

To Run or Not to Run: Understanding Motives and Barriers Among Female Runners

by

Alice Elena Franco

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Alice Elena Franco

The College of Health Science

California Baptist University

Riverside, California

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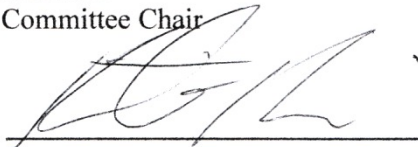
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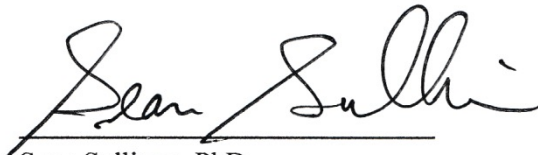
Approved by:



Robert G. LaChausse, PhD  
Department Chairman & Associate  
Professor  
Committee Chair



Kristin Mauldin, PhD  
Committee Member



Sean Sullivan, PhD  
Committee Member

## Abstract

This study examines females' various motives and barriers for running. Female event participation has grown exponentially over the past two decades. However, current research does not explore levels of runners to include the evolving running culture, nor does it explore stages experienced throughout motherhood in connection to running. Using an online questionnaire, a total of 150 female runners were grouped into different runner levels (e.g. serious, enthusiastic, and incidental) as well as different stages of motherhood (e.g. mothers with young children, mothers with school aged children, mothers with older children, and females with no children). Participants completed the Motivations of Marathoners Scales (MOMS) to measure running motives and a modified version of the Exercise Benefits/Barriers Scale (EBBS) to measure running barriers. Multiple multivariate analysis of variance (MANOVA) analyses were used to test the hypothesized differences. As a group, serious runners endorsed goal achievement, competition, life meaning, psychological coping, and affiliation as reasons for running. Enthusiastic runners were more likely to endorse personal goal achievement than incidental runners. Additionally, mothers with young children were more likely to cite family barriers as barriers to running than mothers with older children or females with no children. The findings' potential applications to research, programs, policy, and training are discussed.

*Key words: running, motives, barriers, female, mothers.*

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## **Review of Literature**

### **Introduction**

Running is a universal activity; it is currently the most widely practiced and most accessible sport worldwide (Oborný, 2016). In the United States, long distance running—considered a distance of three or more miles—has become a major leisure activity (Goodsell, Harris, & Bailey, 2013). The Outdoor Foundation (2017), a not-for-profit organization, notes that running is the most popular outdoor activity in the US with a participation rate of 18% of Americans, or over 52.3 million participants. Between 1990 and 2013, participation in running events has seen an increase of more than 300%, with marathon participation rising 140% (Running USA, 2016). Nationwide, the number of women finishing running events has exploded. From 1990 to 2016, the number of male finishers almost doubled from roughly 3.6 million to roughly 7 million finishers; during the same period, the number of female finishers rose from 1.2 million to 9.7 million finishers (Running USA, 2017). Currently, the majority of participants in long distance races are women, accounting for 57% of all runners (Running USA, 2017). This, however, is a fairly recent phenomenon.

Traditionally, men have dominated the running scene. A mere 30 years ago women were not allowed to compete in the Olympics in any race farther than the 1500-meter mark (Johnson, 2016). However, there are accounts of women running as early as 1918. French runner Marie-Louise Ledru is rumored to have been the first woman to run a marathon when she completed the Tour de Paris marathon with a time of 5 hours and 40 minutes (Newton, 2012). After Ledru's run it took almost half



of a century before the famous American trailblazers Roberta “Bobbi” Gibb and Katherine Switzer advocated for official policy change.

When attempting to register for the 1966 Boston marathon, the race director told Gibb, “Women aren’t allowed, and furthermore are not physiologically able” (Wallack, 2018). Gibb did not let that deter her and opted to run disguised as a man without official registration, effectively proving that women were indeed physiologically able. One year later Switzer registered and received an official bib number in the 1967 Boston Marathon by using only her initials and last name. In order to participate, Switzer concealed her gender. Despite her baggy clothing, she was discovered, and at mile four a race official verbally abraded Switzer while he attempted to physically remove her from the race (Logan, 2016).

These women ran during a time when women were not allowed to officially participate in the sport; there were no female divisions to compete in and running was widely viewed as a men’s-only sport. The gender stereotype that female athletes were not heterosexual held fast, along with misinformation about adverse health effects resulting from vigorous exercise (Leedy, 2009). Running was seen as unfeminine and physically unhealthy according to the “scientific” evidence of the time (Logan, 2016).

These gender specific roles remained in place until 1972, when official legislation was passed opening up athletic opportunities for women and girls (Logan, 2016). Title IX prohibited gender discrimination in any federally funded education program or activity, effectively paving the way for a whole new generation of female runners to participate in high school and college-level sports (Johnson, 2016). Twelve

years after the passing of Title IX, the 1984 summer Olympic games held the first women's marathon (Logan, 2016).

While policy change helped, female running participation didn't hit its stride until the 1990s. In 1994, famous T.V. host Oprah Winfrey ran the Marine Corps Marathon, effectively disproving two major running stigmas: that female runners had to be young and of a particular body type (Johnson, 2016; Logan, 2016). Winfrey's example breathed life into the female running movement, proving that all women can run and call themselves runners. With all forms of runners hitting the pavement, event organizers began shaping events to cater to the average person.

### **Purpose of Study**

Though they once monopolizing the industry, traditional individualized running events (i.e., 10k, 15k, half-marathon, and marathon) are no longer the only running options. The past decade has seen the emergence of social and recreational running in the form of themed runs, relays, and obstacle races (Kinder, 2015; Pauline, 2014). There are female-centered running events such as Disney Princess runs, Diva half-marathons, and the Nike Women's Marathon, which include highlights such as bra exchanges, tutus, roses, feather boas, and Tiffany's necklaces passed out by firemen in tuxedos at the finish line (Logan, 2016). Recent running events have taken the emphasis off competing or winning to make running more about having fun, being active with other people, and creating friendships (Pauline, 2014). These social runs have been wildly successful as they draw in participation from nontraditional runners, encouraging people of all fitness levels to participate and effectively

dispelling old stigmas which may have deterred the average women from more structured individual events.

This “fun run” industry has grown exponentially in the past decade, expanding so quickly that coordinators are scrambling to keep pace with the demand. Color runs began in 2011, and by 2014 they had more than 4 million participants, of which 60% had never run a 5K before (Kinder, 2015). This created a place for 2.3 million people to be active who otherwise would not have participated in running events (Kinder, 2015). Another example is Ragnar Relay Races, a popular 36-hour relay race for teams of 12 runners, which has garnished an almost cult-like following. Ragnar’s founder claims the movement has grown much larger than expected, as the relay races are constantly selling out with a seemingly insatiable market (Kinder, 2015). This creative new running scene has effectively brought together physical activity and community, encouraging participation from competitive athletes to amateurs (Kinder, 2015). Given the relative newness of the social running scene, there has been little (if any) research done to examine motives of those who participate in these events.

With new opportunities for participation in running events and new types of runners emerging, there also comes a new opportunity to examine and understand people’s motives for participation. The increased running interest and participation among women of all experience levels, abilities, shapes, sizes, and life stages raises questions such as: Why are running events appealing to women? What reasons prevent women from participating now that much of the previous stigma has been discredited? This study’s purpose is to add to the significant body of research on

exercise motivations, as there is no research yet that formally assesses motives of and barriers for the modern-day female runner.

***Motivations.*** One of the main components in beginning an exercise regimen, and regularly maintaining it, is motivation. The study of motivation is said to be an “exploration of the energization and direction of behavior” (Deci & Ryan, 1985). Motivation explains the age-old question of why people do what they do. Runners frequently train for months, logging countless hours often in undesirable conditions to prepare for running events. Understanding the different motives that get women running will provide a compass for future running programs aimed at increasing physical activity (Whipple, Combs, Dowd, & Elliott, 2011).

Self-determination theory (SDT) has been widely used as a theoretical framework for assessing motives, particularly those dealing with different types of physical activity (Lamont & Kennelly, 2012). SDT proposes that an individual’s value for a particular activity, such as running, can determine the type of motives that drive their behavior (Gray, Murphy, Gallagher, & Simpson, 2016). This theory assumes that motives vary over two broad categories: intrinsic and extrinsic. Intrinsic motivation consists of completing or participating in an activity for its “own sake” (Deci & Ryan, 1985), if the act is found to be innately enjoyable. Extrinsic motivation consists of behaviors driven by following directions or rewards from something outside of oneself, such as praise from others (Deci & Ryan, 1985; Gray et al., 2016). Behavioral studies have found that those who engage in physical activity as a result of intrinsic motivations are more prone to continue the behavior; this is because they are

interested in or innately enjoy the activity (Hanson et al., 2015; Markland & Tobin, 2010; McDonough & Crocker, 2007).

In this theory, Ryan and Deci (2000) identified three psychological needs as the basis for self-motivation, these consist of: competence, relatedness, and autonomy. They postulated that satisfying these needs heightens self-motivation and that these needs can take on forms within different social environments. SDT deals with both understanding individual growth as well as assessing the social environments that help or hinder growth (Ryan & Deci, 2000) making it a particularly useful theory to examine motivations and barriers within the female runner community and within the context of motherhood.

Further, in order to encourage more individuals to engage in running, it is imperative to understand why individuals choose to run. Many studies have been conducted to determine motives in relation to participation in physical activity and running. Seungmo, Jing Dong, and Love (2016) found that these motives are usually physical (e.g. health and weight control), social (e.g. affiliation), psychological (e.g. relaxation and stress relief), and emotional (e.g. happiness and well-being). Motives are not independent; rather, they can function together as individuals are often swayed by a combination of motivations. Because of this, there have been multiple studies focusing on characteristics of participants, such as gender (Deaner, 2013; Ednie & Stibor, 2017), age (Seungmo et al., 2016) and event participation (Buning & Walker, 2016).

Motives have been found to vary with runners who participate in different traditional distance races (i.e., ultra-marathon, marathon, half-marathon, 5k, etc.).

Past motivational research demonstrates that ultra-marathon runners tend to be motivated by goal achievement, stress relief, testing their limits, and developing social interactions (Holly, 2015). Runners have described marathon training as a way to focus on their spiritual health (Whipple et al., 2011). It provides them with a sense of meaning or purpose, is a means of alone time for reflection and prayer, and infuses them with a sense of fulfillment (Whipple et al., 2011). There is, however, no literature that examines motives across different runner levels (i.e., incidental, enthusiastic, and serious), as these are not necessarily the same as what distance they participate in, and there is a particular lack of research encompassing the modern-day female runner.

There have been few studies that have used the Motivations of Marathoners Scale (MOMS) to assess motives and compare runners who participate in different activities outside of traditional running events (e.g. 5k, 10k, marathon). Buning and Walker (2016) used this approach to examine traditional mass participant sporting events (MPSE) participants with nontraditional MPSE participants. They found that regardless of event type (traditional/nontraditional), participation in MPSE was widely motivated by maintaining or increasing self-esteem (Buning & Walker, 2016). They also discovered that in the act of training for and completing traditional events, runners were motivated by health, weight loss, and becoming more attractive/fit (Buning & Walker, 2016). Alternately participants of the non-traditional events were motivated more by socializing, meeting new people, and sharing an identity/interest with others (Buning & Walker, 2016). This study will examine motives for different

levels of runners in the contexts of both traditional and non-traditional running events.

To fully understand motivation, social contexts surrounding individuals should be assessed (Goodsell et al., 2013). Previous research has shown a decline in physical activity with the transition to parenthood, particularly for mothers (Hull et al., 2010; Mailey, Huberty, Dinkel, & McAuley, 2014). Yet the majority of female runners (54%) are 25 to 44 years old (Running USA, 2016). Therefore most female runners are arguably in the busiest stage of life with major transitions including marriage, parenthood, education, and careers (Goodsell et al., 2013; Kinder, 2015). Ryan and Deci's (2000) noted that the three SDT needs (competence, relatedness, and autonomy) take different form within different social contexts; each major life transition can contain its own social framework. Research thus far has not adequately explored motives for running during the parenthood life stage, nor what prevents females from running during this period.

**Barriers.** Women face many barriers that can deter good intentions and decrease weekly mileage. Participating in long distance running can be physically and psychologically demanding; it requires time (i.e., training for and participating in events), as well as associated financial costs (i.e., event fees and running gear) (Sima et al., 2017). Barriers specific to women and physical activity that have been explored include ethnicities (Mâsse & Anderson, 2003), income (Hoebeke, 2008; Mâsse & Anderson, 2003), safety (Roper, 2016), weight status (Jones, 2003), urinary incontinence (Brown & Miller, 2001; Jones, 2003), and education level (Mâsse &

Anderson, 2003). There is a distinct lack of research addressing running barriers specific to motherhood and the different stages of motherhood.

Research shows that running is both affected by and affects life and family circumstances, yet there is little research connecting the motives or barriers of a runner to the structure of his/her family (Goodsell et al., 2013; Leedy, 2009; Wang et al., 2011). Mothers have many different roles, each of which can thwart the pursuit of their personal goals (Cody & Lee, 1999). The literature shows that on the whole motherhood is associated with a decrease in physical activity and an increase in household activities (Bellows-Riecken, & Rhodes, 2008). In their program to promote physical activity for parents of preschool children, Cody and Lee (1999) noted that family-related constraints were highly disruptive to participants in the intervention as the majority of absences/dropouts from the program were due to children and family routines. Identifying these running barriers will enable effective planning for programs to encourage more females to run and to keep them running throughout each stage of motherhood. Previous research suggests that with the transition into parenthood, physical activity decreases, particularly for mothers, due to numerous barriers including: guilt, lack of support, lack of energy, and rising family obligations (Mailey et al., 2014). Time constraints are cited as a major barrier for the general population and all women; these constraints are typically exaggerated during motherhood leaving little time for leisure activities such as running (Mailey, Phillips, Dlugonski, & Conroy, 2016; Mâsse & Anderson, 2003).

Though the literature shows a decline in physical activity associated with becoming mothers, the majority of female runners are 25 to 44 years old (Running



USA, 2016) the prime time for childbearing in Western society. According to the Centers for Disease Control (CDC), the average age of a mother at the birth of her first child in 2016 was 26.6 years (Martin, Hamilton, Osterman, Driscoll, & Drake, 2018). This study will explore barriers in relation to different stages of motherhood for women runners to better understand why the majority of runners are those within the age group to have young children, a period where physical activity has been shown to decline.

***Summary.*** The running female today has many more opportunities to participate in running events than ever before. While the majority of runners will not meet Olympic qualifications, a significant percentage of women will participate in a running event, regardless of ability level, as a form of regular physical activity. Motives for all forms of running females have not yet been explored. Family status in relation to running participation has not been explored, nor have the differences in barriers experienced by running mothers across the stages of motherhood. Participant experiences will help organizations, government departments, and other health promotion stakeholders gain further knowledge that could assist in their ability to cater to the needs and wants of their female clients.

### **Research Questions**

This study will address the following research questions:

- Do running motives vary across different levels of female runners: (1) incidental runner, (2) enthusiastic runner, and (3) serious runner?

- Do running motives and barriers to run vary among different stages of motherhood (i.e. mothers with young children  $<5$ , mothers with school age children  $\geq 5$  and  $<16$ , mothers with older or grown children  $\geq 16$ , and women who are not mothers)?

## **Hypotheses**

This study will test the following hypotheses:

H<sub>1</sub>: Running motives differ by runner classification (e.g. serious, enthusiastic, etc.).

H<sub>2</sub>: Running motives differ by mother classification (e.g. mothers with young children, mothers with school aged children, etc.).

H<sub>3</sub>: Barriers to run vary among different stages of motherhood (e.g. mothers with young children, mothers with school aged children, etc.).

## **Method**

### **Design**

A cross sectional between-participant approach was employed to examine motivations, perceived barriers, exercise behaviors, and demographics of female runners. Data was collected via an online survey through Qualtrics (Qualtrics, Provo, UT). The survey included a brief demographic section, parental questions on the number of children participants have and age(s) of their child(ren), a section for participants to self-report how often and intensely they run as well as measures related to runners' motives and barriers. A sample size of at least 125 participants was required to obtain statistical power at .80, alpha at .05, and an estimated effect of .15

(Dlugonski & Motl, 2013; Hull et al., 2010) based on calculations using G-Power (Faul, Erdfelder, Lang, & Buchner, 2007).

## **Participants**

Participants for this study were females who identified as runners. Women ages 18 to 99 residing in the United States at the time of the survey were recruited for participation. This included women of diverse races and ethnicities, education levels, and incomes. Participants were recruited from several major running-related companies and social media pages. Many different sources were contacted to increase the generalizability of this study.

Multiple running clubs from each state as well as an exercise-based community of mothers with members across the United States were reached out to for survey participation. The response was unexpectedly high. Participants were also recruited through online running forums and Facebook groups. These groups were comprised of females who engage in physical activity during their leisure time. An announcement was placed on social media pages and sent to member emails that asked for participation in university research.

## **Procedures**

Participant recruitment was done with an announcement inviting females to participate in a university research study on women and running conducted by California Baptist University. It included the time commitment, incentive for participation, and a link (URL) to the web based survey through Qualtrics (Qualtrics, Provo, UT). Qualtrics is a commonly used, commercially available academic survey platform that is compliant with relevant statutes and policies for data privacy and

confidentiality. Past research has demonstrated that web-based surveys can be a valid and reliable method of collecting health related data (Kypri, Gallagher, & Cashell-Smith, 2004). After choosing to click on the survey link on the announcement, participants were immediately directed to the consent form (see appendix C), which informed participants of the nature of the study, the risks/benefits of participating, and confidentiality of the data provided. Consent was obtained with participants checking a box on the consent form that acknowledged they were female, 18 years or older, understood the form, and freely consented to participate. Only after consent was obtained did participants have access to complete the survey. Incentive for participation was a \$20 gift certificate with participants having a 1 in 125 chance to win. Participants were entered into the drawing by emailing a password to the researcher following their survey submission. The Institutional Review Board at California Baptist University reviewed and approved this study prior to data collection (see appendix F).

## **Measures**

The questionnaire was composed of 4 separate sections: (1) socio-demographics (age, education, marital status, average work hours per week, race/ethnicity), (2) runner type evaluation items, (3) motherhood stage evaluation items, (4) Motivations of Marathoners Scale (MOMS), and (5) Exercise Benefits and Barriers Scale (EBBS).

***Runner level.*** Runner type evaluation questions were used to determine which category of runner participants were. This consisted of items such as: have you gone running in the past 30 days, how long do you typically run for, and the types of events

you have participated in during the past year. Runner level was determined using frequency of running, the number of hours dedicated to running per week, the amount of structured running events per year, and the amount of time spent each week engaging in other forms of physical activity; these are modified versions of levels set by Rauter (2014) in his study on sport participation. ‘Serious’ is the label set to identify the small percentage of runners who are top-level athletes capable of placing in an event; they run more days than not each week (Rauter, 2014), and in our study they participate in many structured running events each year. ‘Enthusiastic’ is the label set to identify runners who use the majority of their leisure time to run; this group attends a few structured running events per year and compete with themselves trying to beat their last personal record time (Rauter, 2014). ‘Incidental’ is the label set to identify runners who are slightly more active than the general population as they report running very little if at all regularly; this group is more interested in social running rather than competing with themselves or against others (Rauter, 2014).

***Motherhood stage.*** Participants were asked if they had children. They were then asked how many children they had and the ages of their children. For the purpose of this study, parental stages adapted from Mailey et al. (2016) were used. These subgroups set mothers with young children as those with children younger than 5 years old, mothers with school age children as those with children aged 5-15 years old, and mothers with older or grown children as those with children 16 years or older. Mothers who had multiple children were categorized based on the age of their youngest child; this method is commonly used when evaluating parents with multiple children (Carson, Adamo, & Rhodes, 2018; Gaston, Edwards, Doelman, & Tober,

2014; Mailey et al., 2016). A separate category was used for females without children.

***Motives.*** Motives were measured with the Motivations of Marathoners Scale (MOMS) (Masters, Ogles, & Jolton, 1993), a widely used instrument that measures the motivations of runners (Buning & Walker, 2016; Hanson, Madaras, Dicke, & Buckworth, 2015; Masters et al., 1993; Sima et al., 2017). The MOMS is useful for understanding reasons that people run as it encompasses commonly endorsed motivations, both intrinsic and extrinsic (Hanson et al., 2015). The scale consists of 56 questions that are scored on a 7-point scale ranging from 1 = not a reason, to 7 = a most important reason. The questionnaire is divided into nine subscales: 1) Psychological Coping, 2) Self-Esteem, 3) Health Orientation, 4) Weight Concern, 5) Affiliation, 6) Recognition, 7) Competition, 8) Personal Goal Achievement, and 9) Life-Meaning. All nine subscales fall under four main motives: psychological motives, social motives, physical motives, and achievement motives (Masters et al., 1993). MOMS is reliable, it is a source for information with confirmed validity and an internal consistency from 0.80 to 0.93 (Masters et al., 1993).

***Barriers.*** Barriers were measured with the Exercise Benefits/Barriers Scale (EBBS) (Sechrist, Walker, & Pender, 1987) a common tool for measuring barriers to physical activity (Farahani et al., 2017; Mailey et al., 2016). EBBS is made up of two separate scales, one for perceived benefits and one for perceived barriers to exercise. This study only required the use of the latter as this scale may be used with both benefits and barriers or as two separate scales. The barrier scale measures on four separate subscales that address time expenditure, exercise environment, household

dissuasion, and physical exertion. For the purpose of this study the EBBS was modified in similar fashion to Dlugonski et al. (2017) and Mailey et al. (2016) to incorporate barriers applicable to parents, such as “I feel guilty for taking time away from my family” and “I have a hard time finding childcare.” For the purpose of this study the word “exercise” was replaced with “run” or “running,” for example “Exercise tires me” was changed to “Running tires me.”

Mailey et al. (2016) reported the EBBS to be reliable ( $\alpha = 0.83$ ). EBBS works on a 4-point Likert-type scale with 1 meaning “strongly disagree,” 2 “disagree,” 3 “agree,” and 4 “strongly agree”; the barriers portion is reverse coded. Participants selected the extent to which each of the barriers affected their ability to run. This scale was measured by taking the mean of answers to determine the greatest perceived barrier to running on the four subscales.

### **Data Analysis**

Descriptive statistics and histograms were computed to assess each of the study variables to determine if the data met the assumptions of normality for statistical analysis. Multivariate analysis of variance (MANOVA) tests were computed to test each hypothesis. MANOVAs were used because: 1) each hypothesis contained multiple dependent variables; 2) dependent variables are at least moderately correlated (Stevens, 1999) (see Tables 5 and 6); and 3) because MANOVAs are capable of detecting differences that univariate tests cannot.

### **Independent Variable and Dependent Variables**

To test the hypothesis that the motives to exercise vary among levels of female runners, a MANOVA was computed with running levels (serious,

enthusiastic, and incidental) as the independent variable (IV) and the 9 MOMS subscale scores as the dependent variables (DV). To test the hypothesis that motives vary across stages of motherhood (mothers with young children, mothers with school age children, mothers with older or grown children, and women who are not mothers), a MANOVA was computed with mother status as the IV and the 9 MOMS subscale score as the DVs. To test the hypothesis that barriers to run vary among different stages of motherhood (mothers with young children, mothers with school age children, mothers with older or grown children, and women who are not mothers), a MANOVA was computed with mother status as the IV and the 4 EBBS variable scores as the DVs.

## **Research Findings**

### **Demographics**

The online survey link was made available for one month; during this time over 900 completed surveys were returned. To reduce the chances of committing a Type 1 error, a random sample of 150 participants was taken by using the selected cases RANDOM function on SPSS version 24. The average age of the sample was 41.79 (SD= 10.63). Over half (63%) of the participants were married at the time of the study. With regards to ethnicity, 88.7% were Caucasian, 2.7% were Asian/Pacific Islander, and 2.7% were African American. Fifteen percent of participants reported their race as Hispanic or Latino. The vast majority of respondents (79.4%) reported an undergraduate degree or higher level of education (see Table 1).

Just over half (60.7%) of respondents had children; 41% of these reporting having multiple children at the time of the study. When grouped into motherhood



stages, using the age of the youngest child for mothers with more than one child, 16% of participants reported having a child younger than 5 years old, 20% had a child between 5 years and 15 years old, and 24.7% had older/grown children aged 16 or older.

The majority (98%) had run in the past 30 days, and of these runners 66.7% reported running 3 or more days of the past 7 days. The majority (88.6 %) reported their typical run duration as 30+ minutes. When recalling from the past 12 months, participation by race category was broken down to 32% for marathon, 58% for half marathon, 15.3% for 15 kilometers, 52% for 10 kilometers, and 78.7% for 5 kilometers. Over the same 12 months, 29.4% of all participants reported having taken part in fun runs/relay-race. Over half (53.4%) of participants reported having attended 5 or more running events in the past year.

## **Results**

***Runner level and motivations.*** To test the hypothesis that motives to exercise vary among different levels of runners, a multivariate analysis of variance (MANOVA) was conducted on the 9 MOMS scores to determine if mean differences existed among different runner levels (e.g. incidental, enthusiastic, serious). Significant differences were found ( $F(18, 262) = 3.36, p < .001$ ). Significantly different means were found with affiliation motives ( $F(2, 139) = 7.033, p = .001$ ), competition motives ( $F(2, 139) = 13.13, p < .001$ ), personal goal motives ( $F(2, 139) = 12.12, p < .001$ ), and life meaning motives ( $F(2, 139) = 4.02, p = .02$ ).

Tukey's HSD post-hoc test revealed significant differences between mean scores and specific runner levels (see Table 2). Mean psychological coping (i.e., to

become less anxious, to improve my mood) scores were statistically, significantly different ( $p = .048$ ) between serious runners ( $M = 4.43$ ,  $SD = 1.82$ ) and incidental runners ( $M = 3.61$ ,  $SD = 1.36$ ). Mean affiliation (i.e., to socialize with other runners, to meet people) scores were statistically significantly different ( $p = .001$ ) between serious runners ( $M = 4.72$ ,  $SD = 1.21$ ) and incidental runners ( $M = 3.20$ ,  $SD = 1.45$ ), and statistically significant ( $p = .007$ ) between serious runners ( $M = 4.72$ ,  $SD = 1.21$ ) and enthusiastic runners ( $M = 3.56$ ,  $SD = 1.66$ ). No significance was found between incidental and enthusiastic runners ( $p = .410$ ). Mean competition (i.e., to compete with others, to see how high I can place) scores were statistically significantly different ( $p = .001$ ) between serious runners ( $M = 3.57$ ,  $SD = 1.62$ ) and incidental runners ( $M = 1.73$ ,  $SD = 0.88$ ), and statistically significantly different ( $p = .001$ ) between serious runners ( $M = 3.57$ ,  $SD = 1.62$ ) and enthusiastic runners ( $M = 2.34$ ,  $SD = 1.50$ ), but not statistically significantly different ( $p = .059$ ) between incidental and enthusiastic runners.

Significance was found in personal goal motives between all three groups of runners. Mean personal goal (i.e., to improve my running speed, to push myself) were statistically significantly different ( $p = .001$ ) between serious runners ( $M = 5.63$ ,  $SD = 1.37$ ) and incidental runners ( $M = 4.05$ ,  $SD = 1.39$ ), statistically significantly different ( $p = .012$ ) between incidental runners ( $M = 4.05$ ,  $SD = 1.39$ ) and enthusiastic runners ( $M = 4.76$ ,  $SD = 1.24$ ), and statistically significantly different ( $p = .006$ ) between serious runners ( $M = 5.63$ ,  $SD = 1.37$ ) and enthusiastic runners ( $M = 4.76$ ,  $SD = 1.24$ ). Mean life meaning (i.e., finding purpose to life, feeling whole)

scores were found to be statistically significantly different ( $p = .014$ ) between serious runners ( $M = 4.13$ ,  $SD = 1.83$ ) and incidental runners ( $M = 3.08$ ,  $SD = 1.25$ ).

***Motherhood stages and motivations.*** To test the hypothesis that running motives vary among different stages of motherhood for female runners, a MANOVA was conducted on the 9 MOMS scores (see Table 3) to determine if mean differences existed among different motherhood stages (e.g. no children, young children, school age children, older children). No significant difference was found ( $F(27, 380) = 1.45$ ,  $p = .070$ ). None of the mother groups had significantly different motivational scores.

***Motherhood stages and barriers.*** To test the hypothesis that barriers to run vary among different stages of motherhood (e.g. no children, young children, school age children, older children), a MANOVA was conducted on the 4 EBBS barrier scores to determine if mean differences existed among the different motherhood stages. A significant main effect was found ( $F(12, 379) = 2.79$ ,  $p = .001$ ). Mean scores for family barriers were significantly different ( $F(3, 146) = 5.62$ ,  $p = .001$ ). There was also a significant difference found for physical barriers mean scores within the stages of motherhood ( $F(3, 146) = 2.85$ ,  $p = .039$ ).

Tukey's HSD post-hoc test was performed to determine which motherhood stage reported significant findings (see Table 4). Mean family scores were statistically significantly different ( $p = .002$ ) between women without children ( $M = 1.63$ ,  $SD = 0.39$ ) and mothers of young children ( $M = 2.04$ ,  $SD = 0.50$ ), and statistically significantly different ( $p = .003$ ) between mothers of young children ( $M = 2.04$ ,  $SD = 0.50$ ) and mothers of older children ( $M = 1.61$ ,  $SD = 0.49$ ).

**Exploratory Analyses.** Two exploratory analyses were run to examine the differences in number of hours worked in the past 7 days across the stages of motherhood and levels of runners.

A one-way analysis of variance (ANOVA) was computed comparing the average number of hours worked in the past seven days with each motherhood stage. A significant difference was found ( $F(3,140) = 8.33, p = .001$ ). Tukey's HSD was used to determine the nature of these differences between the stages of motherhood. This analysis revealed that mothers of young children ( $M = 17.61, SD = 20.20$ ) worked significantly less than mothers with school age children ( $M = 31.95, SD = 15.49$ ), older children ( $M = 32.47, SD = 18.25$ ) and women with no children ( $M = 37.38, SD = 12.71$ ). Further studies should be done to better understand how the number of hours worked may influence a mothers ability to run.

An ANOVA was computed comparing the average number of hours worked in the past seven days with each runner level. No significant difference was found between groups ( $F(2,141) = .87, p = .423$ ). Runners in the serious group worked an average of 36.06 ( $SD = 13.80$ ) hours. Runners in the enthusiastic group worked an average of 32.19 ( $SD = 16.87$ ) hours. Runners in the incidental group worked an average of 29.81 ( $SD = 18.99$ ) hours. Runner levels had no significant differences when looking at hours worked in the past 7 days.

## **Discussion**

This study contributes to the existing literature regarding motives and barriers for female runners. The evolution of structured running events and the large increase

in the number of females participating in these events makes this area of study timely. Significant results were found when comparing runner motivation scores across different levels of runners for psychological coping, affiliation, competition, personal goal achievement, and life meaning. There were also significant findings when looking at stages of motherhood and family barriers to running.

### **Motivations and Runner Level Findings**

Both psychological coping (i.e., to become less anxious, to distract myself from daily worries, to improve my mood, to concentrate on my thoughts) and life meaning (to make my life more purposeful, to make myself feel whole, to feel a sense of belonging with nature) are motives serious runners endorse more than incidental runners. This is consistent with Buning and Walker's (2016) study on traditional mass participant sporting events (MPSE) (e.g. 5k, 10k, marathon) and nontraditional mass sporting events (MPSE) (e.g. fun runs). They found traditional participants to be motivated by mental coping of daily life (i.e., distraction from stress, to get away), and finding life meaning (i.e., finding purpose to life, feeling whole). Additionally, a study on female ultra-marathon runners that used the same MOMS by Krouse, et al. (2011) found psychological coping to be one of the strongest motivating factors.

Psychological coping and life meaning motives fall under the MOMS general category of psychological motives, and are more intrinsic forms of motivation. Many note that intrinsically motivated individuals demonstrate more adherence to exercise than those who are extrinsically motivated (Hanson et al., 2015; Markland & Tobin, 2010; McDonough & Crocker, 2007). Rauter (2014) support this as he found that serious participants dedicate a considerable amount of time to their sport. Serious

runners run most days of the week and participate often in organized events; for them, running is part of every-day life.

Further, serious runners were more likely to cite affiliation (i.e., to socialize with other runners, to meet people, to visit with friends, to share a group identity with runners) as a motive to run than the incidental or enthusiastic runner. These findings are in contrast to Buning and Walker (2016) whose non-traditional runners were more motivated by sharing a mutual identity/interest with other runners and socializing with others. The findings also differ from those found by Rauter (2014), who noted in his study on cycling and runner participants of mass sporting events, that his incidental participants attended events to spend their leisure time in a sociable manner. Conversely, our findings were aligned with Whipple et al. (2011), who studied mothers training for a marathon and found that all of participants use running as social time.

One possible explanation for this is that Buning and Walker (2016) and Rauter (2014) did not examine difference by gender; rather, they combined male and female participants into one group, which could have had an effect on the affiliation findings. Hanson et al. (2015) reported that female runners were motivated by affiliation more than their male counterparts across the half-, full- and ultra-marathon distances. Similarly, the all-female study by Whipple et al. (2011) stated that social interaction was the highest reported benefit to training for a running event. Participants cited a sense of belonging, identification, and a social connection with their running group. This suggests a second explanation that, by virtue of being a serious runner, a large percentage of leisure time is spent with similar serious runners.

In this study, serious runners also endorsed competition (i.e., to compete with others, to see how high I can place, to get a faster time than my friends) more than their incidental or enthusiastic runner counterparts. This aligns with Rauter's (2014) serious participant's profile as they "revealed a strong level of competitiveness" and take this leisure activity almost as serious as some professional athletes.

MOMS items are measured from 1 (*not a reason*) to 7 (*a most important reason*), for competition. A mid-point score was the peak for all runner levels. The serious group had significantly higher score ( $M = 3.57$ ) than the enthusiastic and incidental groups; however, the score was not particularly high, suggesting that the urge to compete with others and have their accomplishments recognized may not necessarily be an important motive for females in this study. These results coincide with Hanson et al. (2015) who found that females report relatively low competitive scores.

Personal goal achievement (i.e., to improve my running speed, to compete with myself, to push myself, to beat a certain time, to try to run faster) was a popular motive for all three running groups. Serious runners endorsed it more than enthusiastic runners, and enthusiastic runners endorsed personal goal achievement more than incidental runners. Buning and Walker's (2016) traditional participants also cited that achieving personal goals as a main motivation to run. Further, Rauter's (2014) serious group was labeled as those who dedicate the majority of their time and efforts toward reaching their goals and progressing in their sport. Whipple et al. (2011) found that during marathon training participants were fueled by the idea of

setting a goal and achieving it and experiencing the sense of accomplishment that follows.

One explanation for these findings could be that personal goals evolve as runners evolve. To make the shift from one group to another shows that a previous goal was reached and replaced with a new, more challenging one. Further research is needed to provide insight levels of runners as well as runners who change levels.

### **Motivations/Barriers and Motherhood Stage Findings**

There were no significant findings when comparing mean MOMS scores of different motherhood groups. This could be due to limits resulting from the classification of motherhood groups used for this study. For mothers with multiple children, this study used the age of the youngest child to determine the participant's motherhood stage as is commonly done throughout the literature (Carson et al., 2018; Gaston et al., 2014; Mailey et al., 2016). This method allows for the mothers to be classified; however, it does not resolve the limitation that groups are not fully independent of one another as a mother could possibly fit into multiple stages at the time of the study. For example, if a mother had three children ages 4, 7, and 10, according to the classification used, she would be placed into the mother of young child stage, though in reality she has school age children as well. Having school age and younger children could result in different motivations to run than only having younger children. Though usage of youngest child's age is common, it may not be the most prudent way to group mothers.

This study also contributes to the existing literature regarding barriers for female runners. Mothers of younger children cite family as a major barrier to run



more than mothers of older children and women with no children. Participants who cited family barriers responded that they experience barriers such as lack of support and encouragement from family members; busy tending to other responsibilities such as childcare, work, or housework; and feelings of guilt for taking time away from the family. These findings are supported by Nomaguchi and Bianchi (2004), who found that time spent exercising was the same for mothers and non-mothers except for mothers of children under 5 years old who have a significant decrease in time spent exercising. Similarly, Mailey et al. (2016) found that mothers with children under 5 years old cited “I am busy tending to other responsibilities (childcare, work, housework, etc.)” more than mothers of children over 5 years old.

A possible explanation for these findings could be that younger children require more of a time commitment from their parents. Nomaguchi and Bianchi (2004) found that parents with a child under 5 years old exercise around 52 minutes less in a two-week period than those without young children. Cody and Lee (1999) noted, in their program to promote physical activity in parents of preschool children, that family-related constraints were highly disruptive to participants and ultimately the results of the intervention. A second possible explanation for these findings is that there is a lack of publicly offered childcare assistance as the child is not yet old enough to attend public school (Bellows-Riecken, & Rhodes, 2008).

### **Exploratory Findings**

Exploratory analysis found that mothers of young children worked significantly less than mothers of school age children, mothers of older children, and women without children. This could be due to mothers remaining in the home or

working part time to care for the children until they reach school age, either by choice or due to the lack of publicly offered childcare assistance during that time (Bellows-Riecken, & Rhodes, 2008). Further research should be done to understand how the amount of hours worked impacts running motivations of mothers.

### **Strengths and Limitations**

**Limitations.** There are limitations associated with this work that should be noted. Of the original 981 responses, 92 cases with significant missing data were eliminated prior to the selection of a random sample of 150 participants. The number of cases with large portions of missing data in the overall sample was relatively small (10%), and due to this a listwise deletion option was chosen. Schafer and Graham (2002) noted that listwise deletion is an effective method of dealing with missing data that is only a small portion of the sample. This may have resulted in a non-response bias (Schafer & Graham, 2002) as those who chose to answer the questionnaire in its entirety may have been distinctly different than those who did not. Although 90% of participants chose to complete the survey, there may be an important difference between those who chose to complete most of the questionnaire and the 10% that did not. This potential unknown difference could have possibly impacted or limited the generalizability of this study's findings.

Participants for this study were recruited online and the survey was accessible only through the Internet. A web-based study could result in threats to external validity and generalizability of the research findings. Though past research suggests that pencil and paper surveys and Internet based surveys yield similar results (Reips, 2002), it may be possible that some female runners did not see the survey's

announcement or did not have access to the Internet. To overcome this possible threat, many different groups were reached out to for participation. Those contacted spanned the entire United States as well as runners of all abilities. Further, according to the Pew Research Center (2018) as of 2018, 89% of adults in the United States have access to the Internet.

Additionally, the data used in this study was based entirely on self-reported information. In light of the current cultural emphasis on healthy lifestyles, participants may have overestimated their answers in an attempt to present themselves in a more desirable social light resulting in response bias. Rosenman, Tennekoon, and Hill (2011) note that response bias is common in behavioral and healthcare research whenever self reported data is used and can still occur when respondents desire to “look good” regardless of the fact that the survey is anonymous. In attempt to reduce the possible occurrence of this, the survey announcement and consent form were carefully worded, specifying that this was a study on exercise behaviors of female runner runners (see appendix B and C). There was no mention of runner levels or other study specifics.

***Strengths.*** This study brought attention to different levels of runners. Previous literature extensively uses participants who are professional athletes or serious runners (Holly, 2015; Hanson et al., 2015), while few have addressed the social runner, or those who participate in events outside of the traditional road race distances (Buning & Walker, 2016; Funk, Jordan, Ridinger, & Kaplanidou, 2011). This study addressed both of those groups, as well as a middle group of enthusiasts, who in previous literature are often overlooked but make up the majority of runners.

This study also addressed motherhood through various stages, as children of different ages have different needs. Most studies on motherhood within the literature focus on physical activity and not running specifically (Cody & Lee, 1999; Grace, Williams, Stewart, & Franche, 2006; Kei & Suzanne, 2004; Nomaguchi & Bianchi, 2004). Additionally, most studies examine single categories such as “parent” or “not a parent” (Nomaguchi & Bianchi, 2004; Grace et al., 2006), “working mom” or “stay-at-home mom” (Whipple et al., 2011), “single” or “multiple children” (Kei & Suzanne, 2004), or a specific age group (i.e., parents of young children, parents of preschoolers) (Cody & Lee, 1999; Kei & Suzanne, 2004); these studies do not look at the different parental stages and how answers may vary as children age. Though the classification of motherhood stages used could be improved, this study highlighted the need for more in-depth understanding of motherhood and its complexities.

Another strength of this study is that it looks at both motivations and barriers to provide a more holistic understanding of runner motivation. Many studies have addressed either motivations (Buning & Walker, 2016; Funk et al., 2011; Hanson et al., 2015) or barriers (Farahani et al., 2017; Mailey et al., 2016). This study had the same participants report on both scales to gain a more thorough understanding of the same group of runners.

### **Public Health Implications**

Findings that parents with young children cite family barriers more than mothers of older children and women with no children illustrate the need for programs that either provide childcare or encourage mothers to run with their young children. Cody and Lee (1999) found that providing childcare is essential for parents

with younger children to participate in physical activity and that successful programs for parents of young children will work toward diminishing the effect of family-related disruptions. A running club that provides childcare at a central location or a program that encourages mothers to bring their young child along in a jogging stroller would effectively aid in overcoming the barrier of childcare.

There were no significant differences between groups of runners and health as a running motivation; indeed, it was one of the highest cited motives across all three of the levels of runners (see Table 2), indicating that all of the runners were motivated for health reasons. An emerging trend among United States health insurance companies, as well as some of corporate America, is positive reinforcement for healthy behaviors in the form of health incentives (Sanjeev, 2014). Employers have found that encouraging and rewarding health promoting behaviors has positive effects, such as increased productivity and lowered employer health care costs (Sanjeev, 2014). Health incentives have been handled in a variety of ways, such as offering onsite fitness classes, redeemable credits for miles logged on a fitness-tracking app, and cash bonuses. Similarly, public policy can help mold the health care industry to further incentivize health and wellness in order to encourage more corporations and insurance companies to offer programs that encourage people to engage in more physical activity, like running.

## **Conclusion**

The purpose of this study was to assess the motives and barriers of female runners. This was done through examining different levels of runners as well as stages of motherhood. As a group, serious runners endorsed goal achievement,

competition, life meaning, psychological coping, and affiliation as motivations for running. Enthusiastic runners were more likely to endorse personal goal achievement than incidental runners. Additionally, mothers with young children were more likely to cite family barriers as barriers to running than mothers with older children or females with no children. The results established that females run for a variety of reasons; they may have completely different motives urging them to attend an event or barriers which keep them from running.

Though important research still remains to be done before fully understanding motives and barriers for different levels of female runners and different stages of motherhood, this present study adds to the body of literature on sport motivation and barriers in general. These results may aid in more fully understanding what motivates women to endure the mental, social, physical, and financial costs that are typically associated with running and participation in structured running events. The results also identified barriers specific to groups of mothers that hinder their ability to run. The amount of runners has been on the rise over the past few years; it is fair to assume that there will be large numbers of runners in the future. The results of this study support findings that intrinsically motivated individuals tend to adhere to their sport, cultivating these motives within a running program could prove to be beneficial. To best serve their specific needs, information about runners is vital to the success of running programs and could be useful for trainers, coaches, sports psychologists, as well as medical and public health professionals.

The females in this study were predominantly White, married, and educated; to generalize the results of this study to all female runners, all mother runners, or for

other forms of exercise is not appropriate and should be done with caution. Rather than examining barriers as a scale, identifying those most cited in the literature for these groups and running statistical analysis over motherhood stages may provide a more accurate picture of specific barriers that are associated with each stage. It would be interesting to study whether an absence of specific motives might contribute to less running or less event participation. Future research in this field should include longitudinal studies, as they are useful in providing directions of causality that are not possible in a cross-sectional study.

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## Appendix A: Tables

Table 1

### *Sample Demographics*

Variable	N=150	
	Mean	SD
Age	41.79	10.63
	<i>n</i>	%
Race		
Hispanic or Latino	23	15.3
Non-Hispanic or Latino	127	84.7
Ethnicity		
African American	4	2.7
White	133	88.7
Asian/ Pacific Islander	4	2.7
Native American	1	.7
Other	7	4.7
Missing	1	.7
Marital Status		
Married	95	63.3
Never married	33	22.0
Divorced	22	14.7
Education Level		
High school graduate or GED	4	2.7
Some college	27	18.0
Bachelor degree (BA/BS)	57	38.0
Master degree (MA/MS/MBA)	52	34.7
Doctoral degree (PhD, MD, JD)	10	6.7
Children		
Yes	91	60.7
No	59	39.3



Table 2

*Motivation Means and Standard Deviations by Runner Level*

	MOMS Scores								
	Psychological Coping	Self-Esteem	Health Orientation	Weight Concern	Affiliation	Recognition	Competition	Personal Goal Achievement	Life- Meaning
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Incidental ( <i>n</i> =49)	3.61* (1.36)	4.34 (1.19)	4.79 (1.08)	4.33 (1.39)	3.20* (1.45)	2.27 (1.20)	1.73* (0.88)	4.05* (1.39)	3.08* (1.25)
Enthusiastic ( <i>n</i> =83)	4.02 (1.48)	4.30 (1.36)	5.08 (1.09)	4.34 (1.41)	3.56* (1.66)	2.37 (1.27)	2.34* (1.50)	4.76* (1.24)	3.44 (1.63)
Serious ( <i>n</i> =18)	4.43* (1.82)	4.88 (1.55)	5.34 (1.20)	3.97 (1.52)	4.72* (1.21)	2.92 (1.14)	3.57* (1.62)	5.63* (1.37)	4.13* (1.83)

*Note.* All items measured from 1 (*not a reason*) to 7 (*a most important reason*). Brackets indicate groups with significant differences. MOMS = Motivations of Marathoners Scale.

\**p* < .05.

Table 3

*Motivation Means and Standard Deviations by Motherhood Stage*

	MOMS Scores								
	Psychological Coping	Self-Esteem	Health Orientation	Weight Concern	Affiliation	Recognition	Competition	Personal Goal Achievement	Life- Meaning
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Not a mother (n =59)	3.99 (1.40)	4.44 (1.27)	4.88 (0.94)	4.02 (1.44)	3.44 (1.50)	2.42 (1.21)	2.36 (1.34)	4.86 (1.29)	3.48 (1.54)
Mother of Younger Child (n =24)	4.02 (1.30)	4.49 (1.15)	4.97 (1.19)	4.50 (1.26)	3.67 (1.46)	2.49 (0.87)	1.72 (0.91)	4.39 (1.08)	3.35 (1.24)
Mother of School Age Child (n =30)	4.42 (1.52)	4.46 (1.33)	5.12 (1.08)	4.28 (1.36)	3.34 (1.74)	2.34 (1.32)	2.42 (1.73)	4.87 (1.37)	3.52 (1.70)
Mother of Older Child (n =37)	3.39 (1.65)	4.16 (1.56)	5.18 (1.31)	4.59 (1.48)	3.95 (1.72)	2.38 (1.46)	2.48 (1.60)	4.24 (1.65)	3.22 (1.72)

*Note.* All items measured from 1 (*not a reason*) to 7 (*a most important reason*). MOMS = Motivations of Marathoners Scale.

Table 4

*EBBS Mean and SD by Motherhood Stage*

	Barrier Scores			
	Environment	Family	Physical	Time
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Not a mother (n=59)	1.55 (0.47)	1.63* (0.39)	2.42 (0.44)	1.70 (0.45)
Mother of Younger Child (n=24)	1.53 (0.51)	2.04* (0.50)	2.49 (0.56)	1.94 (0.63)
Mother of School Age Child (n=30)	1.58 (0.52)	1.79 (0.50)	2.13 (0.61)	1.82 (0.60)
Mother of Older Child (n=37)	1.53 (0.44)	1.61* (0.49)	2.23 (0.68)	1.68 (0.46)

*Note.* All items measured from 1 (*strongly disagree*) to 4 (*strongly agree*). EBBS = Exercise Benefits/Barriers Scale. Brackets indicate groups with significant differences.

\* $p < .05$ .

Table 5

*Pearson Correlation for Barrier Scale*

	1	2	3	4
1. Environment	—			
2. Family	.39**	—		
3. Physical	.37**	.47**	—	
4. Time	.32**	.64**	.47**	—

*Note.* \*\* Correlation is significant at the 0.01 level (2-tailed). EBBS = Exercise Benefits/Barriers Scale.

Table 6

*Pearson Correlation for MOMS scale*

	1	2	3	4	5	6	7	8	9
1. Psychological Coping	—								
2. Self-Esteem	.75**	—							
3. Health Orientation	.36**	.43**	—						
4. Weight Concern	.12	.30**	.46**	—					
5. Affiliation	.27**	.33**	.31**	.18*	—				
6. Recognition	.38**	.61**	.25**	.26**	.43**	—			
7. Competition	.32**	.39**	.13	.16*	.33**	.60**	—		
8. Personal Goal Achievement	.47**	.582**	.26**	.13	.21*	.46**	.59**	—	
9. Life-Meaning	.80**	.77**	.36**	.10	.35**	.50**	.43**	.54**	—

*Note.* \*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed). MOMS = Motivations of Marathoners Scale.

## **Appendix B: Study Announcement**

### University Research Study on Women and Running

You are invited to participate in a research study examining women and running conducted by Alice Franco at California Baptist University. The survey takes about 7 minutes to complete. Participants will be entered into a drawing for a gift certificate. Please click here to complete the survey:

[https://survey.co1.qualtrics.com/jfe/form/SV\\_6PfSZCkgHUESCuV](https://survey.co1.qualtrics.com/jfe/form/SV_6PfSZCkgHUESCuV)

## **Appendix C: Consent Form**

### CONSENT FORM

**OVERVIEW:** You are invited to participate in a research study examining females and exercise. The study is being conducted by Alice Franco (AliceElena.Franco@Calbaptist.edu), a graduate student in the Department of Public Health Sciences at California Baptist University, under the supervision of Dr. Robert G. LaChausse (rlachausse@calbaptist.edu). You must be at least 18 years old to participate. The Institutional Review Board (IRB) at California Baptist University has reviewed and approved this study

**TIME COMMITMENT:** This online survey takes about 7 minutes to complete.

**PURPOSE:** The purpose of this study is to examine exercise behaviors of women. Your participation in the study will contribute to a better understanding of female runners. You are free to contact Alice at AliceElena.Franco@Calbaptist.edu to ask questions about the study before you decide to participate.

**VOLUNTARY PARTICIPATION:** Your participation is completely voluntary. You are not required to participate, no one will be mad or disappointed should you choose to opt out. If you choose to take the survey, you may stop at any time or skip any questions you choose not to answer. The survey is anonymous. This means you will not be asked your name or other identifying information on the survey.

**RISKS AND BENEFITS:** Though no risk appears to be associated with participation in this study, the survey questions are reflective in nature and have the potential to make you feel uncomfortable. If you do experience discomfort, please contact Alice at AliceElena.Franco@Calbaptist.edu. You can also contact the Chair of the Institutional Review Board (IRB) at IRB@calbaptist.edu. Additionally, you can contact the Helpline (24 hours a day) at 1-800-273-8255 or text “ANSWER” to 839863. This survey will provide insight for running programs as well as add knowledge to the existing literature on female athletes.

**INCENTIVE:** Following your survey submission, you can be entered into a drawing for a \$20 gift certificate to REI. You will be entered into a drawing by emailing a password to the researcher following survey submission. The odds in winning are 1/125. This information cannot be matched to your survey responses so that you can remain anonymous. You will be contacted via email September 2018 if you have won.

**CONFIDENTIALITY:** In order to ensure your name will not be associated with your answers, do not insert your name anywhere on the questionnaire. Your responses on this survey are password protected. Data, without identifying information, could be made publicly available for re-analysis by other researchers. Results of this study may be presented at conferences or published in journals, books, and other popular media. Results will be made in group form only and no individuals will be identified at any time.

☐ I am a female and I am 18 years of age or older. I agree to participate in the survey. I understand the information listed above and freely consent to participate in this study. (By clicking here you will be taken to the survey.)

## Appendix D: Survey

# Motherhood and Physical Activity Survey

What is your age?

---

What is your gender?

☐ Male

☐ Female

What is your marital status?

☐ Married

☐ Never married

☐ Divorced

☐ Widowed

Last week, how many hours did you work for pay?

---

Are you Hispanic or Latino?

☐ Yes

☐ No



What is your race?

- ☐ African American
  - ☐ White
  - ☐ Asian/ Pacific Islander
  - ☐ Native American
  - ☐ Other
  - ☐ Click to write Choice 6
- 

What is your highest level of education?

- ☐ Less than high school
  - ☐ High school graduate or GED
  - ☐ Some college
  - ☐ Bachelor degree (BA/BS)
  - ☐ Master degree (MA/MS/MBA)
  - ☐ Doctoral degree (PhD, MD, JD)
- 

Do you have children?

- ☐ Yes
- ☐ No

How many children do you have?

\_\_\_\_\_

What are the ages of your children? *For example, 0 years & 4 months or 7 years & 6 months.*

	Years	Months
Child 1		
Child 2		
Child 3		
Child 4		
Child 5		
Child 6		

These next few questions ask about exercise.

---

In the past 30 days, have you gone running?

- ☐ Yes
- ☐ No

In the past 7 days, on how many days did you run?

- ☐ 0 days
- ☐ 1 day
- ☐ 2 days
- ☐ 3 days
- ☐ 4 days
- ☐ 5 days
- ☐ 6 days
- ☐ All 7 days

If you do go for a run, how long do you TYPICALLY run for?

- ☐ Less than 15 minutes
- ☐ 15 to 30 minutes
- ☐ 31 minutes to 45 minutes
- ☐ 1 -2 hours
- ☐ More than 2 hours

In the past year, which of the following types of running event(s) have you participated in. Select ALL that apply.

☐ I have NOT participated in any running events in the past year.

☐ 5k

☐ 10k

☐ 15k

☐ Fun runs (i.e. color run, mud run, bubble run, mile run)

☐ Relay race (e.g. Ragnar)

☐ Half marathon (13.1 miles)

☐ Marathon (26.2 miles)

☐ Ultra running event

☐ Trail running

☐ Other \_\_\_\_\_

In the past year, how many running events (total) have you participated in?

\_\_\_\_\_

-----  
In the past 7 days, did you participate in ANY OTHER EXERCISE besides running?

☐ Yes

☐ No

In the past 7 days, which of the following did you do and for how many minutes? (please click on those that you did in the past 7 days and enter the total number of minutes you typically spent on that activity.

	I did this in the past 7 days	Minutes
Swimming	<input type="radio"/>	
Cycling	<input type="radio"/>	
Weight training	<input type="radio"/>	
Aerobics class	<input type="radio"/>	
Hiking	<input type="radio"/>	
Walking	<input type="radio"/>	

Please rate each of the following items in terms of its importance as a reason for you to run from 1= Not a reason to 7= Most Important Reason.

	1=Not A Reason	2	3	4	5	6	7= Most Important Reason
To help control my weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To compete with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To earn respect of peers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To reduce my weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my running speed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To earn the respect of people in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To socialize with other runners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To compete with myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To become less anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my self-esteem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1=Not A Reason	2	3	4	5	6	7= Most Important Reason
To have something in common with other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To add a sense of meaning to life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To prolong my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To become less depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To meet people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To become more physically fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To distract myself from daily worries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make my family or friends proud of me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make my life more purposeful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To look leaner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To try to run faster	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1=Not A Reason	2	3	4	5	6	7= Most Important Reason
To feel more confident about myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To participate with my family or friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make myself feel whole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To reduce my chance of having a heart attack	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make my life more complete	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my mood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To improve my sense of self-worth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To share a group identity with other runners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is a positive emotional experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel proud of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To visit with friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



To feel a sense of achievement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To push myself beyond my current limits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To have time alone to sort things out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To stay in physical condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To concentrate on my thoughts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To see how high I can place in races	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel a sense of belonging in nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To stay physically attractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get a faster time than my friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To prevent illness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1=Not A Reason	2	3	4	5	6	7= Most Important Reason
People look up to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To see if I can beat a certain time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To blow off steam	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brings me recognition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To have time alone with the world	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get away from it all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To make my body perform better than before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To beat someone I've never beaten before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel mentally in control of my body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get compliments from others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel at peace with the world	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To feel like a winner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Directions: Below are statements that relate to ideas about exercise. Please indicate the degree to which you agree or disagree with the statements.

	Strongly agree	Agree	Disagree	Strongly disagree
Running takes too much of my time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running tires me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Places for me to run are too far away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am too embarrassed to run.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't receive any support or encouragement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am busy tending to other responsibilities (childcare, work, housework, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am too tired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My spouse (or significant other) does not encourage running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Directions: Below are statements that relate to ideas about exercise. Please indicate the degree to which you agree or disagree with the statements.

	Strongly agree	Agree	Disagree	Strongly disagree
Running takes too much time from family relationships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a hard time finding childcare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family members do not encourage me to exercise.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running takes too much time from my family responsibilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running is hard work for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are too few places for me to run.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel guilty for taking time away from my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for participating in this study. The results from this study will provide useful information regarding gender and exercise.

If you have experienced any discomfort from your participation in this study, please contact Alice at [AliceElena.Franco@Calbaptist.edu](mailto:AliceElena.Franco@Calbaptist.edu). Additionally, you can contact the Crisis Helpline (24 hours a day) at 1-800-273-8255 or text "ANSWER" to 839863. You can also contact the Chair of the Institutional Review Board (IRB) at [IRB@calbaptist.edu](mailto:IRB@calbaptist.edu).

As a thank you for your participation, if you would like to be entered into a drawing to receive a \$20.00 gift card to REI, please email **CBU321** to [AliceElena.Franco@Calbaptist.edu](mailto:AliceElena.Franco@Calbaptist.edu). The winner will be contacted by September 2018.

## Appendix E: EBBS Permission For Use

### ***Health Promotion Model Instrumentation Group***

Nola J. Pender, PhD, RN, FAAN • Susan Noble Walker, EdD, RN, FAAN • Karen R. Sechrist, PhD, RN, FAAN

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Dear Colleague:

Thank you for your interest in the Exercise Benefits/Barriers Scale (EBBS). The EBBS was developed in response to a need for an instrument designed to determine perceptions of individuals concerning the benefits of and barriers to participating in exercise. Items for the scale were obtained inductively from interviews and from the literature.

The EBBS is a 43-item summated rating scale consisting of two subscales, Benefits and Barriers. Ratings are obtained using a four-point response system. The EBBS has been tested for internal consistency, validity of its constructs, and test-retest reliability. A sample of 650 individuals over 18 years of age, primarily from northern Illinois, participated in the initial testing of the EBBS. Calculation of Cronbach's alpha for the 43-item instrument yielded a standardized alpha of .954. The 29-item Benefits Scale has a standardized alpha of .954 and the 14-item Barriers Scale has a standardized alpha of .866. Factor analysis yielded a nine-factor solution initially with an explained variance of 65.2%. Second order factor analysis yielded a two-factor solution, one a benefits factor and the other a barriers factor. Test-retest reliability was accomplished with a sample of 66 healthy adults at a two-week interval. Test-retest reliability was found to be .89 on the total instrument, .89 on the Benefits Scale and .77 on the Barriers Scale. Additional information on the development and initial testing of the EBBS can be found at in the following article:

Sechrist, KR, Walker, SN, and Pender, NJ. (1987). Development and psychometric evaluation of the Exercise Benefits/Barriers Scale. *Research in Nursing & Health*, 10, 357-365.

You have our permission to download and use the EBBS for non-commercial data collection purposes such as research or evaluation projects as long as the following conditions are met:

- The EBBS will be used without any modifications other than translation into a language other than English (see information on translation, if required);
- The copyright statement will appear on the bottom of all copies of the EBBS; and
- All study participants will be over 18 years of age since the EBBS was not validated in younger populations.

Copyright of the EBBS and all translations is held by Karen R. Sechrist, PhD, RN, FAAN, Susan Noble Walker, EdD, RN, FAAN, and Nola J. Pender, PhD, RN, FAAN. Individuals translating the EBBS into another language may place their name as translator following the copyright statement.

The EBBS may be reproduced in the appendix of a dissertation, thesis, or research grant proposal. Reproduction for any other purpose, including publication of study findings, is prohibited.

A copy of the EBBS with scoring information is available for download. A Spanish translation of the EBBS is also available. If you need additional information, you may contact Dr. Karen Sechrist by e-mail (krsech@pachell.net).

Best wishes with your research,



Karen R. Sechrist, PhD, RN, FAAN  
for Pender/Walker/Sechrist

## Appendix F: IRB Approval

IRB 088-1718-FULL Approval - Alice Elena Franco

8/8/18, 4:11 PM

### IRB 088-1718-FULL Approval

#### Institutional Review Board

Thu 4/26/2018 4:11 PM

Inbox

To: Alice Elena Franco <AliceElena.Franco@calbaptist.edu>;

Cc: Robert LaChausse <rlachausse@calbaptist.edu>; Institutional Review Board <IRB@calbaptist.edu>;

**RE:** IRB Review

**IRB No.:** 088-1718-FULL

**Project:** To Run or Not to Run: Understanding Motives and Barriers Among Female Runners

**Date Complete Application Received:** 4/9/18

**Principle Investigator:** Alice Franco

**Faculty Advisor:** Robert LaChausse

**College/Department:** CHS

**IRB Determination:** Full Board Application Approved – Student research using anonymous survey questionnaires; no minor participants; no more than minimal risk/risk appropriately mitigated; no deception utilized; acceptable consent procedures and documentation; acceptable data protection procedures. Data collection may begin, in accordance with the final submitted documents and approved protocol.

**Waiver of Documentation of Consent:** Per 45 CFR 46.117, the IRB has approved the request to waive the documentation of informed consent (e.g., no participant signatures will be collected, though participants do receive a copy of the consent information) because the signature of the participant would be the only linking record to the data that may harm the participant if released.

**Future Correspondence:** All future correspondence about this project must include all PIs, Co-PIs, and Faculty Advisors (as relevant) and reference the assigned IRB number.

**Approval Information:** Approval is granted for one year from date below. If you would like to continue research activities beyond that date, you are responsible for submitting a Research Renewal Request with enough time for that request to be reviewed and approved *prior* to the expiration of the project. In the case of an unforeseen risk/adverse experience, please report this to the IRB immediately using the appropriate forms. Requests for a change to protocol must be submitted for IRB review and approved prior to implementation. At the completion of the project, you are to submit a Research Closure Form.

**Researcher Responsibilities:** The researcher is responsible for ensuring that the research is conducted in the manner outlined in the IRB application and that all reporting requirements are met. Please refer to this approval and to the IRB handbook for more information.

**Date:** April 26, 2018