

An Examination of Music Majors' Perceived Barriers to
Complying with an Exercise Program

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ABSTRACT

This dissertation focused on a mixed-methods exploration of the barriers and motivation to exercise in a sample of music majors at a large southeastern university. Due to dietary concerns and other obstacles to engaging in regular exercise, musicians are at a greater dietary and cardiovascular risk than the general population. Previous research has revealed music majors, in general, do not identify as exercisers. This comes with its obvious health risks. Self-determination theory and exercise identity literature posits individuals who more strongly identify as exercisers and who are more intrinsically motivated to exercise will workout more often and more consistently than those who do not identify as exercisers (i.e., are more extrinsically motivated). It is also hypothesized that participants who more strongly identify as exercisers are more confident in their ability to engage in regular exercise--in spite of the various obstacles that they may face.

This project was divided into Study 1 (a quantitative study) and Study 2 (a qualitative study). For Study 1, music majors at a large southeastern university were selected based on access to specific courses at the university music school. Selection criteria included: (a) being 18 years or older and (b) being enrolled as a music major at the university. Participants were 112 music majors, and they filled out a survey packet containing an informed consent, the Barriers Specific Self-Efficacy Scale (BARSE), the Behavioural Regulation in Exercise Questionnaire (BREQ-2), and the Exercise Identity Scale (EIS). Participants for Study 2 were 9 music majors from the Study 1 sample, and their interviews were coded using a modified grounded theory approach.

Results indicate music majors who more strongly identified as exercisers and are more intrinsically motivated to exercise have higher levels of confidence in their perceived ability to

overcome barriers to exercise. Further, music majors who more strongly identify as exercisers and have lower levels of intrinsic motivation are more likely to report a higher number of workout sessions per week over the past 3 months. Results from both studies are discussed, along with practical implications for interventions and calls for future research.

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CHAPTER 1: INTRODUCTION AND REVIEW OF LITERATURE

Obesity among young adults continues to be a serious medical issue in the United States (US). The Centers for Disease Control and Prevention (CDC) defines obesity as having a body mass index (BMI—a person's weight in kilograms divided by the square of height in meters) equal to or greater than 30. Obesity can have serious medical implications, including an increased risk of heart disease, stroke, high blood pressure, asthma, arthritis, type 2 diabetes, and certain forms of cancer. In a recent CDC report (2014), an astonishing 69% of adult Americans were labeled as overweight, with approximately 35.1% of the population categorized as obese. Thus, more than 78 million adults overall directly struggle with obesity. Further, this problem is prevalent across demographic groups, including the young adult population. Most college students do not meet dietary or physical activity guidelines, with 40-50% of college students categorized as physically inactive and nearly 70% failing to meet dietary standards (Huang et al., 2003; Keating, Guan, Pinero, & Bridges, 2005). Unfortunately, the health of Americans appears to be on a steady decline. A recent study commissioned by Nike (2015) suggests that today's children may be the first generation to have a shorter life expectancy than their parents. It is evident that obesity is a widespread problem with far-reaching implications.

Although this problem affects society as a whole, one group of individuals at higher dietary and cardiovascular risk than the general population is musicians, specifically marching band participants (Sharma et al., 2008). While there are exceptions, musicians do not typically identify themselves as athletic nor possess a strong "exerciser" identity (Levy, Statham, & VanDoren, 2013). Even though obesity has a strong genetic component, exercise is critical in maintaining a healthy body weight (Ross et al., 2000; Slentz et al., 2004; Warburton, Nicol, & Bredin, 2006; Wing, 1999), yet individuals who do not view exercise as an integral part of their

identity are often less inclined to engage in physical activity (Anderson, 2004). Research suggests many musicians and specifically marching artists do not engage in consistent exercise during the offseason, leading to an increase in BMI levels and a return to preseason body weight (Levy et al., 2013). Moreover, with the significant pressure and time demands musicians face, it may be more challenging for them to fit exercise into their daily schedules (Brandfonbrener, 2009). Thus, the primary purpose of this study was to examine the perception of exercise among musicians; specifically, to understand what prevents some of them from improving physical fitness, to discover how they view perceived barriers to exercise, and to determine to what extent they view themselves as exercisers. An additional aim was to explore exercise behavior among this population from their own perspective to gain a deeper understanding of the subculture. This was accomplished by using qualitative, in-depth individual interviews. It is hoped the findings of this study will lead to greater insight regarding how to implement exercise programs into performing artists' regular routines.

Exercise and Weight Loss

Maintaining an exercise regimen and engaging in physical activity are an important part of combatting an individual's obesity across various demographic groups. Research suggests adults who report the greatest levels of exercise show the best maintenance of weight loss, while exercise combined with dietary intervention may be the most effective at inducing weight loss (Wing, 1999). A meta-analysis of randomized controlled trials (RCTs) of exercise, dietary, and/or behavioral interventions revealed that the largest weight loss occurred in groups combining exercise with dietary and behavioral interventions, while the least amount of weight loss occurred in groups engaging in aerobic training without dietary and/or behavioral interventions (Söderlund, Fischer, & Johansson, 2009). Strong evidence exists that weight loss

induced by daily physical activity substantially reduces abdominal obesity (Ross, Hudson, Stotz, & Lam, 2015), which is of particular relevance to a number of diseases, including cancer and coronary heart disease (Ashwell & Hsieh, 2005; Abu-Abid, Szold, & Klausner, 2001). Absent changes in diet, however, a higher amount of physical activity is necessary to continue these health benefits (Slentz et al., 2004). It has been well-established that physical activity should be a significant component of an overweight or obese individual's plan to improve their health and sustain their weight loss both in the short-term and the long-term (see also Ross et al., 2000; Safer, 1991; Warburton, Nicol, & Bredin, 2006), although diet, nutrition supplements, and medication may be a part of that plan as well (Johansson, Neovius, & Hemmingsson, 2014; Pittler & Ernst, 2004). It follows then that any health or weight-loss intervention in musicians would include a regimented physical activity program. One of the problems, however, is that musicians may lack the time or motivation to engage in regular exercise.

Musicians and Exercise

As a whole, music majors in college highly identify with their major and are often engaged in numerous major-related activities outside of coursework, including personal rehearsal, lessons, recitals, and participation in ensembles (Brandfonbrener, 2009). Music majors in university settings appear to have multiple obstacles that prevent many of them from committing to regular exercise programs in addition to these other obligations or priorities. First, some have been playing an instrument since they were children and have been warned of the dangers that may befall their hands and fingers by participating in athletics or exercise. Thus, they may avoid exercise to protect their musical careers. Secondly, there is only so much time in each day, and with classes and hours of musical practice already on their schedules, music students often lack the time or the energy to engage in regular exercise routines (Brandfonbrener,

2009). Time and energy have been listed as obstacles to exercise in previous studies (Ackermann, Adams, & Marshall, 2000; Chan, Driscoll, & Ackermann, 2013), but no empirical data was discovered examining the barriers to exercise as identified by this population themselves. The current study hopes to help fill this gap by utilizing music majors in this sample.

Some researchers have found that playing a musical instrument can be physically taxing and may involve physical exertion to some capacity, as it can cause many different physiological ailments for performers (Bejjani, Kaye, & Benham, 1996; Kok, Vlieland, Fiocco, & Nelissen, 2013). Practicing an instrument for many musicians, however, requires hours of sitting for daily practice which can compromise an individual's level of fitness and general health and well-being. In fact, it has been suggested that the physical condition of many music students is inadequate to meet the demands of playing their instruments over a long period of time (Ackermann, Adams, & Marshall, 2000). Experts have therefore recommended that all performing artists and undergraduate music majors follow an exercise and conditioning routine to improve their overall health and well-being, to decrease the frequency and severity of injury (Ackermann, Adams, & Marshall, 2000; Brandfonbrener, 2009), and to potentially improve performance as a consequence of being more physically fit (Wasley, Taylor, Backx, & Williamon, 2012). Musicians should consider the relationship of physical fitness to achieving performance quality and preventing fatigue during a performance, which may occur over the duration of a practice or concert (Drinkwater & Klopper, 2010).

In addition to the physiological benefits, exercise may offer specific positive emotional consequences for performing artists. Physical activity has been linked to multiple mental health outcomes, including increased self-esteem levels (Barton, Griffin, & Pretty, 2012; Fox, 1999; Joseph, Royse, Benitez, & Pekmezi, 2014), antidepressant and anxiety-alleviating effects

(Asmundson et al., 2013; Landers & Petruzzello, 1994; Gore, Farrell, & Gordon, 2001) and diminished social isolation (Gore, Farrell, & Gordon, 2001; Hassmen, Koivula, & Uutela, 2000), just to name a few of the emotional and mental benefits of exercise identified in the literature. While the mental health studies were not conducted with musicians, these results are likely of considerable importance since emotional and psychological well-being are significant components of any individual's overall level of well-being. Musicians may potentially benefit physiologically and psychologically from integrating exercise into their daily lives and practice routines. Future research should also investigate the mental health of musicians, given the time constraints and stressors placed on this population.

Marching Artists and Exercise

While many musicians are sedentary during practice, such as members of an orchestra or a concert pianist, this is not true for all types of musicians. For instance, marching band musicians (e.g., drum and bugle corps, marching percussion ensembles, color guard, etc.) spend multiple hours per day on their feet rehearsing. Hundreds of thousands of young adults and adolescents in the US and around the world are involved in marching arts activities each year (Levy et al., 2013). Specifically, at the high school level, one in five students participates in school-sponsored band programs (US Department of Education, 1997). Many of these students are members of the marching band, with a season spanning from late summer through fall. Some hold to the belief that this subgroup of musicians receives a sufficient amount of physical exercise to promote health and well-being as an inherent part of their practices, rehearsals, and performances.

The *Compendium of Physical Activities* (Ainsworth et al., 2011) classifies specific physical activity by rate of energy expenditure, which is measured by the metabolic equivalent

(MET) of the activity. One MET is defined as the amount of oxygen consumed while sitting at rest. This compendium categorizes the marching arts as a physical activity of *moderate* intensity. However, the calculated values do not reflect individual differences in energy expenditure from person to person. Thus, there could be variation between musicians depending on age, sex, body mass, and type of instrument, in addition to multiple other factors. Further, while marching band participants may experience a high volume or frequency of exercise at this intensity level *during* the season, when the season ends they may not continue to exercise at the same frequency or intensity (Levy et al., 2013). This level of exercise would be hard to maintain for anyone, considering that during band camp marching artists may march upwards of 12-14 miles while carrying an instrument. According to previous research, marching band members take significantly more steps per day on marching band days than on those which they are not involved in these activities (Cowen, 2006).

Currently, the consensus on physical activity guidelines calls for exercise programs that require *moderate* to *vigorous* levels of intensity, which includes a fast or brisk walk (Ainsworth et al., 2011). Recommendations vary on the necessary frequency of exercise, but the American Heart Association (AHA, 2015) and CDC (2015) both call for 150 minutes per week of *moderate* exercise or 75 minutes per week of *vigorous* exercise. The CDC adds muscle-strengthening activities or weight training as part of their suggested plan. When band members spend hours per day marching during practice, they may exceed the preceding recommendations if the marching occurs at a certain pace. It has been estimated that marching band participation is approximately a 4-MET activity for adults, which takes up four times the energy expenditure of an individual at rest (Ainsworth et al., 1993). By comparison, the energy cost of walking is typically found to be in the range of 3 to 7 METs, with potentially higher levels for adolescents. According to the

CDC and AHA guidelines, marching band would fall under the *moderate* level intensity category, consistent with the *Compendium of Physical Activities* classification.

Similarly, Erdmann, Graham, Radlo, and Knepler (2003) explored and created a metabolic cost profile of marching band activity in adolescents, while also examining the influence of marching speed and instrument use on metabolic costs and heart-rate response. Results from their study also provide evidence that the energy demand for marching cadences is approximately 4.5 and 6.0 METs for moderate and fast paces, respectively, meeting the *moderate* intensity criteria for what has been recommended for adults to engage in as part of a regular physical activity routine (AHA, 2015; Ainsworth et al., 1993, CDC, 2015). This profile is consistent with the marginally higher energy costs expected for walking in the adolescent population (Walker, Murray, Jackson, Morrow, & Michaud, 1999). For marching artists, step rates for high school and field performance of around 132 steps per minute are considered to be of moderate cadence, while step rates above 160 steps per minute represent a quick or extremely fast cadence (Spohn & Heine, 1969; Butts, 1974). Erdmann et al. (2003) also found no statistically significant association between the instrument's weight and energy cost or heart-rate response. It should be noted that the participants in this study were only carrying their instruments while marching, so playing may require additional energy expenses. Consistent with other research, Erdmann et al. (2003) propose that marching band practice does in fact meet the criteria for *moderate* activity for adolescents, and that engaging in marching activities significantly contributes to the general exercise profile of an adolescent *during* the months he or she engages in them.

Finally, in a two-year case report of an adolescent female participating in marching band, in addition to altering the quality of diet and healthier caloric intake, the student's BMI decreased

from 31 kg/m² to 27 (Gidding & Falkner, 2003). This dropped her BMI under the CDC's definition of obesity, which is a BMI of 30. The performing artist also experienced a drop in blood pressure, an improvement in insulin sensitivity, and increased muscularity of the upper extremities and torso. These findings provide more evidence that marching band can help someone meet current physical activity recommendations and can help improve a number of significant health outcomes for participants. The preponderance of previous research points to marching arts participation as significant exercise for this population during the marching season, but at the collegiate level many music majors do not engage in marching arts activities.

One study was found that conflicted with findings supporting marching arts as adequate exercise in season. Strand and Sommer (2005) found that subjects did not meet the Surgeon General's recommendation of 30 minutes daily of moderate activity from participation in marching band. Their results revealed that subjects carrying heavy instruments obtained moderate intensity for 9.5 minutes daily compared to 8.3 minutes daily for those carrying light instruments. There is also evidence that the diet and cardiovascular risk in university marching band members may be higher than the general population, with approximately 45% of participants labeled as "overweight" in one study (Sharma et al., 2008). This may be due in part to poor dietary habits and lack of regular exercise. Thus, there is still some concern that marching artists do not receive adequate levels of exercise during the season, and even more concerns regarding the offseason. Overall, it appears that this subculture may be at higher risk of cardiovascular disease (CVD) than the general population (Sharma et al., 2008).

Limitations of the previous studies prevent researchers from claiming that participating in the marching arts directly causes health benefits or that participation is sufficient to meet the physical activity guidelines to maintain physical health and wellness. The case report described

above cannot identify what specifically led to the positive health consequences in the female adolescent marching band participant, nor can the results be generalized to a broader population. Further, these studies have exclusively examined adolescents or have had small sample sizes limiting the power and generalizability of the findings (Erdmann et al., 2003; Strand & Sommer, 2005). Even if a direct causal relationship could be established, the problem still remains that marching season is not year-round. A recent study of world-class drum and bugle corps members found that while performers significantly reduced their BMI from the beginning to the end of their competitive season, many rebounded to their original BMI prior to the next season (Levy et al., 2013). One factor central to this problem is that when the season is over these young adults are no longer required to engage in physical activity for 8-12 hours per day and may not change their caloric intake. Thus, many individuals revert back to their preseason BMI. It is important to determine what obstacles prevent these individuals from maintaining their decreased BMI levels, and that is one purpose of the current study. It is also important to examine attitudes toward exercise and the exercise behavior of all musicians, not just those participating in the marching arts.

Self-Determination Theory and Exercise

Potential explanations for the lack of exercise engagement among music students is that they lack the motivation and perceived free time to engage in physical exercise. While physical activity is a key component in treating obesity, compliance with an exercise or conditioning program can be difficult, especially if the individual does not greatly value the role of exercise in his or her life. In fact, identifying oneself as an athlete or exerciser is one factor linked to an increased level of physical activity and the ability to follow through with a workout routine (Anderson, 2004). Young adults who do not view themselves as athletic nor see exercise as a

core component of their identity may find it more challenging to engage in a regular exercise program. Further, self-determination theory (SDT) (Ryan & Deci, 2000) asserts that the more an individual internalizes an activity, making it a part of their personal identity, the more likely they are to engage in the activity and achieve higher levels of performance and lower rates of burnout (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). One of the challenges, then, may be figuring out ways to intervene in the musician population, helping one make exercise more of an intrinsically oriented component of his or her self-concept. No intervention has been proposed in the literature to achieve this goal. Learning what motivates musicians to exercise, in their own words, may help craft an exercise intervention to which musicians can adhere.

SDT is a framework for describing human motivation, suggesting that an individual's motivation for behavior falls somewhere on the continuum between self-determined and non-self-determined. On one side of the spectrum is amotivation, or the lack of intention to act, which is viewed as completely non-self-determined. On the other end of the continuum is intrinsic motivation, or the most self-determined and least externally controlled form of motivation. In between these two poles lies extrinsic motivation, and it varies as to how self-determined and internalized the motivation may be for an individual (Ryan & Deci, 2000). The four types of extrinsic motivation are external regulation, introjection, identification, and integration, moving toward more self-determined regulation from external to integration. There are subtle differences between these four types of extrinsic motivation, but a basic definition of each is warranted. The least self-determined or autonomous form of extrinsic motivation is a category known as external regulation. It involves engaging in a particular activity to escape punishment or obtain an externally imposed reward. For example, "I play sports so I can get a trophy and new shoes from my parents."

Moving along the continuum, an individual at the introjection stage of self-regulation performs in order to escape guilt or anxiety, or to enhance their ego or pride. This refers to someone who may say, “I play basketball because I want people to think I am a good basketball player.” These people have internalized some form of external control in their lives. A more autonomous or self-determined form of extrinsic motivation is known as identification. A person at this point on the continuum has consciously accepted the importance of the behavior so that they may achieve personally valued outcomes. A good illustration of this is someone who states, “I like to swim because I know that it is good for me.” The most self-determined form of extrinsic motivation has been called integration. While this appears to be similar to identification, integration has only occurred when identified regulations have been fully assimilated to the self (Ryan & Deci, 2000). Engaging in the behavior has become congruent with one’s sense of self, but it still involves participating because of some instrumental value that the activity provides. A person in this state may express, “I run because I am a runner, and it is part of who I am.” Someone who has achieved the level of intrinsic motivation within a domain is now able to say that they partake in an activity purely because of the enjoyment the activity brings them. Individuals who are intrinsically motivated to run obtain inherent satisfaction from the activity itself.

Research has shown that the more an individual’s behavior is regulated by self-determined and internalized motivation, the more likely that individual will sustain a given behavior. With regard to the health care domain, more self-determined motivation has been a predictor of greater compliance to medications among people with chronic illnesses (Williams, Rodin, Ryan, Grolnick, & Deci, 1998), higher levels of attendance and involvement in an addiction treatment program (Ryan, Plant, & O’malley, 1995), and most relevant to the current

study, better long-term maintenance of weight loss among morbidly obese patients (Williams, Grow, Freedman, Ryan, & Deci, 1996).

Self-determination theorists have proposed three psychological needs that when satisfied enhance a person's self-motivation and natural propensities for growth, but when lacking can diminish one's motivation and well-being, leading to maladaptive outcomes in a variety of domains. When these needs are fully met, and only at this time, can an individual truly be at the level of intrinsic motivation. According to SDT, these three needs are autonomy, relatedness, and competence. Autonomy is described as the feeling of ownership over an activity stemming from a perceived internal locus of causality. Relatedness has to do with a person's desire to experience a sense of belonging or attachment to other people. Finally, competence is a feeling of mastery within a given domain. Research in SDT and the exercise domain has found that fulfillment of the three basic psychological needs in general is related to more self-determined motivational regulation (Edmunds, Ntoumanis, & Duda, 2006; Wilson & Rodgers, 2002; Wilson & Rodgers, 2004). With regard to the current study, it follows then that to the degree exercise fulfills the needs of competence, relatedness, and autonomy in an individual, the more likely that individual will desire to maintain that exercise program.

Research has shown that self-perceived competence may not enhance intrinsic motivation unless the individual also has a sense of autonomy with a task or behavior (Fisher, 1978; Ryan, 1982). Autonomy support is positively associated with more self-determined motivation in exercise behavior (Wilson & Rodgers, 2004), with competence need satisfaction serving as a partial mediator of the relationship between autonomy support and self-determined regulation (Edmunds, Ntoumanis, & Duda, 2006). Wilson, Rodgers, Blanchard, and Gessell (2003) found competence and autonomy both to be strong positive predictors of more self-determined exercise

regulation, which in turn was positively associated with exercise behavior, attitudes, and physical fitness in a prescribed 12-week exercise program. This line of research suggests that the degree to which an individual internalizes the value of exercise may determine who persists through an exercise program over time (Wilson et al., 2003), and it appears that need satisfaction leads to greater internalization of a behavior. Moreover, it may be that some individuals move throughout their exercise program from less self-determined at the beginning to more self-determined as time progresses (Mullan & Markland, 1997). Just because an individual is more externally regulated earlier on in an exercise program, it does not necessarily mean he or she will remain externalized to the same degree as time progresses. Additionally, Wilson et al. (2003) found that participants who adhered to the prescribed workout program reported moderate to large increases in relatedness need satisfaction. It appears then that an effective exercise intervention among musicians will tap in to these three critical needs of autonomy, competence, and relatedness for participants.

Across various studies in this domain, there is strong evidence that psychological need satisfaction and self-determined regulation are associated with the initiation and maintenance of exercise behavior change (Edmunds, Ntoumanis, & Duda, 2006; Landry & Solomon, 2004; Mullan & Markland, 1997). Psychological need satisfaction and self-determined regulation are also related to positive cognitive and affective aspects of the physical activity experience (Edmunds, Duda, & Ntoumanis, 2005; Wilson & Rodgers, 2002, 2004). Thus, it may be imperative for workers in the health care domain in general to discover methods of making exercise a more internalized part of individuals in the obese population, in addition to creating ways for physical activity routines to meet one's psychological needs of autonomy, competence, and relatedness. With regard to musicians, it may be important to discover how an exercise

program could be designed to meet their basic psychological needs, enhancing their identification with physical activity in the offseason. However, the data may reveal that it is simply lack of time that precludes musicians from working out and not primarily due to their identification with exercise. The current study attempts to investigate this issue.

Another line of research provides evidence that people who are dissatisfied with their bodies, possess low self-esteem, and have experienced weight stigma in their lives face an increased desire to abstain from exercise (Vartanian & Shaprow, 2008). Weight stigma may actually decrease physical activity levels for the very individuals who have an elevated BMI and could greatly benefit from regular exercise. Whereas a physical fitness routine may help them significantly, they avoid the gym because of the stigma associated with obesity. In fact, obesity itself has been identified as a predictor of non-adherence to an exercise program in previous studies (Dishman, Sallis, & Orenstein, 1985; Forhan, Zagorski, Marzonlini, Oh, & Alter, 2013). Musicians tend to have higher rates of obesity than the general population (Sharma et al., 2008), placing some of them at even greater risk of failing to implement and maintain a regular exercise routine. Research has also shown that a person's self-perception of competence in the physical domain influences his or her desire to get involved in a workout regimen or other physical activities (Anderson, 2004; Frederick & Ryan, 1993). Thus, one's negative or maladaptive self-perception and understanding of one's own identity, in addition to having been labeled *obese*, may deter him or her from engaging in regular exercise. These SDT findings may have significant implications for the musician population, providing a framework for understanding their exercise behavior. If musicians do not view themselves as exercisers and do not experience competence, autonomy, or relatedness in this domain, it follows that they may be less likely to engage in a consistent physical activity routine during the offseason or even during the semester

for music majors who are not marching artists. SDT, specifically how it explains the degree of internalization of a behavior, is used as a framework to help make sense of the results of this study.

Current Research

Given the potentially serious health and performance implications associated with obesity for musicians, it is critical to identify what might prevent some musicians from integrating exercise into their daily lives. After an in-depth review of the literature, no research was discovered examining musicians' perceived barriers to complying with an exercise program, nor how they cope with these barriers. Gaining an initial understanding of the barriers to exercise may open the door for future researchers to develop interventions to increase physical activity levels in the offseason for this population or even year-round. This study also examines participants' confidence in overcoming these barriers and whether or not one's exerciser identity or degree of self-determined motivation to exercise predicts confidence. Previous research has revealed that marching artists do not possess a strong exerciser identity (Levy et al., 2013), but this has not been examined in the musician population more generally. Additionally, no other research was found that included interviews of music majors or marching artists asking how they integrate exercise into their own lives and their assessment of the exercise behavior in this subculture overall. In this study, qualitative data may provide a deeper level of insight into the problem, which may offer initial solutions for solving the problem. Further, previous findings in this area have not been linked to self-determination theory nor to helping make musicians more intrinsically motivated to exercise. Using self-determination theory as a framework, in-depth qualitative interviews may help researchers begin to understand how to achieve this goal of integration within the musician population.

This dissertation utilized a mixed method (quantitative and qualitative) design. It is presented as two related, but separate studies—Study 1 examining broad trends in perceived barriers to exercise among music students; and Study 2 examining more in depth qualitative experiences of a sub-sample of music students who participated in Study 1. The primary purpose of Study 1 was to examine musicians' confidence in overcoming perceived barriers to exercise, which may provide a greater understanding of what prevents physical activity in the offseason. This exploratory analysis may help us better understand which barriers seem to be the most imposing for music majors in this sample. Another goal was to explore whether a stronger exerciser identity and greater magnitude of internalized motivation to exercise are associated with higher levels of confidence to engage in regular exercise in the face of these barriers. Thus, Study 1 addresses research questions 1-3 (RQ1, RQ2, and RQ3) presented below.

The purpose of Study 2 was to gain a more in-depth understanding of the lived experiences of musicians as they relate to exercise (i.e., perceptions of their exercise behavior; what motivates them to engage in physical activity; and what they perceive to be the patterns of exercise in their subculture as a whole). Having a fuller picture of what motivates members of this population offers greater depth and insight as to where they are on the self-determination continuum with regard to exercise and what prevents them from engaging in consistent exercise, if anything. Thus, Study 2 explores RQ4 and RQ5 (see below) and moves beyond the self-report survey method, attempting to gain qualitative information that provides greater insight into the thought processes of musicians.

Research Questions and Hypotheses

Based on the previous review of the literature, the following research questions were addressed:

(RQ1) What confidence levels do music students possess that they can overcome specific barriers to exercise?

While the nature of this research question was exploratory, because of music students' demanding schedules, it was rationally hypothesized that time or schedule conflicts would emerge as one of the most challenging obstacles participants face (i.e., time obstacles will have one of the lowest confidence scores associated with this barrier to exercise) relative to other perceived barriers.

(RQ2) Do music students' degrees of behavioral self-regulations, motivation, and identification as an exerciser predict confidence in overcoming the perceived barriers to exercise?

It was hypothesized that internalized degrees of self-regulation (i.e., the identified and intrinsic subscales of the BREQ-2) and exerciser identity (as measured by total EIS scores) would be positively related to participants' confidence in overcoming barriers to exercise. The Behavioural Regulation in Exercise Questionnaire (BREQ-2) and the Exercise Identity Scale (EIS) are discussed in greater detail below.

(RQ3) Do music students' degrees of behavioral self-regulations, motivation, and identification as an exerciser predict engaging in a regular exercise routine (i.e., times per week they engaged in 30 minutes of exercise)?

Similar to RQ2, it is hypothesized that internalized degrees of self-regulation (i.e., the identified and intrinsic subscales of the BREQ-2) and exerciser identity (as measured by total EIS scores) would be positively related to participants' average times per week they reported exercising for at least 30 minutes.

(RQ4) What are the personal experiences of individuals in the musician population with regard to exercise and what motivates them to exercise?

(RQ5) What is the perception of these individuals with regard to the exercise behavior in the musician population as a whole?

No specific hypotheses were posed for RQ4 and RQ 5 due to the exploratory and qualitative nature of these questions. However, it is reasonable to expect to hear about a general lack of consistent exercise behavior in this subculture based on what has been reviewed previously in the literature. However, each individual interviewed had a unique experience and perspective and using grounded theory, themes were allowed to emerge based on the data—not according to the author’s prior knowledge.

CHAPTER 2: METHODS

Study 1: Perceived Barriers

Participants and Procedure

Participants were 112 music students attending a large, public university in the Southeastern United States. All participants were currently enrolled at the university as music majors. Participants were solicited through various courses in the music school. Professors were provided with copies of survey packets to be distributed to their students. Professors informed students that participation was voluntary and gave students the opportunity to decline participation without penalty. Participants were told that at any time they could cease participation in the survey. Additional respondents were recruited by approaching students at the music building on campus, identifying the nature of the study, and asking students if they had 15-20 minutes to complete the survey. All participants were required to be 18 years or older, and respondents were trusted to accurately self-report their status. The final sample consisted of approximately 112 music majors, with a variety of specializations within those majors (i.e., Music Education, Music Theory, Vocal Performance, Studio Music, etc.). The mean age of participants was 21.27 years old, ranging from 18-55 years old. Respondents included 63 male and 49 female students at the university. With regard to collegiate year, the sample contained a total of 36 Freshmen, 28 Sophomores, 13 Juniors, 13 Seniors, and 22 graduate students. Within this sample, 26 respondents (approximately 23% of the sample) stated that they either currently participate in marching band or some other marching music activity (e.g., drum corps, winter guard, etc.) within their major, while 86 (approximately 77%) said they did not participate. Thus, the majority of participants were not involved in the marching arts, which may provide more strenuous physical activity than other forms of music at the school. The sample was comprised of

92 White/Caucasian, 3 Black, 4 Asian, and 4 Latino students, with 9 students either opting not to provide racial and ethnic demographic information or identifying as a member of the Other category. As a whole, participants indicated that in the past three months they exercised for at least 30 minutes per day on average 2.61 times per week—suggesting this sample probably does not meet the AHA (2015) and CDC (2015) recommendations for 150 minutes of exercise per week, assuming that their exercise falls within a *moderate* intensity level. If these 2.61 times per week refer to *vigorous* levels of exercise, then the recommendations may be fulfilled by the sample. Participants completed the measures identified below via paper and pencil survey. On the informed consent document (see Appendix A), participants indicated whether or not they were willing to be contacted for a follow-up interview which was used as qualitative data for Study 2. More detail is provided on this procedure in the Study 2 section.

To determine the number of participants needed, a statistical power analysis was conducted using the G*Power software available online (Faul, Erdfelder, Buchner, & Lang, 2013). The G*Power results indicated that a sample of 84 was sufficient to obtain statistical power of .80 to detect a correlation in the population of modest size, $r = .30$, at the $\alpha = .05$ level, two-tailed. The final sample of 112 exceeded the required size.

Measures

The three instruments employed during Study 1 are detailed below. The number of instruments was limited to three due to the time constraints of participants and the professors who utilized class time to distribute and collect the materials.

Barriers Specific Self-Efficacy Scale (BARSE; McAuley, 1992). The BARSE is a 13-item scale designed to tap an individual's perception of his or her abilities to engage in an exercise program three times per week in the face of commonly identified barriers to

participation. The items on the BARSE are scored on a 100-point percentage scale comprised of 10-point increments, ranging from 0% (not at all confident) to 100% (highly confident). For each item, participants indicated their confidence to execute the behavior in spite of these specific barriers. The stem for each question is “I believe that I could exercise 3 times per week for the next 3 months if,” and it is followed by various scenarios like “the weather was very bad” or “I was not interested in the activity.” Total strength for each measure of self-efficacy was calculated by summing the confidence ratings across all participants and dividing by total number of items in the scale, resulting in a maximum possible efficacy score of 100. Higher scores therefore represent greater perceived efficacy for overcoming barriers. The measure has been shown to be predictive of exercise adherence in previous research, with scores providing a reliable and valid estimate of self-efficacy for overcoming barriers to participate in physical activity in various populations (McAuley, 1992; McAuley, Jerome, Elavsky, Marquez, & Ramsey, 2003). Internal consistency for the measure was $\alpha = .88$ in its initial validation (McAuley, 1992). Internal consistency in a subsequent study was found to be $\alpha = .92$ (McAuley, Jerome, Marquez, Elavsky, S., & Blissmer, 2003). No study was discovered asserting the reliability or validity of this scale in the musician population, however. For the current study, internal consistency was found to be $\alpha = .93$, which is consistent with existing research.

Behavioural Regulation in Exercise Questionnaire (BREQ-2; Markland & Tobin, 2004). The BREQ (Mullan, Markland, & Ingledew, 1997) was originally developed to measure the different forms of behavioral regulation in exercise contexts. The 19-item revised instrument (Markland & Tobin, 2004) utilized the original five subscales of Mullan et al.’s (1997) BREQ assessing amotivation (4 items, e.g., “I don’t see the point in exercising), and external (4 items, e.g., “I exercise because other people say I should”); introjected (3 items, e.g., “I feel guilty

when I don't exercise"); identified (3 items, e.g., "I value the benefits of exercise"); and intrinsic (4 items, e.g., "I exercise because it's fun") regulations. Responses were scored on a 5-point scale ranging from "Not true for me" (0) to "Very true for me" (4). Each subscale was averaged to determine the overall level of self-regulation to exercise within this sample and was also used as a predictor variable in individual participants to determine if more internalized self-regulation may lead to greater self-reported adherence to an exercise routine and greater confidence to overcome barriers to exercise. Internal consistency of all 5 subscales in previous research (Markland & Tobin, 2004) has been acceptable (Intrinsic: .86; Identified: .73; Introjected: .80; External: .79; Amotivation: .83). For the current study, the internal consistency of all 5 subscales was also acceptable and consistent with previous studies (Intrinsic: .93; Identified: .87; Introjected: .83; External: .86; Amotivation: .85). For the current study, the BREQ-2 was used to assess where on the continuum the participants fall in terms of whether they are more or less self-determined to exercise. The BREQ-2 does not include a subscale measuring integrated regulation.

Exercise Identity Scale (EIS; Anderson & Cychosz, 1994). The Exercise Identity Scale (EIS) is a nine-item measure designed to assess the extent to which exercise is part of an individual's self-concept. This scale includes items such as "I consider myself an exerciser," "I have numerous goals related to exercising," and "Exercising is something that I think about often" (Anderson & Cychosz, 1994). Participants rated themselves on a 7-point Likert format ranging from "Strongly Disagree" (1) to "Strongly Agree" (7). The items added together provided an overall identity score for each participant. In previous work, test-retest reliability was .93 and Cronbach's Alpha measurement of internal consistency was .94 (Anderson & Cychosz, 1994), and the scale has been subsequently normed for various adult samples as well

(Anderson, Cychosz, & Franke, 2001). For the current study, the internal consistency was found to be $\alpha = .94$, which is consistent with previous research.

Data Analysis

To address RQ1, descriptive statistics were obtained for the BARSE results from this sample. To address RQ2 and RQ3, a bivariate correlational analysis was run on the measures being used in this study. The potential for collinearity problems was assessed by examining the bivariate correlations among predictors. The bivariate correlation between the Identified subscale of the BREQ-2 and the EIS was .82, suggesting these two scales were measuring extremely similar constructs. Thus the Identified subscale was removed from all subsequent analyses to help prevent issues related to multicollinearity. Subsequently, two hierarchical multiple regression analyses were conducted to evaluate how well performers' exercise identity (as measured by the EIS) and degree of behavioral self-regulation (as measured by the BREQ-2) predicate confidence in complying with an exercise program in the face of various barriers (as measured by the BARSE)—RQ2; as well as how behavioral self-regulation and exerciser identity predicted self-reported weekly exercise—RQ3. For both regressions, behavioral self-regulation subscales were entered simultaneously on Step 1, followed by exerciser identity on Step 2. Bivariate and part correlations were analyzed.

Study 2: Exercise Experiences and Motivation to Exercise

Participants and Procedure

Participants were selected from the Study 1 sample of 112 music majors from the music department of a large, public university in the Southeastern United States. A combined approach to participant selection was used, combining convenience sampling and purposive sampling during this study. The sampling method was purposive in that music majors at the university

were targeted and convenient in that there was only access to a specific subset of music majors based on access to various courses. The exact number of participants required for the qualitative portion of this study was decided by the level of data saturation as estimated by the researcher and research team. Data saturation was achieved before the 9th interview, indicating that data collection for this study had been completed. No additional data (i.e., themes) were found after the 7th interview that could add to or develop the properties of a category. However, two other interviews were completed to be thorough in data collection. The 9 interviewees were music majors whose demographic information and pseudonyms can be found in Table 1.

All participants were currently enrolled at the university and initially signed the informed consent document during Study 1 provided in Appendix A. On the informed consent document, participants could choose to sign their name next to a statement expressing their willingness to be contacted by the primary researcher to engage in qualitative interviews at a later date. If participants were willing to be contacted, an email message was sent that can be found in Appendix C. All interviews were conducted in practice rooms at the university's music building. These rooms had padding on the walls to prevent excessive sound from reaching beyond the room. Interviews ranged in duration from 15-30 minutes depending on the length of answers provided by interviewees. Interviews were recorded using a Sony digital voice recorder and were uploaded on the primary researcher's computer. The recordings were sent to a local transcription service to be transcribed. Only the primary researcher and interview transcriber had access to the names of interview participants. The lead transcriber signed the pledge of confidentiality seen in Appendix D. The 11-question interview guide for the interviews can be seen in Appendix E. The interview guide was informed by the research and developed by a panel consisting of two faculty members and the lead author.

Theoretical Rationale

The qualitative data collection and analysis were approached utilizing a modified grounded theory approach. The ultimate aim of grounded theory is to produce a theory that is grounded in the data collected from the participants “on the basis of the complexities of their lived experiences in a social context” (Fassinger, 2005, p. 157). Therefore, the theory is derived inductively. New data are constantly compared to emerging concepts until no new themes or categories can be identified. It is referred to as *modified* in the current study because constructing a social theory based on the data is not one of the aims of the study. This study is exploratory in nature and may help lay the groundwork for theory construction in future research.

An important component of the grounded theory approach is making explicit some of the processes and assumptions brought to the study by the researcher. This is known as a statement of reflexivity in qualitative research (Morrow, 2005). In essence, this statement of reflexivity reflects the fact that as the primary investigator, I have assumptions and biases that I bring with me to the study, from data collection to data analysis. I am currently a 4th year counseling psychology doctoral student, and I have studied the literature on self-determination theory, exercise, and exercise identity. Therefore, I have previous knowledge of the literature and have some expectations for what might be found in the data collection process. Specific steps have been taken to enhance the credibility and trustworthiness of the data. One attempt to deal with this issue is to allow members of the research team to engage in the open coding process without the lead author (Strauss & Corbin, 1998). The primary investigator interviewed participants, but members of the research team with minimal previous knowledge of the literature identified emerging themes. A research team comprised of three undergraduate students trained in the coding process engaged in open coding without influence from the primary investigator. The

idea was to allow the data to dictate emerging themes, and with the primary investigator's previous knowledge, this may have biased final themes based on an existing knowledge of the literature. Discussion and auditing between research team members also helped reduce bias from the coding process and helped document analytic decisions made during data analysis (Fassinger, 2005).

Data Analysis

For the purpose of data analysis and to protect participants' identities, all research subjects were assigned pseudonyms (see Table 1). After conducting and recording the interviews, each transcript was read in its entirety by a member of the research team to gain a sense of understanding of each participant's responses. Creswell (1998) proposes that phenomenological data analysis happens through the reduction of information, analysis of relevant statements, identification of common themes, and a search for all of the possible meanings emerging from the data. To reduce the information, each interview was broken down into identifiable, stand-alone pieces which were then categorized by similarity (Lincoln & Guba, 1985). The coding process was done according to the stages of analysis as detailed by Strauss and Corbin (1998). This entailed transcribing each interview and microanalyzing the text. Transcription was performed by a local business with experience at transcribing audio recordings and a pledge of confidentiality was signed to protect the privacy of participants (see Appendix D). Microanalysis included reading through and analyzing the interviews line by line to develop specific concepts and categories. The first stage of the coding process, open coding, was employed and involved "breaking down, examining, comparing, conceptualizing, and categorizing data" (Strauss & Corbin, 1990, p. 61). Open coding provided preliminary categories to divide the data into similar segments of information.

During the open coding phase, conceptual categories were identified and named into which the observed phenomena were grouped. The aim was to create descriptive categories to form a preliminary framework for analysis (Edwards & Skinner, 2009). Quotes from the interviews were used to group data into similar categories across the different participants. The open coding phase was done by members of the research team but not by the primary investigator for reasons discussed in the theoretical rationale section. Next, the categories identified during open coding were re-examined to determine how they were linked using axial coding. It was during this phase of coding that categories were compared and combined to paint the bigger picture. Axial coding allows the researcher to examine whether sufficient data exists to support the interpretation of their conceptual model (Edwards & Skinner, 2009). The primary investigator and all 3 members of the research team engaged in this process, re-reading transcripts and writing memos to one another via email and comments on Word documents. Following open and axial coding, selective coding was utilized, which involved reading through the raw data for cases that illustrate the analysis or help clarify the concepts (Edwards & Skinner, 2009). This, in essence, meant combing through the data again to select quotes from participants that best encapsulated the themes that emerged from the open and axial coding processes.

Peer debriefing was used to enhance the credibility and dependability of the categories and data resulting from the coding method. Peer debriefing is the procedure of having someone outside of the research process review the categories developed during coding to enhance the credibility of the findings. Peer debriefing both challenges and supports the researcher by asking him or her to explain the methodology and results (Lincoln & Guba, 1985). A colleague of the primary investigator engaged in the peer debriefing process. Member checks were also used to enhance the validity of the information obtained through the data collection process. This

provided participants with the opportunity to correct errors from the interview transcripts and challenge what they viewed to be incorrect interpretations or transcriptions.

CHAPTER 3: RESULTS

Study 1 Results

Music Students' Confidence in Overcoming Barriers

With regard to RQ1, music students had the lowest confidence due to schedule conflicts ($M = 24.46$, $SD = 27.31$), relative to the other barriers, in exercising for 30 minutes at least three times per week. Not being interested in ($M = 30.89$, $SD = 26.83$) and enjoying an exercise activity ($M = 33.84$, $SD = 25.58$) were the next two lowest confidence ratings. Barriers with relatively high-perceived confidence in ability to overcome them included exercising alone ($M = 68.21$, $SD = 30.53$) and feeling self-conscious about one's appearance while exercising ($M = 59.20$, $SD = 32.55$). The complete list of means and standard deviations can be found in Table 2.

Predicting Confidence in Overcoming Barriers

To answer RQ2, bivariate correlations were first calculated. Table 3 provides descriptive statistics and bivariate correlations between the independent and dependent variables for this research question. There were no multicollinearity issues found, and regression analysis was executed. The hierarchical linear multiple regression was performed to examine if degree of behavioral self-regulations (as measured by the BREQ-2) and degree of identification as an exerciser (as measured by the EIS) predicted the average confidence to comply with an exercise regime in the face of 13 potential barriers (as measured by the mean score on the BARSE). The five BREQ-2 scale scores were entered simultaneously on Step 1, followed by the total score on the EIS (Step 2).

The linear combination of behavioral regulation variables was significantly related to average confidence in overcoming perceived barriers to exercise. The sample multiple correlation coefficient on Step 1 was .72, indicating behavioral regulations explained 51% of the

total variance in confidence in overcoming exercise barriers ($R^2 = .51$, $F(4, 106) = 27.96$, $p < .001$). Exerciser identity explained an additional 14% of the total variance—above that explained by the behavioral regulation variables ($R^2 = .65$, $F(5, 105) = 39.06$, $p < .001$), resulting in a total multiple correlation coefficient of .81. Exerciser identity (EIS total score) and intrinsic motivation (BREQ-2 sub-scale) yielded significant part correlations, $r_{part} = .37$, $p < .001$ and $r_{part} = .15$, $p < .01$, respectively. Overall, the results of this analysis suggest that music students with a stronger exerciser identity and greater intrinsic motivation for exercising have a greater confidence in their ability to engage in exercise regardless of common barriers or obstacles to exercise. Table 4 provides results from the hierarchical linear multiple regression analysis for RQ2.

Predicting Exercise Activity

To answer RQ3, a hierarchical linear multiple regression was performed to examine whether degree of behavioral self-regulation (BREQ-2) and degree of identification as an exerciser (EIS) predicted the average number of days per week they engaged in 30 minutes of exercise (per self-report). Given multicollinearity found between the Identified Regulation and Intrinsic Regulation subscales, regression analysis was performed excluding the Identified subscale. The remaining four BREQ-2 scale scores were entered simultaneously on Step 1, followed by the total score on the EIS (Step 2). Table 5 provides results from the hierarchical linear multiple regression analysis for RQ3.

The linear combination of behavioral regulation variables was not significantly related to average days per week of exercise. The Step 2 model was significant, indicating that exerciser identity explained 20% of the total variance ($R^2 = .20$, $F(5, 103) = 5.05$, $p < .001$), resulting in a total multiple correlation coefficient of .44. Exerciser identity (EIS total score) was the only scale

that yielded a significant part correlation, $r_{part} = .41, p < .001$. Overall, the results of this analysis suggest that music students with a stronger exerciser identity report exercising more often per week than those with less of an exerciser identity.

Study 2 Results

During the open coding phase, the research team identified 49 original themes that emerged from the data. This was done without input from the primary investigator. The process of collapsing the open codes into a more narrow set of categories, known as axial coding, was then completed through conversation, meetings, and emails between the research team members and the primary investigator. Axial coding involved re-examining the initial 49 codes for links or connections between the themes. These 49 open codes were collapsed into seven primary categories or themes, and then selective coding was utilized to identify key quotes that best illustrated each theme, according to the research team's perspective. The coding process for each final theme is described below when discussing the individual theme. While two main questions were proposed at the outset of this study, other themes emerged that were not directly in response to these two questions. Thus, there are some themes listed directly below RQ4 and RQ5, but others that did not neatly fit under a specific research question formulated at the beginning of the study. These are listed separate from the other results below. Recall that each interviewee was given a pseudonym to preserve confidentiality and their demographic information and pseudonyms are provided in Table 1.

Independent Themes

Of the seven final themes identified by the research team, two did not directly relate to one of the initial research questions. These both revolved around obstacles to exercise that qualitative participants highlighted in their answers. While barriers to exercise were

quantitatively examined in Study 1, they were not directly addressed by RQ4 or RQ5 in the qualitative Study 2. The two themes that emerged outside of RQ4 and RQ5 were *Lack of Time* and *Lack of Comfort*. All music majors in the qualitative sample ($n = 9$) identified *Lack of Time* as the primary obstacle they face in attempting to follow an exercise routine. This category included any mentions of time limitations or issues with schedule conflicts, in addition to participants discussing their music major getting in the way of engaging in regular exercise. Time was expected to be a factor, as the quantitative results in Study 1 identified “Schedule Conflicts” as the greatest perceived barrier for the sample. Participants revealed that they were least confident in exercising multiple times per week if they had schedule conflicts. All participants described a typical day involving musical or school responsibilities from the early morning hours until dinner time or later at night. When asked when leisure time fits into her schedule, Sara answered, “At night, when I sleep.” Sara is a senior studying vocal performance who admitted that over the past three months, she has exercised for over 30 minutes on average zero times per week. She suggested that when school is out of session she works out more than during the semester, but stated that she found literally no time to exercise during the semester.

Most participants ($n = 7$) identified their major as being significantly different than their student counterparts in other majors across campus. Not all of the interview participants were willing to say that their majors were more challenging, but they noted a distinct lack of flexibility in their schedules that made their major a unique one on campus. Adam, a sophomore majoring in jazz saxophone who reported exercising zero times per week on average over the past three months, noted the grueling nature of being a music major at a large university when he disclosed:

Most of us are enrolled in anywhere from 8 to 13 classes at a time, so we have classes all day, and then as soon as we’re done we’re expected to practice from anywhere from two

to five hours a day, so usually by the time we're actually done it's late in the evening, and most people are either just like, "I'm going to chill out and then go to sleep" or have an actual job they have to go do if they are working.

Other interviewees ($n = 5$) agreed with Adam, expressing that being a music major is more demanding than other majors on campus. They noted that this is one of the key factors preventing them from engaging in leisure or recreational time. If there is extra time in their schedules, it is impressed upon them that they should be practicing their craft. Audrey, however, declined to say that music majors actually have it harder than other majors, but that they perceive it to be that way. She commented, "I think all music majors think we have it harder, but I think other majors probably think they have it harder, too." Participants as a whole, in contrast to Audrey, described how challenging it is from a time perspective to do anything other than study for class and practice for performances. This was a universal experience from our sample. Some individuals made a distinction between their weekend schedules and their weekday responsibilities. Adam, on the other hand, believed it was hard to find time even on the weekends. For instance, Adam said the following about exercise: "During the week it's just impossible, so I try to go on the weekends, if possible, but even then I usually have a game or something else going on."

Several participants expressed an interest in going to the gym with friends or participating in intramural sports, but stated that it was impossible for them to be music majors and exercise. Only three out of nine participants said they had engaged in zero exercise sessions per week on average over the past three months. However, all nine mentioned *Lack of Time* as an obstacle to regular exercise. This means that at least six of the nine reportedly find time to exercise, even though some of them have gone on record of saying there is no time in their

schedules to workout. Nathan, a freshman studying studio music, reported that he has exercised at least four times per week on average for more than 30 minutes over the past three months.

While he noted *Lack of Time* as an important barrier, he made exercise a priority in his schedule.

Nathan reported:

I try to exercise every day. At the bare minimum I'll try to go for a walk with the intention of walking—not like a leisurely walk. A walk for a couple of miles or something. But I'd say four days a week.

Nathan highlighted the challenges of exercise and his desire to maintain the behavior when he admitted:

I mean, some days I don't want to. Usually, I kind of make myself do it because I just know afterwards I'll feel better, but I guess if I'm tired sometimes that will keep me from exercising. If I was up really late, instead of exercising I'll just take a nap.

Even Nathan finds it difficult to exercise regularly, and he still has days where he decides not to exercise. These selected quotes help illustrate the problem with being a music major and trying to live a healthy lifestyle—including regular exercise. Similar to Study 1, *Lack of Time* was cited as the primary obstacle to regular exercise in the qualitative sample.

Lack of Comfort ($n = 4$) was the second most common obstacle to emerge in the qualitative data. This final theme emerged as a broader category that included individuals feeling like they did not belong in the gym, like they did not know what to do in the gym, or that their appearance made them self-conscious in the gym. Scott, a senior in music education who reported exercising twice a week on average over the past three months, discussed his lack of regular exercise. He shared:

Part of it is not feeling comfortable in the gym, definitely...because I'm just so small compared to everyone else. I'm just like I feel like everyone is looking at me like, "Who's this guy? Get out of here. Go home."

Scott looks at his smaller frame and compares himself to people who are bigger and perhaps more muscular than him. At least in the exercise domain, Scott lacked confidence and comfort in going to the gym because of the way he looked in reference to others. He may feel higher levels of self-efficacy when playing his musical instrument, but he helped illustrate with this quote a certain level of discomfort several participants associate with going to the gym.

Another component within this category was *Lack of Comfort* with exercising due to a lack of knowledge. While lack of knowledge emerged as its own theme during the open coding phase, the research team concluded that it best fit within the *Lack of Comfort* category. Adam admitted that he was not very comfortable with weightlifting as exercise for him, although he did feel more comfortable running. He referenced his minimal understanding or knowledge of lifting weights as a primary reason for not participating in this activity. He reported:

It's mainly just because I actually don't have a trainer, and I really have no idea what I'm doing with that stuff...if I have somebody there to tell me what to do, then I'm all for it, but usually I have no idea what I'm doing.

Adam reported working out on average zero times per week over the past three months (see Table 1). There may be multiple factors preventing Adam from regularly exercising, but he cited *Lack of Comfort* in the gym as one important factor. Adam later noted that some of his friends "go as a group" to the gym and that this may be one way to enhance his comfort and enjoyment with exercise.

On a similar note as Adam, Kristy cited *Lack of Comfort* with the gym as a key obstacle for her to consistently engage in regular exercise. Kristy is a 44-year-old graduate student majoring in collaborative piano at the university. While Kristy reported exercising on average six times per week over the past few months, she did not feel as comfortable going to an actual building or gym to work out. In addition to mentioning that having people go to the gym with her is a way to increase her comfort level, Kristy highlighted her appearance as a source of self-consciousness that gets in the way of exercise. She mentioned that being around people she knows at the gym makes her feel less self-conscious about the way she looks. Having peers around her in some way acts as a buffer against her feelings of low self-esteem. Like Adam, Kristy spent even more time discussing her lack of understanding of how weightlifting works as the key to her avoidance of the gym. She said of the gym:

Occasionally I go to the Pilates class or there's a boot camp class. I've been to that once and that was some weights. I'd like to do more of that but I need to have somebody show me how first, and I haven't made the time to do that.

Kristy acknowledged her *Lack of Comfort* in the gym as being related to her lack of knowledge regarding how to do it. Note that she also mentioned her *Lack of Time* as standing in the way of her ability to learn how to lift weights. A lack of self-efficacy inside the gym may be an important reason Kristy avoids it, and she claimed that if she could increase her understanding of weightlifting then she would be more willing to make time for the gym.

Sara also touched on multiple issues related to comfort level and exercise during her interview. Being perceived as overweight or obese has been discussed as an obstacle for gym attendance, and Sara painted this picture when she stated:

I'm a person that grew up with weight problems, so exercising in general has always been kind of a—I've always been very self-conscious about exercising in public and, unfortunately, that's kind of prevented me from getting the most out of the TRECS [gym] on campus. You see all these very fit people at the gym or these really muscular guys or these really skinny sorority girls, and I feel like I don't want to be working out with them. And that's, I guess, part of the reason why I don't like going just to a normal gym.

Sara believed the issue was primarily in her own psyche as she expressed that most people who go to work out at the gym are not looking around at other people, but she still feels self-conscious. Sara hoped that she could be able to go to a gym without thinking too much about her own appearance, but up to this point that has been difficult for her. While she does not feel that others are actually looking at her during her workout, she admitted to looking around and comparing her body and her image to those around her. Sara also identified a potential solution for increasing her comfort level at the gym. She stated that she would be more likely to workout at a gym if she went with some of her friends or people with whom she felt more comfortable. Sara also remarked that she is a singer, and singers are not only judged by the quality of their voices but by the appearance they present on stage. She mentioned that she is used to being judged by the way she looks, and this has translated into other areas of her life. Growing up in the musical world, Sara has always been taught to be mindful of her appearance, and this may be causing problems for her in the gym as well.

RQ4: Motivation to Exercise

With regard to motivation to exercise and the personal experiences of participants (RQ4), three themes emerged from the data. These three themes were *Benefits for Breathing, Fitness and Health Benefits*, and *Family Habits*. Many participants ($n = 7$) listed *Benefits for Breathing*

as a key motivation for them to work out. This theme included vocalists discussing their ability to expand lung capacity through aerobic exercise, which could in turn lead to better vocal performances. It also included marching artists who stated that their ability to perform in hot, grueling days could be enhanced by regular aerobic exercise. Thus, various subcategories were collapsed into the final theme of *Benefits for Breathing* during the axial coding phase. Also related to RQ4 is the theme of *Fitness and Health Benefits* ($n = 5$). This was comprised of participants who discussed feeling better and being healthier in life overall, as well as some indirect health benefits brought to the music realm. These so-called indirect benefits encompassed living longer so that individuals could enjoy longer music careers, in addition to avoiding injury and sickness by staying health and fit. Finally, participants ($n = 4$) cited *Family Habits* as a reason why they regularly exercise or fail to regularly exercise. This theme consisted of subcategories such as exercising because parents encouraged them to at an early age, participating in youth sport as children, or even exercising regularly because they did not want to end up looking like their mother or father. Thus, this theme also included working out currently as a young adult because of a lack of family habit during childhood. Some participants recalled their mother or father teaching them at a very early age that exercise and diet are both critical to living healthy lives. Further interpretation and illustrative quotes are provided in the Study 2 discussion section.

Of the seven participants who identified *Benefits for Breathing* as a key motivation for them to work out, Kristy stated, “I think it [exercise] really helps the breathing too. I sing in a church choir and I feel like since I started swimming I just have a lot more breath.” Stacey, a freshman music education major who reported exercising on average twice a week over the past

three months, is a flute player who recognizes the importance of aerobic exercise for respiratory rate and capacity. Regarding exercise, she noted:

It helps breathing. I've noticed whenever I played soccer in high school I was running a lot more, and the longer I could run for an amount time usually helped with my breathing.

That would also affect how long I could play my flute without having to take a breath.

It appears that these interviewees as a whole see the benefit that comes with exercise, particularly aerobic exercise, and how it may impact one's endurance. Some musicians went into greater technical detail as to how better breathing ability influences the way they play their instruments. They helped shed light on the intricacies involved in being a musician-in-training or a professional musician. Robin is a freshman in applied music who exercises on average three times per week during the school semester. She corroborated what others said and talked about the importance of endurance to musicians. Robin said:

I mean, recitals and concerts, they take stamina, especially if you're playing a solo, a concerto or something that's 10, 20, 30 or more minutes long. For one thing, breathing, you have to control your breathing a lot. Nerves certainly get your heart rate moving more and you don't have regular breathing and stuff, so I feel like the more you have exercised the more you're able to control your body when you're performing and the more stamina that you have in getting through those performances.

Robin highlighted the importance of exercise for stamina and for control over one's body.

According to Robin, working out on a regular basis may help individuals become more in tune with their bodies and in turn may help them have better control over their bodies and breathing.

Megan, a junior studying sacred music, noted the importance of upper respiratory strength for vocalists. Megan suggested that "working out the chest muscles and lungs and cardio a bit would

help with singing duration and stability.” It is evident that the qualitative sample valued exercise for how it could improve their ability to perform and rehearse, but other motivations for exercise emerged as well.

Interviewees ($n = 5$) also identified the overall *Fitness and Health Benefits* associated with consistent exercise. For some participants, motivation to exercise was not necessarily directly related to musical performance, but to what exercise could do for them in all areas of life. Megan discussed the fact that her father and sister are both considered obese. She noted that she takes after her mother physically and that her mother is a “health nut.” Speaking of her mother, she recalled, “I take after her physically, so I want to stay in shape partially because, yeah, it would be nice to keep in shape and live a little longer. It helps you out later down the road.” Although there are short-term benefits to exercise, Megan spoke specifically about its long-term effects. She hoped to live longer as a result of eating well and engaging in physical activity. She also suggested that seeing her father and sister have encouraged her to stay fit and healthy. Scott believed that exercise improved his overall quality of life as well. He conjectured, “It makes me feel better, and it is enjoyable sort of to an extent. I enjoy knowing that it’s making me better.” Scott is another participant who implied that working out regularly went beyond the musical realm and made him feel better in many different domains of life. While exercise may help musical performance, this was not the sole theme that emerged from participant interviews.

While the *Fitness and Health Benefits* could be significant on their own accord, Nathan noted that being healthy may have an indirect effect on his musical career, a potentially less direct effect than the breathing benefits he could obtain through exercise. Nathan discussed the potential longevity of his music career when he professed:

You can play more when you're 60 if you exercise and maintain a healthy lifestyle. You can point out famous or even not famous musicians that can't play at all now or something because they didn't exercise and they hurt themselves.

Thus, the health benefits can transfer over into one's musical career, according to Nathan. He proceeded to make an even more direct connection between one's overall level of health and fitness and their appearance on stage as a performer. He suggested, "If you look good on stage, if you're a person that looks healthy, people may be more inclined to listen to you or hire you if you're going to be in a band or something." Other participants disagreed with this point, stating that for musicians one's physical appearance does not matter as much as it might for a vocalist, for example. Sara, a vocal performance major, agreed that one's appearance and overall fitness do relate to one's ability to obtain a specific role when she said, "Physically I have to do everything I can to remain able to play a certain role." According to Sara and others, physical appearance matters in music, and one's general fitness and health may benefit their musical careers in terms of what jobs they obtain. This effect may be stronger for vocalists as compared to instrumentalists, according to participants.

Audrey made another direct link between *Fitness and Health Benefits* and music. She discussed that exercise can directly counteract some of the dangers that come with consistently playing music and spending much of one's practice time and performances from a seated position. She stressed that musicians make repetitive motions day after day, which ultimately may cause injuries. Audrey highlighted the link between healthy living and the musician's lifestyle, stating:

I think most people who do music are really concerned with their health because there's a lot of repetitive motion, injuries, and just the stress it puts on your body. I think every

professional musician is really concerned with how their body is, so I think exercise is important to be a musician, or at least just being in tune with your body, not necessarily running marathons but exercising and taking care of it.

Within the theme of *Fitness and Health Benefits*, links between the benefits and music (e.g., career longevity and freedom from injury) further stress the importance of exercise. While the *Benefits for Breathing* may also be considered an overall health benefit, it was reported as an independent factor by enough participants for it to warrant its own category.

Another theme that emerged in response to RQ4 as a reason for exercising was the *Family Habits* that were formed during childhood for some musicians. The motivation for these interviewees stemmed from the fact that they had always been part of a family that valued exercise and instilled a routine in their children. Several participants ($n = 4$) made reference to family life and childhood as where these habits began. Nathan remarked:

Well, I guess my family, I was raised always playing two or three sports and stuff like that, so I just kind of grew up with knowing the benefits of it and knowing that if you exercise you just feel better.

Nathan made the link between learning about exercise and sport at an early age and carrying that behavior into adulthood. Further, Robin stated that she “always liked being outside and exercising” and she attributed this interest to her early childhood years and her parents encouraging her to be active and to spend time outdoors. Robin is a marching arts performer, so she is able to spend time outside exercising and playing her musical instrument in season. During the offseason, she reported that she still attempted to run or walk multiple times per week to maintain the health benefits and experience pleasure from being outside. She attributed her current behavior to earlier childhood experiences and *Family Habits*. Recall that Megan also

identified her mother as a key motivator for her physical fitness. Megan referred to her mother as a “health nut” and reported that her mother instilled healthy practices within her from an early age. These four participants who acknowledged the role their families played in their interest in exercise all spoke of early childhood experiences in a positive way and were appreciative of their parents for teaching them about physical activity and its relation to health.

RQ5: Exercise in the Music Culture

With regard to exercise in the music culture, there was some dissension among qualitative participants. The theme of *Indifference towards Exercise* emerged from the responses of some participants ($n = 3$). In fact, this theme was shared by the highest number of participants within this research question. This included participants citing the music culture’s apathy or nonchalant attitude towards exercise and participants feeling like peers and faculty in the music school did not care much about exercise. However, other participants were split, with some individuals sharing that they have received negative or even hostile messages from faculty and peers regarding exercise, while others stated that faculty and peers have positive views of exercise and have encouraged them to engage in physical activity. Thus, the theme of *Conflicting Messages* was decided on by the research team to account for these varying perspectives within the current sample.

Megan, in reference to the music culture’s attitudes toward exercise, reported it was “indifference, or a casual disconnection. Individuals can choose to exercise and will choose to pursue it, but as a whole, they don’t have that gravitation or don’t make that connection as to its importance.” Robin also touched on the theme of *Indifference towards Exercise* in her response:

I’d say it’s nonchalant. There are certainly people who do exercise, and people don’t look down on those people at all by any means. But, it’s just something I don’t think many

really think about. People aren't like, "Oh, man. I got to go exercise so I can sing better tomorrow," and they're just not thinking about it.

These quotes illustrate the perceived indifference that may exist within the academic music culture, but Robin's answer also emphasizes the lack of knowledge discussed earlier in this section. While only three of the nine participants suggested there was an attitude of indifference, it was the primary theme that emerged in response to this question. Since it is a qualitative study, these results cannot be generalized to a broader population.

It must also be noted, however, that responses to this question ranged across the spectrum, with some participants ($n = 2$) feeling like the music culture at their school had a generally positive attitude with regard to exercise and others ($n = 2$) purporting that it was entirely negative. There were certainly those who saw the culture's attitudes as primarily negative towards exercise. Scott expressed:

It sounds weird, but like, I could go spend an hour exercising or I could go spend an hour on my horn. Which would help me in my career? Yeah, it's harder for me to validate taking that time, and you tend to get kind of judged whenever you say you're going to work out. The music professors will kind of look at you funny.

Scott believed that he received odd looks from faculty and other students when he talked about going to workout. He proceeded to say that one music professor, whether she was joking or not, advised Scott that he should be practicing instead of exercising. This made an indelible impression on him, but he still tried to make time to workout nonetheless. Nathan agreed, sharing that attitudes have been "negative, generally speaking, in [his] personal experience." He went on to make a stronger claim stating, "In academic music culture there's a hostility towards exercise. There's like an 'only-do-as-much-as-you-have-to' attitude. Only do as much as necessary. Only

do as much as will keep you from getting hurt, from overstraining yourself.” Beyond identifying simply negative attitudes towards exercise, Nathan saw even a hostile attitude from some individuals.

Finally, there were participants who said that they perceived positive attitudes and even identified support from individuals in their music culture on campus. Recall that Audrey suggested that most people who do music are “really concerned with their health.” Further, Sara remembered specific instances of vocal coaches and academic instructors imploring students to improve their fitness and physical appearance to help them remain employable. Kristy said she heard “many students talking about exercise” and mentioned a time when one of her instructors supported her desire to remain in good physical shape. Thus, as this research team re-read and examined quotes from these interviews, it could not be said that the majority of the sample experienced negative messages from those within their subculture. This led the research team to add one additional theme to RQ5, namely that this sample received *Conflicting Messages* about exercise. For this question, interviewees identified conflicting attitudes such as indifference and nonchalance, hostility and negativity, and yet support and encouragement from some individuals. Participants received *Conflicting Messages*, making it more challenging to assert a primary theme in this section, although *Indifference towards Exercise* was implicated by the greatest number of music majors.

CHAPTER 4: DISCUSSION AND CONCLUSIONS

Study 1 Discussion

Quantitative results for this paper portray music majors in this university setting as individuals who perceive time to be their biggest obstacle to consistent exercise. This is not surprising, as time and energy have both previously been identified as obstacles for music majors attempting to engage in regular exercise (Ackermann, Chan, Driscoll, & Ackermann, 2013; Adams, & Marshall, 2000; Brandfonbrener, 2009). In response to RQ1 in this study, time again emerged as the greatest perceived barrier to exercise, with participants feeling the least amount of confidence in their capability to overcome this barrier. Participants also felt relatively low levels of confidence in persisting in exercise when they were not interested in an activity or when they did not enjoy the exercise activity. Using SDT as a framework for understanding these results, it is known that individuals with more intrinsic motivation tend to enjoy an activity purely for the activity itself and not simply for the benefits it can provide. Those with more intrinsic motivation are more likely to continue with an activity. Therefore, an individual who does not enjoy exercise would have greater difficulty continuing with his or her routine (Deci & Ryan, 1991; Ryan & Deci, 2000). Overall, time and lack of enjoyment both appear to be difficult barriers to overcome for this sample, and this makes intuitive sense based on previous research and theory. If a music student does not perceive that he or she has the time to exercise and does not enjoy exercise, it follows then that this individual will more than likely fail to consistently exercise. This is a significant issue that needs to be addressed in individual music schools and is further discussed in practical implications.

It is interesting to note that this sample was least concerned or most confident in persisting with an exercise program if they felt self-conscious while exercising or if they were

exercising alone. It appears that the sample as a whole did not struggle with self-consciousness relative to other obstacles, even though it was cited by some as an obstacle for Study 2. If they did feel self-conscious, results in Study 1 indicate that as a whole they were ostensibly better able to continue with exercising compared to other barriers even in the midst of this self-consciousness. Further, the overall sample felt relatively confident that they could exercise even if they did it alone. Results for RQ1 suggest that the sample as a whole did not perceive a major need to workout with other people. Overall, these results for RQ1 are not extremely surprising, but provide more evidence that time and energy are a problem for music majors who are serious about perfecting their musical craft in addition to maintaining their health and fitness.

With regard to RQ2, behavioral self-regulation as measured by the BREQ-2 explained a significant amount of the total variance (i.e., 55%) in confidence to overcome barriers to exercise as measured by the BARSE. This means that one's self-regulation style in the exercise domain is a strong predictor of one's perceived ability to overcome specific barriers to exercise in this sample. These results provide evidence that those with more intrinsic self-regulation styles feel that they are more able to persist with regular exercise routines than those with more externally self-regulated styles. Recall that the self-regulation continuum moves from non-self-determined (i.e., Amotivation) on one end to the most self-determined (i.e., Intrinsic Regulation) on the other hand. Individuals who are intrinsically motivated to exercise recognize the health benefits of exercise, but they are not primarily concerned with these more extrinsic outcomes (Deci & Ryan, 1991; Ryan & Deci, 2000). They tend to be more focused on the aesthetic and social experiences inherent in these activities themselves. If exercise were a chore or felt like work, these individuals may not be as interested in the activity anymore. The immediate rewards they feel when engaging in an activity are all that seem to matter. In the current study, those with more

self-determined regulation styles in the exercise domain (i.e., Intrinsic Regulation) reported the highest levels of confidence in overcoming barriers to exercise. This supports previous research that suggests individuals are more likely to persist with a behavior if they are more self-determined in that behavioral domain (Edmunds, Ntoumanis, & Duda, 2006; Landry & Solomon, 2004; Mullan & Markland, 1997; Wilson et al., 2003). It is important to address what makes individuals become more self-determined with an activity. As previously discussed, research on SDT has found that fulfillment of the three basic psychological needs of autonomy, relatedness, and competence in general is related to more self-determined motivational regulation (Edmunds, Ntoumanis, & Duda, 2006; Wilson & Rodgers, 2002; Wilson & Rodgers, 2004). Again, in this sample, however, the issue of working out with others or relatedness did not emerge as the most important concern for music majors.

Another important result in response to RQ2 is related to participants' exerciser identity. Previous work has noted that musicians do not appear to possess a strong exerciser or athletic identity (Brandfonbrener, 2009; Levy et al., 2013). Qualitative participants in Study 2 for the current investigation also offered their perspective that the majority of music majors do not primarily identify as strong exercisers or athletes. The current study's results suggest that those who do possess stronger exerciser identities feel more confident about their abilities to persist with regular exercise in the face of common barriers as measured by the BARSE. A significant amount of the variance (i.e., 10%) in BARSE scores was explained by total EIS scores. Thus, if the majority of musicians do not possess a strong exerciser identity, as some have suggested, it may make it more challenging for those individuals to continue with their exercise routines. It is important to note that one's perception of their own identity and competence in relation to exercise matters (Anderson, 2004; Frederick & Ryan, 1993). If an individual does not view him

or herself as an exerciser, he or she may be less likely both to initiate an exercise program or maintain a program. Current results confirm this notion. These predictors for RQ2, both the behavioural self-regulation and exercise identity, have a significantly positive relationship with confidence to overcome barriers to exercise as measured by the BARSE. One challenge then is figuring out how to enhance exerciser identity within the musician population, and this will be further addressed when discussing practical implications and potential interventions below.

With regard to RQ3, the sole significant results indicate that music students with a stronger exerciser identity report exercising more often per week. A significant positive correlation exists between exercise identity and average per week of exercise. Therefore, it is evident that those who strongly identify as exercisers reportedly exercise more often than those who do not identify as exercisers. This makes intuitive sense. While there are exceptions, musicians do not typically identify themselves as athletic nor possess a strong “exerciser” identity (Levy, Statham, & VanDoren, 2013), and individuals who do not view exercise as an integral part of their identity are often less inclined to engage in physical activity (Anderson, 2004). This continues to be a problem within the music culture. Further, self-determination theory (SDT) (Ryan & Deci, 2000) asserts that the more an individual internalizes an activity, making it a part of their personal identity, the more likely they are to engage in the activity and achieve higher levels of performance and lower rates of burnout (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). Thus, it is imperative to discern how to make exercise more a part of an individual’s identity.

Study 2 Discussion

Similar to Study 1 results, it is not surprising that students from the qualitative sample cited a lack of time as an obstacle to exercise on a regular basis. This provides qualitative support for previous research on the time and energy issues music majors face on college campuses (Ackermann, Chan, Driscoll, & Ackermann, 2013; Adams, & Marshall, 2000; Brandfonbrener, 2009). Although all participants cited time as an obstacle, there were still several musicians in the sample who reported exercising multiple times per week. It may be significant to determine what allows some individuals to find time in their schedules to exercise while others do not. It is possible that an individual's exerciser identity or internal motivation to exercise helps explain some of the differences between those who exercise and those who do not in the qualitative sample, regardless of the perceived available amount of time they possess. Prioritizing exercise or seeing it as an important part of one's identity may help individuals persist with their exercise routines even in the midst of busy schedules. Results revealed a disconnect between some of the quotes that emerged, namely that one had "no time" to exercise, and the fact that the majority of interviewees still found time to work out each week. Any further discussion on integrating exercise more fully into the music culture will need to reconcile the issue of time in these students' lives.

The other obstacle to emerge for music majors in this sample was discomfort with exercise. For some participants, this was related to self-consciousness about their physical appearance. In the review of the literature, being considered overweight or obese was identified as a significant barrier to regular exercise for some individuals (Forhan, Zagorski, Marzonlini, Oh, & Alter, 2013). Comparing oneself to others and having a low self-esteem may both detract from an individual's ability to persist with an exercise regimen. According to participants, going

to the gym could exacerbate the self-consciousness they already felt regarding their appearance. When discussing intervention strategies to help music majors engage in regular gym activities, it may be important to include friends or peers as part of the overall workout routine. Attending the gym with friends may potentially decrease levels of self-consciousness. Recall that relatedness was an essential need identified by self-determination theory (SDT) that should be fulfilled in order to help an individual engage in more consistent exercise (Wilson et al., 2003). Relatedness is one of the three primary psychological needs identified by SDT (Ryan & Deci, 2000) that may need to be better examined in this population, especially when coming up with ways to ensure exercise adherence for music majors

A lack of knowledge regarding how to exercise was also cited as a potential factor perpetuating the discomfort surrounding the gym experience. Enhancing one's knowledge and self-efficacy at the gym may be one potential intervention to help musicians spend more time regularly exercising. Recall from the literature review on SDT that competence was also identified as a strong predictor of more self-determined exercise regulation (Wilson, Rodgers, Blanchard, & Gessell, 2003), which in turn can lead to better adherence with an activity. In other words, if individuals have greater feelings of mastery within a domain, they are more likely to continue a behavior or activity within that domain.

With regard to motivations for exercising, fitness and health can have both direct and indirect effects on a performer. It is not surprising, then, that the entire interview sample mentioned either fitness, health, or breathing benefits as key motivators. Some participants discussed a general lack of acceptance of exercise in the academic music culture, and outlining these benefits may be important for faculty and students alike to see the potentially positive impact of exercise on their musical performances and rehearsals. For many musicians and

vocalists, expanding one's lung capacity could directly improve their performance with an instrument or voice. For marching artists specifically, being in peak fitness before their marching season may allow them to be less fatigued while engaging in long, hot days of practice and competition. Aerobic exercise may help musicians maintain more consistent heart rates while expending energy, and when nerves are high, being able to regulate one's breathing and heart rate variability could help performance. As discussed in the review of the literature, musicians can obtain numerous physiological (Ackermann, Adams, & Marshall, 2000; Brandfonbrener, 2009; Wasley, Taylor, Backx, & Williamon, 2012) and psychological rewards (Asmundson et al., 2013; Fox, 1999; Gore, Farrell, & Gordon, 2001; Hassmen, Koivula, & Uutela, 2000; Joseph, Royse, Benitez, & Pekmezi, 2014; Landers & Petruzzello, 1994) that result from working out both with aerobic and anaerobic exercise. Qualitative results stress the importance teaching the benefits of exercise to younger musicians and youth in general at an early age so that they might be more likely to maintain the behavior into adulthood.

With regard to RQ5 and participants' perceptions of the music culture's attitudes towards exercise, the sample was split between *Indifference towards Exercise*, positive messages, and negative messages. This led to the additional theme of *Conflicting Messages*. Thus, it was difficult to define any one theme, but the variety of answers in and of itself is an important finding, highlighting that each person has their own unique experience of a specific subculture. Qualitative research cannot be generalized to other domains or populations even when the sample strongly agrees on an answer, so in this case it is even more difficult to make recommendations or assertions based on the data. It is therefore important for each individual faculty and staff member to be mindful of the messages they are sending to students regarding the importance of exercise.

General Conclusions and Implications

One of the primary goals of this study was to use self-determination theory (SDT) to frame the results. Results indicate that the SDT literature may possibly be applied to the music culture's exercise behavior and attitudes, as participants with a stronger exercise identity reported exercising more often per week and participants with more intrinsic motivation to exercise were more confident that they could overcome barriers to exercise. It can be seen from bivariate correlation analysis that there is a strong correlation between exercise identity and intrinsic motivation. It is important then to note that making exercise more of an individual's identity may help them become intrinsically motivated to exercise. These two goals may be linked together.

Therefore, the question remains as to what is the best way to intervene with this population in a manner that will increase intrinsic motivation, exercise identity, and consequently their ability to comply with a regular exercise program. From a theoretical perspective, it appears that making exercise a more self-determined activity for musicians may make them more likely to regularly engage in the behavior. Participants felt most confident in persisting with exercise when it was a more self-determined part of their identity. Prior research (Ryan & Deci, 2000) demonstrates that when the psychological needs of autonomy, competence, and relatedness are fulfilled, a behavior is more likely to be self-determined and individuals are more likely to maintain the behavior. Thus, future research needs to determine how these needs can be fulfilled within the musician population. Several qualitative participants suggested that having peers with whom to exercise would make them more likely to engage in regular exercise. This may connect to the psychological need of relatedness, or it could be that having peers with whom to exercise is more enjoyable and helps them stay accountable and more disciplined in their workout

activities. However, the quantitative results suggested that the overall sample was relatively confident about working out even when they have to do it alone. More research on the psychological need of relatedness within this population and whether or not it is relevant to musicians and exercise may help practitioners better understand this relationship. It is possible that they already achieve sufficient levels of relatedness in their musical culture, and so finding this through exercise is not as critical for them.

There have been previous calls for intervention research with musicians in this domain, and it may be important to discover ways to fulfill psychological needs through an exercise regimen, at least the needs of competence and autonomy. These two needs appear to be important for exercise, as autonomy support is positively associated with more self-determined motivation in exercise behavior (Wilson & Rodgers, 2004). Competence need satisfaction serves as a partial mediator of the relationship between autonomy support and self-determined regulation as well (Edmunds, Ntoumanis, & Duda, 2006). Teaching and equipping musicians to be more acquainted with exercise and the gym may help meet the need of competence, as a few qualitative participants attested to the fact that they do not feel very comfortable or competent in the gym. Skilled musicians experience mastery and competence while performing, but figuring out ways to meet these needs in the exercise domain may be important for them to consistently exercise in a gym or even workout on their own. The final need that has been identified is one of autonomy. Trainers, faculty, and psychologists who work with musicians may be well-suited to allow these music majors to play a significant role in crafting their workout routines. Mandating what they must do and how they must do it might prevent the need of autonomy from being met. Future research should examine specific interventions and measure how these psychological needs are met through various workout routines.

Participants were asked their opinions on how best to integrate exercise into the busy schedules of music majors on university campuses, where they have expressed their lives are already consumed with school and practice. When asked about mandatory exercise for musicians in academia, every qualitative participant stated that this would be a bad idea for them and their peers. They noted that making things mandatory may cause them to resent exercise, at least resent being forced to exercise. This is directly related to the psychological need of autonomy. Students may feel less autonomous if they are forced to exercise and are given a mandate as to how they must exercise. Several musicians discussed the need to educate musicians on the benefits of exercise and figure out ways to present exercise as a fun and healthy way to work on their health and music indirectly. It is understandable that musicians do not want to take much time away from practice, as they experience a significant amount of pressure from faculty, peers, and family to perform at the highest level. Exercise, then, should not be presented as an alternative to their music or in opposition to their music, but as an added benefit and a way for them to enhance their breathing capacity and extend their musical careers. If exercise is to be more integrated into the academic music culture, it appears that from participant responses, faculty may need to teach about the benefits of exercise and support this behavior in their students, rather than discourage it as some participants have reported experiencing.

Obesity in America continues to be a problem for young adults, and musicians are disproportionately affected by this epidemic. Both exercise and dietary practices have been shown to be suboptimal in this population (Sharma et al., 2008), and it is the intent of the current study and the primary investigator to influence the health of musicians in a positive way. Future research should continue to examine the *why* behind the lack of exercise and poor dietary habits in this population, as well as the *how* to go about changing it. Understanding the problem and

why musicians seem to disproportionately struggle with weight and health could directly lead to interventions for change and transformation. SDT will continue to be a helpful framework for discussing this problem, and academicians and researchers alike can focus on how to make all individuals, including musicians, more self-determined in their exercise and health behaviors. This study has highlighted the motivations, obstacles, and perceptions of exercise in the music culture, providing a helpful start for comprehending what drives individuals in this domain, but it should not stop here. Greater theoretical knowledge and a better understanding of specific interventions can go a long way in improving the health of American musicians and both directly and indirectly impact the quality of their craft.

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APPENDICES

Table 1

Demographic Information of Study 2 Participants

	Audrey	Stacey	Robin	Nathan	Kristy	Megan	Sara	Adam	Scott
Age	19	18	18	19	44	21	22	19	21
Race	White	White	White	White	White	White	White	White	White
Gender	Female	Female	Female	Male	Female	Female	Female	Male	Male
Class	FR	FR	FR	FR	Grad School	JR	SR	SO	SR
Major	Studio Music	Music Education	Applied Music	Studio Music	Collaborative Piano	Sacred Music	Vocal Performance	Jazz Saxophone	Music Education
Marching Band?	No	Yes	Yes	No	No	No	No	No	Yes
Exercise Per Week	0	2	3	4	6	5	0	0	2

**Exercise Per Week*: the number of times participants reported working out for at least 30 minutes per week on average during the last three months

Table 2

BARSE RQ1 Results

Items	<i>M</i>	<i>SD</i>
BARSE10: Schedule Conflict	24.46	27.31
BARSE4: Not Interested	30.89	26.83
BARSE9: Dislike Activity	33.84	25.58
BARSE5: Discomfort	34.64	31.36
BARSE3: Vacation	35.11	30.29
BARSE2: Boredom	37.75	28.63
BARSE8: Difficult Location	37.77	28.50
BARSE7: Not Fun	46.25	29.44
BARSE1: Weather	49.29	31.84
BARSE13: Personal Stress	51.88	30.00
BARSE12: Instructor	54.73	32.35
BARSE11: Self-Conscious	59.20	32.55
BARSE6: Alone	68.21	30.53

**Note.* n = 112. BARSE: Barriers Specific Self-Efficacy Scale (out of 100); ascending order from lowest confidence to highest confidence.

Table 3

Means, Standard Deviations, and Intercorrelations of the BARSE (DV), subscales of the BREQ (IV), and the EIS (IV)

Scales	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
BARSE (Avg.)	43.39	21.79	-	-.41***	-.06	.39***	.69**	.69***	.77***
AmotivationBREQ	.49	.68		-	.23**	-.21*	-.48***	-.47***	-.33***
ExternalRegBREQ	.86	.85			-	.37***	.07	-.07	.00
IntrojectBREQ	1.62	1.19				-	.51***	.34***	.46***
IdentifiedBREQ	2.54	1.02					-	.77***	.82***
IntrinsicBREQ	2.45	1.12						-	.71***
EIS Total	28.91	13.34							-

Note. $n = 112$. BARSE: Barriers Specific Self-Efficacy Scale (out of 100); BREQ: Behavioural Regulation in Exercise Questionnaire; EIS: Exercise Identity Scale

* $p < .05$ ** $p < .01$ *** $p < 0.001$

Table 4

Hierarchical Regression Analyses on the Effect of the BREQ-2 (IV) and EIS (IV) on the BARSE (DV)

<i>Model</i>	<i>Measures</i>	<i>B</i>	β	<i>t</i>	<i>p-value</i>	<i>r_{part}</i>
1	AmotivationBREQ	-2.65	-.08	-1.04	.30	-.07
	ExternalRegBREQ	-1.90	-.07	-.95	.34	-.07
	IntrojectBREQ	3.64	.20	2.45	.02*	.17
	IntrinsicBREQ	11.27	.58	7.20	.00***	.49
2	AmotivationBREQ	-3.28	-.10	-1.51	.14	-.09
	ExternalRegBREQ	-.92	-.04	-.54	.59	-.03
	IntrojectBREQ	.73	.04	.54	.59	.03
	IntrinsicBREQ	4.53	.23	2.67	.01**	.15
	EISTotal	.91	.56	6.41	.00***	.37

Note. $n = 112$. Dependent Variable: Barriers Specific Self-Efficacy Scale (BARSE, out of 100); BREQ: Behavioural Regulation in Exercise Questionnaire; EIS: Exercise Identity Scale; * $p < .05$ ** $p < .01$ *** $p < 0.001$

Table 5

Hierarchical Regression Analyses on the Effect of the BREQ-2 (IV) and EIS (IV) on Self-Reported Exercise Behavior

<i>Model</i>	<i>Measures</i>	<i>B</i>	β	<i>t</i>	<i>p-value</i>	<i>r_{part}</i>
1	AmotivationBREQ	-.45	-.04	-.36	.72	-.04
	ExternalRegBREQ	-.03	.00	-.03	.97	.00
	IntrojectBREQ	.18	.03	.26	.80	.03
	IntrinsicBREQ	.86	.14	1.17	.24	.11
2	AmotivationBREQ	-.76	-.07	-.67	.50	-.06
	ExternalRegBREQ	.28	.03	.33	.74	.03
	IntrojectBREQ	-.86	-.14	-1.30	.20	-.11
	IntrinsicBREQ	-1.56	-.25	-1.82	.07	-.16
	EISTotal	.32	.61	4.62	.00***	.41

Note. $n = 112$. Dependent Variable: Self-Reported Exercise Behavior (# of times participants reported working out on average per week over the past 3 months); BREQ: Behavioural Regulation in Exercise Questionnaire; EIS: Exercise Identity Scale; * $p < .05$ ** $p < .01$ *** $p < 0.001$

APPENDIX A: INFORMED CONSENT

Music Majors and Exercise

INTRODUCTION

You are invited to participate in a research study. The purpose of this study is to examine exercise behavior among music majors. Please be aware that this study will have NO influence on your academic standing or evaluation. You may discontinue your participation at any time (prior to final data analysis) without penalty.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY

You will be asked to complete brief demographic information and three surveys to assess your opinions about and experiences with exercising. The materials in the study will take approximately 20 minutes to complete. In addition, you are asked to give permission to be contacted via email for a follow-up phone interview in order to get more detailed information about your opinions and experiences with exercise. Approximately 8 participants will be picked for phone interviews (based on their responses to the surveys and willingness to participate in the interview). The interview will last approximately 30-45 minutes.

Participating in this study poses no significant foreseeable risks. There is a slight chance that some participants may experience slight discomfort due to the evaluative nature of the measures. All survey measures used in this study have been examined for appropriate efficacy in collecting the information required by this research. All research investigators are trained in the distribution and interpretation of these instruments. If any questions or concerns arise during your participation in this study, ***please contact the primary investigator***, and remember that you may discontinue your participation in this study at any time without penalty. No monetary compensation will be offered as a benefit for your participation in this study. You may indirectly benefit from this study as the results of this research may be used to provide feedback about enhancing health and well-being among music majors.

CONFIDENTIALITY AND PARTICIPATION

Your participation in this study will be kept confidential. Data will be entered into and stored on a secure database. No references will be made in oral or written reports that could identify you as a study participant or to your individual responses. Reported results will only indicate overall trends (aggregate data) for the uses in publications and professional presentations.

CONTACT INFORMATION

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study,) you may contact the principal investigator, Matthew Seitz at mseitz@vols.utk.edu or his faculty advisor: Jacob J. Levy, Ph.D. at 1404 Circle Dr., RM 410E, Knoxville, TN 37996, by phone (865) 974-4866, or by email jlevy4@utk.edu. If

you have questions about your rights as a participant, contact the Office of Research Compliance Officer at (865) 974-7697. You will be given a copy of this informed consent statement.

CONSENT

I am at least 18 years of age and have read and understand the above explanation of this research project being conducted by Mr. Matthew Seitz under the direction of Dr. Jacob Levy and I voluntarily agree to participate in this study. My signature below and my answering of the survey items will act as my informed consent.

Signature

Date

Printed Name

I consent to be contacted via email to participate in a follow-up interview regarding my experiences and opinions related to exercise. Providing my email address below will act as my informed consent to be contacted for a follow-up interview. I understand that only a small number of participants will be contacted, and I may not be contacted.

Email address

APPENDIX B: SURVEY PACKET

Demographic Questions

Age: _____

Sex: _____

Race/Ethnicity: _____

Collegiate Year (please circle one):

FRESHMAN

SOPHOMORE

JUNIOR

SENIOR

GRADUATE

Major: _____
(if performance major, please specify instrument and/or program)

Do you currently participate in marching band or any other marching music activity (e.g., drum corps, winter guard, etc.)?

YES

NO

If yes, what activity or activities?

In the past three months, how many times per week (on average) did you exercise for at least 30 minutes/day? _____

Other than any marching music activities you may have noted above, please identify the types of exercise or physical activity you regularly do:

BARSE

The following are common reasons that people give for not participating in exercise sessions or, in some cases, dropping out. Using the scale provided, for each item indicate how confident you are that you could exercise in the event of any of the following circumstances. Select the number

that most closely matches your level of confidence, remembering that there are no right or wrong answers.

EXAMPLE: In question 1, if you have complete confidence that you could exercise even if the weather was very bad, you would circle 100. If, however, you had no confidence at all that you could exercise if the weather was bad (that is, confident you would NOT exercise), you would circle 0.

I believe that I could exercise 3 times per week if...

1. the weather was very bad (hot, humid, rainy, cold).

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

2. I was bored by the program or activity.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

3. I was on vacation.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

4. I was not interested in the activity.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

5. I felt pain or discomfort when exercising.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

6. I had to exercise alone.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

7. it was not fun or enjoyable.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

8. it became difficult to get to the exercise location.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident				Moderately Confident				Highly Confident		

9. I didn't like the particular activity program that I was involved in.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident			Moderately Confident					Highly Confident		

10. my schedule conflicted with my exercise session.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident			Moderately Confident					Highly Confident		

11. I felt self-conscious about my appearance when I exercised.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident			Moderately Confident					Highly Confident		

12. an instructor did not offer me any encouragement.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident			Moderately Confident					Highly Confident		

13. I was under personal stress of some kind.

0	10	20	30	40	50	60	70	80	90	100
Not at all Confident			Moderately Confident					Highly Confident		

BREQ-2

WHY DO YOU ENGAGE IN EXERCISE?

We are interested in the reasons underlying peoples' decisions to engage, or not engage in physical exercise. Using the scale below, please indicate to what extent each of the following items is true for you. Please note that there are no right or wrong answers and no trick questions. We simply want to know how you personally feel about exercise. Your responses will be held in confidence and only used for our research purposes.

		Not true for me		Sometimes true for me		Very true for me
1	I exercise because other people say I should	0	1	2	3	4
2	I feel guilty when I don't exercise	0	1	2	3	4

3	I value the benefits of exercise	0	1	2	3	4
4	I exercise because it's fun	0	1	2	3	4
5	I don't see why I should have to exercise	0	1	2	3	4
6	I take part in exercise because my friends/family/partner say I should	0	1	2	3	4
7	I feel ashamed when I miss an exercise session	0	1	2	3	4
8	It's important to me to exercise regularly	0	1	2	3	4
9	I can't see why I should bother exercising	0	1	2	3	4
10	I enjoy my exercise sessions	0	1	2	3	4
11	I exercise because others will not be pleased with me if I don't	0	1	2	3	4
12	I don't see the point in exercising	0	1	2	3	4
13	I feel like a failure when I haven't exercised in a while	0	1	2	3	4
14	I think it is important to make the effort to exercise regularly	0	1	2	3	4
15	I find exercise a pleasurable activity	0	1	2	3	4
16	I feel under pressure from my friends/family to exercise	0	1	2	3	4
17	I get restless if I don't exercise regularly	0	1	2	3	4
18	I get pleasure and satisfaction from participating in exercise	0	1	2	3	4

19 I think exercising is a waste of time 0 1 2 3 4

EIS

Please rate the extent to which you agree or disagree with each statement below based on how you would currently describe yourself.

	Strongly Disagree					Strongly Agree	
I consider myself an exerciser.	1	2	3	4	5	6	7
When I describe myself to others, I usually include my involvement in exercise.	1	2	3	4	5	6	7
I have numerous goals related to exercising.	1	2	3	4	5	6	7
Physical exercise is a central factor to my self-concept.	1	2	3	4	5	6	7
I need exercise to feel good about myself.	1	2	3	4	5	6	7
Others see me as someone who exercises regularly.	1	2	3	4	5	6	7
For me, being an exerciser mean more than just exercising.	1	2	3	4	5	6	7
I would feel a real loss if I were forced to give up exercising.	1	2	3	4	5	6	7
Exercising is something I think about often.	1	2	3	4	5	6	7

APPENDIX C: EMAIL MESSAGE

Dear student,

Thank you for expressing interest in my research project. My name is Matt Seitz, and I am working on my dissertation examining music majors and their views and behaviors related to exercise. You indicated on the informed consent document that you would be willing to participate in a follow-up qualitative interview.

Interviews will last approximately 30 minutes and will follow an 11-question interview guide that I have created. I will occasionally ask probing questions to clarify comments or answers that you have given. There is no penalty for declining to give the interview and no reward for engaging in the interview process. If you are still interested in being interviewed, please reply to this email and we can set up a time and place to meet.

I look forward to meeting you and learning from you.

Sincerely,

Matt Seitz, M.S., mseitz@vols.utk.edu
Doctoral Student in Counseling Psychology
University of Tennessee

APPENDIX D: PLEDGE OF CONFIDENTIALITY

As a transcribing typist for this research project, I understand that I will be hearing audio recordings of confidential interviews. Research participants who participated in this project have revealed the information on these recordings expecting their interviews to remain strictly confidential and anonymous. I understand that I have a responsibility to honor this confidentiality agreement. I hereby agree not to share any information on these recordings with anyone except for the primary investigator, Matt Seitz. Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to do so.

Transcribing Typist

Date

APPENDIX E: INTERVIEW GUIDE

1. How often do you exercise?
2. Tell me about your exercise routine: what types of exercise does it include?
3. Can you tell me about what your daily schedule typically entails as a student and musician?
4. What motivates you to exercise? In other words, what reasons do you have for exercising?
5. What are the obstacles that prevent you from exercising?
6. In what ways does your identity as a musician influence the way you view exercise?
7. To what extent do you personally identify as an exerciser?
8. In what ways does being a music major act as an obstacle to engaging in consistent exercise?
9. In general, how would you describe the music culture's attitudes towards exercise?
10. To what extent do musicians typically identify as exercisers or athletes?
11. What suggestions do you have for integrating exercise into the music culture?

VITA

Matthew Seitz was born on September 23, 1985 in Daytona Beach, FL. He graduated from Spruce Creek High School in Port Orange, FL in 2004. Matthew earned a B.S. in Business Administration majoring in marketing from the University of Florida in 2008. He subsequently completed a M.S. in Sport Management from the University of Florida in 2012 after spending time doing mission work in East Africa in 2008 and working in Houston, TX during his academic hiatus. For his master's degree, he wrote a thesis on *Religion and College Athletics: Perceptions of Former Student-Athletes on Their Intercollegiate Religious Well-Being*. This was published in the *Journal for the Study of Sports and Athletes in Education* in 2014. Matthew attended the Counseling Psychology doctoral program at the University of Tennessee. He plans to graduate in August 2017 with a Ph.D. in Counseling Psychology upon completion of his APA pre-doctoral internship at the Georgia Institute of Technology.