The Effects of a Virtual Wellness Community upon Participants’ Self-Efficacy Beliefs

Ashly Locklin

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THE EFFECTS OF A VIRTUAL WELLNESS COMMUNITY UPON PARTICIPANTS’ SELF-EFFICACY BELIEFS

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Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Education

By

Ashly Locklin

December 2019
THE EFFECTS OF A VIRTUAL WELLNESS COMMUNITY UPON PARTICIPANTS’ SELF-EFFICACY BELIEFS
ABSTRACT

THE EFFECTS OF A VIRTUAL WELLNESS COMMUNITY UPON PARTICIPANTS’ SELF-EFFICACY BELIEFS

By
Ashly Locklin
December 2019

Dissertation supervised by Dr. Deborah Scigliano

This study explored the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals through a mixed-methods design. Eight female participants between the ages of 25-38 completed a pre- and post-survey with 5-point Likert scale questions and open-ended questions before and after participating in a 28-day virtual wellness community. Instruments were developed for this study based off Bandura’s (2006) Self-Efficacy to Regulate Exercise and Bandura’s (2006) Self-Efficacy to Regulate Eating Habits surveys. Quantitative data were analyzed by summing item level scores and calculating percentages to examine the distribution across the scales, through paired-samples t-tests, mean, mode, and standard deviation scores for the scales, Cohen’s d effect size, and Cronbach’s alpha for scale reliability. Qualitative data were organized and analyzed using Template Analysis.
Key findings from the quantitative data revealed that participant self-efficacy to regulate exercise increased after participation in the virtual wellness community. As for participant self-efficacy to regulate eating habits, there was an increase in total item scores as well as mean and mode scores, but a paired-samples t-test showed no significance and a small effect size. The following major themes emerged from the data: (1) participants were mainly interested in making exercise a healthy habit or routine they could “stick” with when setting goals, (2) participants were primarily concerned with dealing with cravings, (3) even if participants did not attain their goals, they noticed an improvement, and (4) social support and vicarious experiences were important to participant success.
DEDICATION

I dedicate this dissertation to my family, without whose sacrifices it would not exist. First and foremost, to my husband Sean, who has supported my dreams from day one, held down the fort and took care of the kids while I locked myself away to work, and never stopped believing in me. To my daughter, London, and son, Bennett, I hope to make you proud and show you what is possible. Everything I do is for the both of you. To my dad, thank you for always being my number one supporter. To my grandmother and great-aunts, I am so thankful for your love, support, and guidance through the years. You were my first teachers.
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I extend my sincerest gratitude to my committee chair, Dr. Deborah Scigliano, whose commitment to the completion of this dissertation cannot go unrecognized. Her patience and encouragement helped me to grow as a scholar, to stay engaged in the work through various life events, and her knowledge of self-efficacy was invaluable to my study. I would not be here without her consistent support over the past few years. I am incredibly honored to have worked with her and to have had her serve as my chair.

I would also like to thank my committee members, Dr. Olson and Dr. Parke. I was extremely fortunate to have them serve as the methodologists on my committee. I am exceptionally thankful for their guidance in constructing my instruments, developing my data collection plan, analyzing the data, and putting it all together to tell the story of my research. Their questions and comments challenged my thinking and improved my work.

Finally, I’d like to thank my Duquesne University family. I am beyond grateful for the leadership and instruction of all my professors. And a special thanks to every member of Cohort 3 – who will always hold a special place in my heart.
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Chapter 1

Introduction

The purpose of this study was to investigate the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals. The specific context for the study was an online community of women between the ages of 25-38 from the United States. The virtual community took place in a private mobile application called My Challenge Tracker and participants received an email invitation granting them access to the specific wellness community. Upon registration, participants were presented with the opportunity to participate in this research study and be added to a community with fellow research participants or opt out of the research study and join a community with non-research participants. They were given the opportunity to withdrawal from the study at any point but remain in the same virtual wellness community to maintain their relationships with their peers.

This dissertation is organized into five chapters. Chapter one provides an introduction to the problem of practice and the need for the study. Chapter two includes a review of the literature, the theoretical framework from which the problem of practice is being examined, and a context review. Chapter three discusses the design of the study including data collection. Chapter four presents the results of the study and an analysis of the data. Chapter five discusses the findings and shares the limitations and implications for the study.

This first chapter presents a brief overview of the study, the problem of practice, the theoretical framework, the social justice implications, the need for improvement, the context for the study, and a background of my expertise. The chapter concludes with the research question for the study.
General Overview

It is widely understood that human health impacts the physical, mental, and emotional quality of life. Since lifestyle habits strongly affect human health, individuals must be cognizant of their ongoing choices in order to lead healthy lives. Yet despite “the recent proliferation in the United States of fat modified foods, lower prices for fruits and vegetables (i.e. about 25 cents per serving), and decreasing prices for whole-grain products, the overall diets of most of the U.S. population may be worsening” (Anderson, Winett, & Wojcik, 2007). Many Americans are aware of health implications but are unaware of how to make smarter, healthier choices. As Bandura (1998) stated, “if the huge benefits of a few key lifestyle habits were put into a pill, it would be declared a spectacular breakthrough in the field of medicine” (p. 143). Unfortunately, those healthy habits must be learned and practiced consistently over time and the quick fix of a pill remains undiscovered. Furthermore, there is a breakdown between media and medical professionals encouraging healthier diets and more active lifestyles and the education and implementation of actual actions that lead to increased health and wellness. Therefore, many individuals are turning to the Internet to find the information and motivation needed to lead healthier lives.

That being said, recent technological advancements have allowed people to connect, share, learn, interact, and change in ways never thought humanly possible. The development of Internet sites and mobile applications over the past decade have provided individuals with the ability to find others across the globe who share mutual interests and hobbies, communicate in real time, track and improve behaviors, and obtain knowledge and information in record speed. These technological developments do more than provide entertainment; they drive “human behavior, interactions, and knowledge acquisition” (Gunawardena et. al, 2009, p.4). Along those
same lines, these web-based tools facilitate online communities, which allow people the opportunity to learn together, while working toward common goals.

One of the most recent developments in the online landscape has been the creation of virtual wellness communities focused on health and wellness through a mobile application where individuals are taught and led by a wellness coach. These virtual wellness communities promoting health and wellness strive to teach participants how to make healthy choices. As the virtual wellness community participants make positive changes to their health, they are provided with information, support, accountability, and motivation to continue toward their goals. However, there is little to no research on the effectiveness of these wellness communities or guidelines on how to ensure participant success. A large component of participant success is self-efficacy as it plays an integral role in personal change and serves as the foundation of human motivation and action (Bandura, 2004). With respect to improving health, an individual must possess the belief that he or she can find the motivation to take the appropriate actions and persevere in the face of difficulties. Therefore, these virtual wellness communities served as the foundation of this study and I examined the effects of the virtual community on the self-efficacy of participants to attain their wellness goals. Bandura’s Self-Efficacy Theory served as the theoretical framework for this research.

The following section will further explain why virtual communities focused on health promotion are necessary, why an examination of leadership practices in such communities is needed, and how this theoretical framework was used improve the efficacy of these specific virtual communities.
Problem of Practice

The epidemic of obesity in America is serious and costly. Since the early 1960s, the prevalence of obesity among adults more than doubled, growing from 13.4% to 39.8% and affecting 93.3 million of U.S. adults in 2015-2016 (Flegal, Carroll, & Ogden, 2012; Hales, Carroll, Fryar, & Ogden, 2017; Ogden & Carroll, 2010). The most recent data indicate that more than two-thirds (70.7%) of adults are considered to be overweight or obese (Hales et al., 2017). Unfortunately, obesity affects particular demographics and socioeconomic groups more than others.

Hales et al. (2017) report that Hispanic (47.0%) and non-Hispanic black (46.8%) adults have a higher prevalence of obesity than non-Hispanic white adults (37.9%). The pattern among women is similar to the pattern in the overall adult population. The prevalence of obesity is 38.0% in non-Hispanic white, 54.8% in non-Hispanic black, 14.8% in non-Hispanic Asian, and 50.6% in Hispanic women. Among men, the prevalence of obesity is lower in non-Hispanic Asian adults (10.1%) compared with non-Hispanic white (37.9%), non-Hispanic black (36.9%), and Hispanic (43.1%) men. Non-Hispanic black men have a lower prevalence of obesity than Hispanic men, but there is no significant difference between non-Hispanic black and non-Hispanic white men.

With respect to obesity, women with college degrees and higher incomes are less likely to be obese than low-income women without college degrees (Ogden, Lamb, Carroll, & Flegal, 2010; Ogden, et. al, 2017). Furthermore, non-Hispanic black and Mexican-American men with lower incomes are more likely to be obese than those with higher incomes (Ogden et al., 2010; Ogden et al., 2017). Obesity-related conditions include heart disease, stroke, type 2 diabetes, nonalcoholic fatty liver disease, osteoarthritis, as well as breast, colon, endometrial, and kidney
cancer. Moreover, obesity accounts for some of the leading causes of preventable death. The medical costs for people who are obese were $1,429 higher than those of normal weight (Finkelstein, Trogdon, Cohen, & Dietz, 2009).

According to the Centers for Disease Control and Prevention, poor diet quality is a significant risk factor of death and disability (CDC State Indicator Report on Fruits and Vegetables, 2018; Lim, Vos, Flaxman, Danaei, Shibuya, & Adair-Rohani, 2017; Murray, Abraham, Ali, Alvarado, Atkinson, & Baddour, 2013). Recent data shows that only 12.2% of adults meet the daily fruit intake recommendation and only 9.3% of adults meet the daily vegetable intake recommendation (Lee-Kwan, Moore, Blanck, Harris, & Galuska, 2017). When looking at income-related disparities, only 7% of adults who live at or below the poverty level meet the daily vegetable recommendation compared to 11.4% of adults with the highest household incomes (Lee-Kwan et al., 2017). Exercise data is also a cause for concern. A recent report indicates that “for 2018, the percentage of U.S. adults aged 18 and over who met the 2008 federal physical activity guidelines for both aerobic and muscle-strengthening activities (based on leisure-time activities) was 23.2%" (National Health Interview Survey, Sample Adult Core Component, 2019). These numbers suggest that traditional models of health promotion are ineffective and new techniques to improve health and prevent disease must be explored.

While many Americans are aware of their health needs and know they need to lose weight, lower cholesterol, or manage their blood pressure, they are not equipped with the knowledge, skill, or motivation to do so. However, a relatively new concept within the online realm is the development of virtual wellness communities for health and wellness. These groups are comprised of a leader, also known as a wellness coach, and individuals who want to learn how to live healthier lifestyles while taking the appropriate actions. Another facet of these
groups include accountability, provided by not only the coach, but the other participants of the group. These are facilitated through closed, private groups on a mobile device application.

The leader/coach creates the online environment within the mobile app, designs the content and sequence of instruction, and adds the participants. The coach then provides a daily “lesson” on motivation, goal setting, nutrition, fitness, or overall health. Each day, the participants are required to check into the group at their leisure, read the lesson, adhere to their nutrition and fitness plan, and respond to the daily assignment. The coach then responds to each participant individually, providing feedback and encouragement. The other members of the group also respond to one another to affirm struggles and celebrate achievements. This group dynamic serves as a learning community, as individuals are being taught by the coach, applying their learning to their daily habits, and interacting with one another online.

Since this specific type of virtual wellness community is relatively new, there is little to no research on how to effectively help participants reach their wellness goals. More specifically, how does the coach build self-efficacy in participants while helping the community members hit their goals?

Therefore, as a leader of these virtual learning communities, it is my goal to improve the system, to educate and support adults who join my online community, and to equip other coaches and leaders with the tools necessary to facilitate effective groups that yield meaningful long-lasting change.
Statement of the Problem

With the epidemic of obesity on the rise in the United States and busier work and life schedules, many women are turning to at-home fitness routines and online communities for guidance and support. The emergence of virtual communities focused on health and wellness are gaining popularity and these communities are run by wellness coaches who guide participants on their journeys and provide daily lessons and assignments to keep participants motivated and engaged. However, since these communities are relatively new, there is no existing research on these specific virtual wellness communities, leaving wellness coaches guessing on how to best support their clients. The problem is a lack of knowledge on the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals. The following section will explain why this problem is significant.

Significance of the Problem

Due to the prevalence of health issues in the U.S., it is important to address this problem and provide better support to the individuals seeking assistance. As a matter of social justice, promoting self-efficacy and healthy behaviors among community adults will reduce medical costs and positively impact families. As adults make better decisions, their behaviors and attitudes are shared with their children, thus improving childhood health and behavior (Campbell & Hesketh, 2007). These communities can be detrimental to the women who join if the coach/leader fails to engage the participants or assist them in achieving their short and long-term goals. With a clear understanding of the self-efficacy of participants before and after these groups, the wellness coaches can begin to craft mastery experiences, capitalize on the vicarious experiences, be intentional with verbal persuasion, and promote positive physiological states in order to ensure participant success. It is a professional duty and responsibility to give clients the
best possible experience and this study will help wellness coaches better support their communities and individual clients.

The following sections will provide a thorough look into the online landscape and highlight the unique benefits and challenges of virtual communities.

**Theoretical Framework**

In order to explore the efficacy of these virtual learning communities and identify a way to better support participants on their wellness journeys, Bandura’s Self-Efficacy Theory will be used as the theoretical framework for this study.

Self-efficacy, the belief and confidence in one’s abilities, is the most important component of Bandura’s theory. Without a strong belief that they can achieve a specific goal, people will not take the necessary steps and quickly accept defeat in the face of obstacles (Bandura, 1998). While other factors may motivate individuals to change, their ultimate success is rooted in the belief that they can in fact produce the desired outcomes. This belief, coupled with outcome expectations and perceived social support are proposed to influence the development of self-regulatory behaviors (Bandura, 1998).

Based on social cognitive theory, the concept of self-efficacy is fundamental to behavior change interventions. Self-efficacy refers to one's beliefs regarding his or her ability to make required behavior changes in order to meet intended goals (Byrne, Barry & Petry, 2012; Strecher, DeVellis, Becker, & Rosenstock, 1986). There are four influences which drive self-efficacy: mastery experiences, vicarious experiences, verbal persuasion, and physiological states.

**Mastery experiences.** Bandura (1998) argues that “the most effective way of creating a strong sense of efficacy is through mastery experiences. Successes build a robust belief in one's personal efficacy. Failures undermine it, especially if failures occur before some sense of self-
assurance has been established” (p.3). Interestingly, if people only experience easy successes, they begin to expect quick results and easily become discouraged by failure.

Participants in the virtual wellness community must experience success and failures, but it is imperative that they learn from their failures and continue in the face of obstacles. If the participants achieve weekly goals and see immediate success, they are more likely to continue with the program, confident that they can hit long-term goals. However, if participants enter without confidence and with low levels of efficacy, they may not persevere when obstacles arise, fail to meet their short-term goals, and ultimately quit. Therefore, the wellness coach must create opportunities for participants to achieve quick successes but also experience failures they can learn from in order to develop the resiliency they need to be successful in the long-term.

**Vicarious experiences.** “The second way of creating and strengthening self-beliefs of efficacy is through the vicarious experiences provided by social models. Seeing people similar to oneself succeed by sustained effort raises observers' beliefs that they too possess the capabilities master comparable activities to succeed” (Bandura, 1998, p. 4). Through their own behavior, competent models do more than provide a social standard for others to judge their personal capabilities, the models transmit knowledge and demonstrate skills for managing environmental demands.

When individuals see peers succeeding through sustained efforts, they are more likely to believe they can also succeed. Within the virtual wellness community, the coach and fellow participants serve as social models. The facilitator teaches and provides knowledge while the participants share their personal goals, successes, and revelations. This dynamic allows participants to act as observers and encounter vicarious experiences. If participants observe that
their peers are overcoming similar obstacles and reaching goals, they are more inclined to persevere and believe they too can achieve success.

**Verbal persuasion.** Verbal persuasion is a “third way of strengthening people's beliefs that they have what it takes to succeed. People who are persuaded verbally that they possess the capabilities to master given activities are likely to mobilize greater effort and sustain it than if they harbor self-doubts and dwell on personal deficiencies when problems arise” (Bandura, 1998, p. 4). When individuals are verbally persuaded to believe they can achieve their goals, they are more likely to put forth greater effort and persevere when challenges arise. Within the virtual wellness community, the coach serves as the primary means of social persuasion, encouraging, motivating, and supporting participants. As Bandura notes, however, the coach must also structure the group so participants experience success. By crafting weekly assignments that require participants to reflect on their small successes, participants are forced to identify their own achievements and feel a sense of accomplishment that will promote perseverance. Lastly, peers within the virtual community serve as social persuaders, motivating and encouraging one another.

**Physiological states.** The fourth way to influence self-efficacy is to reduce stress, alter negative emotional tendencies, and to correct misinterpretations of their physical state since “people also rely partly on their somatic and emotional states in judging their capabilities. They interpret their stress reactions and tension as signs of inefficacy. In activities involving strength and stamina, people judge their fatigue, aches and pains as signs of physical debility. Mood also affects judgments of their personal efficacy” (Bandura, 1998, p. 4). Virtual wellness communities utilize daily motivation strategies to keep participants in the achievement mindset. The purpose of the community is to allow participants to express their negative emotions, fears,
and obstacles so that the community as a whole can support and encourage one another to overcome these barriers.

Within virtual health communities, physical activity is a requirement of participants who are instructed to exercise three to seven times per week and share how they are feeling with the group. This also relates back to social persuasion, as participants observe that they are not the only ones who are sore or struggling to complete the day’s workout, their stress and misinterpretations about their physical state are diminished.

The following sections will explain why this research is important and why I am qualified to conduct it.

**Social Justice Implications**

As presented earlier, the epidemic of obesity in America is rapidly increasing, growing from 13.4% in the early 1960s to 39.8% and affecting 93.3 million of U.S. adults in 2015-2016 (Flegal, Carroll, & Ogden, 2012; Hales, Carroll, Fryar, & Ogden, 2017; Ogden & Carroll, 2010). Unfortunately, obesity affects particular demographics and socioeconomic groups more than others. Another concern is that children are impacted by their parents’ and guardians’ health choices. If adults are unsure of how to maintain a healthy diet and exercise plan, their children will be subjected to the same behavioral habits and tendencies.

While children's diets are also influenced by friends, school, the media, and their own preferences, parental influence is considered to be the strongest in early childhood when the parents are the providers, role models, caretakers, and enforcers. "Although many factors are thought to influence parental food choice, parents with good dietary awareness (or nutrition knowledge) are more likely to make healthy food choices for their children. Observational studies have shown that higher levels of maternal nutrition knowledge are associated with higher
fruit and fiber intakes and lower fat intakes by children” (Clark, Goyder, Bissell, Blank, & Peters, 2007, p. 132). Therefore, it is a matter of social justice to help women gain the self-efficacy they need in order to make healthy choices and stick with wellness plan that will benefit not only themselves, but their families.

The Need for Improvement

Since these virtual wellness communities are relatively new and unresearched, it is imperative that the wellness coaches leading these communities are equipped with the knowledge and skills required to ensure participant success rather than hinder it. These communities can be detrimental to the women who join if the coach/leader fails to engage the participants or assist them in achieving their short and long-term goals. With a clear understanding of the self-efficacy of participants before and after these groups, the wellness coaches can begin to craft mastery experiences, capitalize on the vicarious experiences, be intentional with verbal persuasion, and promote positive physiological states in order to ensure participant success. Therefore, there is a true need for this research and necessity for practical solutions to improve the quality of these communities as well as the self-efficacy and goal attainments of the participants.

Context for the Study

The specific context for the study was an online community of women between the ages of 25-38 from the United States. The female participants were recruited through various social media platforms as part of my normal professional duties. This range (25-38) is the standard age group I work with in my professional career; therefore, this age range was reflected in the study. The female participants willingly joined this virtual wellness community because they wanted to lose weight, tone up, improve their eating habits, and/or increase their self-confidence. They
agreed to the conditions of the group: taking before and after weights, measurements, and photos, following the assigned exercise plan, adhering to the nutrition plan, and checking into the virtual community each day for 28 days.

The virtual community took place in a private mobile application called My Challenge Tracker and participants received an email invitation granting them access to the specific wellness community. Upon registration, participants were presented with the opportunity to participate in this research study and be added to a community with fellow research participants or opt out of the research study and join a community with non-research participants. They were given the opportunity to withdrawal from the study at any point but remain in the same virtual wellness community to maintain their relationships with their peers. The group took place in July of 2019.

**Background and Areas of Expertise**

As a wellness coach who creates and facilitates monthly virtual communities on health promotion, it is imperative that I improve my practices so that I effectively teach and support my learners. Furthermore, I am the leader of a team of over one thousand other wellness coaches, making my involvement and commitment to this work even more crucial. I currently have a robust client and coach base and my team is helping thousands of clients through virtual wellness groups. My goal is to identify the practices that lead to participant desired outcomes and teach my team how to duplicate those steps so that everyone who joins one of these communities are successful in their personal health and wellness endeavors.

**Research Question**

This study used a mixed-methods design to explore participant self-efficacy in a virtual wellness community. Quantitative data were collected through a 5-point Likert pre-survey
administered before the virtual community began and again through a post-survey after the community ended. Additionally, qualitative data were collected through open-ended questions on both the pre- and post-surveys.

The research question guiding this study is: What are the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals?

**Chapter Summary**

This chapter has introduced a problem of practice and the theoretical framework through which the problem will be addressed. The need for the study as well as the social justice implications were recognized. Additionally, the context for the study and information on my background as the researcher were also provided. The next chapter will explore literature underlying the problem of practice and additional research that further highlights the need for this study.
Chapter 2

Review of the Literature

Introduction

Chapter two will provide a review of the literature that underlies the problem of practice discussed in chapter one. Research about virtual communities will be explored followed by a background of the theoretical framework that will be used to understand the problem of practice. Lastly, a discussion of the context of the study will be provided.

Virtual Communities

Online or virtual communities are one of the most revolutionary developments of the information age (Jin, Park, & Kim, 2010). These communities are comprised of individuals who communicate and interact online around a common interest (Porter, 2004). Wiertz & de Ruyter (2007) describe the communities as a form of human-computer interaction in which information, knowledge, and socio-emotional support are generated and exchanged. Simply put, virtual communities are groups of individuals who interact online and who have developed feelings of identity, belonging and attachment with each other—a sense of virtual community (Blanchard, 2007, Blanchard & Markus, 2004).

An online community can be characterized by five attributes, what Porter (2004) describes as “The Five Ps of Virtual Communities” (1): Purpose (Content of Interaction), which explains the focus of discussion; (2) Place (Extent of Technology Mediation of Interaction), which describes where the interaction takes place, either virtually or partially virtually; (3) Platform (Design of Interaction), identifies whether interaction takes place synchronously, asynchronously, or a combination of both; (4) Population (Pattern of Interaction), refers to the pattern of interaction and type of social connections (e.g. strong, weak); and (5) Profit Model
(Return on Interaction), describes whether the community creates tangible economic value.

Furthermore, there are two types of online communities, member-initiated communities which are established and managed by the members, and organization-sponsored communities which are sponsored by commercial or non-commercial firms (such as amazon.com) (Porter, 2004). The type of community in this specific research study is more of a member-initiated community, but is led by an actual wellness coach who provides daily lessons and assignments for the members of the community. Once again, this highlights the need for this study since the formation of the online community is relatively new and unresearched.

**Sense of Virtual Community**

Research has recently examined how a sense of community can be developed within virtual settings. The term Sense of Virtual Community (SOVC) was developed to encompass the unique features of online communities. SOVC is defined as virtual community members’ feelings of identity, belonging, and attachment to other participants in the online group (Blanchard & Markus, 2004). People who join virtual health communities may do so because of a desire to connect with others who share similar conditions, goals, and concerns (Wright & Bell, 2003). They may not have the social support they need through their friends and families, so seeking others with similar interests and goals online provides the missing support they crave and need. Virtual wellness communities serve as a strong source of social support and are comprised of like-minded individuals with similar goals. Through the community, participants are able to build supportive relationships in addition to receiving support from their wellness coach.
Motivation for Joining Virtual Communities

Previous research has identified two main motivations for joining virtual health communities: (1) the desire for informational support and (2) the desire for emotional support (Buchanan & Coulson, 2007; Coulson, 2005; Coulson & Knibb, 2007; Wright & Bell, 2003). The difference between “informational” and “emotional” support has been established, with “informational” support referring to the providing of facts, advice, courses of action, and references, while “emotional” support includes encouragement and empathy (Klaw, Huebsch, & Humphreys, 2000).

Ridings and Gefen (2004) analyzed 27 virtual communities and found that the primary reason for joining health-related virtual communities was for the exchange of information and socio-emotional support (receiving comfort, empathy, and other benefits of online interactions). As the leader of virtual wellness communities, it is evident that my participants join for these same reasons. While clients want to gain knowledge and learn how to live a healthier life, they are also seeking the social and emotional support a private community provides. Our communities serve as a strong source of social support and are comprised of like-minded individuals with similar goals. Through the community, participants are able to build supportive relationships in addition to receiving support from their coach. If family members and friends are supportive of the participant’s new health behaviors, the participant is more likely to continue, as they feel encouraged and supported. However, if the participant faces scrutiny and judgment, their commitment and perseverance may be compromised, especially if they are pressured to abandon their new habits and return to old, unhealthy ones. However, the support that is provided by the coach and virtual community can combat these negative social variables.
Participants are encouraged to share these events and struggles with the group so that the coach and peers can balance the scales and support one another through health journey.

Since participants are joining for the “informational” and “emotional” support (Buchanan & Coulson, 2007; Coulson, 2005; Coulson & Knibb, 2007; Wright & Bell, 2003), it is important to examine the sense of community of belonging so that participants feel safe and welcome to open up and share their successes and struggles.

**Developing a Strong Sense of Community and Belonging**

With virtual participants separated by physical and psychological distances, the need to foster a sense of community is especially critical. A strong sense of community can mediate the feelings of alienation and isolation, thus promoting persistence in learning and participation. In fact, research suggests that strong feelings of community increase persistence as well as commitment to community goals, cooperation among learners, satisfaction with group endeavors, and motivation to learn (Rovai, 2002a; Rovai, 2002b; Wellman, 1999).

In order to foster a strong community in the virtual environment, the feelings of disconnection, isolation, and alienation must be mediated. In developing a theory about the process of community building in adult asynchronous distance learning classes, Brown (2001) identified a three-stage phenomenon. The first stage was making friends with online peers, the second stage was community acceptance, and the third stage was camaraderie, which was achieved after long-term communication with peers. Brown (2001) notes that “getting to know” each other was critical. “Finding out where people lived, what they did, their experiences, whether or not they had families and the like was the ‘X’ factor. Participants generally agreed that this should have been the first step in community-building, but usually it was not part of the formal coursework” (p. 30).
With respect to virtual health communities, Welbourne, Blanchard, & Wadsworth (2012), found a positive association between receiving support from others in the online group and a greater sense of community. These findings suggest that participants who received more support from the other members were likely to feel a stronger sense of belonging and attachment. However, their data suggest that “when the act of providing support is unreciprocated (i.e. does not lead to receiving support), it may increase feelings of isolation” (Welbourne, Blanchard, & Wadsworth, 2012, p. 136). Furthermore, the combination of posting and receiving support was associated with greater connectedness as well as SOVC (Welbourne et al., 2012).

Wangberg et al. (2007) highlighted the role of the internet as a mechanism for social support on health-related issues. The researchers examined the relationship between Internet use, social support and subjective health, with their results suggesting that the Internet has both a direct positive relationship to subjective health, as well as an indirect positive relationship, mediated through social support.

Social support has been a prominent topic for decades. Bandura suggests that social support reduces vulnerability to stress, physical illness and depression (1997). When one decides to make healthy choices, the perceived support from family and friends is an important factor in success. Perceived social support has been associated with improved nutrition behaviors (Ford, Ahluwalia, & Galuska, 2000; Steptoe, Perkins-Porras, Rink, Hilton, & Cappuccio, 2004). However, social support is not readily available or easily accessed. Rather, individuals must seek and build supportive relationships. In order to build strong social support, one must possess a strong sense of social efficacy.

Social support can be described as a type of interpersonal exchange that makes one feel loved, cared for, or esteemed through appraisal, emotional concern, or information and has been
consistently linked to better health outcomes, faster recovery from disease, and positive effect on weight loss and maintenance (Teo, Chia, & Mohanraj, 2009; Wing & Jeffery, 1999). Interestingly, Wright, Rains, & Banas (2010) found that participants preferred support from weak ties (i.e. other community members) while online over strong social ties, which are present in close relationships (i.e. family and friends). Support from weak ties provided access to different viewpoints, objective feedback, reduced risk, and reduced obligations. Since health-related issues, including weight-loss, can be sensitive topics and struggles, strong social ties were actually found to act as a barrier to gaining social support (Wright et al., 2010).

The concepts of social support and reciprocity are important in virtual communities since research suggests that receiving support after giving support leads to a better sense of connectedness and feelings of belonging. Therefore, we must examine the obstacles of online interaction that can occur within a virtual community.

**Online Interaction**

Barak, Boniel-Nissim, and Suler (2008) identified several attributes of the Internet that help us understand why individuals differ in what they say and do online compared to what they say and do in face-to-face settings. Disinhibition, anonymity, invisibility, and delayed reactions are a few of the key factors that facilitate support for participants involved in a virtual community who are experiencing similar difficulties.

A key part of online communities is disinhibition, as it is well known that people say and do things in cyberspace that they ordinarily would not say or do in the face-to-face world. Researchers call this the "online disinhibition effect" (Suler, 2004a; Suler, 2004b). This disinhibition can have a positive or negative effect on a virtual support group (Tanis, 2007; Tanis & Postmes, 2007). Group members might share very personal disclosures about themselves,
revealing secret emotions, fears, and wishes they would not share with people in a face-to-face setting. As a result, interpersonal intimacy and group bonding develop. However, the disinhibition effect can also lead to harsh criticisms, anger, and hatred. Some group members might act out and disrupt the group's cohesion (Barak et al., 2008).

Anonymity is another key factor in online interaction. In a virtual community, people do not necessarily know one another’s identities, only know what the other people choose to reveal about themselves. Anonymity has played an important role in the history of many classic group interventions (such as 12-step programs) because participants feel a level of safety in the group and this allows them to share personal struggles more freely (Barak et al., 2008). It is no surprise that the sense of anonymity plays a critical role in online support groups as well, as it allows them to feel less vulnerable about participating and opening up to the group.

Most online support groups use the text-communication format, which means they cannot see each other. This invisibility gives them the courage to say things they might not otherwise say. "Also, there are no frowns, shaking heads, sighs, bored expressions, or other subtle and obvious signs of disapproval and indifference that would otherwise inhibit people. In everyday relationships, people sometimes avert their eyes when discussing something personal and emotional. It’s easier not to look into the other person’s face. Text communication offers a built-in opportunity to keep one’s eyes averted" (Barak et al., 2008, p. 1871). There is a slight difference in the virtual wellness communities being examined in this research study, however. Participants do post photos of themselves after their workouts and while enjoying healthy meals within the group, so other members do know what they look like. However, this has not seemed to interfere with sharing personal stories and struggles because they are still communicating in text rather than video, audio, or face-to-face.
Delayed reactions also impact online interaction and personal sharing. The asynchronous communication of online support groups allows people to take minutes, hours, or days to respond and not having to worry about an immediate response can be disinhibiting. Some people may view the asynchronous experience as an opportunity to "get away" after posting a message that is personal or emotional. "The freedom to leave and reenter the group can help people therapeutically manage the emotions that the group process stimulates, thereby encouraging disinhibition" (Barak et al., p. 1871).

While there are many benefits to online interaction, there are several obstacles to consider and be aware of when creating and facilitating a virtual community. These obstacles will be addressed in the following sections.

**Obstacles in developing a virtual community.** With participants engaging from a distance, developing a community in which members feel a sense of belonging is of prime importance. A virtual community takes planning, care, and maintenance and does not “just happen” (Hill, Raven, & Han, 2007). Within the online environment, there are additional challenges to facilitating frequent interaction, which strengthens the community. Hill (2002) identified three main issues in developing learning communities from a distance: environment, time, and technology.

**Environment.** Working from sociocultural theory, creating an environment in which participants feel safe to interact and share is critical in online communities. Feelings of safety and security allow the community to develop shared values and goals (Guldberg & Pilkington, 2006). More importantly, a safe environment promotes growth by allowing participants to take risks, knowing they have a community of support behind them (Allan & Lewis, 2006). Along
these same lines, a safe environment permits participants to engage as “real” people (Greyling & Wentzel, 2007), thus promoting social presence.

Johnson and Johnson (2009), argue that from a social-interdependence perspective, establishing common ground, such as norms for interaction, enable participants to “build an understanding of their role in the community—and may also enable exploration of different roles” (Hill, 2012, p. 278). Additionally, a grounded environment will cultivate relationships (Lock, 2006) by establishing a “foundation for the exchange of beliefs, values, knowledge, and skills” (Bird & Sultmann, 2010, p. 143). However, in order for this to be successful, the environment must be “failure safe” (Hill, 2002). Participants must be able to share opinions, thoughts, and suggestions without fear of scrutiny or retribution.

**Time.** With members participating from a distance, assuring people that someone is “out there” is critical (Hill, 2002). Further, assisting participants in managing their time is a critical responsibility. The participants must possess strategies for managing time and prioritizing tasks that contribute to the community.

**Technology.** Technology continues to rapidly evolve, creating new opportunities for virtual communities. These new technologies “reinforce and strengthen the sociocultural context in which learning communities operate” (Hill, 2012, p. 280). Hill (2002) recommends three central considerations for technology within learning communities. First, a clear, well-organized structure that promotes authentic interaction is key. Second, there must be multiple ways to engage in the community so that everyone may participate. Lastly, minimizing glitches and providing tech support is vital to learning communities operating entirely online.
Interaction

In addition to time and attention, those involved in an online community must be willing to interact with the group, as interaction is an essential element of a learning experience (Garrison & Cleveland-Innes, 2005). Given the physical distance separating online participants, interaction among members is critically important.

Again, the motivation for initially joining the online community must be taken into consideration. Are the participants joining for socio-emotional reasons or for informational purposes? Welbourne, Blanchard, & Wadsworth (2012) found a strong relationship between members’ posting and receiving support, which suggests that members with socio-emotional motives for joining the community benefit not only from posting support, but also from receiving support. Furthermore, the researchers found that the participants who joined seeking only information were more likely to remain “lurkers” within the community and were unlikely to engage in the community-building activities (Butler et al. 2007; Nonnecke et al., 2006; Welbourne et al., 2012).

Welbourne et al. (2012) found that “being motivated by a desire for socio-emotional support was associated with greater participation in the community, in the form of providing support, while informational motives were associated only with receiving support” (p. 135). Their finding is supported by the Collective Effort Model (Karau & Williams, 1993), which argues that members will contribute to a group only to the extent to which they believe they will benefit from their participation.

Active participation is critical in these virtual wellness communities. McKenna (2008) found active participation to be an antecedent to enjoying the benefits of membership in a virtual community. In fact, greater activity has been linked to decreased loneliness and isolation.
Additionally, by providing participants with the ability to connect and interact with others, virtual communities fulfill belongingness needs (McKenna & Green, 2002). Furthermore, extant research has shown that the growth of a virtual community depends on user participation (Koh, Kim, Butler, & Bock, 2007; Ling et al., 2005; Zhechao Liu, Au & Clark, 2014).

Jin, Park, and Kim (2010) found that perceived benefits of interaction impact member commitment to the online community. Their confirmed hypothesis was built on the social exchange theory that suggests that “people return the benefits (or value) they have gained through a relationship back to the relationship in certain forms as a means to maintain the relationship” (p. 596). The benefit members received through participating in the community is in fact what made them commit and interact with the community. The key to developing member commitment to the online community is by addressing their perceived benefit from participating and interacting with other members.

**Interaction with peers.** Swan (2002) hypothesized that perceived interaction with peers would be associated with student satisfaction and perceived learning. Her research validated the hypothesis, reporting that “students who rated their level of interaction with classmates as high also reported significantly higher levels of course satisfaction and significantly higher levels of learning” (p. 33). These findings suggest that shared discourse among members of the virtual community and between members and the facilitator yields greater member satisfaction.

However, it is important to remember that online communication is not innately interactive, and as Eastmond (1995) argues, successful computer-mediated communication depends on the frequency, timeliness, and nature of messages posted. Ruberg, Moore, and Taylor (1996) endorse this claim, finding online communication encourages experimentation, collaboration, and participation, but asserts that for online discussions to be successful, the
facilitator must create a social environment that encourages peer interaction and provide clear
structure and ample support. Within the virtual communities that I run, it is imperative that
encourage participation through daily assignments and call on participants who have not engaged
in the discussion or group. Hawisher & Pemberton (1997) remind us that the value instructors
place on discussion is related to the ultimate success of the learners. Likewise, Picciano (1998)
reports the amount of discussion taking place in an online course was related to student’s
perceived learning.

With respect to virtual communities, Ren and Kraut (2011) suggest participation, such as
posting or reading messages, is dependent on whether the participants believe the benefits
outweigh the risks. Buter et al. (2007) excluded virtual health communities, but found that the
specific motivation to join an online community is likely to influence their participation and
contribution to the group; the participants who value the social benefits of the group are more
likely to post and provide encouragement in contrast to those who joined the community for
informational benefits.

Further illustrating this point, lurking (the act of reading but not posting messages in the
online community) was linked to the absence of socio-emotional support motives for joining the
group (Nonnecke, Andres, & Preece, 2006). Members who join and are motivated by a desire for
information will be less active in the group and less likely to provide support to others.

**Interaction with content.** With the proliferation of content, mass open online courses,
and webinars offered through the World Wide Web, it is critical to note that information is not
learning (Shank, 1998). With online learning, it is important to recognize that “knowledge does
not consist of objective truths to be transmitted via media, but formative, developmental, and
constructed explanations by humans engaged in meaning-making process” (Woo & Reeves,
Instead of merely being exposed to information on health and wellness, participants must apply their learning to their everyday lives, must reflect on their struggles and successes with the new knowledge, and must engage in discourse with other participants. Researchers agree that many computer-based educational programs provide poor learning experiences (Swan, 2002; Janicki & Liegle, 2001).

Research suggests that students who are more active in courses, online or offline, will experience more positive learning outcomes and report greater satisfaction. Swan (2002) reports that “students who rated their level of activity as high also reported significantly higher levels of course satisfaction and significantly higher levels of perceived learning” (p. 30).

In summary, virtual communities can provide the information and social/emotional support people crave while providing a sense of anonymity and invisibility to participants. With proper facilitation, these communities can provide members with a sense of belonging and mediate feelings of loneliness and isolation. However, giving and receiving support are integral components of the online interaction that tends to create more personal satisfaction with the community. With this research on virtual communities being covered, the next section will focus on the theoretical framework through which this problem of practice is being studied and will highlight the role of self-efficacy in diet, exercise, and goal attainment.

**Theoretical Framework**

It is widely understood that lifestyle habits strongly affect the quality of human health. Bandura’s Social Cognitive approach to promoting health focuses on the demand side by assisting people in maintaining health through the self-management of positive habits. This theory outlines the sources and mediators of behavior and behavior change through a structure in
which self-efficacy beliefs work in conjunction with social support, self-regulation, and outcome expectations.

In order to live longer and healthier lives, people must exercise control over daily habits (Bandura, 1997; Bandura, 1998). However, beliefs of self-efficacy play an integral role in personal change and serve as the foundation of human motivation and action (Bandura, 2004). With respect to improving health, an individual must possess the belief that he or she can find the motivation to take the appropriate actions and persevere in the face of difficulties. Bandura (1998) describes self-efficacy as the “beliefs in one’s capabilities to organize and execute the courses of action required to produce given levels of attainments” (p. 624). Therefore, efficacy belief is an integral component of action. Without the belief that they can achieve change through their actions, people are unlikely to take the necessary steps to begin and will most likely accept defeat in the face of difficulties (Bandura, 1998). Other factors may motivate individuals to change; however, their ultimate success is rooted in the belief that they can in fact produce the desired outcomes. Bandura (2006) also emphasizes the difference between self-efficacy and self-esteem, clarifying that self-efficacy is a judgement of capability while self-esteem is a judgement of self-worth. Therefore, Bandura’s Self-efficacy Theory serves as the theoretical framework for this study.

To a large extent, an individual’s confidence in his or her ability to make healthy food choices, even when temptations arise or it is difficult, will determine success in achieving a health balance (Anderson, Winett, & Wojcik, 2007; Bandura, 1997). Social-cognitive theory, argues that "among people who want a healthy diet and have access to healthy foods, the nutritional content of the foods they buy and eat is determined to a large extent by (a) their beliefs in their abilities to consistently find, prepare, serve, and eat healthier foods and (b) their
expectations that doing so has positive physical, social, and personal results" (Anderson, Winett, & Wojcik, 2000, p. 480). Previous research has highlighted an association between self-efficacy and healthy nutrition patterns as well as physical activity behaviors (these studies will be shared in a subsequent section of this literature review) (Anderson, Winett, & Wojcik, 2000, Anderson, Winett, & Wojcik, 2001; Bandura, 1997; Hagler et al., 2007; Luszczynska, Gibbons, & Piko, 2004). Furthermore, efficacy beliefs also influence whether “people think erratically or strategically, optimistic or pessimistic,” which impacts the choices they make while on their wellness journeys. (Bandura, 2006, p. 309). Consequently, these beliefs influence the courses of action people take, the goals they set for themselves, the commitment they have to set goals, the effort with which they put forth, the outcomes they expect, the extent of time they will persevere in the face of obstacles, their resilience to adversity, the quality of their emotional life, the life choices they make, and the achievements they realize (Bandura, 2006).

Efficacy beliefs not only operate singularly, they act on other determinants in behavior regulation (Bandura, 1997). For example, efficacy beliefs regulate motivation by influencing the goals people set for themselves, the commitment they put forth, as well as the outcomes they anticipate. Individuals with higher levels of self-efficacy will set more challenging goals while those will lower levels of self-efficacy will set less challenging goals. Belief in one’s power to produce results not only determines how long they will remain committed to their goals, but if and for how long they will persevere in the midst of obstacles and failure. Furthermore, their beliefs will impact their resilience to adversity and how they cope with the stress that derives from environmental demands. More importantly, these beliefs will attribute to their thought patterns, either creating self-hindering or self-aiding internal thoughts (Bandura, 1998).
Unfortunately, self-doubts can easily overrule the best of skills and intentions. Therefore, developing positive self-efficacy beliefs is integral to personal success.

**Self-efficacy Influences**

People’s self-efficacy beliefs are developed by four main sources of influence: mastery experiences, vicarious experiences, verbal persuasion, and physiological states.

**Mastery experiences.** It is imperative that individuals experience successes and failures but learn from their failures in order to develop resiliency. Mastery experiences are the most effective way of developing a strong sense of efficacy. As one would assume, failures undermine efficacy while successes enhance it. Furthermore, if failure occurs before one develops a sense of self-assurance, efficacy is compromised (Bandura, 1998). "The most effective way of instilling strong efficacy is through enactive mastery experiences structured through graduated attainments" (Bandura, 2009, p. 184). If people only experience easy and quick successes they start to expect rapid results and easily become discouraged by failure. Persevering through obstacles builds resilience and learning from mistakes results in success. Rather than viewing failure as a loss, people must learn how to manage failure so that it is informative since the road to success is filled with failure and setbacks. (Bandura, 2009).

**Vicarious experiences.** Vicarious experiences through social models are the second way of strengthening self-efficacy. Seeing peers succeed through sustained efforts raises the observer’s beliefs that he or she can also achieve success. “Through their behavior and expressed ways of thinking, models transmit knowledge and teach observers effective skills and strategies for managing environmental demands” (Bandura, 1998, p.626). Seeing others succeed by persevering in the face of difficulty raises the observers’ beliefs in their own abilities.
**Verbal persuasion.** Those who are verbally persuaded to believe they possess the skills to master given activities are more likely to put forth greater effort and persevere through difficulties than if they foster self-doubt or dwell over self-deficiencies when obstacles arise (Bandura, 1998). Outside influencers, or the ones providing social persuasion and building efficacy within others, must form opportunities for people to be achieve rather than fail. Bandura (1998) argues that “successful efficacy builders do more than convey positive appraisals of capabilities; they structure situations for people in ways that bring success and avoid placing them in situations prematurely where they are likely to fail often” (p. 626). Furthermore, efficacy builders encourage people to measure success within terms of self-improvement. If people are persuaded to believe in themselves, they will most likely exert more effort, which increases their chances of success (Bandura, 2009). However, credible influencers must be knowledgeable and practice what they teach. “Pep talks, without enabling guidance, achieve little. People rely partly on their physical and emotional states in judging their efficacy” (Bandura, 2000, p. 185).

**Physiological States.** In judging their capabilities, people are also influenced by their somatic and emotional states. Bandura (1998), argues that the fourth way to modify self-efficacy is to reduce stress, alter negative emotional tendencies, and to correct misinterpretations of their physical state. People tend to regard their stress and tension as inefficacy. Additionally, in physical activities involving strength and stamina, people view fatigue and pain as a physical weakness and debility (Bandura, 1998). Mood also plays an important role as positive mood enhances perceived self-efficacy while a negative mood diminishes it. A positive mood enhances a sense of efficacy, while a depressed mood diminishes it. "People often misread their fatigue, windedness, aches, and pains as evidence of declining physical efficacy. These physical conditions are often due to a sedentary lifestyle. Efficacy beliefs are strengthened by reducing
anxiety and depression, building physical strength and stamina, and changing misrepresentations of bodily states" (Bandura, 2009), p. 185).

Efficacy beliefs regulate human behavior by impacting cognitive, motivational, affective, and decisional processes. In turn, this determines whether people think optimistically or pessimistically, how they motivate themselves and persevere in the midst of obstacles, the quality of their well-being, how they respond to stress, and the life choices they make (Bandura, 2009).

**Goal Setting**

Goals and aspirations play a critical role in the exercise of self-directedness. Once people commit themselves to a goal, two types of motivators come into play. They either seek self-satisfaction from fulfilling their set goals or they are prompted to intensify their efforts due to their discontent with their achievement. Goals that are motivating are the ones that elicit self-investment in the activity and include explicitness, level of challenge, and temporal proximity (Bandura, 2009).

Explicit goals motivate people because they define the type and amount of effort needed to attain them. Often, people set goals that are too general and they result in failure. Therefore, specific goals that frame the effort needed are most beneficial. Furthermore, the level of challenge within a specific goal contributes to the amount of effort enlisted and the satisfaction that accompanies that goal. "There is no self-satisfaction with easy successes. Nor do goals that are widely out of one’s reach bring any satisfying accomplishments and, over time, they can weaken one's sense of efficacy" (Bandura, 2009, p. 194). Lastly, the effectiveness of goals in regulating perseverance and performance relies on how far into the future they are projected. Long-range goals provide vision and direction, but are too distant to serve as current motivators.
Often times, people choose instant gratification over working for a larger goal that will not happen for a significant amount of time. For example, if someone wants to lose 100 lbs in the next two years, they will likely choose the cookie presented to them in the present moment because the long-term goal is too far away to motivate them to say no now. It is too easy to delay serious efforts in the present day in order to reach goals set in the distant future. Therefore, self-motivation is best sustained by setting small attainable subgoals that lead to distant aspirations. Short-term subgoals keep people motivated and on track to where they are going and overwhelming goals are mastered by breaking them into more manageable steps and actions. "Concentrated effort in the short term brings success in the long term" (Bandura, 2009, p. 195).

Additionally, personal goals offer self-incentives for individuals to adopt improved health habits (Bandura, 1986). Bandura (2004) supports this approach, postulating that long-term goals are critical and guide the course of personal change, whereas, short-term attainable goals allow people to achieve change by requiring action and guidance in the shorter time span.

It is important to note that self-efficacy must be assessed within different circumstances. Obstacles arise and present challenges to meeting goals and achieving personal change. For example, in measuring personal efficacy to stick with an exercise program, people evaluate their efficacy in the presence of various obstacles: when they are tired, sore, stressed, working long hours, or have more exciting things to do. However, if there are no obstacles to overcome and participants are solely focused on this exercise program, personal efficacy is high and behavior can be easily changed.

Bandura (1998) argues that “habit change is not achieved through an act of will. It requires development of self-regulatory skills” (p. 633). People must be cognizant of their own performance. If they do not monitor their progress, they cannot influence their motivation or
actions. Success in self-regulation depends on the consistency and fidelity of self-monitoring (Bandura, 1998). When people evaluate their performance, they are likely to set goals of progressive improvement. Observing and analyzing one’s behavior is the first step in changing it.

Perceived causes of success and failure are influenced by one’s personal efficacy (Bandura, 1997). People who consider themselves highly efficacious attribute their failures to insufficient effort or poor strategies, whereas people who regard themselves as inefficacious credit their failures to a lack of ability (Bandura, 1998). Furthermore, those who judge themselves as highly capable set higher goals and remain more committed to them than those who question their capabilities and ultimately set lower goals and fail to overcome challenges. Those who foster self-doubt about their abilities are easily thrown off track by obstacles and failures while those who are confident in their abilities remain committed, enhance their efforts when they fail, and persist until they achieve their intended goal (Bandura, 1998).

These variables also relate to one another. However, self-efficacy, which derives from personal variables such as age, gender, socioeconomic status (SES), and environmental variables such as social support, are the most prominent social cognitive determinant of consistent health behaviors (Bandura, 1997). The stronger one’s efficacy beliefs, the better the success. Strong efficacy beliefs guide individuals to expect beneficial outcomes and avoid temptations associated with healthy eating behaviors. Those with higher self-efficacy and more positive outcome expectations will be more likely to exercise self-regulatory strategies essential to maintain long term healthy eating patterns (Bandura, 1997; Bandura, 2004).

**Self-Efficacy and Weight Loss**

Self-efficacy is a fundamental component in models of behavior change and has been described as a reliable predictor of weight loss (Armitage et. al, 2014). For example, Richman
and colleagues (2001) found that higher weight-loss specific self-efficacy predicted more successful weight loss and maintenance. Along those same lines, Hagler et al. (2007) reported that increased self-efficacy was related to behaviors associated with weight loss such as increasing dietary fiber and improving fruit and vegetable consumption. Additionally, a study of 54 obese women found that those with the highest self-efficacy beliefs and greater self-esteem at baseline lost more weight than the “disbelievers.” The disbelievers were defined as those who had less confidence in their ability to manage weight and gave up more quickly (Dennis & Goldberg, 1996).

Warziski, Sereika, Styn, Music, and Burke (2008) found that an increase in self-efficacy was associated with weight loss even after controlling for dietary adherence. Participants lost nearly 5% of their baseline weight at study completion and the overall improvement in self-efficacy was 11.7%. This self-efficacy improvement is consistent with others who noted increases in self-efficacy during the course of weight loss treatment (Ash et al., 2006; Burke et al. 2004; Clark et al. 1991).

Additional evidence supports the belief that improvement in weight-loss specific self-efficacy is a correlate of weight-loss success. Roach et al. (2003) found that as self-efficacy increased, food choices improved and weight loss increased. This study incorporated techniques to enhance self-efficacy in young adults enrolled in a 12-week weight reduction program.

Byrne, Barry & Petry's (2012) examined the role of changes in self-efficacy on weight loss outcomes. They found that increased exercise self-efficacy was a significant predictor of weight-loss. Conversely, they reported that baseline self-efficacy scores for both diet and exercise were not related to weight loss, suggesting that changes in self-efficacy, especially for exercise, are more important than baseline self-efficacy for weight loss achievement. Therefore,
individuals who develop greater confidence in their ability to exercise may be more likely to continue in the face of obstacles and lose more weight.

Interestingly, Byrne, Barry & Petry (2012) did not find change in diet self-efficacy to be a significant predictor of success. However, they hypothesized that "the strong association between changes in diet and exercise self-efficacy, diet self-efficacy would likely have predicted weight loss had exercise self-efficacy not been included in the analysis" (p. 697).

With respect to self-efficacy and nutrition behavior, Anderson et al. (2000) found that shoppers with higher self-efficacy had more positive expectations about the effect of nutrition behavior on their budgets and on their satisfaction with the foods they bought and ate. Another study (Anderson et al., 2001) utilized the Nutrition for a Lifetime System (NLS), which is a self-administered, computer-based intervention based on social cognitive theory. The NLS was available through a kiosk in the supermarket and provided information, behavioral strategies, and incentives to help participants set and evaluate nutrition-related goals and behaviors.

The group of participants who used the NLS system decreased fat and increased their produce consumption and maintained those changes at the 4- to 6-month follow-up. Additionally, these participants were more likely to meet nutritional goals after treatment compared to the control group, who did not receive access to the NLS. They found that the NLS increased self-efficacy, physical outcome expectations, and social outcome expectations (self-efficacy for preparing and eating low-fat meals, expected appetite satisfaction, and expected family reactions.)

While these studies support the role of self-efficacy in weight loss, there are some inconsistent findings in empirical studies that must be noted.
In contrast to the research above, researchers examining 106 overweight or obese African-American women found that higher levels of self-efficacy before treatment began were associated with less weight loss, suggesting that high initial self-efficacy might actually result in overconfidence or inexperience with the complex factors of losing weight (Martin, Dutton & Brantley, 2003). Furthermore, White et al. (2004) found that higher self-efficacy was not related to greater weight loss among adolescents and Linde et al. (2004) reported that high self-efficacy was not predictive of weight loss in men. Lastly, in a Web-based weight-loss program with over 2,000 participants, individuals with higher self-efficacy baseline scores were less likely to attend the follow-up assessment at the 12 month mark (Glasgow et al., 2007). Therefore, this current study aims to fill in the research gaps and identify how self-efficacy plays a role in participant success within a virtual wellness community of women.

**Operationalized Definitions of Self-Efficacy with Respect to Weight Loss**

Armitage et. al (2014) evaluated the two ways in which self-efficacy has been operationalized in previous literature. Some studies refer to self-efficacy as "global self-efficacy," which reflects general feelings of confidence in one's ability to lose weight (Armitage et. al, 2014; McConnon et al., 2012). While another reference, "self-efficacy for temptations," focuses on feelings of confidence in one's ability to overcome situations which make it more difficult to follow his or her diet, such as being tired, stressed, or hungry (Armitage et. al, 2014; Byrne, Barry & Petry, 2012; Prochaska, Norcross, Fowler, Follick & Abrams, 1992). Armitage et. al (2014) conducted two studies to investigate the ways in which self-efficacy contributes to weight loss success. In their first study, 115 dieting overweight/obese women at high risk of breast cancer were weighed and completed questionnaires assessing motivation, global self-efficacy, and self-efficacy for temptations. The women were weighed 3-months post baseline and
weight was the main outcome measure. Their second study was identical, but changes in psychological variables were computed and used to predict weight 6-months post-baseline.

Their principal finding was that, controlling for motivation and global self-efficacy, self-efficacy for temptation was the only significant predictor of weight loss. Consistent with the findings of Byrne et al. (2012), the principal finding of Armitage et al.'s (2014) first study was that improvements in self-efficacy for temptations would be a significant predictor of weight loss six months later. In contrast, the global self-efficacy measure was almost unrelated to weight loss. This finding supports those of a study by Matsuo et al. (2010), whose work suggested that trait self-efficacy was negatively related to weight loss.

The findings from both of Armitage et al.'s (2014) studies showed that self-efficacy for temptations was predictive of subsequent weight loss. Considering potential situations in which one might be tempted to break a diet provides a clearer understanding of the weight loss process. Furthermore, designing behavioral interventions that are aimed at improving people’s ability to overcome specific temptations are more likely to yield greater effects on behavior change than generic self-efficacy training (Armitage et. al, 2014). These findings suggest that the translation of self-efficacy into action is more important than the mere possession of self-efficacy and that attempts to influence or manipulate self-efficacy should focus on potential temptations and specific strategies for coping with them.

While temptations and diet play a role in health and wellness, exercise also plays a pivotal role. The following section will examine the role of self-efficacy in exercise.

**Self-Efficacy and Exercise**

Self-efficacy has been identified as a key determinant in increasing physical activity (Jakicic & Otto, 2006). Findings from experimental studies found that self-efficacy played a role
in physical activity behavior (Darker, French, Eves & Sniehotta, 2010; Olander et al., 2013). Olander and colleagues (2013) examined ways to increase self-efficacy for physical activity through a systematic review and meta-analysis. They examined which behavior change techniques were associated with an increase in self-efficacy for physical activity by reviewing intervention studies that targeted physical activity and self-efficacy in healthy adults.

They found three behavior change techniques that were associated with significant increases in both self-efficacy and physical activity behavior: (1) action planning (planning activity in order to encourage the belief that physical activity is doable), (2) reinforcing effort or progress towards behavior, and (3) providing instruction (on how to perform the activity).

Furthermore, they identified four behavior change techniques that were associated with positive changes in self-efficacy: (1) action planning (planning where and when to act may encourage the belief that engaging in physical activity is possible), (2) time management (this practical skill increases individuals' beliefs that they can control potential obstacles), (3) prompt self-monitoring of behavioral outcomes (monitoring one's weight and seeing a change enhanced the individuals' feelings of control and success), and (4) planned social support/social change (planning how to elicit social support may help people feel more in control of their physical activity because they can receive greater support with obstacles such as family or work commitments. This may also help individuals cope with setbacks and obstacles in physical activity). The latter two, prompt self-monitoring and planned social support/social change, were also associated with positive changes in physical activity.

Despite these findings, the majority of behavior change techniques increased physical activity behavior without having discernible effects on self-efficacy (Olander et al., 2013).
While self-efficacy has been studied in face-to-face studies and through online forums, it has not been studied in the specific context of virtual wellness communities, small online groups that have been designed with the explicit intention of building social support and helping adults reach their wellness goals. The next section will address the formation of such communities, the unique advantages of creating social support through virtual wellness communities, and the obstacles the facilitator and participants might face when participating in these communities.

**Context Review**

A context review that explains these virtual wellness communities will help clarify this unique problem of practice. How do women get involved in these communities? When women see my posts on various social media platforms and are inspired to take control of their health and wellness, they complete an application to share their goals and struggles with me. I contact these women via email and discuss their specific needs and challenges. I match them up with a workout program and nutrition plan that best fits their needs and lives. Then I send the email invitation that grants them access to my private virtual community. The community takes place in a private app called My Challenge Tracker and participants cannot access anything within the app without a specific email invitation. Once they accept the invite, they are prompted to write their goals, enter their weight and measurements, and upload before photos. The first week of the community is all about getting to know each other, building relationships, preparing for the workouts and meal plans, and getting into the right mindset. One day, the focus is on introductions so that participants start to get to know one another and build that sense of community and belonging. Another day is all about nutrition and meal planning. The following day is about goal setting and developing a plan for success. When week two begins, all participants dive into their assigned workout routines and meal plans. As the wellness coach
leading the group, I post a lesson and assignment each morning. The lessons vary from topics on motivation to goal setting to healthy ingredient swaps. Participants are asked to log into the app each day, respond to my daily assignment, log their workout and nutrition, and respond to the other community members. They are encouraged to post questions, share pictures, celebrate successes, and ask for help as needed.

There are unique advantages to an online community. Women can check in at their leisure, any time that fits their schedule. That feeling of anonymity is present, so ladies will often share very deep and personal stories and struggles they might not otherwise share. Most importantly, all of the women have similar goals and lives (most are mothers with small children) and create true friendships and bonds. However, there are also obstacles within these communities. Some women remain lurkers and fail to fully participate in the community and do not get to enjoy the full experience. Others feel like they can go unnoticed and try to disappear when they fall off track. Being that everyone is scattered across the country, I cannot coordinate in-person events or pop into someone’s home when they have gone missing from the virtual community. Luckily, there is no negativity or arguments in the communities and the participants are all supportive of one another.

With respect to goals, it is my desire to help each participant reach her own goals. For this reason, examining the effects of the virtual community on participant self-efficacy is critical to ensuring short and long-term goal attainment and why this research study is necessary.

**Chapter Summary**

This chapter has reviewed the literature that is related to the problem of practice as well as my specific context. Studies on virtual communities, motivation for joining a virtual community, creating a sense of belonging, as well as obstacles in a virtual community were
discussed to further enhance understanding of the unique needs of the virtual space. A theoretical framework was included to highlight the importance of the four influences of self-efficacy and how self-efficacy impacts exercise and eating. Chapter three will discuss the design and methodology for the study.
Chapter 3

Methods

Introduction

This chapter outlines how I examined the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals. Female participants between the ages of 25-38 from the United States were recruited through various social media platforms. This is the standard age group I work with in my professional career; therefore, this age range was reflected in the study. After contacting me at their own will (through Facebook, Instagram, my website, or email) to join one of my wellness communities, they were presented with the opportunity to participate in this research study and be added to a community with fellow research participants or opt out of the research study and join a community with non-research participants. The two communities ran simultaneously and there were no differences in the design or facilitation of the communities; one simply served as a research community and the other as a non-research community. The two groups were not compared. Data were only collected from the consenting participants who were in the research community. They were given the opportunity to withdrawal from the study at any point but remain in the same virtual wellness community to maintain their relationships with their peers.

In order to measure self-efficacy and goal attainment, participants completed a pre- and post-survey through Qualtrics to rate their perceived levels of self-efficacy with regards to maintaining their exercise routines and nutrition plans. Participants also wrote longer answers through open-ended questions on both the pre- and post-surveys. After the twenty-eight day group ended, data were analyzed to address the research question and evaluate participant self-efficacy. I analyzed item-level data by summing scores by line to examine changes from the pre-
to post-surveys and calculating percentages for each item. Total scores across scales were also summed and evaluated to examine changes from the pre- to post-surveys for the community as a whole. A paired-samples t-test was conducted to compare participant self-efficacy scores in the pre-survey and post-survey along with the Cohen’s d effect size. Lastly, the reliability of the full scale was examined by calculating the Cronbach’s alpha scores for both the pre- and post-survey instrument items. For qualitative data, I analyzed the open-ended questions through Template Analysis, a style of thematic analysis, in order to identify emergent themes in participant responses.

**Research Question**

This study used a mixed-methods design to explore participant self-efficacy in a virtual wellness community. Quantitative data were collected through a 5-point Likert pre-survey administered before the virtual community began and again through a post-survey after the community ended. Additionally, qualitative data were collected through open-ended questions on both the pre- and post-surveys.

The research question guiding this study is: What are the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals?

**Participants**

Females between the ages of 25-38 served as the participants of this study. These women voluntarily joined a virtual wellness community in the pursuit of improving their own health and reaching their personal wellness goals. After contacting the researcher at their own will, they were presented with the opportunity to participate in this research study and be added to a community with fellow research participants or opt out of the research study and join a community with non-research participants. They were given the opportunity to withdrawal from
the study at any point but remain in the same virtual wellness community to maintain their relationships with their peers.

**Research Design**

A mixed-method design was used for this study since qualitative methods can contribute to the understanding of meaningful quantities. Quantitative data were collected through pre- and post-surveys with 5-point Likert scaled questions. Qualitative data were collected through two open-ended questions on the pre-survey and four open-ended questions on the post-survey.

The reason for using a mixed-methods design is that if I focus only on what I know how to quantify, I risk ignoring factors that are significant in explaining important relationships and outcomes. As Sofaer (1999) explains, “qualitative methods help provide rich descriptions of phenomena. They enhance understanding of the context of events as well as the events themselves. The use of these methods tends to enhance peripheral vision” (p.1102). Additionally, qualitative data helps to identify patterns among variables, moving inquiry toward more meaningful explanations. And in some cases, the desired outcomes of a program or initiative are well known in advance, but in other cases the full range of outcomes (desired and not desired) of interventions are not fully known at the outset. “This is where the enhanced "peripheral vision" of qualitative methods can be of special use” (Sofaer, 1999, p. 1107). With this research study, I had desired outcomes in mind, but combining quantitative and qualitative data allowed me the opportunity to see the full range of outcomes, those which were expected and unexpected.

Qualitative and quantitative data were collected through a pre- and post-survey administered through Qualtrics. In order to collect initial data, a survey link was sent to all participants via email before the virtual community began in order to measure self-efficacy and collect initial participant goals. Once the virtual community ended, a post-survey link was sent to
all participants through email in order to measure participant self-efficacy and allow participants
the opportunity to share whether or not they met their intended wellness goals and explain which
aspects of the virtual wellness community helped or hindered their goal attainment.

While I had access to additional data within the group (the number of times each person
participated, their personal responses each day, etc.), these data were not used for the purposes of
this study. Only the data collected from the pre- and post-surveys were for this research.

**Instrumentation**

As previously stated, this study employed a mixed-methods design. Participants
completed a pre- and post-survey with 5-point Likert scale questions and open-ended questions.
The pre-survey consisted of 26 items, 24 of which were on a 5-point Likert scale and two open-
ended questions. The post-survey consisted of 28 items, 24 of which were on a 5-point Likert
scale and four open-ended questions.

The pre- and post-surveys were developed based on previously tested measures that
focused on self-efficacy to regulate exercise and eating habits (Bandura, 2006). I added
additional open-ended items to measure specific experiences within the context of this virtual
wellness community that have not been previously studied.

**Quantitative instrument.** Bandura’s (2006) Self-Efficacy to Regulate Exercise
instrument was used as the pre- and post- quantitative measure to assess participants’ self-
efficacy in sticking to an exercise routine at least three times a week when faced with difficult
situations that may interfere with the exercise plan. Out of the 10 items on this scale, some of the
situations listed are “When I am feeling tired,” “When I am feeling under pressure from work,”
“During bad weather.” The instrument asks participants to rate their degree of confidence in
sticking to their exercise routine from Not Sure At All (1), Somewhat Sure (2), Neutral (3), Sure (4), Very Sure (5).

Additionally, Bandura’s (2006) Self-Efficacy to Regulate Eating Habits instrument was used to assess how sure participants are that they can stick to a healthy diet on a regular basis despite difficult situations. Again, the instrument asked participants to rate their degree of confidence in sticking to their healthy diet on a regular basis from Not Sure At All (1), Somewhat Sure (2), Neutral (3), Sure (4), Very Sure (5). Some of the situations are “While watching television,” “Feeling restless or bored,” “During holiday times.”

There are 18 original items on Bandura’s Self-Efficacy to Regulate Exercise instrument and 30 original items on the Self-Efficacy to Regulate Eating Habits instrument, but a total of 28 items (9 and 21 items respectively) were removed due to a lack of relevance to this particular study and to shorten the survey length for participants. Furthermore, some situations were separated into two different items (for example, the original item “When I am feeling under pressure from family or work” was separated into “When I am feeling under pressure from family” and “When I am feeling under pressure from work”). Additionally, Bandura’s (2006) original scale ranged from Cannot Do At All (0) to Highly Certain Can Do (100), but was modified to fit a 5 point-Likert scale for this research study in order to reduce respondent frustration and provide the distribution of responses on a smaller scale.

**Qualitative instrument.** On the pre-survey instrument, two open-ended questions were included to allow participants the ability to indicate their desired goal: “What are your specific goals for exercise this month?” and “What are your specific goals for eating habits this month?”

On the post-survey instrument, four open-ended questions were included to allow participants the opportunity to reflect on their experience (“Did you meet your intended exercise...
goals?” “Did you meet your intended eating habit goals?” “What aspects of the community helped or hindered your exercise goals?” “What aspects of the community helped or hindered your eating habit goals?”

**Validity and reliability of scales.** Since Albert Bandura was the first to define and write about self-efficacy, I am choosing to use self-efficacy scales that were constructed by Bandura himself (2006). These scales were taken from a book on self-efficacy and the specific chapter is titled, “Guide for Constructing Self-Efficacy Scales.” Therefore, I am confident that these scales accurately measured participant self-efficacy in my research study as they are theoretically aligned to construct. As for reliability, since I eliminated some of the original items from the instruments, reliability can be skewed.

Bandura (2006) explains that “the construction of sound efficacy scales relies on a good conceptual analysis of the relevant domain of functioning. Knowledge of the activity domain specifies which aspects of personal efficacy should be measured” (p. 310). With respect to this study, his scales on regulating exercise and eating habits align perfectly with my research question.

Furthermore, since self-efficacy is concerned with perceived ability, the items must be phrased in terms of “can do” rather than “will do” as “can” is a judgement of capability while “will” is a statement of intention. Therefore, efficacy items must accurately reflect the construct. While perceived self-efficacy is a major determinant of intention, the two constructs are conceptually and empirically separable (Bandura, 2006). Furthermore, “perceived self-efficacy can have diverse effects on motivation, thought, affect, and action, so there are many verifiable consequences that can be tested. There is no single validity coefficient. Construct validation is an
ongoing process in which both the validity of the postulated causal structure in the conceptual scheme and the self-efficacy measures are being assessed” (Bandura, 2006, p. 319).

As for content validity of the qualitative items, these open-ended questions are aligned with the virtual community research presented in chapter two as well as my own professional practice and expertise. These items have been strategically designed to uncover aspects that help or hinder goal attainment in a virtual wellness community and will allow me the opportunity to identify emergent themes in participant responses.

See Appendix A for instruments.

**Procedures**

I served as the researcher of this study as well as the facilitator of the virtual wellness community. I created the twenty-eight-day community and conducted it in a private application for mobile devices.

The virtual wellness community for this research study received no different or special treatment compared to the other non-research communities I ran concurrently as it is a non-experimental descriptive study. Therefore, this study did not have a control group. Data were collected from one group of consenting adults only and will not be compared with other communities the researcher is running simultaneously.

If a participant chose to withdrawal from the study, she would remain in the same community and the other members would not be made aware of her withdrawal. However, no participants withdrew from the study.

The group and research study operated as follows:

- I posted about the virtual wellness community on various social media platforms as well as my website in order to recruit willing participants.
Participants voluntarily joined after speaking with me and receiving the details of the wellness program (expectations, personal goals).

Participants received an email invitation in order to gain access to the virtual community, which was hosted in a private application, My Challenge Tracker.

Participants downloaded the application to their phones and completed the set-up steps (entering their current weight, measurements, and photos as well as outlining their personal wellness goals). I had access to this information in order to track and support the participants, but these data were not used in the research study.

Before the first day of the community, the pre-survey was administered to all participants through Qualtrics.

When the community began, I posted daily lessons and assignments within the application/community (goal setting, motivation, wellness tips, fitness tips, recipes, successes, celebrations). Every morning at 5 AM ET, I posted a daily lesson and assignment. Participants could log into the app at any point during the day, respond the daily assignment, and log their personal wellness activity for the day.

I also responded to all participant questions and posts within the community on a daily basis and checked in with each participant individually every week.

On the last day of the study, the post-survey was administered again through Qualtrics.

Data Collection

The purpose of this study was to evaluate the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals. In order to collect initial data, a survey link was sent to all participants before the virtual community began in order to measure
self-efficacy and collect initial participant goals. The pre-survey was conducted through Qualtrics.

Once the virtual community ended, a post-survey was sent to all participants through Qualtrics in order to measure participant self-efficacy and allow participants the opportunity to share whether or not they met their intended wellness goals and explain which aspects of the virtual wellness community helped or hindered their goal attainment. Follow up emails were sent again a few days after the community ended, reminding participants to complete the post-survey.

**Quantitative items.** I was looking for changes in responses from the pre-survey to the post-survey which both utilize Bandura’s (2006) Self-Efficacy to Regulate Exercise instrument and Bandura’s (2006) Self-Efficacy to Regulate Eating Habits instrument. The goal was that participants would rate their confidence in their ability to stick with their exercise routine and healthy eating despite difficult situations higher in the post-survey as compared to their ratings in their pre-survey. This would indicate that the virtual wellness community positively impacted their self-efficacy and goal attainment.

**Qualitative items.** The open-ended questions allowed participants the opportunity to write their initial goals, reflect on their journeys, share how participation in the virtual wellness community impacted their experiences and results, and identify which aspects of the community helped them attain their goals.

**Data Analysis**

**Quantitative items.** Data were analyzed to address the research question and evaluate participant self-efficacy. I analyzed item-level data by summing scores to examine changes from the pre- to post-surveys and calculating percentages for each item to examine the distribution of responses. Total scores across scales were also summed and evaluated to examine changes from
the pre- to post-surveys for the community as a whole. A paired-samples t-test was conducted to compare participant self-efficacy scores in the pre-survey and post-survey along with the Cohen’s d effect size. Mean, standard deviation, and mode of the scales were also calculated. Lastly, the reliability of the full scale was examined by calculating Cronbach’s alpha for both the pre- and post-survey instrument items.

**Qualitative items.** I used Template Analysis and a priori themes (King, 2012 as cited in Brooks et al., 2015) to analyze the open-ended questions in order to identify emergent themes in participant responses. My personal and professional experience as well as my review of the literature helped to identify my study's a priori themes in advance. After collecting the data, I followed the six steps of Template Analysis in order to identify patterns in responses. I first became familiar with the data through many reads and revisits of the data. Then I created a spreadsheet coding template. Preliminary coding was done to uncover data that might contribute to answering my research question. The initial a priori themes were drawn from Bandura's self-efficacy theory (1997): mastery experiences, vicarious experiences, verbal persuasion, physiological states. Additional a priori themes were drawn from my professional experience: consistency, temptations, motivation. However, this initial coding template failed to align with the data. As I examined the data that was relevant and contributed to the research question, I found that many of my a priori themes were not applicable, were not present in the data, and/or the verbiage that emerged through patterned responses was slightly different than what I had anticipated. In response and in line with Template Analysis, I created a new iteration of the template to better fit the data and emerging themes and then pasted quotes from participant responses into the coding template under the appropriate themes. This iterative process of modifying successive versions of the template allowed a comprehensive representation of my
interpretation of the data (Brooks & King, 2014). After applying the finalized coding template, I was able to illuminate the data set, craft my interpretations of the data, and present the findings in Chapter 4.

Chapter Summary

This chapter presented the research question for the study along with information about the research design, participants, and instruments for the study. The chapter concludes with a description of the data collection and analysis plan.
Chapter 4

Findings

Introduction

The purpose of this study was to investigate the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals. The study was conducted in a private virtual community through the mobile application My Challenge Tracker from June 17, 2019 to July 14, 2019. This chapter presents an analysis of the data gathered from two sources: a pre-survey and post-survey of participant self-efficacy and personal goals. The findings from the quantitative and qualitative data collected inform the sole research question of the study: What are the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals?

Description of the Participants

Thirteen individuals chose to participate in the study, however, data from only eight participants were analyzed. One participant’s pre-survey responses were not recorded due to technical errors, which nulled her post-survey answers. Another participant’s post-survey responses were not saved and she did not re-take the survey. And three other participants stopped participating in the virtual community due to various life circumstances that interfered with their abilities to continue with the program and study. Therefore, data from the eight remaining participants were analyzed for the purposes of this study.

Although the sample of women was small, the group was representative of the population of women who traditionally participate in these virtual wellness communities. The participants ranged from 25-38 years of age and lived in the United States.
Data Analysis

Summary tables of the data collected from the surveys are presented in this section. An analysis using descriptive statistics for the quantitative data and an emergent theme analysis for the qualitative data are provided.

Self-efficacy to regulate exercise. Bandura’s (2006) Self-Efficacy to Regulate Exercise instrument was used as the pre- and post- quantitative measure to assess participants’ self-efficacy in sticking to an exercise routine at least three times a week when faced with difficult situations that may interfere with the exercise plan. The instrument asked participants to rate their degree of confidence in sticking to their exercise routine from Not Sure At All (1), Somewhat Sure (2), Neutral (3), Sure (4), Very Sure (5). The percentage of participants who reported scores in each response category for all 10 items on the pre- and post-surveys are shown in Table 1.

The largest increases in self-efficacy were reported in item #1: When I am feeling tired, #5: During holiday times, and #8: When visitors are present. There was also a positive shift in responses for item #6: when I feel physical discomfort when I exercise. Another positive change was in item #10: during a vacation.

On the pre-survey, the majority of participants (62.5%) were Somewhat Sure they could maintain their exercise routines while on vacation, but efficacy levels increased in the post-survey with more participants reporting they were Sure (25%) and Very Sure (12.5%) they could stick with their plans.
Table 1: Percentages of Participant Responses for Self-Efficacy to Regulate Exercise

1. When I am feeling tired

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>75%</td>
<td>0%</td>
<td>12.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
<td>75%</td>
<td>0%</td>
</tr>
</tbody>
</table>

2. When I am feeling under pressure from work

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>0%</td>
<td>37.5%</td>
<td>25%</td>
<td>37.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
</tbody>
</table>

3. When I am feeling under pressure from family

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>50%</td>
<td>12.5%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>37.5%</td>
<td>25%</td>
<td>25%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

4. When I am feeling depressed

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>37.5%</td>
<td>37.5%</td>
<td>0%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>12.5%</td>
<td>25%</td>
<td>12.5%</td>
<td>50%</td>
<td>0%</td>
</tr>
</tbody>
</table>

5. During holiday times

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>25%</td>
<td>50%</td>
<td>25%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
</tr>
</tbody>
</table>

6. When I feel physical discomfort when I exercise

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>25%</td>
<td>12.5%</td>
<td>37.5%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>25%</td>
<td>25%</td>
<td>37.5%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

7. When I have too much work to do at home

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>25%</td>
<td>50%</td>
<td>0%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>12.5%</td>
<td>0%</td>
<td>37.5%</td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
<td>----</td>
<td>-------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>8. When visitors are present</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-survey</td>
<td>62.5%</td>
<td>25%</td>
<td>12.5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>12.5%</td>
<td>12.5%</td>
<td>0%</td>
<td>62.5%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-survey</th>
<th>12.5%</th>
<th>0%</th>
<th>37.5%</th>
<th>50%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Without support from my family or friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-survey</td>
<td>50%</td>
<td>25%</td>
<td>0%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>25%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-survey</th>
<th>12.5%</th>
<th>0%</th>
<th>37.5%</th>
<th>50%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. During a vacation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>62.5%</td>
<td>25%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>12.5%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Total responses for each scale (Not At All Sure, Somewhat Sure, Neutral, Sure, Very sure) are listed in Table 2. The majority of responses on the pre-survey were Somewhat Sure (42.5%) but on the post-survey the majority of responses were Sure (41.25%), indicating an increase in participant self-efficacy.

The Not At All Sure responses dropped from 26.25% on the pre-survey to 7.5% on the post-survey, which also contributes to the increase in self-efficacy. Additionally, the Somewhat Sure responses dropped from 42.5% on the pre-survey to 23.75% on the post-survey while the Neutral responses increased from 13.75% on the pre-survey to 18.75% on the post-survey. Sure responses accounted for 15% of answers on the pre-survey, but 41.25% on the post-survey. Additionally, the Very Sure responses grew from 2.5% on the pre-survey to 8.75% on the post-survey.
Table 2: Overall Changes in Self-Efficacy to Regulate Exercise

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey totals</td>
<td>26.25%</td>
<td>42.5%</td>
<td>13.75%</td>
<td>15%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Post-survey totals</td>
<td>7.5%</td>
<td>23.75%</td>
<td>18.75%</td>
<td>41.25%</td>
<td>8.75%</td>
</tr>
</tbody>
</table>

As for the reliability of the scale, Cronbach’s alpha indicates high internal consistency on both the pre-survey (α = .836) and post-survey (α = .834). No items were omitted after Cronbach’s alpha was calculated because they were all within a close range. Table 3 presents these values.

Table 3: Cronbach’s Alpha Scores for Pre- and Post-Surveys for Self-Efficacy to Regulate Exercise

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Survey</td>
<td>.836</td>
<td>10</td>
</tr>
<tr>
<td>Post-Survey</td>
<td>.834</td>
<td>10</td>
</tr>
</tbody>
</table>

The mean, standard deviation, and mode scores for the scales as a whole are shown in Table 4. The overall mean score increased on the post-survey, indicating higher levels of self-efficacy after participation in the virtual wellness community. The mode score also increased from the pre- to the post-survey further supporting the previous data.
Table 4: Overall Changes in Self-Efficacy to Regulate Exercise: Mean, Standard Deviation, and Mode for the Whole Scale

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>22.50</td>
<td>32.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>6.82</td>
<td>7.25</td>
</tr>
<tr>
<td>Mode</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

A paired-samples t-test was conducted to compare participant self-efficacy scores in the pre-survey and post-survey. There was a significant difference in the pre-survey scores (M = 22.50, SD = 6.82) and post-survey scores (M = 32.00, SD = 7.25); t(2.79) = 7, p = .027. These results suggest that participation in a virtual wellness community does have an effect on participant self-efficacy. Furthermore, Cohen’s effect size value (d = 1.35) suggests a high practical significance, despite the small sample size. These results are displayed in Table 5.

Table 5: Results of t-test and Descriptive Statistics for Pre- and Post-Surveys for Self-Efficacy to Regulate Exercise

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
<th>95% CI for Mean Difference</th>
<th>n</th>
<th>d</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22.50</td>
<td>6.82</td>
<td>32.00</td>
<td>7.25</td>
<td>8</td>
<td>1.44, 17.55</td>
<td>1.35</td>
</tr>
</tbody>
</table>

* p < .027

Self-efficacy to regulate eating habits. Bandura’s (2006) Self-Efficacy to Regulate Eating Habits instrument was used as the pre- and post- quantitative measure to assess participants’ self-efficacy and asked them to rate their degree of confidence in sticking to their healthy diet on a regular basis. The instrument asked participants to rate their degree of confidence in sticking to a healthy diet on a regular basis from Not Sure At All (1), Somewhat
Sure (2), Neutral (3), Sure (4), Very Sure (5). Percentages of answers for each response category for all 14 items on the pre- and post-surveys are shown in Table 6.

The most noticeable changes in self-efficacy can be seen in item #2: during holiday times, #3: feeling upset or tense over job related matters, and #14: parties where a lot of unhealthy foods are being served.

Table 6: Percentages of Participant Responses for Self-Efficacy to Regulate Eating Habits

<table>
<thead>
<tr>
<th>1. Feeling restless or bored</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>12.5%</td>
<td>25%</td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>12.5%</td>
<td>12.5%</td>
<td>37.5%</td>
<td>25%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. During holiday times</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>25%</td>
<td>37.5%</td>
<td>25%</td>
<td>12.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>25%</td>
<td>12.5%</td>
<td>25%</td>
<td>37.5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Feeling upset or tense over job-related matters</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>37.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>25%</td>
<td>25%</td>
<td>37.5%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Feeling upset or tense over family matters</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>25%</td>
<td>25%</td>
<td>37.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>12.5%</td>
<td>12.5%</td>
<td>25%</td>
<td>37.5%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. When angry or annoyed</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>12.5%</td>
<td>0%</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>0%</td>
<td>12.5%</td>
<td>75%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. When very hungry</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey</td>
<td>12.5%</td>
<td>12.5%</td>
<td>0%</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>Post-survey</td>
<td>0%</td>
<td>0%</td>
<td>12.5%</td>
<td>75%</td>
<td>12.5%</td>
</tr>
<tr>
<td></td>
<td>Not At All Sure</td>
<td>Somewhat Sure</td>
<td>Neutral</td>
<td>Sure</td>
<td>Very Sure</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>---------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Pre-survey</strong></td>
<td>0%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>0%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>50%</td>
<td>0%</td>
</tr>
</tbody>
</table>

7. When lots of junk food is available in the house

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-survey</strong></td>
<td>0%</td>
<td>37.5%</td>
<td>37.5%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>12.5%</td>
<td>25%</td>
<td>25%</td>
<td>37.5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

8. Feel like celebrating with others

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-survey</strong></td>
<td>12.5%</td>
<td>50%</td>
<td>37.5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>25%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>25%</td>
<td>0%</td>
</tr>
</tbody>
</table>

9. Feel a strong urge to eat processed foods that you like

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-survey</strong></td>
<td>0%</td>
<td>50%</td>
<td>25%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>0%</td>
<td>62.5%</td>
<td>12.5%</td>
<td>25%</td>
<td>0%</td>
</tr>
</tbody>
</table>

10. Feel a strong urge to eat sugary foods that you like

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-survey</strong></td>
<td>25%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>0%</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
<td>0%</td>
</tr>
</tbody>
</table>

11. During vacations

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-survey</strong></td>
<td>37.5%</td>
<td>50%</td>
<td>0%</td>
<td>12.5%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>37.5%</td>
<td>12.5%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
</tr>
</tbody>
</table>

12. Eating out

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-survey</strong></td>
<td>12.5%</td>
<td>50%</td>
<td>12.5%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Post-survey</strong></td>
<td>0%</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
<td>0%</td>
</tr>
</tbody>
</table>

13. Eating out with others when they are ordering unhealthy meals
Total responses for each scale (Not At All Sure, Somewhat Sure, Neutral, Sure, Very sure) are listed in Table 7. The majority of responses on the pre-survey were Somewhat Sure (40.18%) but on the post-survey, the majority of responses were Sure (35.71%), indicating an increase in participant self-efficacy. The Not At All Sure responses dropped slightly from 13.39% on the pre-survey to 10.71% on the post-survey. The Somewhat Sure responses also dropped from 40.18% on the pre-survey to 28.57% on the post-survey while the Neutral responses increased from 16.07% on the pre-survey to 21.43% on the post-survey. The Sure responses grew from 28.57% to 35.71% and the Very Sure responses also grew from 1.79% to 3.57%.

Table 7: Overall Changes in Self-Efficacy to Regulate Eating Habits

<table>
<thead>
<tr>
<th></th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-survey totals</td>
<td>13.39%</td>
<td>40.18%</td>
<td>16.07%</td>
<td>28.57%</td>
<td>1.79%</td>
</tr>
<tr>
<td>Post-survey totals</td>
<td>10.71%</td>
<td>28.57%</td>
<td>21.43%</td>
<td>35.71%</td>
<td>3.57%</td>
</tr>
</tbody>
</table>

As for the reliability of the scale, Cronbach’s alpha indicates high internal consistency on both the pre-survey (α = .772) and post-survey (α = .932). These values are presented in Table 8.
Table 8: Cronbach’s Alpha Scores for Pre- and Post-Surveys for Self-Efficacy to Regulate Eating Habits

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Survey</td>
<td>.772</td>
<td>14</td>
</tr>
<tr>
<td>Post-Survey</td>
<td>.932</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 9 presents the mean, standard deviation, and mode scores for the scales as a whole. The overall mean score increased on the post-survey, indicating higher levels of self-efficacy after participation in the virtual wellness community. The mode score also increased from the pre- to the post-survey.

Table 9: Overall Changes Self-Efficacy to Regulate Eating Habits: Mean, Standard Deviation, and Mode for the Whole Scale

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>37.25</td>
<td>41.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7.57</td>
<td>11.18</td>
</tr>
<tr>
<td>Mode</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

A paired-samples t-test was conducted to compare participant self-efficacy scores in the pre-survey and post-survey. There was not a significant difference in the pre-survey scores (M = 37.25, SD = 7.57) and post-survey scores (M = 41.00, SD = 11.18); t(1.29) = 7, p = .236. These results suggest that participation in a virtual wellness community does not have a significant effect on participant self-efficacy. In terms of effect size, Cohen’s effect size value (d = .3925) suggests a low practical significance. These results can be found in Table 10.
Table 10: Results of t-test and Descriptive Statistics for Pre- and Post-Surveys for Self-Efficacy to Regulate Eating Habits

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
<th>95% CI for Mean Difference</th>
<th>d</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.25</td>
<td>7.57</td>
<td>41.00</td>
<td>11.18</td>
<td>8</td>
<td>-3.09</td>
<td>10.59</td>
</tr>
</tbody>
</table>

* p < .236

Open-ended responses. Template Analysis was the methodological approach used to identify patterns of meaning across the qualitative dataset. On the pre-survey instrument, two open-ended questions were included to allow participants the ability to indicate their desired goal: “What are your specific goals for exercise this month?” and “What are your specific goals for eating habits this month?”

On the post-survey instrument, four open-ended questions were included to allow participants the opportunity to reflect on their experience (“Did you meet your intended exercise goals?” “Did you meet your intended eating habit goals?” “What aspects of the community helped or hindered your exercise goals?” “What aspects of the community helped or hindered your eating habit goals?”). Participant responses are shown in Table 11 and Table 12.

Table 11: Pre- and Post-Survey Open-ended Responses for Exercise Habits

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Survey Open Ended Question #1: What are your specific goals for exercise this month?</th>
<th>Post-Survey Open Ended Question #1: Did you meet your intended exercise goals?</th>
<th>Post-Survey Open Ended Question #3: What aspects of the community helped or hindered your exercise goals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I’d like to gain some strength and stick with it. I also want to stick with the program and not give up.</td>
<td>Yes, I completed the exercise program every day.</td>
<td>Knowing that the coach and other members would see my daily entries helped keep me going.</td>
</tr>
<tr>
<td>2</td>
<td>To workout everyday.</td>
<td>No I did not.</td>
<td>Seeing everyone in the group pushing themselves.</td>
</tr>
</tbody>
</table>
### 3
Currently I work out with a trainer 2-3 days a week, I would like to also incorporate in home work outs on the days I do not see her and also when I go out of town to visit my parents for the summer. I would also like to stick to the in home workout routine, something I have struggled with in the past.

Yes I did.
The continued positive reinforcement.

### 4
To complete every workout every day.

No. I moved cross country, and didn't stay consistent during the time.

It made me feel more guilty when I missed workouts, and less likely to log in.

### 5
To feel stronger and more capable

Not quite

Morning sickness slows me down

### 6
I want to start working on an exercise goal. My doctor and therapist want me to exercise more to help with my mood disorder, but I have never been successful in the past. I am hoping that the online community and accountability of this program will help me to be more successful.

No

I was fine while in the group but I struggled with momentum after the group ended.

### 7
Begin to exercise regularly and make it part of my daily routine

Yes I am constantly improving and could feel the strength I am gaining every day

Motivation on knowing I am not alone.

### 8
I would like to lose some weight to start feeling better physically and mentally. And get into a routine to help me stay on track.

Yes! I made the time during the day to add in a little exercise daily.

Being a mom of 3 definitely had its challenges in squeezing in that exercising.

---

Two participants set a goal of exercising every day while the other six wanted to start an exercise routine and make it part of a normal habit/routine. Three participants used the word “routine” in their initial goal statements. Additionally, another emergent theme is “sticking with it” since two participants used the phrases “stick to” and “stick with” in their responses. Five of the eight participants indicated they wanted to “stay on track,” “stick with it,” “be more successful,” and “exercise regularly.” Beyond the desire to make exercise a regular habit, two
participants mentioned emotional goals in their responses. One said “I would like to lose some weight to start feeling better physically and mentally” while another said “My doctor and therapist want me to exercise more to help with my mood disorder.”

**Table 12: Pre- and Post-Survey Open-Ended Responses for Eating Habits**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre-Survey Open Ended Question #2: What are your specific goals for eating habits this month?</th>
<th>Post-Survey Open Ended Question #2: Did you meet your intended eating habit goals?</th>
<th>Post-Survey Open Ended Question #4: What aspects of the community helped or hindered your eating habit goals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am going to reduce the sugar intake and work on following the meal plan.</td>
<td>No, I did not meet my goal of 80/20 healthy eating.</td>
<td>Reminders and tips from the coach helped me with my eating habits.</td>
</tr>
<tr>
<td>2</td>
<td>Meal prep past week 1 and 2</td>
<td>Yes.</td>
<td>I loved reading everyone successes.</td>
</tr>
<tr>
<td>3</td>
<td>To eat clean and also be conscious of the calories I am consuming.</td>
<td>No, unfortunately, I did not.</td>
<td>Sharing of recipes helped a lot.</td>
</tr>
<tr>
<td>4</td>
<td>To follow the plan completely.</td>
<td>Yes. I've definitely improved a lot, but not quite where I had hoped to be.</td>
<td>It helped, because I remembered to at least drink Shakeology even if I didn't record it</td>
</tr>
<tr>
<td>5</td>
<td>Stop giving in to every craving</td>
<td>No</td>
<td>Again, morning sickness makes it hard to eat in general</td>
</tr>
<tr>
<td>6</td>
<td>I am not a big eater, so I want to try to make each calorie count. Again, I am hoping the online community will help hold me accountable to eat more nutritious meals, which will also improve my mood.</td>
<td>Yes</td>
<td>I love drinking my shakes everyday.</td>
</tr>
<tr>
<td>7</td>
<td>Try to eat regularly and plan meals ahead to avoid overeating or wanting junk foods</td>
<td>Not yet but I have significantly improved and getting mindful and getting conscious about going down the rabbit hole if I slip up.</td>
<td>It did neither for me most of the time</td>
</tr>
<tr>
<td>8</td>
<td>I am a sweet eater! I need to find more balance in my diet and choose the healthier options.</td>
<td>I am watching myself make much better decisions when it comes to food!</td>
<td>Did not answer</td>
</tr>
</tbody>
</table>
In terms of eating habits, two participants set goals of sticking to the meal plan in its entirety while the remaining six set goals that were not as strict. One of the common themes was dealing with cravings. Some responses were “avoid overeating or wanting junk foods,” “stop giving in to every craving,” “reduce the sugar intake,” and “I am a sweet eater! I need to find more balance in my diet and choose the healthier options.” One participant mentioned the emotional goal of “choosing more nutritious meals, which will also improve my mood.” Making smarter choices is also an emergent theme as several participants responded with “make each calorie count,” “eat more nutritious meals,” “choose healthier options,” “eat clean and be conscious of the calories I am consuming,” and “eat regularly and plan meals ahead.”

In terms of meeting their intended exercise goal, half the participants said they met their goal and half said they did not. Similarly, half of the participants met their intended eating habit goal while half responded that they did not. Only one participant reached both intended goals while the rest met one but not the other. One participant reached neither goal. Tables 13 and 14 present these findings.

Table 13: Post-Survey Open-Ended Responses: Goal Attainment

<table>
<thead>
<tr>
<th>Post-Survey Open Ended Question #1: Did you meet your intended exercise goals?</th>
<th>Positive Participant Responses</th>
<th>Negative Participant Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Yes I did.</td>
<td>-Yes, I completed the exercise program every day.</td>
<td>-No I did not.</td>
</tr>
<tr>
<td>-Yes! I made the time during the day to add in a little exercise daily.</td>
<td>-Yes I am constantly improving and could feel the strength I am gaining every day</td>
<td>-No. I moved cross country, and didn't stay consistent during the time</td>
</tr>
<tr>
<td>-Not quite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-Survey Open Ended Question #2: Did you meet your intended eating habit goals?</th>
<th>Positive Participant Responses</th>
<th>Negative Participant Responses</th>
</tr>
</thead>
</table>

67
-Yes
-Yes. I’ve definitely improved a lot, but not quite where I had hoped to be.
-I am watching myself make much better decisions when it comes to food!
-Yes
-No, unfortunately, I did not.
-No, I did not meet my goal of 80/20 healthy eating.
-Not yet but I have significantly improved and mindful and getting conscious about going down the rabbit hole if I slip up.
-No

Table 14: Participant Goal Attainment

<table>
<thead>
<tr>
<th>Participant</th>
<th>Met Exercise Goal</th>
<th>Met Eating Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Participant 2</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Participant 3</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Participant 4</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Participant 5</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Participant 6</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Participant 7</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Participant 8</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

While only half reported meeting their intended goals, a theme of “improvement” did emerge. One participant said “I’ve definitely improved a lot,” another said, “I am watching myself make much better decisions when it comes to food!,” another responded, “Not yet, but I have significantly improved and mindful and getting conscious about going down the rabbit hole if I slip up,” and with respect to exercise one stated, “Yes I am constantly improving and could
feel the strength I am gaining every day.” This as well as other emergent themes are examined in Tables 15 and 16.

**Table 15: Emergent Themes in Open-Ended Responses**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Participant Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>In initial goals, participants were mainly interested in making exercise a healthy habit or routine they could “stick” with.</td>
<td>-I would like to lose some weight to start feeling better physically and mentally. And get into a routine to help me stay on track.</td>
</tr>
<tr>
<td></td>
<td>-I’d like to gain some strength and stick with it. I also want to stick with the program and not give up.</td>
</tr>
<tr>
<td></td>
<td>-I would also like to stick to the in home workout routine, something I have struggled with in the past.</td>
</tr>
<tr>
<td></td>
<td>-I’d like to gain some strength and stick with it. I also want to stick with the program and not give up.</td>
</tr>
<tr>
<td></td>
<td>-Begin to exercise regularly and make it part of my daily routine</td>
</tr>
<tr>
<td></td>
<td>-I want to start working on an exercise goal. My doctor and therapist want me to exercise more to help with my</td>
</tr>
<tr>
<td>In initial goals, participants were primarily concerned with dealing with cravings.</td>
<td>-Stop giving in to every craving</td>
</tr>
<tr>
<td></td>
<td>-I am not a big eater, so I want to try to make each calorie count. Again, I am hoping the online community will help hold me accountable to eat more nutritious meals, which will also improve my mood.</td>
</tr>
<tr>
<td>Even if participants did not attain their goals, they noticed an improvement.</td>
<td>-I am watching myself make much better decisions when it comes to food!</td>
</tr>
<tr>
<td></td>
<td>-Yes I am constantly improving and could feel the strength I am gaining every day</td>
</tr>
<tr>
<td></td>
<td>-Somewhat. I've definitely improved a lot, but not quite where I had hoped to be.</td>
</tr>
<tr>
<td>Social support and vicarious experiences were important to participant success.</td>
<td>-Seeing everyone in the group pushing themselves.</td>
</tr>
<tr>
<td></td>
<td>-Knowing that the coach and other members would see my daily entries helped keep me going.</td>
</tr>
<tr>
<td></td>
<td>-I loved reading everyone’s successes.</td>
</tr>
<tr>
<td></td>
<td>-It helped, because I remembered to at least drink Shakeology even if I didn't record it</td>
</tr>
<tr>
<td></td>
<td>-Motivation on knowing I am not alone.</td>
</tr>
</tbody>
</table>
mood disorder, but I have never been successful in the past. I am hoping that the online community and accountability of this program will help me to be more successful.

For open-ended questions #3 and #4, an emergent theme analysis was used to identify the themes, highlight significant quotes from participants, and tie these to findings from the literature. This analysis can be found in Table 16.

Table 16: Themes from the Literature Present in Open-Ended Responses

<table>
<thead>
<tr>
<th>Themes from the Literature</th>
<th>Significant Quotes</th>
</tr>
</thead>
</table>
| Vicarious experiences through social models are the second way of strengthening self-efficacy. Seeing others succeed by persevering in the face of difficulty raises the observers' beliefs in their own abilities (Bandura, 1998). | “Seeing everyone in the group pushing themselves.”
|                                                                                              | “I loved reading everyone’s successes.”                                              |
| Those who are verbally persuaded to believe they possess the skills to master given activities are more likely to put forth greater effort and persevere through difficulties than if they foster self-doubt or dwell over self-deficiencies when obstacles arise (Bandura, 1998). | “The continued positive reinforcement.”                                             |
| Social support has been consistently linked to better health outcomes, faster recovery from disease, and positive effect on weight loss and maintenance (Teo, Chia & Mohanraj, 2009; Wing & Jeffery, 1999). Planned social support may help people feel more in control of their physical activity because they can receive greater support with obstacles such as family or work commitments (Olander, et al., 2013). | “Knowing that the coach and other members would see my daily entries helped keep me going.”
|                                                                                              | “Motivation on knowing I am not alone.”                                             |
| The facilitator must create a social environment that encourages peer interaction and provide clear structure and ample support (Eastmond 1995; Ruberg, Moore, & Taylor, 1996). Designing behavioral interventions that are aimed at improving people’s ability to overcome specific temptations are more likely to yield greater | “Reminders and tips from the coach helped me with my eating habits.”                 |
effects on behavior change than generic self-efficacy training (Armitage et. al, 2014).

Many of the statements made by the participants are consistent with findings from the literature. There were two responses that indicated participation in the virtual wellness community hindered success rather than promoted it: “It made me feel more guilty when I missed workouts, and less likely to log in” and “I was fine while in the group but I struggled with momentum after the group ended.” One participant said participation in the group did not help or hinder her progress, “It did neither for me most of the time.” However, many participants enjoyed the experience and stated, “Sharing of recipes helped a lot,” “It helped, because I remembered to at least drink Shakeology even if I didn't record it,” and “I love drinking my shakes every day.”

It is interesting that the quantitative data shows a positive effect on participant self-efficacy, but when asked if they met their intended goals, half of the responses were negative and reported that they did not meet their goals. However, the qualitative data does highlight several positive outcomes of the wellness community and the quantitative data supports those findings. A deeper discussion of the findings and limitations of the study follows in Chapter 5.

Chapter Summary

This chapter shared the findings from the study. Summary tables of the data collected from the surveys were presented. An analysis using descriptive statistics for the quantitative data and an emergent theme analysis for the qualitative data were provided. Chapter five will provide a discussion of the findings as well as implications for the learning.
Chapter 5

Implications

Introduction

The purpose of this study was to investigate the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals. In an effort to positively impact the women I serve in my professional role, I surveyed my virtual wellness community participants to measure their self-efficacy to regulate their exercise and eating habits. This chapter will provide a discussion of the findings related to my research question and to the theoretical framework, the limitations of the study, and directions for future research.

Summary of the Findings

This study had one research question: What are the effects of a virtual wellness community on the self-efficacy of participants to attain their wellness goals?

This question was designed to determine if there was a change in participants’ sense of self-efficacy to regulate exercise and eating habits after participation in a virtual wellness community. The primary data sources pertaining to this question were pre- and post-surveys based off of Bandura’s (2006) Self-Efficacy to Regulate Exercise and Bandura’s (2006) Self-Efficacy to Regulate Eating Habits. These surveys were developed based on previously tested measures that focused on self-efficacy to regulate exercise and eating habits (Bandura, 2006) and adapted to be more relevant to this particular study and to shorten the survey length for participants. Additionally, open-ended items were added to measure specific experiences within the context of this virtual wellness community that have not been previously studied (See Appendix A). The following sections will highlight the key findings and themes from the study.
Finding 1: Participant self-efficacy to regulate exercise increased after participation in a virtual wellness community. The majority of responses on the pre-survey were Somewhat Sure (42.5%) but on the post-survey the majority of responses were Sure (41.25%), indicating an overall increase in participant self-efficacy. The Not At All Sure responses dropped from 26.25% on the pre-survey to 7.5% on the post-survey, which also contributes to the increase in self-efficacy. Additionally, the Somewhat Sure responses dropped from 42.5% on the pre-survey to 23.75% on the post-survey while the Neutral responses increased from 13.75% on the pre-survey to 18.75% on the post-survey. The Sure responses accounted for 15% of answers on the pre-survey, but 41.25% on the post-survey. Lastly, the Very Sure responses grew from 2.5% on the pre-survey to 8.75% on the post-survey.

The data suggest that participants were largely unsure of their abilities to stick with their exercise routines before participating in the wellness community, but over the course of the month, their efficacy increased and they felt more sure of their abilities to stay consistent with their routines by the end of the community and study.

Although the data are not causal here, it is possible that participation in the virtual wellness community helped participants deal with obstacles they perceived as difficult at the pre-survey, such as when they were feeling tired, during holidays, or when visitors were present. There was also a positive shift in responses for item #6: when I feel physical discomfort when I exercise; perhaps indicating that the wellness community promoted a sense of perseverance and better understanding of the exercise process, accepting the discomfort as part of the growth and change. One of the four influences of self-efficacy is physiological states, suggesting that when people feel sore or fatigued, they view it as a sign of weakness, which lowers self-efficacy. The
increase in scores in this dataset suggest that participants learned to alter their perceptions of fatigue and soreness, thus increasing their self-efficacy by the end of the wellness community.

Additionally, there was a positive change in item #10: during a vacation. On the pre-survey, the majority of participants (62.5%) were Somewhat Sure they could maintain their exercise routines while on vacation, but efficacy levels increased in the post-survey with more participants reporting they were Sure (25%) and Very Sure (12.5%) they could stick with their plans. One possibility for this increase is that participants could have gotten into a routine that became part of their lifestyle, which could easily continue while on vacation. Or perhaps they found it easier than expected to fit in a workout while away or began to enjoy the exercise routine and wanted to continue while on vacation. These data present opportunities for further research, which is discussed later in this chapter.

The overall mean and mode scores for the full scale increased on the post-survey, indicating higher levels of self-efficacy after participation in the virtual wellness community. The paired-samples t-test showed a significant difference between the surveys, showing participant growth through the study. And despite having a small sample size, Cohen’s d effect size suggested a high practical significance.

These data suggest that participation in the virtual wellness community had a positive impact on participant self-efficacy to adhere to an exercise routine. Perhaps it was the social support from peers that helped to build the increased confidence (Wright, Rains, & Banas, 2010). Participants celebrated weekly victories in the community, so mastery experiences and vicarious experiences may have also contributed to the increased levels of self-efficacy (Bandura, 1998). Another component of the theoretical framework was physiological states, which can also account for higher post-scores. It is likely that participants learned to reduce stress, alter negative
emotional tendencies, and correct misinterpretations of their physical state (Bandura, 1998) through the educational content provided in the community and through my positive reinforcement. As the leader of this community, I taught participants that fatigue and soreness are not a sign of physical weakness, but part of the process. Perhaps that guiding knowledge helped participants push through the tiredness and soreness and become more confident in their physical abilities.

**Finding 2:** While participant self-efficacy to regulate eating habits increased after participation in a virtual wellness community, the change was not significant. As with exercise, after participating in the virtual wellness community, item-level scores increased, indicating a rise in participant self-efficacy to regulate eating habits. On the pre-survey, the majority of responses were Somewhat Sure (40.18%) but on the post-survey, the majority of responses were Sure (35.71%), indicating an increase in participant self-efficacy. The Not At All Sure responses dropped slightly from 13.39% on the pre-survey to 10.71% on the post-survey. The Somewhat Sure responses also dropped from 40.18% on the pre-survey to 28.57% on the post-survey while the Neutral responses increased from 16.07% on the pre-survey to 21.43% on the post-survey. The Sure responses grew from 28.57% to 35.71% and the Very Sure responses also grew from 1.79% to 3.57%. Overall, participants increased their self-efficacy to make healthy choices. Whether it was the educational content provided in the wellness community or the peer support and sharing, the numbers suggest a positive effect on participant efficacy.

The most noticeable changes in self-efficacy can be seen in item #2: during holiday times, #3: feeling upset or tense over job related matters, and #14: parties where a lot of unhealthy foods are being served. Again, while not causal, it is possible that the educational
content provided in the wellness community, which focused on making healthy choices when attending parties or dealing with stress, contributed to the increases in efficacy scores.

Additionally, the overall mean and mode scores increased across the scales, indicating higher levels of self-efficacy after participation in the virtual wellness community. However, the paired-samples t-test showed no significant effect and the Cohen’s d effect size score indicated a low significance or small effect size. While there was an increase in item-level scores as well as mean and mode scores, the change was not significant and the effect size was small.

Again, while not causal, perhaps it was the mastery experiences and vicarious experiences that attributed to slightly higher levels of self-efficacy. Another component of the theoretical framework, verbal persuasion, could also be credited for the rise in scores. As the leader of this community, I provided educational content that helped participants learn how to make healthier choices without feeling deprived or like they were “dieting.” I stressed the importance of making this a lifestyle change instead of a short-term diet or quick fix. Most importantly, I praised their efforts and provided positive reinforcement along the way. Going into the study, perhaps they believed that they had to be one hundred percent on track in order to be successful and see results. It was my goal to teach them how to live a healthier lifestyle without depriving themselves or being overly concerned with the number on the scale. This approach may have been what resulted in higher levels of self-efficacy to eat healthier after the community ended. Two participants did begin by stating that they wanted to stick to the meal plan completely. At the end, one said she did not meet her goal and the other said that while she did not meet her goal, she did improve “a lot.” Additional data on participant responses is provided in the next section.
Emergent themes. The major themes that emerged from a study of participant responses are as follows:

1. Participants were mainly interested in making exercise a healthy habit or routine they could “stick” when setting goals.
2. Participants were primarily concerned with dealing with cravings.
3. Even if participants did not attain their goals, they noticed an improvement.
4. Social support and vicarious experiences were important to participant success.

Theme 1: Participants were mainly interested in making exercise a healthy habit or routine they could “stick” with when setting goals. Only two participants set a goal of exercising every day while the other six wanted to start an exercise routine and make it part of a normal habit or routine. Three participants used the word “routine” in their initial goal statements. Along with this theme of making exercise a routine, “sticking with it” also emerged as a commonality. Five of the eight participants indicated they wanted to “stay on track,” “stick with it,” “stick to,” “be more successful,” and “exercise regularly.” One of the two participants who set a goal of exercising every day had a unique situation during the study which may have contributed to her not meeting her original goal. On the pre-survey she wrote, “To complete every workout every day.” When asked if she met her intended goal on the post-survey, she shared, “No. I moved cross country, and didn't stay consistent during the time.” Her cross-country move was an outside variable that was not taken into consideration but undoubtedly impacted her success.

The largest increases in self-efficacy were reported in item #1: When I am feeling tired, #5: During holiday times, and #8: When visitors are present. It is possible that the social support of
the group helped participants develop the confidence and discipline they need in order to continue their exercise routines when tired, celebrating, or off their normal schedules with visitors present.

Beyond the desire to make exercise a regular habit, two participants mentioned emotional goals in their responses. One said, “I would like to lose some weight to start feeling better physically and mentally” while another said, “My doctor and therapist want me to exercise more to help with my mood disorder.” This is supported by Bandura’s (2009) research on somatic and physical states. Efficacy beliefs are strengthened by reducing anxiety and depression, building physical strength and stamina, and changing misrepresentations of bodily states” (Bandura, 2009, p. 185).

**Theme 2: Participants were primarily concerned with dealing with cravings.** In terms of eating habits, two participants set goals of sticking to the meal plan in its entirety while the remaining six set goals that were not as strict. The most common theme was dealing with cravings. Some responses were “avoid overeating or wanting junk foods,” “stop giving in to every craving,” “reduce the sugar intake,” and “I am a sweet eater! I need to find more balance in my diet and choose the healthier options.” One participant mentioned the emotional goal of “choosing more nutritious meals, which will also improve my mood.” Making smarter choices ties into this theme as several participants responded with “make each calorie count,” “eat more nutritious meals,” “choose healthier options,” “eat clean and be conscious of the calories I am consuming,” and “eat regularly and plan meals ahead.” This study took place in July when participants were celebrating the 4th of July, summer picnics, parties, and vacations, so their concerns with sugar and junk food are understandable.
In the virtual wellness community, I provided extensive educational content on how to make healthier choices, how to choose treats wisely, how to make decisions at parties and picnics. I also shared healthy recipes each week and encouraged the participants to share their favorite healthy recipes with the group. With respect to the community, one participant stated, “Sharing of recipes helped a lot” and another reported, “Reminders and tips from the coach helped me with my eating habits.” Overall success is discussed in the next theme.

**Theme 3: Even if participants did not attain their goals, they noticed an improvement.**

In terms of meeting their intended exercise goal, half the participants said they met their goal and half said they did not. Similarly, half of the participants met their intended eating habit goal while half responded that they did not. However, a theme of “improvement” did emerge. One participant said “I’ve definitely improved a lot,” another said, “I am watching myself make much better decisions when it comes to food!,” another responded, “Not yet, but I have significantly improved and mindful and getting conscious about going down the rabbit hole if I slip up,” and with respect to exercise one stated, “Yes I am constantly improving and could feel the strength I am gaining every day.”

One of the limitations of this study is that participants were not reminded of the goals they wrote on the pre-survey. This may contribute to why only half of the participants said they met their intended exercise and eating goals. For example, one participant’s pre-survey goal was “I’m going to reduce the sugar intake and work on following the meal plan.” However, her post-survey response was “No, I did not meet my goal of 80/20 healthy eating.” Perhaps reminding participants of their initial goals would have yielded different post-survey responses. This is discussed further in the Limitations section of this chapter.
Theme 4: Social support and vicarious experiences were important to participant success. Consistent with the literature, social support and vicarious experiences were helpful to participant success. When asked what aspects of the virtual wellness community helped them reach their goals, participants reported “Seeing everyone in the group pushing themselves,” “I loved reading everyone’s successes,” “Knowing that the coach and other members would see my daily entries helped keep me going,” and “Motivation on knowing I am not alone.”

Social support has been consistently linked to better health outcomes, faster recovery from disease, and positive effect on weight loss and maintenance (Teo, Chia & Mohanraj, 2009; Wing & Jeffery, 1999). Planned social support, like that which was present in the virtual wellness community, may help people feel more in control of their physical activity because they can receive greater support with obstacles such as family or work commitments (Olander, et al., 2013). Consistent with the theoretical framework, vicarious experiences through social models are the second way of strengthening self-efficacy. Seeing others succeed by persevering in the face of difficulty raises the observers' beliefs in their own abilities (Bandura, 1998).

Limitations of Study

One limitation of the study was that there were a small number of participants due to using a convenience sample. Thirteen participants began the study but three were unable to finish due to life circumstances. Furthermore, the data from two others was not saved in the online survey software. The fact that the participants agreed to participate in the study may have also potentially skewed the data. Their willingness to participate may be related to high levels of self-efficacy. Conducting the study with a small group of women between the ages of 25-38 in the United States may limit generalizations to other age groups, genders, and cultures. Recruiting a
more diverse group of participants may have yielded a broader set of findings. Moving forward, including women who represent a larger spectrum of the population would potentially provide a more intersectional perspective. The involvement of more participants would have offered a larger sample size and increased the potential for generalizable findings.

A second limitation was the limited period of time during which the study was conducted. There were five weeks between the pre- and post-survey. In order to make a lasting lifestyle change, more time may be needed. A longer study may have provided more insights into self-efficacy and could have given participants more time to reach their wellness goals.

The third limitation was the delivery and completion of the pre- and post-surveys. The pre-survey data for one participant did not save and the post-data for another was incomplete, therefore data for two participants had to be omitted from the study. Additionally, there may have been a disconnect when participants completed the post-survey and answered the questions: “Did you meet your intended exercise goals?” and “Did you meet your intended eating habit goals?” I did not remind them of the specific goals they wrote on the pre-survey before answering the post-survey questions. It is possible that they forgot what they wrote at the beginning and incorrectly answered after the wellness community ended. On the pre-survey, one participant wrote, “I would like to lose some weight to start feeling better physically and mentally. And get into a routine to help me stay on track” but responded with “Yes! I made the time during the day to add in a little exercise daily” on the post-survey, which does not explicitly answer her pre-survey goal. Another participant set a starting goal of: “I’m going to reduce the sugar intake and work on following the meal plan” but responded with “No, I did not meet my goal of 80/20 healthy eating” once the community ended, which again does not completely address the starting goal.
Another limitation was that I was the facilitator of the community and study. Knowing this, participants may have provided responses they believed would be pleasing. While I do not believe this is the case, I recognize that this could have impacted the results of the study.

**Implications for Practice**

This study engaged a group of females in the United States in a virtual wellness group and explored the impact on self-efficacy to regulate exercise and eating habits. The data collected from this study give indication of the potential benefits of virtual wellness communities on women’s self-efficacy to attain personal wellness goals. Participation in a virtual wellness community may have provided sources of efficacy information such as mastery experiences and vicarious experiences which seemed to influence participants’ assessments of their self-efficacy for regulating exercise and eating habits.

For the majority of the women in the study, post-reports of self-efficacy were greater than pre-reports, perhaps indicating that peer support and vicarious experiences increased their confidence in their abilities to exercise regularly and make healthier choices. Participants were involved in vicarious experiences of seeing others within the community continue to show up each day, celebrate their victories each week, and overcome obstacles such as busy work schedules, travel, holidays, and family events. As the women watched their peers persevere in the face of obstacles, they were more likely to continue on their own paths and learn that they do not have to be one hundred percent “on track” to succeed.

Each Sunday, participants were asked to celebrate their victories within the community. Taking time to stop and acknowledge these wins may have helped to motivate the women to continue. These mastery experiences are the most effective way of building a strong sense of
efficacy (Bandura, 1998). This dynamic also allows participants to act as observers and encounter vicarious experiences. If participants observe that their peers are overcoming similar obstacles and reaching goals, they are more inclined to persevere and believe they too can achieve success (Bandura, 2009).

Verbal persuasion from peers and the coach may have also contributed to increased efficacy levels. If people are persuaded to believe in themselves, they will most likely exert more effort, which increases their chances of success (Bandura, 2009). Throughout the four weeks of the group, I continually encouraged, praised, and provided positive reinforcement to the women, who in turn, provided that peer support as well. There were several responses that supported this claim. When asked what aspects of the group helped them succeed, one participant said “Seeing everyone in the group pushing themselves,” another reported “Knowing that the coach and other members would see my daily entries helped keep me going,” “Motivation on knowing I am not alone,” “I loved reading everyone’s successes.” Conversely, one participant said the group hindered her progress by stating, “It made me feel more guilty when I missed workouts, and less likely to log in.”

This study provided participants with the time and space to learn about themselves, their health and wellness strengths and struggles, and abilities. Virtual wellness community leaders should work to empower participants to encounter mastery experiences by setting weekly goals and reflecting on them often. When participants acknowledge their small successes, they are more likely to continue with the program and believe they can hit long-term goals (Bandura, 2009). Short-term subgoals keep participants motivated and on track to where they were going because "concentrated effort in the short term brings success in the long term" (Bandura, 2009, p. 195). Furthermore, celebrating those wins within community offers vicarious experiences to the
other participants. Each day, participants were asked to log into the virtual community and provide an update on how their workout went, how their nutrition was, what was going on that day. Bandura (1998) found that if participants observe their peers overcoming similar obstacles and reaching goals, they are more inclined to persevere and believe they too can achieve success. Additionally, leaders of these communities must offer verbal persuasion and positive reinforcement to help participants believe they can reach their intended goals. Lastly, helping participants understand their physiological states is important in helping them deal with stress, fatigue, and misinterpretations of their physical states. Directions for further research are explored more thoroughly in the following section.

**Directions for Further Research**

Having a deeper understanding of how virtual wellness communities can increase participant self-efficacy could lead to more effective practices in the field. While this study scratched the surface of examining the problem of practice, there is much more to be explored.

First, this study could be replicated on a larger scale to explore how a virtual wellness community impacts participant self-efficacy in other contexts and with other populations of people. Recruiting more participants would offer a larger sample size and increase the potential for generalizable findings. Furthermore, involving a more diverse group of participants in a future study may yield a broader set of findings.

Additionally, replicating the study over a longer period of time, perhaps a few months instead of weeks, could also uncover new findings and allow participants more time to reach their goals and make lasting changes. A case study design, which gathers additional data on
participants, could potentially reveal additional factors related to increases and decreases in participant self-efficacy as a result of participating in a virtual wellness community.

In future research, I would also be interested in examining more data to investigate whether higher levels of participation in the wellness community are correlated with increased levels of self-efficacy and higher rates of goal attainment. In the design of this study, I did not collect data on participant engagement in the wellness community, the number of workouts each participant completed, or physical changes in participants such as weight loss/gain or body mass index. In future research, analyzing those data sets could be incredibly insightful to determine if there is a link between participant engagement and success. Are the participants who log in more frequently, post more often, or comment on other participant posts more consistently more likely to persevere and reach their goals? Understanding how engagement in the virtual community helps with participant accountability or how engagement with peers increases goal attainment would be beneficial to future practice and lead to a more comprehensive understanding of changes in self-efficacy. In terms of social support, it would be interesting to see if those who were more social (interacted with the other participants in the group more than others) reached higher levels of goal attainment and self-efficacy.

Another avenue to pursue is examining data sets related to participant body weight, body mass index, and measurements to see if there is a correlation with perceived levels of self-efficacy and weight loss or weight gain.

As I dove into the quantitative data, I became more curious about the results. For example, the majority of participants were Somewhat Sure they could maintain their exercise routines while on vacation, but their efficacy levels increased over the course of the month and
they reported higher scores of Sure and Very Sure by the end. This opens up the question of: Why? Did they learn to love the exercise routines? Did they make their workouts part of their daily routines and lifestyles, realizing they could easily continue while on vacation? What changed their perceptions of self-efficacy over the course of the month? A deeper dive into the data would yield interesting findings; perhaps conducting interviews with participants afterwards to unpack some of the quantitate findings would be beneficial.

Additionally, examining the specific resources and plans that are available to participants in virtual wellness communities may also be beneficial to uncover what educational content is most effective in helping women make healthier choices, develop consistent routines, and reach intended goals.

Lastly, I am interested in seeing how participation in a wellness community impacts the family at home. I would love to see if spouses and children also undergo changes as the matriarch of the house makes healthy lifestyle changes and increases her self-efficacy.

**Leadership Agenda**

This study provided me with the unique opportunity to investigate something close to my heart and understand my professional role through a new lens. It is my goal to continually improve the experiences and content I provide to the women I serve in my professional role. I currently have 100,000 social media followers and these women are the ones who eventually join my virtual wellness communities. I hope to serve these women and leave a lasting impact on their lives. I hope to teach them how to live healthier lives and make smart choices that permeate into the home and impact their children. This dissertation simply scratches the surface of what I plan on exploring, researching, improving, and duplicating in order to scale my impact. I lead a
team of over 1,000 other wellness coaches and take my role as an educational leader seriously. This study has laid the foundation for further improvement inquiry and established the basis for understanding participant self-efficacy and goal attainment. Each day I aim to breathe belief into the wellness coaches and clients with whom I work, to provide the verbal persuasion they need to increase their self-efficacy, and provide opportunities for mastery experiences, vicarious experiences, and improved physiological states. This research has opened my eyes to the possibilities of improvement so I can better serve those on my team and in my virtual communities.

I look forward to continuing my work with women looking to improve their quality of life through healthy lifestyle changes. I aim to improve the experiences women have in my virtual wellness communities and share best practices with other leaders I train so we can positively impact as many lives as we can. That is my hope and my mission.


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Appendix A

Instruments

PRE- SURVEY

Self-Efficacy to Regulate Exercise
A number of situations are described below that can make it hard to stick to an exercise routine. Please rate how certain you are that you can get yourself to perform your exercise routine regularly (three or more times a week) using the scale below.

1. When I am feeling tired
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

2. When I am feeling under pressure from work
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

3. When I am feeling under pressure from family
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

4. When I am feeling depressed
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

4. During holiday times
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

5. When I feel physical discomfort when I exercise
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

6. When I have too much work to do at home
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

7. When visitors are present
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1                2                    3 4 5

8. Without support from my family or friends
<table>
<thead>
<tr>
<th>Situation</th>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. During a vacation</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Feeling restless or bored</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Feeling upset or tense over job-related</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Feeling upset or tense over family matters</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. When angry or annoyed</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. When very hungry</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. When lots of junk food is available in the house</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Feel like celebrating with others</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Feel a strong urge to eat processed foods that you like</td>
<td>Not At All Sure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Self-Efficacy to Regulate Eating Habits**

A number of situations are described below that can make it hard to stick to your nutrition plan. Please rate how certain you are that you can get yourself to stick to a healthy diet on a regular basis using the scale given below.

10. Feeling restless or bored
    Not At All Sure

12. During holiday times
    Not At All Sure

13. Feeling upset or tense over job-related
    Not At All Sure

14. Feeling upset or tense over family matters
    Not At All Sure

15. When angry or annoyed
    Not At All Sure

16. When very hungry
    Not At All Sure

17. When lots of junk food is available in the house
    Not At All Sure

18. Feel like celebrating with others
    Not At All Sure

19. Feel a strong urge to eat processed foods that you like
Open-Ended Question

Please respond to the following questions in sentence or paragraph form.

25. What are your specific goals for exercise this month?
26. What are your specific goals for eating habits this month?

POST- SURVEY

Self-Efficacy to Regulate Exercise
A number of situations are described below that can make it hard to stick to an exercise routine. Please rate how certain you are that you can get yourself to perform your exercise routine regularly (three or more times a week) using the scale below.

<table>
<thead>
<tr>
<th>Not At All Sure</th>
<th>Somewhat Sure</th>
<th>Neutral</th>
<th>Sure</th>
<th>Very Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. When I am feeling tired
2. When I am feeling under pressure from work
3. When I am feeling under pressure from family
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

4. When I am feeling depressed
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

5. During holiday times
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

6. When I feel physical discomfort when I exercise
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

7. When I have too much work to do at home
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

8. When visitors are present
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

9. Without support from my family or friends
   Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
   1  2  3  4  5

10. During a vacation
    Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
       1  2  3  4  5

**Self-Efficacy to Regulate Eating Habits**

A number of situations are described below that can make it hard to stick to your nutrition plan. Please rate how certain you are that you can get yourself to stick to a healthy diet on a regular basis using the scale given below.

11. Feeling restless or bored
    Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
       1  2  3  4  5

12. During holiday times
    Not At All Sure  Somewhat Sure  Neutral  Sure  Very Sure
1. Feeling upset or tense over job-related
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

2. Feeling upset or tense over family matters
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

3. When angry or annoyed
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

4. When very hungry
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

5. When lots of junk food is available in the house
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

6. Feel like celebrating with others
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

7. Feel a strong urge to eat processed foods that you like
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

8. Feel a strong urge to eat sugary foods that you like
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

9. During vacations
   - Not At All Sure
   - Somewhat Sure
   - Neutral
   - Sure
   - Very Sure

10. Eating out
    - Not At All Sure
    - Somewhat Sure
    - Neutral
    - Sure
    - Very Sure

11. Eating out with others when they are ordering unhealthy meals
    - Not At All Sure
    - Somewhat Sure
    - Neutral
    - Sure
    - Very Sure
24. Parties where a lot of unhealthy options are being served
   Not At All Sure       Somewhat Sure    Neutral    Sure    Very Sure
   1                    2               3          4        5

Open-Ended Questions
Please respond to the following questions in sentence or paragraph form.

  25. Did you meet your intended exercise goals?
  26. Did you meet your intended eating habit goals?
  27. What aspects of the community helped or hindered your exercise goals?
  28. What aspects of the community helped or hindered your eating habit goals?