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A qualitative exploratory study of the experiences of post-collegiate women's wrestlers in the United States

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By

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Bachelor of Science | Biology
University of the Cumberland's
2019

Thesis Committee Chair: Dawn L. Comeau, PhD, MPH

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
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Abstract

A qualitative exploratory study of the experiences of post-collegiate women's wrestlers in the United States

By Payton M. Rigert

Background: Sports participation for women continues to increase. One of the fastest-growing sports, both in high school and college, is women's wrestling. In 2020, Collegiate women's wrestling received NCAA Emerging Sport Status after approval from Division 2, Division 3 and Division 1 programs. With 59 collegiate varsity programs already in place and more being added every day, the research on women who wrestle needs to be reflected in this growth ("List of Colleges with Women's Wrestling Programs," 2020) This study explores the perceptions of women college wrestlers and the impact of the sport on their post-collegiate transition. The intersection of college sport's career, weight management, gender, and wrestling has yet to be studied, even though women who fit into all these categories may be at a greater risk for decreased mobility, decreased body-image satisfaction, and lack of preparedness entering the workforce.

Methods: This is a qualitative study conducted in 2020. Twenty participants were recruited for 30-to-60-minute semi-structured interviews from over 15 different Universities from across the US and one Canadian institution. Code-based analysis was conducted, as well as cross comparison of codes to generate themes.

Results: Three main themes emerged from the data: identity, body image, and intrinsic motivation. The theme of identity encompassed how the participant's experiences as a women wrestler demonstrated how important sports participation is tied to their self-perception and often social support. Body image encompassed how participants visualized or disused their bodies post-college. Intrinsic motivation encapsulated the internal drive that powered participant's actions and willingness to complete tasks post-college wrestling career.

Conclusion: The findings from this study support that the extensive demands of sport's careers often lead to limited ability to explore identity, which can make the transition to post-college life difficult. This may have led to careers and continued participation in the wrestling community with the majority of participants still involved (n=15, 75%). Weight gain after the participants careers ended lead to a negative self-perception of body image. Social support played a large role in continued exercise and positive behaviors.

Keywords: women, wrestling, sports, college, post-college

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Finally, I am forever grateful for the wrestling community and all of my participants who took a chance to share their wrestling stories and careers with me. Thank you.

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Chapter I: Introduction

The participation of females in college athletics has substantially increased over the last four decades (Stracciolini et al., 2020). The number of female collegiate athletes has grown from 30,000 in 1972 to more than 150,000 as of 2018 (Irick, 2018). Most of the existing literature on the medical and psychological impacts of sports participation on girls and women has focused on high school sports participation. One of the fastest-growing sports, both in high school and college, is women's wrestling. In 2020, Collegiate women's wrestling received NCAA Emerging Sport Status after approval from Division 2, Division 3 and Division 1 programs. With 59 collegiate varsity programs already in place and more being added every day, the research on women who wrestle needs to be reflected in this growth ("List of Colleges with Women's Wrestling Programs," 2020).

The first official world championship for women that was sanctioned by wrestling's international governing body was held in 1987 (Curby & Jomand, 2015). The development of sanctioned international wrestling for women is key because visibility increases participation at all competitive levels. In 1987 there were only eight countries that participated, but in 2019, there were 55 countries that participated and 252 women ("Senior World Championships-Sep 2019," 2019). The first year that women's wrestling was introduced to the Olympics was 2004, which played a role in the survival of any wrestling in the Olympics. This is due to the fact that wrestling, in 2013, was voted to be dropped from the core Olympic sports by 2016. The inclusion of women's wrestling was critical to the changes that made wrestling more inclusive and the effort to modernize the sport. The connection to increased collegiate programs can be extrapolated from the success and profile of these Olympic women.

The Senior and international wrestling history is intertwined with the growth of college opportunities for women's wrestlers. The first official college women's wrestling national championships was held in 2004 at Missouri Valley College the same year that women's wrestling was introduced to the Olympics. The collegiate level participation has always been closely connected with the senior level circuit with many athletes competing at both levels. In fact, the Women's Collegiate Wrestling Association (WCWA) which up until 2018 was the one of the only recognized national governing bodies for women's collegiate wrestling in the US, is a qualifying event for the U.S. Olympic Team Trails during Olympic cycle years or the World Team trials during off-years (Abbott, 2020). The first varsity women's wrestling team was created in the 1993-1994 season at University of Minnesota-Morris, which has since dropped their program (Abbott, 2020). In the early years of participation, most women who wrestled in college participated in national and international events at the Senior level. It was not unusual and is still not unusual to be competing at the collegiate level with Senior team medalists. Of the 13 women who have competed for Team USA in Olympic wrestling, 11 wrestled on a college team (85%) (Abbott, 2020). The other two athletes attended colleges, but were not on an organized college team.

Problem Statement

Most of the existing literature on the medical and psychological impacts of sports participation focuses on injury prevention in men. This is evidenced by the lack of gender-defining moniker when referring to men's wrestling simply as wrestling, similar to how men's football is referred to as football. Neglecting to specify the gender participating marginalizes the large population of females, who are now active in the sport. Therefore, this study will add to the growing body of research on injury prevention in female athletics. Another goal of this research

is to help inform future infrastructure or tools to support former women's wrestlers as they navigate the transition from collegiate athlete to college graduate. This research will be informed by the model of Career Self-Management (CSM) as applied to career planning behavior. The model presents the factors that are associated with career planning, while focusing on the interactions between the environment, social cognitive factors, and personality traits (Wendling & Sagas, 2020).

Purpose Statement of this Qualitative Study

This study explores the perceptions of women college wrestlers and the impact of the sport on their post- collegiate transition. This study is valuable because there have been few research studies to investigate this topic in women's sports. However, research in the field of men and sports shows that weight cycling impacts health later in-life, as well as preparedness to enter the workforce after graduation (Saarni, Rissanen, Sarna, Koskenvuo, & Kaprio, 2006; Wendling & Sagas, 2020). Weight cycling is defined as the rapid increase and decrease of an individual's body weight in a short period of time (Marttinen, Judelson, Wiersma, & Coburn, 2011; Matthews, Stanhope, Godwin, Holmes, & Artioli, 2019) It is important for the field of public health to understand more about these same topics as they might develop in women's sports, specifically women's wrestling.

Research Questions

This formative research seeks to examine the initial research question, as well as the two sub-questions while utilizing an adaptation of the CSM model to inform the research on the participant's general post-transition experiences.

<u>Main Question:</u>

1. What are the experiences of post collegiate women's wrestlers outside their college career?

Sub-Questions:

1. How has gender influenced the lives of collegiate women's wrestlers, post-career?
2. In what ways does weight cycling play a role in attitudes about body satisfaction of women's wrestlers after they finish their college careers?

By interviewing post-collegiate women's wrestlers, this study will gain a qualitative understanding of how weight cycling plays a role in body satisfaction and the influence of gender on the participants experience wrestling in college.

Chapter II: Review of the Literature

Women in Sports

Historically, women have taken part in sports for centuries, with the first record of female game participation recorded in 1,000 BC held in Olympia in Greece. Since then, there was evidence of sports participation, but the most notable event being the inclusion of women in the 1948 Olympic Games. In that first Olympic game only 385 female athletes participated, in contrast to women athletes in the Buenos Aires 2018 Winter Olympics making up 49.7% of competitors (Gregg & Gregg, 2017; "Statistics: Women at the Olympic Games," 2020). While the proportions of women competing internationally has significantly increased, there are still a lot of improvements for accessibility to sports that could be made.

Prior to 1970, in the U.S., women were essentially barred from many education courses, establishments, and sports teams. Most professional schools had quotas that severely limited the admission of women and if women managed to enter one of the programs, they often dealt with overt sexual harassment (Lopiano, 2000). In 1972, a federal antidiscrimination law called the Title IX of the Education Amendments of 1972 otherwise known as Title IX was passed. This law mandated nondiscrimination in admissions, access, and treatment in all educational programs offered by institutions that uses federal funds. This included coverage of school-sponsored extracurricular activities, such as intramurals, club sports, and varsity athletics. From there, the Amateur Sports Act of 1978 was passed that addressed the unfair selection of national team members for the Olympics, Pan American, world championship, and other international sports events (Lopiano, 2000). Both of these laws ushered in the incredible growth of women in the sport.

Female sports participation continues to increase at both the high school and collegiate level. An increase in athletic opportunities promotes physical activity in women for the present and the future. Young females who participate in sports have a greater lean body mass and better physical health scores (Stracciolini et al., 2020). These benefits also carry on into adulthood. Regular exercise leads to lower risk of cardiovascular disease, which is the leading cause of death in adult women. Sports participation can also indirectly impact the children of women who participate. There is a causal relationship between increased opportunity in sports and off-spring's health (Stracciolini et al., 2020). In youth, regular exercise of about 60 minutes a day can result in favorable cardiovascular and metabolic disease risk profiles, as well as enhanced bone health and reduced symptoms of depression and anxiety (Bartko & Eccles, 2003). These positive outcomes should be noted for early participation in sports. Research was shown in high school students that for female athletes, team sport involvement was protective against depressed mood state and positively associated with self-esteem in middle adolescence (*2018 Physical Activity Guidelines Advisory Committee*, 2018). Athletes overall showed higher physical health status than non-athletes (O'Brien & Robertson, 2010). With these associated factors and the increase in participation, the research for women in sports needs to follow suit.

Gender

Sports and exercise participation for women typically decrease over the lifetime, often starting in adolescence (Belza & Warms, 2004). Patterns in exercise habits also vary, with sports and leisure exercise reported less frequently by women than men (Belza & Warms, 2004). This decrease in participation is magnified for sports that are traditionally labeled as more "masculine", such as wrestling, boxing, or jujitsu (Stuart & Whaley, 2005). Many of the inequalities for women in the wrestling community can be seen as a reflection of the position of

women as seen in society throughout history (Gregg & Gregg, 2017; Rivera Robles, 2019). Social and cultural ideologies and beliefs have a significant influence on a women's health and self-perception of their appearance. Historically, women were seen as the "weaker-sex" and often not allowed to participate in sports, much less combat sports (Gregg & Gregg, 2017). In addition, there are specific physical differences in body size, body composition, muscle characteristics, and reproductive endocrinology between men and women. Research demonstrates that intensive exercise associated with low weight can cause hypoestrogenism in female athletes. A combination of intense exercise and caloric restriction can then lead to a suppression of luteinizing hormone (LH). This situation creates an event called the "female athlete triad", otherwise known as the three most commonly occurring symptomology eating disorders, amenorrhea, and osteoporosis (Belza & Warms, 2004). Currently, there is no male condition that is similar.

Benefits of Participating in Collegiate Sports

Sports participation in team sports has been positively associated with physical health and function (Stracciolini et al., 2020). Structured activities, which includes sports, lead to higher positive functioning for participants, and team sports training included more intrinsic motivation factors when it came to exercise (*2018 Physical Activity Guidelines Advisory Committee*, 2018; Schmidt, Tittlbach, Bös, & Woll, 2017). Team sports are also associated with a feeling of belongingness and competence (Schmidt et al., 2017). Student athletes were also 30 times more likely to meet the American College of Sports Medicine (ACSM) healthy exercise guidelines and reported exercise volume nearly 4 times that of nonathletes (Sorenson, Romano, Azen, Schroeder, & Salem, 2015). There is also a positive association with the image as a student-

athlete, since most participants were found to enjoy the status on their college campus (Steven Chen, 2010). Generally, sports participation has positive outcomes although there are negative potential negative outcomes as well. An analysis of the Youth Risk Behavior Survey (YRBS) indicated that sports participation was a protective factor against suicidal behavior for white American boys and girls, but the data showed that for African-American, Hispanic-American, and Asian-American girls sports participation may be a risk factor (Lester, 2017). This may be due to intersecting factors including self-esteem, self-regulation, general life skills, and pro-social behavior.

The concept of sports identity has been significantly related to sport's participation in American college students and has led to the self-identification of individuals as "sporty people". The importance of sport's identity was a predictor of sport's participation. Peers can provide positive influence toward sports participation, which can lead to a greater sense of identity sports identity, as well as increase overcoming barriers to success in the sporting activity (Lau, Cheung, & Ransdell, 2007). An athlete's perceived level of sports identity can be used to determine the longevity of their career (Steven Chen, 2010). College sports often become central to the athlete's core identity.

Wrestling Context

While there is little research on women collegiate wrestlers, specifically, data collected on collegiate women athletes and male collegiate wrestlers can be juxtaposed. Wrestling and football are similar in that they have historically both not had a comparable women's sport. In addition, wrestling is not typically a revenue generating sport in most Division I-A schools (Gray

& Pelzer, 1995). The number of opportunities for women's wrestling at the Division 1-A level are next to none, with only two Division 1-A universities currently housing a program. While there are 59 collegiate varsity programs, the resources are limited due to funding ("List of Colleges with Women's Wrestling Programs," 2020). This continues to create unequal opportunities for women in an especially male-dominated sport (Hrvoje, Penjak, & Čavala, 2016). Women and girls involved in male-typed activity can be more susceptible to lower levels of confidence (Eime, Young, Harvey, Charity, & Payne, 2013). Wrestling is often thought to be accessible in terms of cost and inclusion to participants of various body sizes and physical ability, yet women have to overcome current cultural norms regarding "appropriate" sports for women and youth wrestling rooms that may not be opening to young female athletes (Eime et al., 2013). Women and girls involved in male-typed activity can be more susceptible to lower levels of confidence (Eime et al., 2013).

Wrestling is considered to be one of the oldest known sports, but there have been many changes to the rules and regulations over the years leading to a number of ways to compete. Wrestling matches occur between two competitors, but it is also a team sport. There are 10 weight classes for the women's college competition format, ranging from 101lbs to 191lbs. The women college circuit only competes in the freestyle format, compared to the male college circuit who compete in the folkstyle format. The freestyle wrestling format is scored differently with a focus on fast-paced score, throws, and less ground-work. International competition is conducted in the freestyle format, so male college athletes have to learn both forms if they want to compete at the international level (Nag, 2020). Interestingly, all high schools in the U.S. compete only in folkstyle, even for the women. Some women wrestlers may never learn the freestyle guidelines until they start their college career, which can put them at a disadvantage

since folkstyle often places more emphasis on ground-work. There are two ways that wrestling tournaments are conducted individual tournaments or dual meets. For a dual meet, a team of 10 women filling all of the weight-classes competes against another team with a scoring system based on individuals wins. In most states, high school women wrestlers won't have the chance to compete on a dual meet team since they may not have 10 women at different weight classes or other colleges don't have women teams. Individual tournaments are created with brackets or in a round-robin format depending on the number of participants. Wrestling is considered to be inclusive of all body-types, since you compete against people at your own weight-class. Unfortunately, women's weight classes only go up to 191lbs at the U.S. level and are limited more severely at the international level. The highest international weight class is 168lbs. The same goes for the lower weight limit where the U.S. has a class at 101lbs, but the international weight is 110lbs excluding many women from competing ("USA Wrestling Age Group Weight Chart," 2021). The changes that women experience when entering into college, as well as the lack of opportunity at the international level both impact the collegiate experience and post-college transition.

Weight Management

Preliminary research suggests that women who participate in college sports are less likely to be obese or have high cholesterol throughout their lifetime (Irick, 2018). Psychologically, female athletes are more likely to view themselves as in very good or excellent health (Stracciolini et al., 2020).These findings are meaningful because hypertension affects more than 37% of adult women ages 20 to 44 in the United States and obesity is the strongest risk factor for developing hypertension (Aronow, 2017; *National Center for Health Statistics*, 2019). However, collegiate sports participation is also associated with anxiety and decreased mobility later in life

(Stracciolini et al., 2020). None of these factors have been explicitly measured in women's wrestlers after their collegiate career is completed.

Research in male collegiate wrestlers emphasizes the impact of the sport being divided into weight class, which can lead competitors to reduce their mass or "cut weight" in the hope to have leverage over their opponents (Marttinen et al., 2011). Combat-sport athletes often compete in weight categories 5% to 10% below their normal body weight (Pettersson, Ekström, & Berg, 2013). Dehydration to maintain weight for competition can increase the likelihood of traumatic brain injuries (TBIs) (Weber et al., 2013). The effect of dehydration on clinical concussions has only been researched in male collegiate wrestlers, leaving women who wrestle unstudied.

Even though female athletes are less likely to be obese after their career ends, male athletes that engage in repeat cycles of weight loss and regain may be more likely to be obese (Saarni et al., 2006). Similar research on post-career weight gain and its impacts has not been done in female competitors. In a systematic review of rapid weight loss and rapid weight gain in combat sport athletes, women were scarcely represented only being 3.5% of the total athlete sample, which is not representative of the number of women actually competing (Matthews et al., 2019). Then in the general population, eating pathology is more prevalent among women compared to men (Hudson, Hiripi, Pope, & Kessler, 2007).

Readiness for after Sports

For most college athletes, their careers are over after they have finished out their athletic eligibility in college. An overwhelming majority of student athletes do not play a sport professionally, but most enter into the work force after college. The extensive demands of college sports can make it difficult for student athletes to be prepared for the transition to life no

longer centered around sports performance. Their commitment to their sport often leaves little to no time for other activities during college and planning for their future outside of sports (Wendling & Sagas, 2020).

Theory-Based Approach for Understanding the Experiences of Post- collegiate Women's Wrestlers

As women wrestler's transition to life after college, some of the choices that make can be examined through the social-cognitive career theory (SCCT). SCCT has been used to help determine the key predictors and underlying theoretical mechanisms of college athletes' decisions as they prepare for life after college sports (Wendling & Sagas, 2020). The theoretical process for career planning needs to be studied as it has been impacted by college sports careers. The model in Figure 1 was created from the Social Cognitive Career Theory (SCCT) model of Career Self-Management (CSM). This model presents the underpinnings associated with career planning. Overall, the model focuses on the interplay between environmental attributes, social cognitive factors, and personality traits, all of which contribute to behavior, specifically career planning. Self-efficacy refers to an individual's internal belief in their ability to perform a task or behavior (Locke, 1987). The CSM model specifies self-efficacy as carrying out the necessary tasks for career preparations and other deliverables when finding a fulfilling occupation. Goals are intentions set to achieve particular outcomes. These are influenced by self-efficacy and form a foundation when it comes to planning for the future (Lent, Brown, & Hackett, 1994). Environmental influences or contextual influences, such as career barriers and supports significantly interact with the other variables. The barriers in the model refer to student-athletes perceived blockades that could prevent them from career planning after their sports career. The career support mainly focused on coaching support, encouragement, and the athlete's perception

of help they may be receiving. The personality section in the model consists of a number of characteristics that have been measure to determine individual's tendencies. The personality traits named in Figure 1 are deemed to be indicators for career planning that were seen as protective or harmful (Locke, 1987). These different factors all interact to affect career planning and future career transition outcomes.

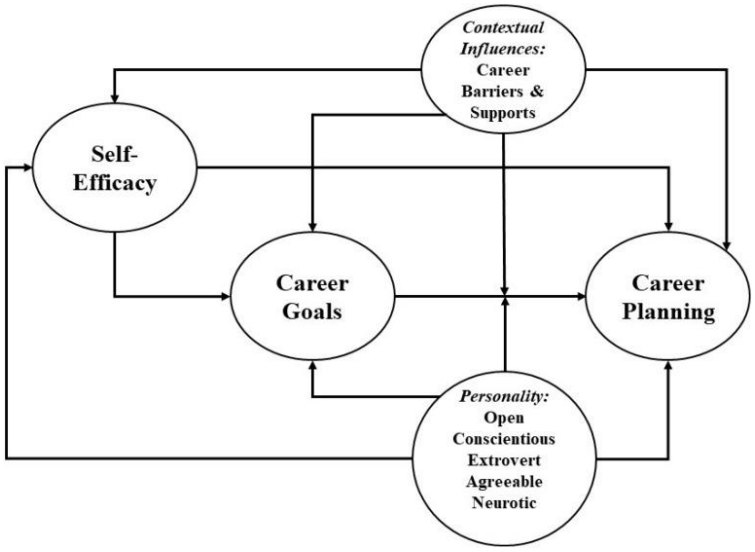

Figure 1: Model of Career Self-Management as applied to career planning behavior (Wendling & Sagas, 2020).

The primary researcher's work is based on this framework. Since college is usually seen as a preparation for the future, understanding how college athletes perceive themselves as ready is important for coaches and college career planners, as well as juxtaposing the afore mentioned information against data that demonstrates their job satisfaction and ability to find careers. A large-scale survey of former college athletes, executed by Gallup-Purdue Index, found that former student athletes were employed either full time or part time at a greater rate than their non-athlete counterparts, this information as not broken down by sport (Understanding Life Outcomes of Former NCAA Student-Athletes, 2016). While there may be

some focus on male wrestlers' readiness for employment after college, there is no data on women wrestlers in this same field. By exploring using this framework, this research will fill a significant gap in the current data.

Justification for this thesis project

The intersection of college sport's career, future planning, weight management, and wrestling has yet to be studied, even though women who fit into all these categories may be at a greater risk. These risks include factors like lack of preparedness entering the workforce, decreased mobility, long-term effects from traumatic brain injuries, and decreased body-image satisfaction. Due to these gaps, the experiences of post-collegiate women's wrestlers as they transition to life outside of their college career need to be explored. This includes information on the impact of gender and the roles that weight cycling may play in attitudes about body satisfaction of women's wrestlers after they finish their college careers.

Chapter III: Student Contributions

This project was initiated following coursework conducted by the student, who is the current study's primary researcher, in a qualitative methods class in the Spring 2020 semester. The course work involved interviewing post-collegiate women's wrestlers about their experiences transitioning to life after college sports. The study was then developed further by the primary researcher to examine the impact of gender, concussion management and other injury prevention, and weight management on the transition to life after college wrestling.

Methods

This study was a qualitative research project that used a semi-structured interview method for data collection conducted by the student investigator to gather rich data from diverse sample of participants. The Emory Institutional Review Board (IRB) submission for the project was drafted and submitted by the student in May 2020 including post-submission edits and amendments sent to the Emory IRB, which was then approved. The interview guide included domains such as how the participants' career ended, weight management, concussions, gender identity, and wrestling's effect on their daily lives now. More sensitive questions were asked in the middle of the interview with casual opening questions and positive wrap-up questions at the end.

Recruitment for the project was conducted by the student investigator through a mixture of convenience sampling and snowball sampling. Convenience sampling is a nonprobable type of sampling that uses easy to reach groups for research recruitment. Convivence sampling was beneficial because women's wrestling is a team sport, so there were already groups readily available to recruit from by using college teams across the US. Participants would refer

teammates or other people they had met throughout their career that fit within the study criteria. There is also a large women's wrestling community on social media, so Twitter, Facebook, and Instagram were utilized for recruitment. This was done by posting in wrestling forums on Facebook, as well as messaging some individuals on Twitter and Instagram after being connected by a participant or the gatekeeper. The study used a knowledgeable community leader as a gatekeeper to gain access to wrestling teams and coaches. This allowed the student investigator to connect with a wide range of possible interviewee from different women's wrestling teams across the United States and one university located in Canada that competes in the United States. Snowball sampling worked for similar reasons. Snowball sampling occurs when one research participant recruits other participants for the study. When one wrestler was recruited through the gatekeeper, they would then be asked to refer other individuals to the study. The interviewees were then scheduled based on earliest availability and were sampled through the community leader, team recruitment, and social media.

The study population for this particular research question is women's wrestlers who have finished their college careers. The inclusion criteria for the population was women who wrestled in college at a four-year university on a women's team. This included women who competed at the WCWA, NAIA, Division 3, Division 2, or Division 1 level. Only women who wrestled for three to four consecutive collegiate years were included in the sample population. The sample excludes women who wrestled on a club or co-ed team, as well as junior college athletes. Individuals participating in the study were also excluded if they wrestled less than three years in college or if they were continuing their competitive career post-college. Eligibility was determined through a short series of questions about the participants' wrestling career before the actual interview. These questions found in *Appendix A* included: length of their career, the

location or university where they wrestled, and if they were still competing. If the participant met the eligibility criteria, they scheduled an appropriate time to proceed with the interview.

Data Collection

In-depth interviews with participants ranged from 30-60 minutes. There were two ways that the in-depth interviews were conducted. Some interviews were conducted and recorded using Google Voice (n=9). Other interviews were conducted and recorded using Zoom (n=9) and a few were started on Zoom, but then dropped to Google Voice due to connectivity problems (n=2). The Google Voice calls did not allow for the capture of facial expressions or other mannerisms during the interview, but it allowed the participant to not use Wi-Fi or be confined to using a computer. This allowed more participants to fit the interview into their schedules and also was used as a back-up if Zoom stopped working. Video-conferencing, using Zoom, allowed for the recording of facial expressions and mannerisms. Sometimes the Wi-Fi would not have the band-width for the streaming platform, so Zoom calls were dropped to phone calls. The confidentiality of each participant was maintained through the use of pseudonyms and changing other identifying information that could have directly identified the participant. None of the interviews were conducted in-person. There were no incentives offered to participants for participation in the study.

Data Analyses

Each of the interviews were recorded and then transcribed using a professional transcription service. The recordings and transcriptions were kept in a locked file on the student investigator's Emory Box account without identifying information included. Data was managed using MAXQDA 2020.

The initial codebook was created in the student investigator's qualitative methods class in Spring 2020. The initial three exploratory interviews, were used to create the codebook for this research project. After the coding of the first primary interview, the codebook was revised. Deductive codes were created first. These are codes that were predefined before the interview coding process begins and were based on previous research from the literature review (Hennink, 2011). Then the codebook was revised again after coding three interviews. Additional subcodes were added after the coding process began or some were removed, if they were not applicable. This was because the original codes were created before reading through the new interviews. The revised codebook was then applied to all transcripts by the student investigator. The codebook included 16 parent codes and a number of subcodes that covered topics such as weight management, mental health and post college life. Other parent codes include end of career, racial identity, social support, end of career adjustments, and motivation. Each one of the transcribed interviews was analyzed using this coding book by connecting common themes and similarities in participants' interviews.

The themes identified were extrapolated from the interviews while exploring the parallels and differences across and between participants' answers. Memos and case summaries were utilized to note similarities and differences between participants. The case summaries helped to give context to the codes that were associated with each participant. By making comparisons across participants, themes emerged. The student investigator then conducted code-based analyses, sub-group comparative analyses, and conceptualizing emergent themes to derive qualitative findings. In code-based analyses, single codes were selected from the codebook and the complied data was investigated. Comparison by sub-group allowed the primary researcher to identify patterns within those groups. Conceptualization is closely linked to categorization,

which is used to visualize the data as an ensemble and extrapolate the information (Hennink, 2011). Codes for the themes were then mapped using MAXQDA mapping to show the connections across participants and to other codes, which were then tied to larger themes. This cross comparison was then used to discover other themes. Cross comparison refers to comparing a single code across the interview data set (Hennink, 2011).

Chapter IV Journal Article

A qualitative exploratory study of the experiences of post-collegiate women's wrestlers in the United States

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Introduction

The participation of females in college athletics has substantially increased over the last four decades (Stracciolini et al., 2020). The number of female collegiate athletes has grown from 30,000 in 1972 to more than 150,000 as of 2018 (Irick, 2018). Most of the existing literature on the medical and psychological impacts of sports participation on girls and women has focused on high school sports participation. One of the fastest-growing sports, both in high school and college, is women's wrestling. Collegiate women's wrestling has just received NCAA Emerging Sport Status after approval from Division 2, Division 3 and Division 1 programs. With 59 collegiate varsity programs already in place and more being added every day, the research needs to reflect this growth ("List of Colleges with Women's Wrestling Programs," 2020).

The first official world championship for women that was sanctioned by wrestling's international governing body was held in 1987 (Curby & Jomand, 2015). The development of sanctioned international wrestling for women is key because visibility increases participation at all competitive levels. In 1987 there were only eight countries who participated, but now in 2019, there were 55 countries that participated and 252 women ("Senior World Championships-Sep 2019," 2019). Interestingly, the first year that women's wrestling was introduced to the Olympics was 2004, which played a role in the survival of any wrestling in the Olympics. This is due to the fact that wrestling, in 2013, was voted to be dropped from the core Olympic sports by 2016. The inclusion of women's wrestling was critical to the changes that made wrestling more inclusive and the effort to modernize the sport. The connection to increased collegiate programs can be extrapolated from the success and profile of these Olympic women.

The Senior and international wrestling history is intertwined with the growth of college opportunities for women's wrestlers. The first official college women's wrestling national wrestling championships was held in 2004 at Missouri Valley College the same year that women's wrestling was introduced to the Olympics. The collegiate level participation has always been closely connected with the senior level circuit with many athletes competing at both levels. In fact, the Women's Collegiate Wrestling Association (WCWA) which up until 2018 was the one of the only recognized national governing bodies for women's collegiate wrestling in the US, is a qualifying event for the U.S. Olympic Team Trails during Olympic cycle years or the World Team trials during off-years (Abbott, 2020). The first varsity women's wrestling team was created in the 1993-1994 season at University of Minnesota-Morris, which has since dropped their program (Abbott, 2020). In the early years of participation, most women who wrestled in college participated in national and international events at the Senior level. It was not unusual and is still not unusual to be competing at the collegiate level with Senior team medalists. Of the 13 women who have competed for Team USA in Olympic wrestling, 11 wrestled on a college team (85%) (Abbott, 2020). The other two athletes attended colleges, but were not on an organized college team.

Gender

Sports and exercise participation for women typically decrease over the lifetime, often starting in adolescence (Belza & Warms, 2004). This decrease in participation is magnified for sports that are traditionally labeled as more "masculine", such as wrestling, boxing, or jujitsu (Stuart & Whaley, 2005). Many of the inequalities for women in the wrestling community can be seen as a reflection of the position of women as seen in society throughout history (Gregg & Gregg, 2017) (Rivera Robles, 2019). Social and cultural ideologies and beliefs have a significant

influence on a women's health and self-perception of their appearance. Historically, women were seen as the "weaker-sex" and often not allowed to participate in sports, much less combat sports (Gregg & Gregg, 2017). Women and girls involved in male-typed activity can be more susceptible to lower levels of confidence (Eime et al., 2013). In addition, there are specific physical differences in body size, body composition, muscle characteristics, and reproductive endocrinology between men and women. Research demonstrates that intensive exercise associated with low weight can cause hypoestrogenism in female athletes. A combination of intense exercise and caloric restriction can then lead to a suppression of luteinizing hormone (LH). This situation creates an event called the "female athlete triad", otherwise known as the three most commonly occurring symptomology eating disorders, amenorrhea, and osteoporosis (Belza & Warms, 2004). Currently, there is no male condition that is similar. Patterns in exercise habits also vary, with sports and leisure exercise reported less frequently by women than men (Belza & Warms, 2004).

Wrestling Context

Wrestling and football are similar in that they have historically both not had a comparable women's sport. Although, wrestling is not typically a revenue generating sport in most Division I-A schools (Gray & Pelzer, 1995). The number of opportunities for women's wrestling at the Division 1-A level are next to none, with only two Division 1-A universities currently housing a program. While there are 59 collegiate varsity programs, the resources are limited due to funding ("List of Colleges with Women's Wrestling Programs," 2020). This continues to create unequal opportunities for women in an especially male-dominated sport (Hrvoje et al., 2016). Wrestling is considered accessible in terms of cost and inclusion to participants of various body sizes and physical ability, yet women have to overcome current cultural norms regarding "appropriate"

sports for women and youth wrestling rooms that may not be opening to young female athletes (Eime et al., 2013).

The women college circuit only competes in the freestyle format, compared to the male college circuit who compete in the folkstyle format. International competition is conducted in the freestyle format, so male college athletes have to learn both forms if they want to compete at the international level (Nag, 2020). Interestingly, all high schools in the U.S. compete only in folkstyle, even for the women. Some women wrestlers may never learn the freestyle guidelines until they start their college career. Wrestling is considered to be inclusive of all body-types, since you compete against people at your own weight-class. Unfortunately, women's weight classes only go up to 191lbs at the U.S. level and are limited more severely at the international level. The highest international weight class is 168lbs. The same goes for the lower weight limit where the U.S. has a class at 101lbs, but the international weight is 110lbs excluding many women from competing ("USA Wrestling Age Group Weight Chart," 2021). The changes that women experience when entering into college, as well as the lack of opportunity at the international level both impact the collegiate experience and post-college transition.

Weight Management

Preliminary research suggests that women who participate in college sports are less likely to be obese or have high cholesterol throughout their lifetime (Irick, 2018). Psychologically, female athletes are more likely to view themselves as in very good or excellent health (Stracciolini et al., 2020). Obesity is a strong risk factor for developing hypertension, which makes findings meaningful because hypertension affects more than 37% of adult women ages 20 to 44 in the United States (*National Center for Health Statistics*, 2019) (Aronow, 2017). However, collegiate sports participation is also associated with anxiety and decreased mobility

later in life that could be linked to weight-gain (Stracciolini et al., 2020). None of these factors have been explicitly measured in women's wrestlers after their collegiate career is completed.

Research in male collegiate wrestlers emphasizes the impact of the sport being divided into weight class, which can lead competitors to reduce their mass or "cut weight" in the hope to have leverage over their opponents (Marttinen et al., 2011). Combat-sport athletes often compete in weight categories 5% to 10% below their normal body weight (Pettersson et al., 2013). Even though female athletes are less likely to be obese after their career ends, male athletes that engage in repeat cycles of weight loss and regain may be more likely to be obese (Saarni et al., 2006). Similar research on post-career weight gain and its impacts has not been done in female competitors. In a systematic review of rapid weight loss and rapid weight gain in combat sport athletes, women were scarcely represented only being 3.5% of the total athlete sample, which is not representative of the number of women actually competing (Matthews et al., 2019). Then in the general population, eating pathology is more prevalent among women compared to men (Hudson et al., 2007).

Readiness for after Sports

In addition to the health impacts of participating in team sports, there are other positive associations with identity and social functioning (Stracciolini et al., 2020). Structured activities, which includes sports, lead to higher positive functioning for participants, and team sports training included more intrinsic motivation factors when it came to exercise (*2018 Physical Activity Guidelines Advisory Committee*, 2018) (Schmidt et al., 2017). Team sports also were associated with a feeling of belongingness and competence (Schmidt et al., 2017). An athlete's perceived level of sports identity can be used to determine the longevity of their career (Steven Chen, 2010). College sports often become central to the athlete's core identity.

For most college athletes, their careers are over after they have finished out their athletic eligibility in college. An overwhelming majority of student athletes do not play a sport professionally, but most enter into the work force after college. The extensive demands of college sports can make it difficult for student athletes to be prepared for the transition to life no longer centered around sports performance. Their commitment to their sport often leaves little to no time for other activities during college and planning for their future outside of sports (Wendling & Sagas, 2020).

Theory-Based Approach for Understanding the Experiences of Post- Collegiate Women's Wrestlers

As women wrestler's transition to life after college, some of the choices that make can be examined through the social-cognitive career theory (SCCT). SCCT has been used to help determine the key predictors and underlying theoretical mechanisms of college athletes' decisions as they prepare for life after college sports (Wendling & Sagas, 2020). The theoretical process for career planning needs to be studied as it has been impacted by college sports careers. The model in Figure 1 was created from the Social Cognitive Career Theory (SCCT) model of Career Self-Management (CSM). This model presents the underpinnings associated with career planning. Overall, the model focuses on the interplay between environmental attributes, social cognitive factors, and personality traits, all of which contribute to behavior, specifically career planning. Self-efficacy refers to an individual's internal belief in their ability to perform a task or behavior (Locke, 1987). The CSM model specifies self-efficacy as carrying out the necessary tasks for career preparations and other deliverables when finding a fulfilling occupation. Goals are intentions set to achieve particular outcomes. These are influenced by self-efficacy and form a foundation when it comes to planning for the future (Lent et al., 1994). Environmental

influences or contextual influences, such as career barriers and supports significantly interact with the other variables. The barriers in the model refer to student-athletes perceived blockades that could prevent them from career planning after their sports career. The career support mainly focused on coaching support, encouragement, and the athlete's perception of help they may be receiving. The personality section in the model consists of a number of characteristics that have been measure to determine individual's tendencies. The personality traits named in Figure 1 are deemed to be indicators for career planning that were seen as protective or harmful (Locke, 1987). These different factors all interact to affect career planning and future career transition outcomes.

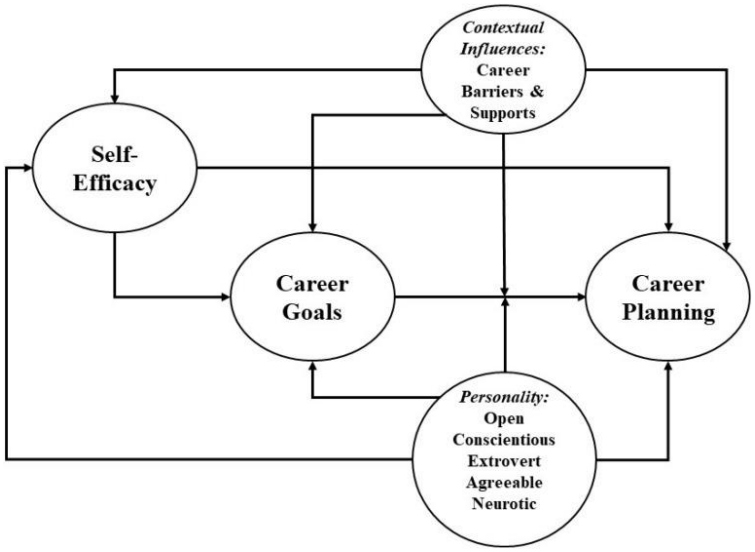

Figure 1: Model of Career Self-Management as applied to career planning behavior (Wendling & Sagas, 2020).

This work draws upon this framework. By focusing on the transition to post-college, the research specifically looked at self-efficacy and intrinsic motivation as related to the shift from college to outside college. The constructs in the model were modified to look at transitional goals and transitional planning, rather than specific career goals, as well as,

contextual influences that impacted transition. It was important to understanding how college athletes perceive themselves during this change in their life, since there was limited data about job satisfaction and ability to find careers. While large scale survey of former college athletes, executed by Gallup-Purdue Index, found that former student athletes were employed either full time or part time at a greater rate than their non-athlete counterparts, this information as not broken down by sport (Understanding Life Outcomes of Former NCAA Student-Athletes, 2016). While there may be some focus on male wrestlers' readiness for after college, there is no data on women wrestlers in this same field. By using this framework, this research will fill a significant gap in the current data.

Justification

The intersection of college sport's career, future planning, weight management, and wrestling has yet to be studied, even though women who fit into all these categories may be at a greater risk. Due to these gaps, the experiences of post collegiate women's wrestlers as they transition to life outside of their college career need to be explored. This includes information on the impact of gender and the roles that weight cycling may play in attitudes about body satisfaction of women's wrestlers after they finish their college careers.

This study explores the perceptions of women college wrestlers and the impact of the sport on their post- collegiate transition. This study is valuable because there have been few research studies to investigate this topic in women's sports. However, research in the field of men and sports shows that weight cycling impacts health later in-life, as well as preparedness to enter the workforce after graduation (Wendling & Sagas, 2020)(Saarni et al., 2006). It is important for the field of public health to understand more about these same topics as they might develop in women's sports, specifically women's wrestling. This study aims to answer the

question, “What are the experiences of post collegiate women’s wrestlers outside their college career?” This main research question is then supplemented by two additional sub-questions: “How has gender influenced the lives of collegiate women’s wrestlers, post-career?” And “In what ways does weight cycling play a role in attitudes about body satisfaction of women's wrestlers after they finish their college careers?”

By interviewing post-collegiate women’s wrestlers, this study will provide a qualitative understanding of how weight cycling plays a role in body satisfaction and the influence of gender on the participants experience wrestling in college.

Methods

This study was a qualitative research project that used a semi-structured interview method for data collection.

Sampling and Recruitment

Recruitment for the project was conducted by a mixture of convenience sampling and snowball sampling. Convenience sampling is a nonprobable type of sampling that uses easy to reach groups for research recruitment. Convenience sampling was beneficial because women’s wrestling is a team sport, so there were already groups readily available to recruit from by using college teams across the US. Participants would refer teammates or other people they had met throughout their career that fit within the study criteria. There is also a large women’s wrestling community on social media, so Twitter, Facebook, and Instagram were utilized for recruitment. This was done by posting in wrestling forums on Facebook, as well as messaging some individuals on Twitter and Instagram after being connected by a participant or the gatekeeper. The study used a knowledgeable community leader as a gatekeeper to gain access to wrestling

teams and coaches. This allowed the researcher to connect with a wide range of possible interviewee from different women's wrestling teams across the United States and Canada. One wrestler was recruited through the gatekeeper, they would then be asked to refer other individuals to the study, otherwise known as snowball sampling.

The study population is women's wrestlers who have finished their college careers. The inclusion criteria for the population was women who wrestled in college at a four-year university on a women's team. This included women who competed at the WCWA, NAIA, Division 3, Division 2, or Division 1 level. Only women who wrestled for three to four consecutive collegiate years were included in the sample population. The sample excludes women who wrestled on a club or co-ed team, as well as junior college athletes. Individuals participating in the study were also excluded if they wrestled less than three years in college or if they were continuing their competitive career post-college. Eligibility was determined through a short series of questions about the participants' wrestling career before the actual interview. If the participant met the eligibility criteria, they scheduled an appropriate time to proceed with the interview.

Data Collection

The interview guide included domains such as identity, how the participants' career ended, wrestling's effect on their daily lives now, and weight management. More sensitive questions were asked in the middle of the interview with casual opening questions and positive wrap-up questions at the end.

In-depth interviews with participants ranged from 30-60 minutes. Some interviews were conducted and recorded using Google Voice (n=9). Other interviews were conducted and

recorded using Zoom (n=9) and a few were started on Zoom, but then dropped to Google Voice due to connectivity problems (n=2). Sometimes the Wi-Fi would not have the band-width for the streaming platform, so Zoom calls were dropped to phone calls.

Data Coding and Analysis

The interviews were recorded and then transcribed using a professional transcription service. Data was managed using MAXQDA 2020.

The initial three exploratory interviews, were used to create the codebook for this research project. Deductive codes were created first. These codes were predefined before the interview coding process began and were based on previous research from the literature review (Hennink, 2011). Additional subcodes were added after the coding process began or some were removed, if they were not applicable. The revised codebook was then applied to all transcripts. The codebook included 16 parent codes and a number of subcodes that covered topics such as weight management, mental health and post college life. Other parent codes include end of career, racial identity, social support, end of career adjustments, and motivation. Each one of the transcribed interviews was analyzed using this coding book by connecting common themes and similarities in participants' interviews.

The themes identified were extrapolated from the interviews while exploring the parallels and differences across and between participants' answers. Memos and case summaries were utilized to note similarities and differences between participants. The case summaries helped to give context to the codes that were associated with each participant. By making comparisons across participants, themes emerged. The researcher then conducted code-based analyses, sub-group comparative analyses, and conceptualized emergent themes to derive qualitative findings

(Hennink, 2011). In code-based analyses, single codes were selected from the codebook and the complied data was investigated. Comparison by sub-group allowed the primary researcher to identify patterns within those groups. Conceptualization is closely linked to categorization, which is used to visualize the data as an ensemble and extrapolate the information (Hennink, 2011). Codes for the themes were then mapped using MAXQDA mapping to show the connections across participants and to other codes, which were then tied to larger themes. This cross comparison was then used to discover other themes, which was unique because it allowed for more visual patterns to occur at a larger-scale. Cross comparison refers to comparing a single code across the interview data set (Hennink, 2011).

For increased analysis to determine further patterns, the twenty participants include in were split into two groups based on avoidant and restrictive food intake behavior symptoms post-college. This is a relatively new DSM-5 diagnosis that is defined as a failure to meet nutritional needs, which can lead to a number of health problems (Thomas et al., 2017). Participants were sorted by how they expressed their relationship with food post-college. Any participants that stated they had a complicated relationship with food, felt extreme guilt about eating, or had periods where they wouldn't eat during the week were placed in the avoidant and restrictive food intake behavior (ARB) category. If a participant mentioned any similar symptoms during college, but then spoke about healthier eating habits now they were placed in the no negative eating behavior (NNB) category, along with participants who never expressed any symptoms. There were seven participants grouped into the ARB category and thirteen participants grouped into the NNB category.

Ethics

The confidentiality of each participant was maintained through the use of pseudonyms and changing other identifying information that could have directly identified the participant. None of the interviews were conducted in-person. There were no incentives offered to participants for participation in the study.

The Emory Institutional Review Board (IRB) submission for the project was drafted and submitted in May 2020 including post-submission edits and amendments sent to the Emory IRB, which was then approved.

Results

Twenty women college athletes participated in this study (see Table 1). All of the participants identified as women and used she/her pronouns, with the exception of one individual who was also comfortable using other (they/he) pronouns as well. The majority of study participants self-identified as white (n=9, 45%). The remainder of the sample included participant who self-identified as Hispanic (n=4, 20%), Filipino (n=3, 15%), Black (n=1, 5%), Palestinian (n=1, 5%), Puerta Rican (n=1, 5%), Alaskan Native (n=1, 5%), Latina (n=1, 5%), and Mexican (n=1, 5%). Some participants reported more than one racial or ethnic identity. The age range of participants was from 21 to 33 with a mean age of 24.5. Participants had wrestled an average of 9.7 years and majority (n=15, 75%) were still involved in wrestling through coaching, attending some practices, or other means. The number of participants who had experienced a TBI was (n=7, 35%.) The number of participants who reported characteristics of an eating disorder in their post-college life was (n=7, 35%). All participants were done with their wrestling careers. Their wrestling careers ranged from wrestling at the senior level circuit competing as Olympic

hopefuls after college to finishing their careers after four years or less on the college circuit. The average years since the participants' wrestling careers had ended were 2.42 years with a range from 0.5 to six years. Over 15 different Universities from across the US and one Canadian institution were represented in the sample. Participant's careers usually ended at a final competition where they lost or won their last match. Most study participants finished their career on a loss (n=7, 35%), but there was some variety with participants finishing on a win (n=4, 20%), by injury (n=3,15%), quitting (n=3, 15%), or due to COVID-19 shutting down the season (n=4, 20%). Most participants experienced an emotional sense of loss after their career's ended that many did not know how to address.

Table 1. Demographic Results

Characteristics	**Study Participants, N=20**
Age (years)	Mean: 24.5 Range: 21-33
Mean Years Wrestled (years)	Mean: 9.7 Range: 4-20
Mean Years Since Career Ended (years)	Mean: 2.42 Range: 0.5-6
Characteristics	**N (%)***
Gender	
Female	20(100)
Self- Identified Race/ Ethnicity	**N (%) ***
White/Caucasian	9(45)
Hispanic	4(20)
Filipino	3(15)
Mexican	2(10)
Alaskan Native	1(5)
Palestinian	1(5)
Black	1(5)
Puerta Rican	1(5)
Latina	1(5)

Traumatic Brain Injury (TBI)	
Yes	7(35)
No	13(65)
Eating Disorder	
Yes	7(35)
No	13(65)
Currently Involved with Wrestling	
Yes (Total)	15(75)
Yes (Coach)	11(55)
Yes (Practices)	3(15)
Yes (Other)	1(5)
No	5(25)
How Career Ended	**N (%) ***
Win	4(20)
Loss	7(35)
Injury	3(15)
Quit	3(15)
COVID-19	4(20)
*Percent will not add up to 100 because participants self-identified in more than one category	

Throughout the results, participant's answers fell into three main themes: identity, body image, and intrinsic motivation. Learning more about the impact of the participant's career in college gives context to how it impacted their life afterwards. By starting with identity, the participant's experiences as a women wrestler demonstrates how important sports participation is to their self-perception and social support. From there, body image is closely tied to weight cycling, which is also linked to intrinsic motivation.

Identity

Most of the participants had relied on wrestling as a critical part of their central identity in explaining who they were and finding purpose in daily tasks. During their wrestling careers, most of the participants' lives were centered around competition or preparing for competition. Since wrestling has weight-classes and is considered a demanding sport, it is often compared to a "lifestyle" choice than just a sport. For many, wrestling has been the focus since middle school or high school, impacting the individual's diet, the friends they make, and how they manage their time. When their season ends, after devoting their life to a sport, it can leave the individual feeling like they do not have an identity outside of wrestling. After an in-depth conversation about her choice to walk away from wrestling, Maria talked about how her self-perception of worth was closely tied to wrestling, "It all goes back to identity at that point, like everything that I had done in life up to that point. It was like it was like I had put blinders on things like, wrestling…And then it was gone. So, yeah, the context of everything that I knew had been changed." Maria has found ways to stay involved in the wrestling community besides competition. There was also a sense that individuals felt that wrestling had taught them a lot of skills for the future. The one participant who was no longer involved in wrestling, Rihanna, stated, "it [wrestling] opened up so many doors for me and really just I think it helped me grow as a person" She was not currently involved in the wrestling community, but spoke about coaching in the future.

Participants discussed the increased freedom after their careers ended, but also a lack of structure. Jessie specifically spoke about no longer having a coach dictate her schedule, "A lot less stressed…I guess, more freedom. I haven't been told what to do. Where to go." She mentioned not needing to worry about classes or practice anymore. Annabelle discussed the

disappearance of structure, “To work towards graduate college and finish wrestling all at the same time, and then you have literally nothing to work towards. Yeah. Yeah. Very odd.” There was an overwhelming sense of emotional loss that many participants spoke about as their wrestling career’s ended, especially those who had their careers ended abruptly due to coronavirus or injury. This sentiment of loss was expressed by Jane when she described how her career ending felt like losing her family. She explained: “You don't get to be a part of a family or a team like that anymore. You can still have your friends. And these things. But after having been part of what I would have considered my family for nine years, two separate families. Like, it's like gut wrenching to lose that.” Jane started to tear up when speaking about the process of graduating and leaving her team behind. This sense of identity was also carried through feeling unprepared for the end of wrestling careers, even for some participants who knew when their last match was going to be. Participants discussed not knowing what careers or other hobbies they enjoyed due to focusing solely on wrestling throughout most of their formative year. Blanca spoke about a shift in her activities, “But after college, I went straight into just trying to lifting heavy with my workout partner. That's all they've been doing. Kind of. But basically, they're very knowledgeable on form and technique and different types of lifting.” An overwhelming majority of the participants were still involved with wrestling in some context and then added to a sense of identity as still being a “wrestler”, even though they were no longer competing. Even the few participants that were no longer involved in wrestling, spoke about the possibly of coaching in the future.

Gender identity was also discussed by a majority of participants. Some participant’s spoke about the impact of gender on their wrestling career. There were a wide range of stories. Participants spoke about times they did not feel welcome in male-dominated wrestling rooms.

Diana talked about her current experiences as a high school wrestling coach, “And there's a lot of times really even in the coaching world, like the guy, coaches are just like not as accepting because they're so set in their ways and stuff.” It was hard for her to find a coaching position because there were not youth women’s wrestling teams in her state and it was not seen as an option for her to coach the men’s youth team even if the position was open. Other participant’s spoke about inequalities between their college men and women’s teams, as well as funding extending beyond college. Isabelle described a particular situation that occurred during her college career, “My resources on the team…there were huge differences [between the men and women’s team funding], they were like enough to make a difference. The details of which leaked out…I'm think some girls who needed more financial help weren't really getting it because the men thought they needed it.” This was not a unique story with other participants discussing inequalities when it came to access to resources, staffing, and equipment. Other participants did discuss some advantages that they attached to their gender identity. Jane said, “I think that I had probably an advantage to get on a collegiate wrestling. Definitely an advantage to be on a collegiate wrestling team as a woman because the sport is growing so fast and there's just not as many, it's just not as many women wrestlers.” A similar comparison was made when some participant’s spoke about applying for women’s college coaching positions, even though the majority of women’s college coaches are men.

Body image

The theme of body image encompasses how participants visualize or discuss their body. Each one of the interview participants spoke in some context about their bodies post-college. Many shared their experiences with weight management during college, injuries, and post-college eating and exercise habits. Interestingly, some participants had experienced greater body

acceptance after college and had overcome poor eating habits developed due to wrestling culture. Kameron, in the NNB category noted that she had changed her eating habits, since her wrestling career had ended, " So now I actually like find some enjoyment and exercise and at least being active. I think that, you know, I've gotten control over my eating habits and it took a long time. I'm at a weight I feel comfortable at and I don't have like these extremely body image issues and stuff anymore."

There were also a number of participants who struggled with changes in the way their body looked or felt after their wrestling career ended. Rihanna spoke about how the change in the scale since she had stopped wrestling negatively impacted her life, "I know that I'm not fat. But since I'm not like 120, I'm like, wow, I'm gigantic. And so and it's weird because this stuff like I want to eat because I can eat a lot of the same problem is just like, you know, you shouldn't really be 120. So I've had to do a lot of constantly reminding myself that I'm adult and I no longer wrestle. I don't have to weigh in. I can eat. I can also workout. And I don't have to be a certain weight." This sentiment was repeated by a number of participants.

Participants who were grouped into the ARB category all discussed feelings of inadequacy, when it came to body image. Each ARB participant spoke on guilt associated with eating or having periods of fasting after college. Weight-cycling did appear to play a role in negative perception of body image after college. Charlie participated in weight-cycling throughout her college wrestling career, "I got really bad about just like eating whatever I wanted and then just like working out for hours on end, which was really bad." She also self-identified in the ARB group, while openly discussing her struggle with having an eating disorder due in part to her relationship with food throughout her wrestling career. There was also conversation about weight and weight gain after college with two of the ARB participants. Riley, in the ARB

category, spoke about her relationship with food, “I have a very complicated relationship with food. Like, every time I eat something, I kind of feel guilty about it because I'm not working out or I'm not putting the time in [to workout].” Riley then went on to speak about the way her body had changed since her wrestling career placed a hand on her belly when discussing the need to work out still. Taina spoke about similar feelings surrounding her body image, “I like I look in the mirror and I'm like oh no, I can't do this…I feel like a former athlete and then look like this. And all those other girls, they've never looked like that.” Some have chosen to never step on a scale again, others have to continue to step on a scale daily in order to feel a sense of accomplishment or control over their body. Negative body image perceptions were often compounded with either an injury sustained through wrestling or just due to no longer working out at the same level as collegiate competition ready.

Intrinsic motivation

Intrinsic motivation is the internal drive that power people’s action and willingness to complete tasks (Cameron & Pierce, 1994). Since college athletes are often seen as unprepared for life after college, exploring internal motivators ties to self-efficacy in the CSM model (Wendling & Sagas, 2020). This theme was most apparent when participant’s discussed current exercise and eating habits, as well as pain management. Self-efficacy was also explored in this theme. Participant’s spoke about no longer finding the motivation to work out or eat correctly. Riley specifically touched on no longer having a motivator to run or work-out. She explained:

“You know, before I like, I'd have to run on the treadmill or I have to run, period. I would think about wrestling. I would think about, like, kicking ass, you know, like the weekend come in. Like I got work to do. I got work to put in. Now, I don't think about it like I run on the treadmill. My brain is like blank”

There was also a sense that their coaches had controlled their schedule, work-outs, and to some extent what they were allowed to eat, so without the guidance many participants felt lost. Isabelle explained how she felt after her career ended:

"It's kind of like, I guess my whole life kind of changed because I had been doing it for so long and it's easy to have, I guess you could say, when you have something that, you know, you're supposed to be doing all day, every day, it makes things easier to schedule. Almost like you know what you're doing tomorrow. This time, you know how hard this is going to be. And then in the real world, you, like you don't have any guide for how real-world things work. And now it's kind of like a shock to me, like, you know, figuring out how to get jobs and meet people that aren't for wrestling and make connections that way."

The participants were used to external motivating factors, so finding a new internal drive was difficult or had not happened post-college for some interviewees.

Some individuals didn't believe in their capability to find the motivation to eat healthier or exercise. For participants in the ARB, category, they were often motivated by the symptomology that placed them into the ARB category. This created an unhealthy cycle that continued to perpetuate the avoidant and restrictive food intake disorder symptoms. There was also a change in the sense of motivation. Participants in the ARB category discussed that during their wrestling career their actions were motivated by competing well or "making weight", but as Riley put it, "I think my motivation right now is look good…to continued fitting into my jeans." For Riley her weight was tied to her ability to "look good", which was not unique among the participant's response.

There were some participants who had found motivation through new hobbies, group exercise, and coaching wrestling at different levels. Shannon spoke about how her family was her main motivating force after her career ended during the COVID-19 pandemic,

"A lot of it is not even just me, it's my family that's starting to motivate me more. They want me to be more active just cause I don't really I can't really leave the house and I can't go out anymore as much as I like. I would like to. So now they're just trying to push me to go outside and maybe go to a and just do something simple like walking."

Motivation from external forces helped participant's find exercises they liked after their career's had ended and they were no longer attending wrestling practices.

Discussion

The findings from this study confirm previous research conducted with women in other sports as well as research on men who wrestle or compete in weight centric sports. Repeat weight cycling in male athletes was seen to increase obesity later in life and while this was not quantitively measured, a number of participants expressed weight gain after their career ended that lead to negative self-perception of body image (Saarni et al., 2006). Conversely though, in the current study, many participants did continue with exercise routines, normally though social support from peers or family, that positively impacted their body image after their wrestling careers ended. The extensive demands of the participant's wrestling career , in the current study, was also incorporated in the exploration of identity, since participants tied self-worth to wrestling, which had been shown by a previous study to make the transition to post-college life difficult (Wendling & Sagas, 2020). This may have led to careers and continued participation in the wrestling community since an overwhelming majority of participants were still involved

(n=15, 75%). Team sport participation for female high schoolers, as shown to be protective for depression there was not a lot of research into how the end of that participation effects mental health (*2018 Physical Activity Guidelines Advisory Committee*, 2018). Since may of the participants came to view their wrestling teams as family there was often a tremendous sense of emotional loss when they graduated. Not only were they leaving behind a sports career, but also often people they had come to see as family. A previous study, discussed how peers can provide positive influence toward sports participation, which can lead to a greater sense of identity sports identity, as well as increase overcoming barriers to success in the sporting activity (Lau et al., 2007). Participant's whose career had been ended due to coronavirus were especially apt to mention the sudden ending and disjointed good-byes to some teammates that they would then never see again.

Many of the participants also mentioned gender inequality when it came to their college wrestling career. Often their male counterparts were given more money in scholarships, facilities, and gear, even if the women's team had more or better accolades. The men's programs also had the opportunity to compete in more locations and tournaments due to the number of colleges that were represented. Given the historical context of women's wrestling, unequal opportunities between college's men's and women's teams aligns with the literature. The first official women's wrestling national tournament wasn't held until 2004, which was the same year women's wrestling was introduced in to the Olympics (Abbott, 2020). This may be changing with the increased sanctioning of women's wrestling programs, but there was a sentiment that participants had to choose between more academic opportunities and wrestling careers since the number of women's programs at high-level universities was limited if existent at all. Similarly, at least one participant chose not to carry on her career post-college due to lack of finances for

professional wrestlers and limited sponsorship opportunities. While wrestling is considered to be very accessible in terms of cost and inclusion of various body sizes and physical ability, convincing colleges to start programs can be difficult since even men's collegiate wrestling teams are often first to be cut, due to funding, from Division 1 schools (Eime et al., 2013) (Gray & Pelzer, 1995). With the number of participants, in the current study, returning to the sport to coach and as mentors, this might change in the future.

The current preparation for women's wrestlers for life outside of college and their sports career was very limited to no preparation according to the current study. Most of what the participant's discussed was reliant on social support from family, peers, or sometimes their college coaches. While universities attempted to prep the athletes for careers, according to the participants there was no preparation for exercise plans, nutritional advice, or mental health changes for outside of their college wrestling career. This was parallel to a previous study that explained the extensive demands of college sports can make it difficult for student athletes to be prepared for life that is not categorized by sports performance (Wendling & Sagas, 2020).

Future Research

Future research on women wrestlers should include more exploration about eating disorder symptoms and pathology, as well as quantitative measures of perceived readiness for life post-college. It would be useful for the data to include more psychology-based scales to better determine the roots of body image and intrinsic motivation throughout the current research. There is also little to no data on collegiate women's wrestler's employment status after college or information on body satisfaction later in life. Most of the data is collected with male wrestlers, which excludes the important experiences of women in growing the collegiate sport. If there was information that included women in combat sports, access to resources, such as

trainers, exercise equipment, and specialized facilities, were often not accounted which could explain some of the differences when compared to their male counterparts. The disparities in access to resources can be seen in the college options for women who wrestle, as well as, the availability of scholarship money as expressed by at least one participant. Longitudinal studies would also be beneficial to conduct in order to see changes in body composition, injury rehabilitation, and mental health over the course of the transitional period.

Limitations

In terms of limitations, the study does not include a proportional representation of Black women in the wrestling community. Only one Black woman was interviewed and that is not necessarily representative of the number of Black collegiate women's wrestlers. This may have been due to the selection bias of the community member utilized and the other recruitment methods. Since social media was utilized for recruitment, consideration should be given to the fact that some members of the wrestling community may have gone unsampled since individual's still involved in the community would be more likely to reach out to join the study. This may have also impacted the age range of the participants who were involved. This data was also only analyzed by one researcher, so there was no intercoder reliability to conduct.

Conclusion

The aim of the current study was to explore the experiences of post-collegiate women's wrestlers outside of their wrestling career while gaining an understanding how weight cycling plays a role in body satisfaction and the influence of gender on the participants experience wrestling in college. A qualitative approach to understanding these experiences provided data on a gap in the literature on wrestling culture and existing literature on women who wrestle. The

themes from this research can help to inform future research regarding self-efficacy and other coaching tools that could be used to improve the experiences of future collegiate women's wrestlers.

Wrestling was seen as central to identity of most participant's and self-worth was closely tied to performance during college, this then often lead to loss of identity after graduation. The demands of college wrestling do not leave athletes time to search for an identity outside of the sport (Wendling & Sagas, 2020). While lessening those demands may not be possible, creating space of athletes to recognize that wrestling will eventually come to an end for them is a starting point. This identity as a wrestler was also closely tied to many participant's teams being viewed as family throughout their college career. The majority of the participants are still involved in the sport, which speaks to the importance of wrestling in many of the participant's lives.

Weight cycling was explored through the themes of body image and intrinsic motivation. Only one participant specifically stated that she had an eating disorder, while at least six others' spoke of adverse symptoms. The symptomology of eating disorders can closely mirror many of the habit's wrestlers use to lose weight in a short amount of time. This study confirms previous research that shows a negative effect on body image and ability to regulate weight and exercise habits later in life (Radwan et al.). Due to the structured nature of work-outs, during college many participants discussed having more freedom, but also feeling un-motivated to exercise or that there was not a purpose without the reward of competition. This led to negative self-perceptions of their body image, as well as, shame about their inability to preform exercise that were once easy. Other participant's found motivation through social support from peers, family, or partners.

Gender impacted participant's career choices, as well as perceptions of themselves in the wrestling community outside of competition. Many of the participants who are currently coaching, spoke about the increased opportunities as women to coach a college women's wrestling program. At the high school coaching level, many of the participant's spoke about often being the only women in their regional and having to "prove" themselves as good wrestlers to their male counterparts, even though they normally had more college wrestling experience. Men were often given money more for their performance at senior level events, which led to some participant's ending their career's early due to lack of funding or sponsorship.

Based on this study's findings, there needs to be a discussion of healthy eating and exercise habits for the end of an individual's wrestling career before their career ends. Since the overwhelming majority of participants are still involved in wrestling educating individuals early will also help to improve the culture of wrestling overtime. Individuals also should have chances to explore goal setting or career development throughout their college career. Sports psychology tools and exit counseling could be useful for athletes as they transition through their careers ending as well as graduating from college. It may also be beneficial for coaches to allow athletes to lead some practices to gain self-efficacy for running their own work-outs. These finds are preliminary, but fill a gap in the existing literature on collegiate women's wrestlers.

Disclosure statement

No conflicts of interest were disclosed by the authors

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Chapter V: Public Health Implications

The aim of the current study is to explore the experiences of post-collegiate women's wrestlers outside of their wrestling career while gaining an understanding how weight cycling plays a role in body satisfaction and the influence of gender on the participants experience wrestling in college. A qualitative approach to understanding these experiences provided data on a gap in the literature on wrestling culture and existing literature on women who wrestle. The themes from this research can help to inform future research regarding on self-efficacy and other coaching tools that could be used to improve the experiences of future collegiate women's wrestlers.

Call for Women's Wrestling and Post-College Athlete Research

As the sport grows, so do the women who will end their college wrestling careers and search for a new way to be a part of wrestling. While the research is growing, there are many gaps that should be addressed. Many participants were still involved in wrestling through coaching, only one participant was involved through other means. There are other opportunities for women to stay involved in wrestling outside of coaching should be mentioned, sports journalism is a growing field for women, as well as qualitative and qualitative research. Future research can also help to influence the growth of the sport by advocating for more resources and the benefits that college sport's participation can bring athletes.

Implications for Coaching Women's Wrestling

The majority of participates were still involved in wrestling as coaches at the youth, college, or senior level. That makes this information especially useful to future coaches and gives

insight into the improvements that the wrestling community is already making with more women becoming coaches and college programs being added. Girls who wrestle, now have the opportunity to wrestling on all girls' teams from a young age, while having women coaches, mentors, and senior-level wrestlers to look up too. The impact that college coaches have on their athletes now are influencing generations of women's wrestlers to come. The information from this research has shown that there are a few necessary topics that should be discussed throughout an athlete's career:

1. Body image and eating disorder symptomology
2. Exercise and nutritional plans for after career completion
3. Identity exploration and self-efficacy

These topics are important to the longevity and satisfaction of the person's life. Wrestling has a long history of negative weight management practices. Coaches have a tendency of not discussing the signs and symptoms of eating disorders, as long as a participant is "making weight". Starting to have open and honest conversations about body image and the impact of eating disorders can work to change this culture. Athletes are often unprepared for the adjustments that occur once their career ends. They may continue to eat the same number of calories, but completely stop exercising or form other habits that are determinantal. Having a discussion with graduating athletes about their exercise and nutritional habits to create a plan or a goal sheet, could increase self-efficacy and better prepare the participant for the end of their career.

Finally, throughout the participant's sports career they should be given the opportunity to explore what their identity means to them and how they find purpose outside of their sport. Since college is a place of preparation for the future and the majority of athletes will not go on to play

at the professional level, consideration should be given to how the participant will cope and identify after they are no longer considered a collegiate athlete. Utilizing some of these tools has the potential to increase the livelihood of college women wrestlers during their sports career and in the future.

Future Research

Future research should include more diagnosis and extensive conversations about eating disorder symptoms and pathology, as well as quantitative measures of perceived readiness for life post-college. It would be useful for the data to include more psychology-based scales to better determine the roots of certain themes throughout the current research. There was also little to no data on collegiate women's wrestler's employment status after college or information on body satisfaction later in life. Most of the data was extrapolated from research collected on male wrestlers, which results could vary by gender. Access to resources was also not consistently accounted for when comparing data from male wrestling studies to women's wrestlers. The disparities in access to resources can be seen in the college options for women who wrestle, as well as, the availability of scholarship money as expressed by at least one participant. Longitudinal studies would also be beneficial l to conduct in order to see changes in body composition, injury rehabilitation, and mental health over the course of the transitional period.

Conclusion

Wrestling was seen as central to identity of most participant's and self-worth was closely tied to performance during college, this then often lead to loss of identity after graduation. The demands of college wrestling do not leave athletes time to search for an identity outside of the sport. While lessening those demands may not be possible, creating space of

athletes to recognize that wrestling will eventually come to an end for them is a starting point. This identity as a wrestler was also closely tied to many participant's teams being viewed as family throughout their college career. The majority of the participants are still involved in the sport, which speaks to the importance of wrestling in many of the participant's lives.

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Appendix

Appendix A

1. Would you like to participate in a study for my master's thesis at Emory University in Georgia?
2. Would now be an okay time for a short screening survey?
3. How many years did you wrestle?
4. Are you currently competing at the women's senior level?
5. Would you feel comfortable completing an hour-long interview in English?