold (or perceive) a positive attitude toward financial planning while concurrently holding a negative attitude toward any financial behavior that damages household financial stability. This helps explain why financial attitude was observed to be significantly associated with behavioral factors, financial capability, and problematic financial behavior. Stated another way, this finding suggests that people with a positive financial attitude are more likely to develop their ability to manage personal finances and avoid problematic financial behaviors. The dual way of securing financial resources can lead to a higher level of financial well-being.

Another interesting finding was related to the association between financial subjective norms and financial well-being. Financial subjective norms, as a latent construct, was comprised of five financial socialization variables (e.g., your family discussed family financial matters with you). These observed variables were used to describe how well a respondent had communicated with their parents and family members regarding personal finance topics. It was hypothesized that higher levels of financial socialization would be associated with increased levels of financial well-being. No support for the hypothesis was noted. While contradicting some previous studies (e.g., Serido et al., 2010; Xiao et al, 2011), this finding does align with the financial knowledge result. The negative relationship may be rooted in what is known as cognitive disparity or the difference between someone's subjective appraisal and the person's expectation about their financial situation. In this case, those whose family established high expectations about the manner in which one's household financial situation should be managed may have felt lacking or unable to meet established expectations. Individuals with elevated financial subjective norms may feel inadequate and conclude that their financial situation is worse than it is, leading to a lower financial well-

being assessment. More research on this aspect of well-being perceptions is warranted.

This study also adds empirical evidence regarding the importance of feelings of control in describing financial well-being. Feelings of having control in relation to financial behavior was shown in this study to be positively associated with financial well-being. In this study, behavioral control reflected the degree to which respondents knew how to take appropriate actions in response to diverse financial demand(s). The test results indicate that the more someone knew about controlling their behavior, the more confident they were in their ability to manage their financial situation. However, in this study, perception of control was not shown to have an association with problematic financial behavior. It is important to remember, when interpreting this result, that perceived financial behavioral control can be maximized through multiple paths (i.e., indirect effects). As such, it could be more beneficial for individuals to learn how to prevent themselves from engaging in suboptimal behaviors compared to solely developing feelings of control about a behavior. The role of feelings of control was more important in describing financial well-being. Feelings of control was determined to be the most important direct descriptor of financial well-being. This hints at the possibility that a enhancing a person's feeling of control, or assurance about their behavioral regulation, is important as a mechanism towards achieving financial well-being.

The role of socioeconomic status in describing financial well-being was highlighted in this study. Unlike some of the other variables in the model, the indirect effect of socioeconomic status on financial well-being was greater than its direct effect. This indicates that socioeconomic status helps create a synergy with other subsequent behavioral factors. For example, health status may not be a direct source of financial well-being; however, it helps people perform a series of actions that lead to financial well-being.

Lastly, the findings from this study provided evidence that behavioral factors can be

significant descriptors of financial well-being. The behavioral factors included in the model(s) were both positive financial behavior (i.e., financial capability) and negative financial behavior (i.e., problematic financial behavior). Results from the SEM analyses indicated that the effects of behavioral factors on financial well-being were relatively large compared to the direct effects of the other variables. Financial capability showed the greatest total effect on financial well-being, which suggests that increasing financial capability likely provides one of the clearest and most effective paths to enhancing financial well-being.

Study Implications

The findings from this study have direct and important practice, policy, and research implications. The following discussion highlights some of the most important take-aways from this study.

The primary implication, and the greatest contribution to the literature, from this study is that generalized stress does appear to be a significant factor associated with financial well-being. Over the past three decades, researchers and policy makers have intently focused on gaining a better understanding of the factors associated with financial well-being. A key aspect of such research has been, and continues to be, the reliance on financial stressors and resulting financial stress (typically measured subjectively but sometimes objectively through financial ratios and other measures) in describing degrees of wellness. The general prescription related to increasing financial well-being has been to help households decrease and/or manage financial stressors. This is often done by providing financial education in an attempt to increase financial knowledge and financial capability. This prescription underlies almost all models of financial counseling and financial therapy practice.

The results from the current study expand this prescriptive notion in a much broader

fashion. Generalized stress—a concept that encompasses financial stress—was shown to be directly and indirectly related to describing degrees of financial well-being. Those who were found to exhibit the highest levels of stress also exhibited the worst financial behaviors, the lowest levels of financial capability, and the lowest levels of financial well-being. It is important, when evaluating these relationships, not to confuse association with causation. The results from this study simply show that these four constructs appear to be interrelated. However, this also implies that efforts designed to reduce generalized stress at the household level should equate to increased perceptions of well-being. The following discussion highlights how financial service professionals, policy makers, and researchers can apply the results from this study, particularly in relation to stress management, in ways to improve financial well-being at the household level.

Financial service professionals. Financial planners, financial counselors, financial therapists, and financial educators (i.e., financial service professionals) who are on the frontlines improving their client's financial well-being can benefit from the findings presented in this dissertation. Financial service professionals work daily to (a) develop advice, (b) seek better ways to implement their recommendations, and (c) find more appropriate interventions to help their clients. Such efforts have historically included elements designed to reduce financial stressors and increase financial knowledge. Evidence from this study indicates that financial service professionals should also begin to account for the overall stress level of their clients, regardless of what might be driving perceptions of stress. Consider the model presented in Figure 4.4. Data from the model indicate that even if someone exhibits an elevated level of financial knowledge, appropriate financial behavior, and adequate financial capabilities—all factors that should lead to higher levels of financial well-being, if the person has a high degree of concomitant stress, gains in financial well-being can be endangered.

It is not enough to simply acknowledge that a client may be experiencing stress. Financial service professionals need to develop a systematic approach to assess and interpret stress indicators. There are numerous models and approaches that can be used in this regard (e.g., cognitive/behavioral interventions, solution-focused financial therapy, motivational interviewing); however, unless a financial service professional has been trained in therapeutic methods, ad-hoc applications of these techniques can be ineffective and potentially counterproductive. Instead, it may be possible to develop a straightforward assessment approach to help inform the client-financial service professional relationship. For example, financial service professionals should consider adding a generalized stress assessment to their typical client data gathering process. This suggestion is not new because Grable et al. (2020) also proposed financial planners and counselors can improve communication skills and techniques based on a better understanding of client psychology. The researchers observed the client's level of stress overrode the positive influence of financial knowledge in their study. Grable et al. noted the traditional practice approaches with the lack of mental health measures may lead financial planners to generate less realistic and inappropriate recommendations. Thus, financial service professionals should assess for generalized stress by using a tool. The perceived stress scale (PSS), developed by Cohen and his colleagues (1983), is one the most widely used instruments for measuring stress. The scale is comprised of 10 items. Each item, and the resulting scale score, was designed to reveal a test taker's feelings and thoughts about one's life situations. This scale can easily be incorporated into a data gathering form. The questions in the scale can then be used to indicate someone's current level of experienced stress (Cohen, Kamarck, Mermelstein, 1983). Using the scale, financial service professionals can then evaluate the stress level of their client quickly and with ease. If a client's stress level is high, the financial service professional should know that steps need to be taken, if one of the goals of the

advisory process involves improving client well-being, to counteract the stress level. Simple activities can be recommended in this regard (e.g., stretching, mediation, breathing exercises) (Reivich & Shatte, 2003; Thorn, 2019). In cases where stress appears very high and long lasting, the financial service professional should consider referring the client to a marriage and family therapist, a psychologist, a psychotherapist, or a financial therapist.

Another strategy to help clients deal with stress that can impact their path to financial well-being is to link interventions designed to manage generalized stress to concepts from client psychology. The CFP Board of Standards, Inc. recently introduced a handbook addressing client psychology (Chaffin, 2018). The book contains numerous concepts that a financial service professional should consider in the context of financial management, including bounded rationality, psychological fallacy, heuristics, biases, perceptions of risk, personality, and self-efficacy. Although not explicitly discussed in the context of cognitive biases, it is possible that efforts aimed at reducing client cognitive predispositions might indirectly reduce client stress. Support for this notion can be found in the SEM model(s) tested in this study. The findings from this study show the importance of human factors, such as financial knowledge, financial attitudes, and perceived financial behavior control in describing degrees of financial well-being. At the same time, the results clearly show that generalized stress can alter the way these variables associate with each other. An optimal strategy can be developed by a financial service professional by incorporating positive psychological cues into financial advice interventions. Doing so may create an opportunity to maximize the effect of positive cues because stress is known to negatively affect someone's perceptions of the situation (i.e., financial attitude), their sense of control (i.e., perceived financial behavioral control), and their brain performance (i.e., learning and retrieving financial knowledge) (Griggs, 2010; Marin et al., 2011; Radenbach et al., 2015; Sapolsky, 2004; Smeets et al., 2019).

Policy makers. The primary policy implication resulting from this study is as follows: an opportunity exists for research funders and legislators to expand the notion that it is primarily financial stress (resulting from financial stressors) that describes financial well-being (in addition to other factors). Results from this study show that generalized stress may be just as important as financial stress—some might argue even more important because the concept includes elements that go beyond financial matters—in describing how people conceptualize their feelings of wellness.

As such, it seems appropriate and necessary to broaden the focus of policy from financial stress to generalized stress when developing public assistance interventions and education mandates. Rather than separate financial stress from generalized stress, efforts should be made to reduce stress, regardless of it cause. This is an especially important step for those who work with clients, stakeholders, and members of the population who exhibit signs of learned helplessness. Financial assistance, the distribution of information, and public education programs may not be sufficient to increase behavioral efforts associated with financial well-being. Addressing broad level stressors, and then helping individuals deal with such stressors, may be a way to facilitate financial and overall life well-being. There is evidence from the literature to support this assertion. Grable, Heo and Rabbani (2014) noted that consumers are least likely to seek help for financial problems and concerns when they exhibit high levels of anxiety and low physiological arousal. In this regard, there is no reason to believe that people will systematically attempt to improve their financial well-being status when they are feeling overly stressed. A key element to helping people seek help for any issue, be it financial, psychological, emotional, or physiological, involves assisting individuals identify and deal with their stress situation. Thus, public initiatives (e.g., education, direct financial support, etc.) should be tied to stress reduction interventions. As noted

in this study, it is reasonable to expect an increase in financial well-being even in situations where someone improves their physiological or psychological stress level. Helping people and households build a healthy mindset and increase resilience against life stress is a pathway towards improving financial well-being. With this point in mind, policy makers may be able to construct a more sustainable public system for financial well-being while reducing social burdens.

Research. This study provides researchers with additional insights related to opportunities to reexamine assumptions regarding the association between financial well-being and stress. Although rarely evaluated in the context of financial planning, financial counseling, consumer studies, of household finance research, the results from this study indicate that generalized stress is an important factor that should be incorporated into models designed to describe, explain, and predict individual, family, and household financial behavior. For decades, factors associated with financial well-being have been extensively studied. While financial stress has, over time, become an important topic of interest to researchers, few researchers have tested what has come to be called generalized stress. As noted above, nearly all previous studies have instead focused on financial stress and financial stressors.

One of the difficult issues associated with studying stress in relation to personal finance topics is how to operationalize the concept. The measure used in this study was a subjective assessment. In terms of financial stress, both subjective and objective measures have been used. Financial stress has often been proxied by the number financial stressors experienced by an individual or household (e.g., unemployment, household debt, negative net worth). However, it is important to remember that neither subjective nor objective measures truly capture the stress response. Future studies should be developed to evaluate the associations between and among subjective stress (both general and financial), financial and life stressors, and physiological stress

response. Such research will help clarify whether there truly is a dispositional difference between financial and generalized stress, and if there is, to what extent generalized stress incorporates elements of financial stress. In the meantime, researchers who are interested in better understanding the role of stress in relation to individual and household financial outcomes should endeavor to measure and test both financial and generalized stress. In other words, the extension of the theory of stress is warranted as researchers attempt to provide a deeper understanding of financial well-being.

Other stakeholders. The findings from this study emphasize the point that it is important for individuals and households to develop the resilience to minimize the negative effect of generalized stress on their financial well-being. It can be inferred from the results from this study that generalized stress possibly inhibits the utilization of financial capability while instigating (or at a minimum enabling) problematic financial behavior. If individuals and households improve their resilience, in addition to learning more about financial topics, establishing and maintaining positive financial attitudes, and increasing their sense of behavioral control, then they will be more likely to enhance their level of financial well-being.

Of course, it is easier to recommend that individuals build resiliency. It is more difficult to promote resiliency. Fortunately, work has been conducted on this topic. Health experts have identified several ways to strengthen resiliency at the individual and household level. One way is to build social connections. Social support from family members, friends, communities, and local organizations is known to be an important coping mechanism (Sapolsky, 2004; McCubbin & Patterson, 1983). As described in many previous studies, social support has been found to (a) mitigate the level of stress felt by individuals, (b) increase a sense of well-being, and (c) help people reclaim hope (APA, 2012; Park, Heo, Ruiz-Menjivar & Grable, 2017; Reeve, Shumaker,

Yearwood, Crowell & Riley, 2013). Whether it is a financial service professional, a therapist, or a caring neighbor, helping individuals and families stay connected socially is one way to reduce generalized stress and potentially increase overall, as well as financial, well-being. Health experts have also noted that incorporating exercise into one's daily life routine can have a positive effect on reducing stress (Reivich & Shatte, 2003; Thorn, 2019). Exercise not only causes an emotional refreshment but also leads to generally positive physiological changes in the body, such as the secretion of endorphin that blunts the stress-response (Sapolsky, 2004). Thus, regular exercise may be a way to concurrently reduce stress, build resiliency, and increase well-being.

Study Contributions, Limitations, and Future Directions

As noted at the outset of this chapter, the significance of this study is twofold. First, the findings from this study fill a gap in the previous literature by bridging the following two concepts: generalized stress and financial well-being. The effect of stress with regards to behavioral decision making has been widely discussed in other fields and research domains. The empirical findings from previous studies regarding decision making and health behavior support the significant role of stress in describing, and in some cases shaping, individual and household outcomes (Gray, 1999; Von Helverson & Rieskamp, 2013; Wood & Neal, 2009). However, little work has been conducted to explore the role of generalized stress in describing personal finance outcomes. The key reason to study generalized stress is that this factor could be a key element in shifting the understanding of human behavior from a goal-directed and strategic behavior perspective to an emotional and habitual behavior perspective. Researchers working in the field of personal financial planning (and related disciplines), where strategic behavior is specifically required, should pay careful attention to (and control for) the effect of generalized stress because behavioral shifts may actually be rooted in the physiological stress responses.

Second, this study shows how a generalized stress variable, in addition to other factors associated with financial well-being, can be modeled in a recursive framework. This study is significant in that it adds empirical evidence regarding generalized stress as a behavioral factor. Related to this insight is the finding that financial behavior and financial capability appear to act as mediating factors, which can either reduce or exasperate the role of generalized stress on financial well-being. In this regard, this study is noteworthy because the conceptual framework of financial well-being presented in this dissertation provides a new way of framing financial well-being. Adopting a partial financial well-being model from the previous literature (i.e., Shim et al., 2009), this study re-envisioned a framework that provides a more holistic view and better understanding of financial well-being. Researchers are encouraged to adapt this framework to include both positive and negative behavioral factors as a way to estimate variable contributions when describing financial well-being.

Although the findings of this study are notable, this study has certain limitations that need to be acknowledged. The first limitation is related to data availability. The NFWBS—the source of data used in this dissertation—is a cross-sectional dataset that was released only one time. This prevents the study from hypothesizing causal relationships among the variables. Thus, the interpretation of the results needs to be made with caution. A future study designed to replicate this study using longitudinal data may find causal effects among the variables. When this happens, the theoretical framework presented in this dissertation will be seen as even more rigorous.

Second, the operationalization of the variables was delimited to the available information within the dataset. This study addressed diverse concepts associated with financial well-being; however, several proxy variables were used to manifest some concepts due to the lack of exact measures. The disparity between particular concepts and proxy variables might be the reason some

associations were observed. For example, financial subjective norms was proxied using financial socialization variables. Contrary to the findings from previous research, the financial subjective norms variable showed a negative association with financial capability and financial well-being. This suggests that researchers working on this topic in the future need to be careful when selecting proxy measures. Although the SEM analyses technically achieved construct validity, financial socialization variables may be less relevant as indicators of someone's current subjective norms because financial socialization variables tend to ask about things that happened long ago.

Third, the concept of generalized stress needs to be further refined. One traditional argument about the effect of stress is that stress either promotes or hinders task performance. Stress researchers consistently point out, in the academic literature and popular media, that stress is not always harmful because some types and degrees of stress can help an organism stay focused, motivate behavioral engagement, and enhance job performance; this type of stress is known as *eustress* (Le Fevre, Matheny, & Kolt, 2003; Ren, Hu, & Xie, 2013; Simmons & Nelson, 2007). Theoretically, the relationship between the physiological stress response and performance is described as inverted U shape, indicating that the negative stress effect (i.e., distress) occurs when one's stress level exceeds one's maximum capacity of coping (Chaby, Sheriff, Hirrlinger, & Braithwaite, 2015; Le Fevre, et al., 2003). In this study, generalized stress was assumed to be indicative of distress. Future studies should take steps to separate distress from eustress to determine if outcomes are similar or different based on both the perception of a stressor and the stress response. Specifically, future research should determine how much stress is beneficial or deleterious. Also, future studies should accumulate additional empirical findings regarding generalized stress to elucidate its impact in the context of personal finances.

Lastly, because of methodological and sample constraints, certain personal characteristics

and other variables were excluded from the analyses. For example, age, gender, ethnicity, and marital status were uncontrolled in this study. This limitation originated from the choice of the analytic method. SEM techniques primarily focus on the relationship among variables, rather than identifying the marginal effects of variables. Given the dissertation's purpose, certain variables were excluded. Thus, findings cannot be generalized to subgroups. Future studies should build upon the models presented here by adding additional variables and reporting subgroup differences in the paths between and among variables.

Summary

As noted at the outset of this dissertation, financial well-being is defined as a state of feeling secure in the current and future status of one's personal financial situation, wherein a person has ability to meet ongoing financial obligations and make financial choices to sustain their life (CFPB, 2015). Financial well-being is generally considered to be an integral factor associated with enhancing the quality of life of individuals and households. Financial well-being is generally considered to be one of the primary outcomes associated with the delivery and implementation of financial advice (Irving, 2012). This dissertation adds to the existing literature on financial well-being by showing that financial planners, financial counselors, financial educators, researchers, and policy makers can systematically help change client behavior in such a way that a client's financial management outcomes can be improved across time by helping clients manage perceptions of stress.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211.

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, *32*, 665-683.

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, *84*, 888-918.

Almenberg, J., & Widmark, O. (2011). Numeracy, financial literacy and participation in asset markets. Retrieved from https://ssrn.com/abstract=1756674

American Psychological Association (2010). Stress in America findings. Retrieved from https://www.apa.org/news/press/releases/stress/2010/national-report.pdf

American Psychological Association (2012). Building your resilience. Retrieved from https://www.apa.org/topics/resilience

American Psychological Association (2020). Socioeconomic status, Retrieved from https://www.apa.org/topics/socioeconomic-status/

Archuleta, K. L., Dale, A., & Spann, S. M. (2013). College students and financial distress: Exploring debt, financial satisfaction, and financial anxiety. *Journal of Financial Counseling and Planning*, *24*(2), 50-62.

Atkinson, A., McKay, S., Collard, S., & Kempson, E. (2007). Levels of financial capability in the UK. *Public Money and Management*, *27*, 29-36.

Babiarz, P., & Robb, C. A. (2014). Financial literacy and emergency saving. *Journal of Family*

and Economic Issues, *35*, 40-50.

Baker, C. W., Little, T. D., & Brownell, K. D. (2003). Predicting adolescent eating and activity behaviors: the role of social norms and personal agency. *Health Psychology*, *22*, 189-198.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*, 122-147.

Bogdan, R., Santesso, D. L., Fagerness, J., Perlis, R. H., & Pizzagalli, D. A. (2011). Corticotropin-releasing hormone receptor type 1 (CRHR1) genetic variation and stress interact to influence reward learning. *Journal of Neuroscience*, *31*, 13246-13254.

Borden, L. M., Lee, S. A., Serido, J., & Collins, D. (2008). Changing college students' financial knowledge, attitudes, and behavior through seminar participation. *Journal of Family and Economic Issues*, *29*, 23-40.

Britt, S. L., Mendiola, M. R., Schink, G. H., Tibbetts, R. H., & Jones, S. H. (2016). Financial stress, coping strategy, and academic achievement of college students. *Journal of Financial Counseling and Planning*, *27*(2), 172-183.

Brüggen, E. C., Hogreve, J., Holmlund, M., Kabadayi, S., & Löfgren, M. (2017). Financial well-being: A conceptualization and research agenda. *Journal of Business Research*, *79*, 228-237.

Bryant, W. K., & Zick, C. D. (2005). *The economic organization of the household*. Cambridge, MA: Cambridge University Press.

Buchanan, T. W., & Preston, S. D. (2014). Stress leads to prosocial action in immediate need situations. *Frontiers in Behavioral Neuroscience*, *8*, 5.

Byrne, B. M. (2013). *Structural equation modeling with Mplus: Basic concepts, applications,*

and programming. New York, NY: Routledge.

Cannon, W. B. (1932). *The wisdom of the body*. New York, NY: Norton.

Card, N. A., & Little, T. D. (2007). Studying aggression with structural equation modeling. In D. J. Flannery, A. T. Vazsonyi, & I. D. Waldman (Eds.), *The Cambridge handbook of violent behavior and aggression* (pp. 727-739). Cambridge, MA: Cambridge University Press.

Chaby, L. E., Sheriff, M. J., Hirrlinger, A. M., & Braithwaite, V. A. (2015). Can we understand how developmental stress enhances performance under future threat with the Yerkes-Dodson law?. *Communicative & Integrative Biology*, *8*(3), e1029689. Retrieved from https://doi.org/10.1080/19420889.2015.1029689

Chaffin, C. R. (2018). *Client Psychology*, Hoboken, New Jersey: John Whiley & Sons, Inc.

Clark-Lempers, D. S., Lempers, J. D., & Netusil, A. J. (1990). Family financial stress, parental support, and young adolescents' academic achievement and depressive symptoms. *The Journal of Early Adolescence*, *10*, 21-36.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*, 385-396.

Collins, J. M., & Gjertson, L. (2013). Emergency savings for low-income consumers. *Focus*, *30*, 12-17.

Conger, R. D., Ge, X., Elder Jr, G. H., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Child Development*, *65*, 541-561.

Consumer Financial Protection Bureau (2015). Financial well-being: The goal of financial education. Retrieved from https://files.consumerfinance.gov/f/201501_cfpb_report_financial-well-being.pdf

Consumer Financial Protection Bureau (2017). National financial well-being survey: Public use file codebook. Retrieved from https://www.consumerfinance.gov/data-research/financial-well-being-survey-data/

Consumer Financial Protection Bureau (2018). Pathways to financial well-being: The role of financial capability. Retrieved from https://www.consumerfinance.gov/data-research/research-reports/pathways-financial-well-being/

Crockett, S. A. (2012). A five-step guide to conducting SEM analysis in counseling research. *Counseling Outcome Research and Evaluation*, *3*, 30-47.

Dallman, M. F. (2010). Stress-induced obesity and the emotional nervous system. *Trends in Endocrinology & Metabolism*, *21*(3), 159-165.

Donnelly, G., Iyer, R., & Howell, R. T. (2012). The big five personality traits, material values, and financial well-being of self-described money managers. *Journal of Economic Psychology*, *33*, 1129-1142.

Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal*, *8*, 430-457.

Ennis, N. E., Hobfoll, S. E., & Schröder, K. E. (2000). Money doesn't talk, it swears: How economic stress and resistance resources impact inner-city women's depressive mood. *American Journal of Community Psychology*, *28*, 149-173.

Errisuriz, V. L., Pasch, K. E., & Perry, C. L. (2016). Perceived stress and dietary choices: The moderating role of stress management. *Eating Behaviors*, *22*, 211-216.

Evans, G. W., & Schamberg, M. A. (2009). Childhood poverty, chronic stress, and adult working memory. *Proceedings of the National Academy of Sciences*, *106*, 6545-6549.

Fernandes, D., Lynch, J. G. Jr., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science, 60*, 1861-1883.

Financial Industry Regulation Authority (2019). The state of US financial capability: The 2018 National Financial Capability Study. Retrieved from https://www.usfinancialcapability.org/downloads/NFCS_2018_Report_Natl_Findings.pdf

Fink, G. (2016). Stress, definitions, mechanisms, and effects outlined: Lessons from anxiety. In G. Fink (Ed.), *Stress: Concepts, cognition, emotion, and behavior* (pp. 3-11). London, UK: Academic Press.

Fishbein, M., & Raven, B. H. (1962). The AB scales: An operational definition of belief and attitude. *Human Relations*, *15*, 35-44.

Garðarsdóttir, R. B., & Dittmar, H. (2012). The relationship of materialism to debt and financial well-being: The case of Iceland's perceived prosperity. *Journal of Economic Psychology*, *33*, 471-481.

Gibson, E. L. (2006). Emotional influences on food choice: sensory, physiological and psychological pathways. *Physiology & Behavior*, *89*, 53-61.

Glymour, M. M., Avendano, M., & Kawachi, I. (2014). Socioeconomic status and health. *Social Epidemiology*, *2*, 17-63.

Goldstein, D. S. (2004). Merging of the homeostat theory with the concept of allostatic load. In J. Schulkin (Ed.), *Allostasis, homeostasis, and the costs of physiological adaptation* (pp. 99-112). Cambridge, MA: Cambridge University Press.

Grable, J. E. (2015). Stress. In F. F. Wherry & J. Schor (Eds.), *The sage encyclopedia of economics and society* (pp. 1538-1540). Thousand Oaks, CA: Sage Publications, Inc.

Grable, J. E., Archuleta, K. L., Ford, M. R., Kruger, M., Gale, J., & Goetz, J. (2020). The

moderating effect of generalized anxiety and financial knowledge on financial management behavior. *Contemporary Family Therapy*, *42*(1), 15-24.

Grable, J., Heo, W., & Rabbani, A. (2015). Financial anxiety, physiological arousal, and planning intention. *Journal of Financial Therapy*, *5*(2), 1-18.

Gray, J. R. (1999). A bias toward short-term thinking in threat-related negative emotional states. *Personality and Social Psychology Bulletin*, *25*, 65-75.

Griffin, B., Loe, D., & Hesketh, B. (2012). Using proactivity, time discounting, and the theory of planned behavior to identify predictors of retirement planning. *Educational Gerontology*, *38*, 877-889.

Griggs, R. A. (2010). *Psychology: A concise introduction.* New York, NY: Worth Publishers.

Grundy, E., & Holt, G. (2001). The socioeconomic status of older adults: How should we measure it in studies of health inequalities?. *Journal of Epidemiology & Community Health*, *55*, 895-904.

Gutman, L. M., McLoyd, V. C., & Tokoyawa, T. (2005). Financial strain, neighborhood stress, parenting behaviors, and adolescent adjustment in urban African American Families. *Journal of Research on Adolescence*, *15*, 425– 449.

Gutter, M. S., Garrison, S., & Copur, Z. (2010). Social learning opportunities and the financial behaviors of college students. *Family and Consumer Sciences Research Journal*, *38*, 387-404.

Gutter, M., & Copur, Z. (2011). Financial behaviors and financial well-being of college students: Evidence from a national survey. *Journal of Family and Economic Issues*, *32*, 699-714.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (7th ed.). London, UK: Pearson.

Han, C. K., & Sherraden, M. (2009). Do institutions really matter for saving among low-income

households? A comparative approach. *The Journal of Socio-Economics*, *38*, 475-483.

Harvard Health Publishing (2018, May 1). Understanding the stress response: Chronic activation of this survival mechanism impairs health. Retrieved from https://www.health.harvard.edu/staying-healthy/understanding-the-stress-response

Hastings, J. S., & Mitchell, O. S. (2011). *How financial literacy and impatience share retirement wealth and investment behaviors* (NBER Working Paper No. 16740). Retrieved from http://www.nber.org/papers/w16740

Henager, R., & Cude, B. J. (2016). Financial literacy and long- and short-term financial behavior in different age groups. *Journal of Financial Counseling and Planning, 27*, 3-19.

Hilgert, M. A., & Hogarth, J. M. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*. 309-322.

Hiscock, R., Bauld, L., Amos, A., Fidler, J. A., & Munafò, M. (2012). Socioeconomic status and smoking: A review. *Annals of the New York Academy of Sciences*, *1248*, 107-123.

Hong, E., & Hanna, S. D. (2014). Financial planning horizon: A measure of time preference or a situational factor?. *Journal of Financial Counseling and Planning*, *25*, 184-196.

Hope, S., Power, C., & Rodgers, B. (1999). Does financial hardship account for elevated psychological distress in lone mothers?. *Social Science & Medicine*, *49*, 1637-1649.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*, 1-55.

Huang, J., Nam, Y., Sherraden, M., & Clancy, M. (2015). Financial capability and asset accumulation for children's education: Evidence from an experiment of child development accounts. *Journal of Consumer Affairs*, *49*, 127-155.

Huhmann, B. A., & McQuitty, S. (2009). A model of consumer financial numeracy. *International Journal of Bank Marketing*, *27*(4), 270-293.

Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs*, *44*, 296-316.

Irving, K. (2012). The financial life well-lived: Psychological benefits of financial planning. *Australasian Accounting, Business and Finance Journal, 6*(4), 47-59.

Jeon, Y. H., Essue, B., Jan, S., Wells, R., & Whitworth, J. A. (2009). Economic hardship associated with managing chronic illness: a qualitative inquiry. *BMC Health Services Research*, *9*(182), 1-11.

Joo, S. (2008). Personal financial wellness. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 21-33). New York, NY: Springer.

Joo, S. H., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, *25*, 25-50.

Kahn, J. R., & Pearlin, L. I. (2006). Financial strain over the life course and health among older adults. *Journal of Health and Social Behavior*, *47*, 17-31.

Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Straus and Giroux.

Kandasamy, N., Hardy, B., Page, L., Schaffner, M., Graggaber, J., Powlson, A. S., Fletcher, P. C., Curnerll, M., & Coates, J. (2014). Cortisol shifts financial risk preferences. *Proceedings of the National Academy of Sciences*, *111*, 3608-3613.

Kempson, E., Perotti, V., & Scott, K. (2013). Measuring financial capability: A new instrument and results from low-and middle-income countries. *World Bank*, Washington, DC. Retrieved from *https://openknowledge.worldbank.org/handle/10986/16296*

Kim, H., & DeVaney, S. A. (2001). The determinants of outstanding balances among credit card revolvers. *Financial Counseling and Planning*, *12*, 67-77.

Kim, H., & Lyons, A. C. (2008). No pain, no strain: Impact of health on the financial security of older Americans. *Journal of Consumer Affairs*, *42*, 9-36.

Kim, J., & Garman, E. T. (2003). Financial stress and absenteeism: An empirically derived model. *Journal of Financial Counseling and Planning*, *14*, 31-42.

Kim, J., Sorhaindo, B., & Garman, E. T. (2006). Relationship between financial stress and workplace absenteeism of credit counseling clients. *Journal of Family and Economic Issues*, *27*, 458-478.

Kim, K. T., & Lee, J. (2018). Financial literacy and use of payday loans in the United States. *Applied Economics Letters*, *25*, 781-784.

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. New York, NY: The Guilford Press.

Knoll, M. A., & Houts, C. R. (2012). The financial knowledge scale: An application of item response theory to the assessment of financial literacy. *Journal of Consumer Affairs*, *46*, 381-410.

Le Fevre, M., Matheny, J., & Kolt, G. S. (2003). Eustress, distress, and interpretation in occupational stress. *Journal of Managerial Psychology*, *18*, 726-744.

Lee, J. M., Park, N., & Heo, W. (2019). Importance of subjective financial knowledge and perceived credit score in payday loan use. *International Journal of Financial Studies*, *7*, 53.

Lenow, J. K., Constantino, S. M., Daw, N. D., & Phelps, E. A. (2017). Chronic and acute stress promote overexploitation in serial decision making. *Journal of Neuroscience*, *37*, 5681-5689.

Lim, Y., Bickham, T., Dinecola, C. M., Broussard, J., Weber, B. E., & Gregory, A. (2014). Payday loan use and consumer well-being: What consumers and social workers need to know about payday loans. *Journal of Poverty*, *18*, 379-398.

Louis, W. R., Chan, M. K. H., & Greenbaum, S. (2009). Stress and the theory of planned behavior: Understanding healthy and unhealthy eating intentions. *Journal of Applied Social Psychology*, *39*, 472-493.

Lovallo, W. R. (2015). *Stress and health: Biological and psychological interactions*. Thousand Oaks, CA: Sage Publications, Inc.

Lown, J. M., Kim, J., Gutter, M. S., & Hunt, A. T. (2015). Self-efficacy and savings among middle and low income households. *Journal of Family and Economic Issues*, *36*, 491-502.

Lusardi, A. (2011). *Americans' financial capability* (NBER Working Paper No. 17103). Retrieved from https://www.nber.org/papers/w17103

Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and retirement planning in the United States. *Journal of Pension Economics & Finance*, *10*, 509-525.

Lusardi, A., Schneider, D. J., & Tufano, P. (2011). *Financially fragile households: Evidence and implications* (NBER Working Paper No. 17072). Retrieved from https://www.nber.org/papers/w17072

Lyons, A. C., & Yilmazer, T. (2005). Health and financial strain: Evidence from the survey of consumer finances. *Southern Economic Journal*, *71*, 873-890.

Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, *20*, 15-24.

Marin, M. F., Lord, C., Andrews, J., Juster, R. P., Sindi, S., Arsenault-Lapierre, G., Fiocco, A. J., & Lupien, S. J. (2011). Chronic stress, cognitive functioning and mental health. *Neurobiology of Learning and Memory*, *96*, 583-595.

McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The double ABCX model of adjustment and adaptation. *Marriage & Family Review*, *6*(1-2), 7-37.

McEwen, B. S. (2004). Protective and damaging effects of the mediators of stress and adaptation: Allostasis and allostatic load. In J. Schulkin (Ed.), *Allostasis, homeostasis, and the costs of physiological adaptation* (pp. 65-98). Cambridge, MA: Cambridge University Press.

National Consumer Law Center (2019). *Guide to surviving debt.* National Consumer Law Center, Boston.

Netemeyer, R. G., Warmath, D., Fernandes, D., & Lynch Jr, J. G. (2018). How am I doing? Perceived financial well-being, its potential antecedents, and its relation to overall well-being. *Journal of Consumer Research*, *45*, 68-89.

Nicolini, G., & Cude, B. J. (2019). The influence of financial well-being on pawnshop use. *Journal of Consumer Affairs*, *53*, 1674-1692.

Norvilitis, J. M., Merwin, M. M., Osberg, T. M., Roehling, P. V., Young, P., & Kamas, M. M. (2006). Personality factors, money attitudes, financial knowledge, and credit-card debt in college students. *Journal of Applied Social Psychology*, *36*, 1395-1413.

O'Neill, B., Prawitz, A., Sorhaindo, B., Kim, J., & Garman, E. T. (2006). Changes in health, negative financial events, and financial distress/financial well-being for debt management program clients. *Journal of Financial Counseling and Planning*, *17*(2), 46-63.

Park, N., Heo, W., Ruiz-Menjivar, J., & Grable, J. E. (2017). Financial hardship, social support, and perceived stress. *Journal of Financial Counseling and Planning*, *28*, 322-332.

Perry, V. G., & Morris, M. D. (2005). Who is in control? The role of self-perception, knowledge, and income in explaining consumer financial behavior. *Journal of Consumer Affairs*, *39*, 299-313.

Peterson, R. A. (2000). A meta-analysis of variance accounted for and factor loadings in exploratory factor analysis. *Marketing Letters*, *11*, 261-275.

Petkoska, J., & Earl, J. K. (2009). Understanding the influence of demographic and psychological variables on retirement planning. *Psychology and Aging*, *24*, 245-251.

Prawitz, A., Garman, E. T., Sorhaindo, B., O'Neill, B., Kim, J., & Drentea, P. (2006). InCharge financial distress/financial well-being scale: Development, administration, and score interpretation. *Journal of Financial Counseling and Planning*, *17*, 34-50.

Radenbach, C., Reiter, A. M., Engert, V., Sjoerds, Z., Villringer, A., Heinze, H. J., Deserno, L., & Schlagenhauf, F. (2015). The interaction of acute and chronic stress impairs model-based behavioral control. *Psychoneuroendocrinology*, *53*, 268-280.

Reeve, K. L., Shumaker, C. J., Yearwood, E. L., Crowell, N. A., & Riley, J. B. (2013). Perceived stress and social support in undergraduate nursing students' educational experiences. *Nurse Education Today*, *33*, 419-424.

Reivich, K., & Shatte, A. (2003). *The resilience factor: 7 keys to finding your inner strength and overcoming life's hurdles*. New York, NY: Harmony.

Remler, D. K., & Van Ryzin, G. G. (2011). *Research methods in practice: Strategies for description and causation*. Thousand Oaks, CA: Sage Publications, Inc.

Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs*, *44*, 276-295.

Ren, S. J. F., Hu, C. H., & Xie, P. (2013). Would stress always lead to bad outcome? The differentiation of job stress and mediating effects of job engagement. In E. Qi, J., Shen, R. Dou (Eds.) *The 19th International Conference on Industrial Engineering and Engineering Management* (pp. 999-1007). Heidelberg, Germany: Springer.

Rettig, K. D., Leichtentritt, R. D., & Danes, S. M. (1999). The effects of resources, decision making, and decision implementing on perceived family well-being in adjusting to an

economic stressor. *Journal of Family and Economic Issues*, *20*, 5-34.

Robb, C. A., & Woodyard, A. (2011). Financial knowledge and best practice behavior. *Journal of Financial Counseling and Planning*, *22*, 60-70.

Sabri, M., Wijekoon, R., & Rahim, H. (2020). The influence of money attitude, financial practices, self-efficacy and emotion coping on employees' financial well-being. *Management Science Letters*, *10*, 889-900.

Sapolsky, R. M. (2004). *Why zebras don't get ulcers: The acclaimed guide to stress, stress-related diseases, and coping.* New York, NY: St. Martin's Press.

Savalei, V., & Bentler, P. M. (2010). Structural equation modeling. *The Corsini Encyclopedia of Psychology*, 1-3.

Schwabe, L., & Wolf, O. T. (2009). Stress prompts habit behavior in humans. *Journal of Neuroscience*, *29*, 7191-7198.

Schwabe, L., & Wolf, O. T. (2013). Stress and multiple memory systems: From 'thinking' to 'doing'. *Trends in Cognitive Sciences*, *17*(2), 60-68.

Selye, H. (1936). A syndrome produced by diverse nocuous agents. *Nature*, *138*(3479), 32-32.

Selye, H. (1974). *Stress without distress*. Philadelphia, PA: J. B. Lippincott Company.

Serido, J., Shim, S., Mishra, A., & Tang, C. (2010). Financial parenting, financial coping behaviors, and well-being of emerging adults. *Family Relations*, *59*, 453-464.

Sherraden, M. S. (2013). Building blocks of financial capability. In J. Birkenmaier, M. Sherraden, & J. Curley (Eds.), *Financial education and capability: Research, education, policy, and practice* (pp. 3-43). New York, NY: Oxford University Press.

Shih, T. Y., & Ke, S. C. (2014). Determinates of financial behavior: insights into consumer money attitudes and financial literacy. *Service Business, 8*, 217-238.

Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology*, *30*, 708-723.

Simmons, B. L., & Nelson, D. L. (2007). Eustress at work: Extending the holistic stress model. *Positive Organizational Behavior*, 40-53.

Smeets, T., van Ruitenbeek, P., Hartogsveld, B., & Quaedflieg, C. W. (2019). Stress-induced reliance on habitual behavior is moderated by cortisol reactivity. *Brain and Cognition*, *133*, 60-71.

Starcke, K., & Brand, M. (2012). Decision making under stress: a selective review. *Neuroscience & Biobehavioral Reviews*, *36*, 1228-1248.

Taylor, M. (2011). Measuring financial capability and its determinants using survey data. *Social Indicators Research*, *102*, 297-314.

Thorn, B. (2019, November 1). *Healthy ways to handle life's stressors.* American Psychological Association. https://www.apa.org/topics/stress-tips

Traut-Mattausch, E., & Jonas, E. (2015). Why do people save?. *Journal of Psychology, 219*, 246-252.

Von Helverson, B., & Rieskamp, J. (2013). Does the influence of stress on financial risk taking depend on the riskiness of the decision?. In *Proceedings of the Annual Meeting of the Cognitive Science Society, 35*, 1546-1551.

Weston, R., & Gore Jr, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, *34*, 719-751.

Wood, W., & Neal, D. T. (2009). The habitual consumer. *Journal of Consumer Psychology*, *19*, 579-592.

Wood, W., & Rünger, D. (2016). Psychology of habit. *Annual Review of Psychology*, *67*, 289-314.

Xiao, J. J. (2008). Applying behavior theories to financial behavior. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 69-81). New York, NY: Springer.

Xiao, J. J. (2016). Consumer Financial Capability and Wellbeing. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (2nd ed., pp. 3-17). Cham, Switzerland: Springer.

Xiao, J. J., & O'Neill, B. (2016). Consumer financial education and financial capability. *International Journal of Consumer Studies*, *40*, 712-721.

Xiao, J. J., & Wu, G. J. (2008). Completing debt management plans in credit counseling: An application of the theory of planned behavior. *Journal of Financial Counseling and Planning*, *19*(2), 29-45.

Xiao, J. J., Chen, C., & Chen, F. (2014). Consumer financial capability and financial satisfaction. *Social Indicators Research*, *118*, 415-432.

Xiao, J. J., Tang, C., Serido, J., & Shim, S. (2011). Antecedents and consequences of risky credit behavior among college students: Application and extension of the theory of planned behavior. *Journal of Public Policy & Marketing*, *30*, 239-245.

Yamauchi, K. T., & Templer, D. J. (1982). The development of a money attitude scale. *Journal of Personality Assessment*, *46*, 522-528.

Yu, R. (2016). Stress potentiates decision biases: A stress induced deliberation-to-intuition (SIDI) model. *Neurobiology of Stress*, *3*, 83-95.

Zellner, D. A., Loaiza, S., Gonzalez, Z., Pita, J., Morales, J., Pecora, D., & Wolf, A. (2006). Food selection changes under stress. *Physiology & Behavior*, *87*, 789-793.