

Youth Sport Participation Experiences from the Perspective of Hispanic/Latinx Parents and their
Children and Secondary School Athletic Trainers' Clinical Management Decisions on Low
Socioeconomic Status Patients

By
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A dissertation in partial fulfillment of
the requirements for the degree of

Doctor of Philosophy
(Kinesiology)

at the
UNIVERSITY OF WISCONSIN-MADISON
2022

Date of final oral examination: 3/1/2022

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ACKNOWLEDGEMENTS

“My entire life I have grown up with the standard of becoming *better*.” This was the first sentence of my statement of purpose for admission into the University of Wisconsin-Madison PhD Kinesiology program. My entire academic career I have felt the immense pressure of needing to succeed. The pressure that my success would also be the accumulated success of other Mexican Americans and minority students like myself to set the bar *higher*. I can confidently say that the mentorship and guidance over the past 4 years from Dr. David Bell made me *better* and allowed me to set the bar *higher* to a height I never knew was possible. I am also grateful for your constant reminder that “this PhD isn’t the most important thing” I will do in my career. I am so fortunate to have had a mentor that believes that the bar can keep going *higher*. You have prepared me to be an effective researcher I am excited to take these skills into my professional career.

I would also like to thank all my professors who have helped me be the first in my family navigate higher education. I would also like to specifically thank Dr. Cindy Trowbridge for her mentorship spanning my time as an undergraduate athletic training student all the way to today. Your mentorship, support, and belief in me served as a catalyst for my career. I would also like to thank all the members of my committee: Drs. David Bell, Luis Columna, Susan Andreae, Timothy McGuine, Traci Snedden, and Lindsey Eberman. Having your expertise, insight, and guidance on my dissertation has only strengthened my studies. It has truly been an honor to have you all be part of my committee and collaborate on studies during my time at UW-Madison. I have learned through this experience, you all have many positive characteristics as researchers, professors, and humans that I will look forward to taking into my career and shaping my students as you have shaped me.

Thank you to the fellow graduate students in the Wisconsin Injury in Sport Lab: Daniel Schaefer, Kevin Biese, Madi Sehmer, and Austin Powell. We embarked on a unique experience of pursuing graduate school during a pandemic. You all made this journey so much more enjoyable. I will miss the family we created in our lab, the non-research longer than they should be conversations, and our outings to Dotty's. I would like to specifically thank my very first undergraduate research student, Elena Miller. Without you, this dissertation would have not been possible. I am excited to watch which path you choose for your future career. Whatever you choose, I will be one of your biggest cheerleaders. It has been an honor to mentor you. Thank you to the fellow Kinesiology and SoE Latine/X friends I have made throughout my time here. Specifically, Laura Prieto, we built multiple communities to help students like us and I hope that legacy continues long after we leave. Thank you to the triathlon and running friends that have kept me sane and supported me outside of the classroom and lab. Thank you to my best friends from all phases in life. Your friendships kept me grounded and refreshed.

A mi familia, gracias por su apoyo, amor y fortaleza en todo lo que hemos logrado. Los amo. Me has enseñado mucho en la vida. Sé humilde, trabaja duro, sé amable, y ten fe. Solo espero seguir haciéndote sentir orgullosos con cada paso que dé. Pero por ahora, celebremos estas próximas fases de mi vida: una carrera, un matrimonio y una vida reunida. Lo hicimos! To Sarys, my best friend and my little sister, I hope I have been able to pave the way for you in whatever you do. I hope you choose something you love to do just as I have, and you have a passion for what you dedicate your life to. You gave me immense strength during this journey. Thinking of you brought me motivation and joy to some tough days in this PhD process. I love you so much hermanita.

Finally, thank you to my fiancé TJ. Your love, patience, constant support, and friendship all of the years I have been in school mean the world to me. Thank you for always encouraging me, waiting for me, and bringing me so much happiness. I love you! I am excited that with the completion of this dissertation we will soon be married and for once in the same location! I cannot express how thankful I am to have you by side throughout these 9 years of friendship. Here's to many more as we navigate this next phase in life!

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YOUTH SPORT PARTICIPATION EXPERIENCES FROM THE PERSPECTIVE OF
HISPANIC/LATINX PARENTS AND THEIR CHILDREN AND SECONDARY SCHOOL
ATHLETIC TRAINERS' CLINICAL MANAGEMENT DECISIONS ON LOW
SOCIOECONOMIC PATIENTS

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Many health benefits from organized sport are achieved primarily through physical activity.¹ Children and adolescents who participate in organized sport have a higher level of physical activity later in life and lead healthier lives in their adulthood.^{2,3} Because physical activity in youth is often executed in an organized manner, organized sport's role in society has become increasingly important over the years, not just for the benefit of an individual but for public health.⁴⁻⁶ Despite the many benefits of organized sport, these benefits are not always accessible or equitable to all children and adolescents.⁷⁻⁹ These disparities in health, well-being, quality of life, and socioeconomic status (SES) inequities can be a cause of the SDOH. Athletic trainers are health care providers that are uniquely positioned in an optimal public health intersection and can provide direct care for their low SES patient population that is impacted by the SDOH. The primary purposes of this dissertation were to 1) further understanding of youth sport participation experiences from low socioeconomic status families to now of Hispanic/Latinx families¹⁰, 2) quantify perceptions of clinical management decisions toward low SES student athletes in a group of medical providers and public health advocates, and 3) identify challenges and strategies to upholding a standard of care when providing care to low SES patient population in the secondary school setting. **Study 1:** 12 Hispanic/Latinx parents and their high school aged children participated in this study. Hispanic/Latinx families described expectations of time and money that were exacerbated by the current youth sport culture. These families met the current

youth sport expectations by methods rooted in their culture. When expectations were not met, this led to a misalignment of cultures and resulted in a negative youth sport experience. **Study 2:** A total of 380 secondary school athletic trainers completed the quantitative aim of this study through a cross-sectional survey regarding their perceptions of the SDOH and SES related to providing patient care. 12 ATs participated in the qualitative aim of this study. ATs perceived health and health care as the most relevant determinant when providing care to low SES patients. When ATs further considered the SES of patients, they identified all SDOHs as barriers they were ill equipped to navigate as they delivered care and engaged in patient referral.

CHAPTER ONE

INTRODUCTION

1.1 What is Public Health?

The United States has made immense progress in improving the health and lifespan of its population through public health efforts. Public health is defined as “the science of protecting and improving the health of people and their communities.”¹¹ Public health focuses on promoting healthy lifestyles, researching disease and injury prevention, and detecting, preventing, and responding to infectious disease.¹² Vaccinations are one of public health’s greatest achievements of the 20th century with the eradication of smallpox globally and polio in the U.S. In 2019, life expectancy at birth in the U.S. was 78.8 years, 10 years longer than in the 1950’s.¹³ The proportion of people in the United States without health insurance is at a historic low of 8% (26.1 million people).¹⁴ These public health achievements have been carried out by many different working fields in the United States. However, these public health achievements fall short of ensuring everyone in America can achieve an optimal and equitable level of health. To improve the health of people in America, public health leaders have emphasized the need to address factors outside of direct health care. This action involves addressing the social determinants of health and socioeconomic status.

1.2 The Social Determinants of Health and Socioeconomic Status Health Disparities

The Social Determinants of health (SDOH) is often used to refer to any non-medical factors that can cause affect the health and health care of many Americans in the United States.¹⁵ These factors affect a person’s health-related knowledge or health literacy, and attitudes, beliefs, or behaviors toward health.¹⁶ However, the SDOH include social-structural factors in our society such as a person’s socioeconomic status (SES) being determined by social disadvantage, risk exposure, and social inequities that ultimately play a fundamental causal role to health

disparities.^{17,18} There is substantial research that has linked educational attainment, reading level, income, and occupation with health outcomes through the life course in the United States.¹⁹ Greater social disadvantage is associated with poorer health and appears as a “dose response” relationship with a stepwise incremental gradient connecting SES to poorer health.¹⁵ The SDOH and SES are seen as upstream factors within the public health system that needed to be addressed before poor health conditions occur.^{15,16}

1.3 Consequences of Sport Specialization

Sport specialization is defined as “intentional and focused participation in a single sport for a majority of the year that restricts opportunities for engagement in other sports and activities.”²⁰⁻²⁴ Previous research in sport specialization has found that a high level of specialization identified by a 3-point scale and excessive sport volume has contributed to an increasing number of overuse injuries.²⁵ Overuse or repetitive trauma injuries in youth athletes represent approximately 50% of all pediatric sport-related injuries.²⁶ Despite the evidence of overuse injuries associated with the sport specialization trend and many position statements and expert opinions advising against sport specialization, high school athletes are still being encouraged to engage in sport specialization behaviors. High school athletes are told to join club teams outside the traditional interscholastic system, participate in year-round high-volume sport opportunities and training to improve upon their skills and showcase their abilities to collegiate coaches and scouts. Other consequences of the current youth sport culture and the impact of sport specialization behaviors is drop out from sport because it is no longer fun.²⁷ In 2020, youth sports lost 3 million children participating in sport during the transition from elementary to middle school ages.²⁸ This loss is associated with decreased participation in community-based play and a rise in more competitive, travel or club teams.⁷

1.4 The Impact of Socioeconomic Status on Pediatric Health Care

Low socioeconomic status (SES) negatively impacts timing of health care and clinical outcomes after musculoskeletal injuries.²⁹ Previous research examining pediatric anterior cruciate ligament reconstruction (ACLR) patients with government-assisted insurance plans demonstrated low SES patients experienced delays in receiving definitive injury management and were at risk for postoperative ACLR complications.³⁰ Pierce et al.²⁹ observed that the odds of getting an appointment with a medical provider with private insurance was 57 times higher than that with Medicaid for adolescents with acute knee injuries likely to require ACLR. Similarly, the risk of delayed ACLR was significantly higher among pediatric and adolescent subjects who were less affluent and were younger.³¹ Similar affects in health care can be seen across other musculoskeletal injuries such as delays in evaluation and treatment for meniscal tears and post-operative shoulder re-dislocation in low SES patients.^{32,33}

1.5 Socioeconomic Status Impact on Sport Participation and Sport Specialization

The youth sport culture has drastically changed during the past 10 years where, presently, roughly 50% of high school athletes also participate on a club sport team.³⁴⁻³⁹ Club sports are more expensive than their interscholastic counterparts with parents spending approximately \$200 per child on a school-based sport compared to the \$1,500 per child on a club sport participation annually.⁴⁰⁻⁴² With the 2018-2019 school year having a reduction of 43,395 youth athletes from the year prior, high school programs are declining because of tightened school budgets and the shift toward club team participation.⁴¹ The rise of club team participation limits accessibility to those that can pay to play versus the children of lower family socioeconomic status (SES) who lack an alternative athletic opportunity. The lack of youth sport accessibility for this population may result in fewer opportunities to positive attributes that come with youth sport participation:

improving quality of life by reducing morbidity and mortality, maintaining a healthy lifestyle later in adolescence and adulthood, social interaction, and a means to having fun.^{43,44} Instead of these positive attributes, sport participation appears to be driven by winning, maximizing sport performance, and obtaining an athletic performance college scholarship.²⁰ The desire of obtaining an athletic collegiate scholarship, by the athlete or parents, may be an enhanced motivator for low SES youth athletes to highly specialize and why they may be undeterred from the risk of overuse injuries. Consequences of injuries linked to sport specialization could be more detrimental to this population due to the vulnerability of low SES families typically being uninsured or publicly insured.^{8,33} Currently, multiple studies have collected data from sports medicine clinics or club sports and have demonstrated that family SES is proportional to youth sport specialization.^{8,45} Preliminary qualitative data has elucidated the experiences of low SES in sport participation and rates of sport specialization on a non-health insurance or non-club sport setting which has shown there are many barriers for low SES youth sport families to get involved in sport due to the rise in sport specialization behaviors.¹⁰

1.6 Minority Race/Ethnicity Impact on Sport Participation and Sport Specialization

Previous research has shown that race and ethnicity can determine a person's SES in the United States.¹⁹ The relationship between SES and race/ethnicity is closely intertwined due to minority racial/ethnic groups and low SES communities commonly sharing characteristics of low economic development, poor health conditions, low levels of educational attainment, and larger health disparities compared to higher SES and white racial/ethnic groups in the United States.^{19,46} Due to the closeness of minority race/ethnicity and SES, it is important to further understand its impact on sport participation and sport specialization. Many studies have reported that there are significant differences in the amount of sport participation by Whites, African Americans, and

Hispanic/Latinos.^{28,47-49} With higher rates of participation in interscholastic or varsity sports being significantly higher in schools attended by White students than those attended by Black and Hispanic students.⁴⁷ However, sport specialization has yet to be studied quantitatively or qualitatively among minority racial/ethnic families in the United States. Knowing if sport participation barriers mirror the same barriers as low SES such as lack of money and time exacerbated by sport specialization trends were tremendously helpful to combat lack of sport participation that is seen in these minority communities.

1.7 Clinical Management Decision Impacted by Patient Socioeconomic Status

A patient's SES influences physician's clinical management decisions.⁵⁰ Previous research has demonstrated that physicians accommodate their management plan to suit those with financial difficulties, public/no insurance, and lower health literacy in attempt to aid low SES patients. However, these changes can inadvertently lead to patients receiving less than ideal or non-standard treatment such as a less aggressive management and/or postponing testing which leads to worse outcomes.^{17,50,51} Furthermore, when interviewed, physicians expressed that SES should not, but nonetheless, does influence clinical management decisions and places tension maintaining a consistent standard of care for all of their patients.⁵⁰ Despite secondary school ATs providing direct preventative care, evaluation, diagnosis, and rehabilitation of injuries and medical conditions to the pediatric population, there is a significant gap in knowledge regarding how a patients' SES status influences ATs' clinical management decisions. Knowing secondary school ATs' perspective on how SES affects clinical management decisions can offer insight into the source of the current quality disparities and inform amelioration efforts by highlighting specific challenges to providing high-quality care for their low SES student athletes.

Research Questions and Hypotheses

Study 1: Youth Sport Participation Experiences from the Perspective of Hispanic/Latinx Parents and their Children

Aim 1: To qualitatively explore the nature and intentions of Hispanic/Latinx high school athletes and their parent(s) to participate in sport.

Hypothesis 1: The nature and intentions to participate in sport and sport specialize of Hispanic/Latinx families will demonstrate similar themes of money, scholarships, time, support, and networking to low socioeconomic status families' participation in youth sports. Although qualitative research does not warrant hypotheses, author reflexivity was implemented due to the preliminary study that was conducted prior to this research aim. Reflexivity is described as factors that may influence the research. This includes personal attributes such as the principal investigator being a female Hispanic/Latinx certified athletic trainer and prior a low SES, highly specialized athlete.

Primary Variables of Interest:

- Race/ethnicity of the parent and youth athlete (Census), total household income (Census poverty guidelines), youth athlete's high school (locale, public or private, and ADI), youth athlete's free or reduced lunch status and insurance type, parent's education level, spouse's education level (if applicable), TPB constructs, experiences, and intentions.

Study 2: Secondary Athletic Trainers' Clinical Management Decisions toward Low Socioeconomic Status Student Athletes.

Aim 1: To describe secondary school athletic trainers' perceptions of clinical management decisions in their low SES student athletes.

Hypothesis 1: Secondary school athletic trainers will perceive conflict with clinical management decisions regarding their low SES patients.

Primary Variables of Interest:

- Athletic trainers' race/ethnicity, level of education, years practicing, state practicing, type of employment, high school: locale, public or private, ADI, free-reduced lunch, perceptions, and beliefs of athletic trainers' clinical management decision toward their low socioeconomic status student athletes.

Aim 2: To qualitatively investigate secondary school athletic trainers' clinical management decisions toward their low SES student athletes through the disablement model perspective and the TPB.

Hypothesis 1: Not warranted to reduce potential researcher bias. However, primary research questions that will guide aim 2 are: 1) What are, if any the challenges secondary school athletic trainers face when providing care to their low SES student athletes? 2) Under what patient circumstances, if any, do secondary school ATs encounter difficulty with providing care for their low SES student athletes? 3) What strategies do secondary school athletic trainers find most effective when providing care for their low SES student athletes?

Primary Variables of Interest:

- Athletic trainers' race/ethnicity, level of education, years practicing, state practicing, type of employment, high school: locale, public or private, ADI, free-reduced lunch.

1.8 Operational Definitions

Public Health: Promotes and protects the health of people and the communities where they live, learn, work and play.

Health: The state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity

Socioeconomic Status (SES): The social standing or class of an individual or group.

The Social Determinant of Health (SDOH): Conditions in the environment where people are born, grow, live, work, play, worship, and age.

Health Equity: The fair and just opportunity for every person to achieve optimal health, independent of unfair, avoidable, and remediable differences among groups.

Health Disparities: Preventable difference in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations.

Health Literacy: The degree to which individuals have capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

Structural Inequities: The intrapersonal, interpersonal, institutional, and systemic mechanisms that organize the distribution of power and resources differentially across lines of race, gender, class, sexual orientation, gender expression and other dimensions of individual and group identity.

Sport Specialization: The intentional and focused participation in a single sport for a majority of the year that restricts opportunities for engagement in other sports and activities.

Sport Specialization Scale: Measure that determines the level of specialization (high, moderate, or low) based on responses to three questions.

Sport Volume: The number of months per year or hours per week that an athlete participates (practice, training, competition) in sport.

Sport Volume Recommendations: Recommendations based on previous research for the maximum number of months per year or hours per week that an athlete should participate in sport in order to reduce the risk of musculoskeletal injury.

Athletic Trainers (AT): Highly qualified, multi-skilled health care professionals who render service or treatment, under the direction of or in collaboration with a physician, in accordance with their education, training and the state's statutes, rules and regulations.

The Theory of Planned Behavior: A widely applied behavioral model that helps us understand how the behavior of people can change.

Attitudes: This refers to the degree which the parent has a favorable and unfavorable eval of youth sport culture and sport specialization. Entails consideration of the outcomes of performing the behavior.

Subjective Norms: Refers to an individual's perception of whether significant others approve or disapprove of sport specialization and sport participation for their child. It relates to person's beliefs about where peers and people of importance to the parent/child think he or she should engage in sport specialization.

Perceived Power: Refers to perceived presence of factors that may facilitate or impede participating in organized sport and its relationship to sport specialization. Perceived power contributes to person's perceived behavioral control over each of those factors.

Perceived Behavioral Control: Refers to parent and child's perceptions of the ease of difficulty of participating in organized sport (interscholastic or club).

Behavioral Intention: Motivational factors that influence sport specialization and sport participation for the child. How likely are they to sport specialize?

Phenomenology: Defined as the study of the meaning of phenomena or the study of the experience.

Interpretative Phenomenological Analysis: The aim of this approach is essentially to gain a phenomenological understanding of individuals' experiences and perception of events, focus on lived experience. In comparison with other approaches, IPA manages to incorporate individual participants' idiosyncratic understanding and the cognitions behind their views. It assumes that human beings are constantly engaged in the process of interpreting their experiences and that such interpretations are necessary for them to reach an understanding of the events or experiences that mark their life. IPA is grounded in phenomenology, hermeneutics, and symbolic interactionism.

Hermeneutics: The theory and methodology of interpretation; an interpretation by the researcher to gain insight into the experience of participants.

Idiography: An in-depth analysis of single cases and examining individual perspectives of study participants in their unique contexts.

Reflexivity: A process of reflection or process of examining both oneself as a researcher, and the relationship with the research aims.

Saturation: Relates to the degree to which new data repeat what was expressed in previous data.⁵²

Trustworthiness: Data generation and analysis have not only been appropriate to the research questions, but also thorough, careful, honest, and accurate. To not have invented or misrepresented the data, be careless, or slipshod in the recording and analysis of the data.⁵³

Hispanic/Latinx: A person that identifies as the race ethnicity of Hispanic, Latino, or Spanish origin. Example: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.

1.9 Assumptions/Limitations

The following assumptions and limitations were made for this study:

1. All secondary school athletic trainers will complete their survey honestly and to the best of their ability.
2. Athletic trainers who volunteer from the survey portion of study to the qualitative interview might have more interest in the significance of the study, might be of low SES background, or underrepresented race and ethnicity or have more experience providing care to those populations.
3. All participants (parents, children, athletic trainers) will describe their experiences to the best of their abilities.
4. Interview positionality will be publicized to research participants prior to interview to uncover any potential biases during the interview
5. Qualitative aims of this study were rooted from phenomenology, hermeneutics, and idiography to the best of the researcher's ability.

1.10 Significance

Many health benefits from organized sport are achieved primarily through physical activity.¹ Children and adolescents who participate in organized sport have a higher level of physical activity later in life and lead healthier lives in their adulthood.^{2,3} Because physical activity in the youth population is often executed in an organized manner, organized sport's role in society has become increasingly important over the years, not just for the benefit of an individual but for

public health.⁴⁻⁶ Despite the many benefits of organized sport, these benefits are not always accessible or equitable to all children and adolescents.⁷⁻⁹ These disparities in health, well-being, quality of life, and SES inequities can be a cause of the SDOH. Athletic trainers are health care providers that are uniquely positioned in an optimal public health intersection and can provide direct care for their low SES patient population that is impacted by the SDOH. This project is significant because it will 1) further understanding of youth sport participation experiences from low socioeconomic status families to now of racial/ethnic minority families¹⁰, 2) quantify perceptions of clinical management decisions toward low SES student athletes in a group of medical providers and public health advocates, 2) identify challenges and strategies to upholding a standard of care when providing care to low SES patient population in the secondary school setting.

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Youth Sport Participation Experiences from the Perspective of Hispanic/Latinx Parents and their Children

CHAPTER TWO

ABSTRACT

Hispanic/Latinx remain an underserved population in terms of health and physical activity opportunities. The rise of sport specialization can jeopardize the opportunities for minority families to participate in organized sport. Understanding the appeal and welcomeness that minorities feel toward sport and the sport specialization culture can play an important role in health promotion and breaking down barriers that widen the gap on sport participation levels in Hispanic/Latinx communities. However, these studies have not qualitatively investigated Hispanic/Latinx youth sport families and how sport specialization attitudes and beliefs have affected their youth sport participation experiences in a positive or negative way. We used an Interpretative phenomenological analysis (IPA) to explore experiences of Hispanic/Latinx youth sport families with high school aged children who currently participate in sport and how this may be impacted by the current youth sport culture that promotes sport specialization. We engaged in semi structured interviews with 12 Hispanic/Latinx parents and their high school aged children who participated in organized sport in the United States. The following 3 interrelated themes emerged: (a) expectations of youth sport participation, (b) meeting expectations of youth sport participation, (c) and (mis)alignment of cultures. Findings indicate that Hispanic/Latinx youth sport families understand the current expectations to participate in the organized sport in the US and meet those expectations by methods that are rooted in their culture. When the youth sport culture and the Hispanic/Latinx youth sport families' culture do not align, this leads to a negative youth sport experience that is described to be exacerbated by rise in sport specialization and pay-to-play culture.

Word count: 258

Key Words: Hispanic; Latinx; youth sports; sport specialization; interpretative phenomenological analysis; physical activity

INTRODUCTION

Hispanic/Latinx remain an underserved population in terms of health and physical activity opportunities.^{47,54,55} The disparity in youth sport participation can be a consequence of the current pay-play culture of the United States and emphasis on sport specialization at an early age.^{10,24,27,56} Sport specialization is defined as “the intentional and focused participation in a single sport for the majority of the year that restricts opportunities for engagement in other sports and activities.”²⁴ Understanding the appeal and welcomeness that minorities feel toward sport and the sport specialization culture can play an important role in health promotion and breaking down barriers that widen the gap on sport participation levels in Hispanic/Latinx communities.⁶

Ethnic minority groups make up about one-third of the U.S. population but are estimated to rise to 54% of the total population by the year 2050.⁵⁷ Hispanic or Latinx population are persons of Cuba, Mexico, Puerto Rico, South, or Central-America, or other Spanish Culture or origin regardless of race.^{55,58} The projected population of Hispanics alone will rise to 128 million by the year 2050, tripling in size since 2005.⁵⁷ Latinx will be 29% of the total US population compared to 14% in 2005.⁵⁷ Latinx are estimated to contribute to 60% of the nation’s population growth from 2005 to 2050.⁵⁷ Hispanic and Latinx residents’ numbers are increasing across the US, especially in the states of Arizona, California, Nevada, New Mexico, and Texas.⁵⁹ The rapid and predicted increase in the Hispanic/Latinx population in the United States stresses the need of understanding Hispanic/Latinx culture and methods of approaching health promotion.

One of the overarching goals of Healthy People 2030 is to eliminate health disparities, achieve health equity, and attain health literacy to improve the health and well-being of all.⁴ In order to do this, researchers have focused on the many underlying factors that contribute to the prevalence of health disparities in the Hispanic/Latinx such as higher rates of overweight and

obesity, higher prevalence of Type 2 diabetes and many cardiovascular diseases.^{55,60,61} Previous research has demonstrated sport and physical activity participation is related to improved health outcomes against these health disparities.^{62,63} The benefits of regular sport and physical activity are associated with reduction in risk of obesity, type 2 diabetes, coronary heart disease, improved mental health, and general well-being.⁵⁴ Several studies have reported bidirectional associations between higher levels of sport participation/physical activity and improvements in social cohesion, expanding networks, and fostering deep cultural meanings and social bonds.⁶⁴⁻⁶⁶ However, disparities are also present within sport. Iannotti and Wang identified significant differences in physical activity levels among US adolescents between the ages of 11 and 16 years.⁶⁷ They observed a similar pattern in physical activity levels differences by race demonstrating Hispanic and Latino adolescents were less physical activity on a daily basis than were Whites.⁶⁷ The lack of equity in sport participation is present with sport participation rates for White children exceeding that of Hispanic children.²⁸ Matta et al. observed that Latinx school aged children who participated in fewer sports was associated with higher withdrawn/depressed symptoms.⁶⁸

Disparities in youth sports and barriers to participation have been demonstrated through the shift from interscholastic-based to club-based, year round sport activity over the past 10-15 years encouraging a pay-to-play model with an emphasis on sport specialization and making it less accessible to low SES and minority populations.^{28,69} However, these studies have not qualitatively investigated Hispanic/Latinx youth sport families and how sport specialization attitudes and beliefs have affected their youth sport participation experiences in a positive or negative way. The overall aim of this study is to further examine the determinants of sport

participation through lived experiences, particularly in Hispanic/Latinx parents and their high school aged children.

METHODS

Conceptual Framework: Theory of Planned Behavior

The goal of this qualitative research was to explore the experiences and to extricate the emergent domains and patterns to enrich the understanding of sport specialization and sport participation for racial/ethnic minority, specifically Hispanic/Latinx families using the theory of planned behavior as a theoretical framework. The theory of planned behavior is one of the most widely used and researched psychosocial theories that attempts to explain how and why one participates in physical activity.⁷⁰ According to the theory of planned behavior in order to change behaviors, barriers must be eliminated.⁷⁰ Intention to perform a behavior is a key component. Behavioral intentions are influenced by barriers.⁷⁰ Previous research on underserved families from a low socioeconomic status demonstrated that their finances and time can be a barrier for their pursuit of their child's sport specialization behaviors or sport participation.¹⁰ This has not been explored in Hispanic/Latinx minority families which is highly linked to lower SES in the United States.^{10,71} Thus, for the purpose of this study, the adapted Hispanic/Latinx theory of planned behavior model was used (Figure 1).⁷²⁻⁷⁵

Research Approach

Phenomenological inquiries seek to understand subjective experiences of participants.⁷⁶ An interpretative phenomenological analysis (IPA) research approach was utilized to elucidate an understanding of the participants' experiences as racial/ethnic minority, specifically

Hispanic/Latinx families participating in sport.^{76,77} IPA is a qualitative research approach that helps research understand the subjective meaning that individual participants attribute to events or experience by exploring how they make sense of their persona and social world.⁷⁶ IPA is phenomenological in that it closely examines the lived experiences of the participants and their perceptions of objects and events from their unique lens.⁷⁸ As such, IPA also has roots in hermeneutics, theories of interpretation, is idiographic in nature and attempts not to make generalizations about groups or populations, but rather to understand the unique experiences of each individual participant.⁷⁹ Additionally, IPA emphasizes that the researcher is an active participant in a two-stage interpretation process; the participants are actively trying to make sense of their own lived experiences, and the researcher is attempting to make sense of the participants' experiences as they do this.⁷⁸ In this study, the researchers examined Hispanic/Latinx participants' experience, feelings and meaning with involving their child in organized sport and the phenomenon of current youth sport culture potentially impacted by sport specialization. Secondly, researchers performed an interpretative analysis where they sought to understand and describe the meanings and feelings that participants attribute to the events of interest.⁸⁰ In this study, the researcher attempted to understand and portray the meaning and feelings that participants associated with their experiences in youth sport. The IPA research approach aligns with the purposes of these studies and was deemed to be an appropriate conceptual framework.⁸¹ Participant quotations were used to depict how people made sense of the phenomenon of current youth sport participation as a Hispanic/Latinx family.

Participants

Participants were recruited via social media where it was made clear the study purpose, time commitment, and eligibility criteria for the study. Participants consisted of parent/child pairs of youth athletes of high school age (ages 14-18) participating in organized sport and of a minority race/ethnicity. Prespecified eligibility criteria included individuals (a) identified as a parent and their child; (b) child between the ages of 14-18 years old (high school students); (c) their child participated in an organized sport; (d) Parent or child identified as Hispanic/Latinx; (e) would be willing to complete a 45-90 minute interview. Demographic information such as total household income (THI) (Less than \$25,000, \$25,001-\$50,000, \$50,001-\$75,000, \$75,001-\$100,000, \$100,001-\$150,000, Greater than \$150,001) in compliance with the official 2020 US Census Bureau federal poverty guidelines as issued and published each year.^{82,83} Other SES factors such as education level (less than high school, high school diploma or GED, associate or 2 year college degree, bachelor or 4 year college degree, graduate or professional degree), free-reduced lunch, insurance type (private/commercial, public, uninsured/self-pay), single parent household, and zip code were collected but were not SES eligibility criteria.⁸² Area of Deprivation Index (ADI) was based off zip code and classified in state score (Decile 1: least disadvantaged to decile 10: most disadvantaged) and national score rankings (100% being the most disadvantaged).⁸⁴ The goal of this study was to recruit 12 participants (parent/child pair). The sample size aligned with many other IPA studies.^{76,85,86} Prior to data collection, each participant was provided informed consent agreeing to participate in the study. Numbers were assigned to participants to protect the participants' identities and of their children or family. The University of Wisconsin Institutional Review Board reviewed and approved the study protocols.

Procedures and Instrumentation

Surveys, interviews, and reflective interview notes were utilized as the three sources of data in this study. The surveys and the semi-structured interview questions were adapted from the study conducted by Hernandez et al.¹⁰ and was reviewed by a panel of experts with experience in the fields of athletic training and/or qualitative research. The survey consisted of demographic information to indicate participant eligibility survey. The interview asked questions about the parent and child's sport participation experiences. Sport specialization level was determined during the interview using a commonly used 3-point scale.^{8,87} Level of specialization was based on the answer to the following three questions: 1) Have you quit another sport to focus on your primary sport? 2) Do you consider your primary sport more important than your other sports? 3) Do you train more than 8 months a year in your primary sport? The parent and/or child responded with either "yes" or "no" to each question which were scored as a 1 or 0 points respectively. Scores for the 3 questions were summed to determine the level of specialization of their child as low (0-1), moderate (2), or high (3).^{8,87} The primary source of data were semi-structured, audio recorded, University of Wisconsin-Madison Zoom video interviews completed by the first author. Each participant completed an interview in 40-60 minutes in length. Each interview began with the interviewer (first author) describing the purpose of the study, as well as their background to expose their positionality. The interviewer explicitly stated that she (a) identified as a female Hispanic/Latina doctoral student at the University of Wisconsin-Madison in the Wisconsin Injury in Sport Lab, (b) was previously working as a certified and licensed athletic trainer or completing clinicals as a student athletic trainer with youth athletes in the high school setting (c) was a racial/ethnic minority youth athlete herself in swimming and basketball. Interviews were guided by a semi-structured interview

guide, which included broadly worded questions that were inspired by the IPA framework and the Theory of Planned Behavior moderated by Hispanic/Latinx focus of this study. The eligibility survey served as information for the interview guide. The interview guide was used flexible during the interview process to allow the interviewee to dictate the order and magnitude of the discussed topics and acted as a checklist to ensure that the same basic line of questions was completed across all participants.⁷⁷ Participants were asked to reflect on general experiences as parents of/high school athletes participating in organized sport. These general experiences were not specifically prompted to describe experiences across time thus participants were free to describe experiences that are most meaningful, impactful, or memorable as a Hispanic/Latinx family in youth sport. Sample questions were adapted from previous study of Hernandez et al. which included (a) How do you feel about attempting to pursue sport opportunities for your child-How do you feel when you are successful/not successful in achieving that goal? (b) Your child was considered this level of sport specialization. Do you agree with this? What do you think is the value in sport specializing or not (who has encouraged/discouraged you to sport specialize your child?) (c) Has anyone told you the likelihood of your child receiving a college scholarship related to athletic performance? Do you agree/disagree with them? What leads you to believe so? (d) Are there any limitations or barriers that affect your ability to enroll your child in organized sport(s)?¹⁰ Reflective field notes were recorded by the interviewer during and after each interview session. These notes included the interviewer's and research teams' feelings about the relationship between the interviewer and interviewee during the interview, initial feelings about the tone and ease of the conversation, and items that stuck out as exceptionally meaningful during the conversation.⁷⁷ The reflective note taking process allowed the interviewer and research team to critically reflect and record any personal biases that may have affected the

interview and interpretation of the interview. This process provided the opportunity for the authors to conceptually return to the interview during analysis.

Data Treatment and Analysis

Upon completion of the interviews, the audio recording were sent to a third-party transcription service to be transcribed verbatim. The interview transcripts provided a semantic record of the interview; however, give the aim of IPA is to primarily interpret the meaning of the content of the participant's account, extended pauses and nonverbal cues were not possible to include in the written transcripts. This stressed the need for reflective notes during and immediately after the interviews to account for these characteristics.⁷⁷ All transcripts were reviewed for accuracy by the first author and sent to participants for member checking.⁷⁷ The transcribed interview data were treated using a four-step IPA data analysis procedure consisting of line-by-line thematic analysis to give meaning and structure to the participants' experiences.⁸⁸ In the first step, the first two authors independently read and reread and listened to each participant transcript and interview and related field notes a number of times allowing the researchers to make reflective interpretative notes and comments on the initial emergence of themes. Second, the researchers highlight key phrases and developed meaningful labels with which to code them. During this step, the researchers made additional interpretative notes and reduced the reflective interview notes from each individual interview alongside the specific interview transcription.⁷⁶ The third step, emergent themes were compared within each participant's documents to form a set of inductive clusters of related themes. Throughout this process, all steps were completed for each participant's data independently at the case level and their respective codebooks were audited by an external reviewer for triangulation.⁸⁹ After

thematic clusters were identified at the case level, the final step was to search for patterns and connections across participants through constant comparison. The first, second, and third authors reviewed the themes with the rest of the research team to ensure that they are in line with the purpose and framework of the study. Thematic clusters that are considered in line with the purpose and framework of the study were summarized and presented as results.

Assessing Quality

The four principles for assessing the quality of qualitative research as presented by Yardley and recommended by Smith et. al. for use in IPA studies were followed to evaluate this research study.^{80,90} These four principles include (a) sensitivity to context, (b) commitment and rigor, (c) transparency and coherence, and (d) impact and importance. Sensitivity to context address the context of theory and related literature, social and cultural contexts, and balance of power between the researcher and the interviewee.⁹⁰ Sensitivity to social and cultural contexts was shown by explicitly publicizing the researcher's positionality to participants to uncover any potential biases and report reflexivity during the interviews. Lastly, the researcher demonstrated sensitivity to the balance of power between them and the participants by carefully considering the role of the participant as an expert in every stage of the study's design. Emphasis of using an abundant number of verbatim transcript quotes were presented in the results, thus demonstrating participants' voices in the data and allowing readers to check interpretations. Commitment was supported by inviting participants to review their original transcriptions to allow them to correct any misrepresentations, elaborate, or delete content if desired. Participants were not asked to review interpretations of the themes as this is incongruent to the generation of the data.⁹¹ Rigor or the completeness of the data collection and analysis, were supported by utilizing an interview

guide that was inspired by the research in sport specialization and focus of the framework of the study. Commitment and rigor were further addressed by the following: 1) conducting comprehensive interviews where the researcher attended closely to what the participant was saying and asking for clarifying question as needed, 2) carefully identifying the inclusion criteria for the participants that aligned with the research questions and research approach, and 3) employing appropriate meaningful data analysis procedures. Transparency was achieved through explicitly describing the research process (recruitment, interview, transcription, and analytic procedure, accounting for research positionality, reflexivity, and bias). Coherence between the research questions and research approach were supported by the value of phenomenological research in explicating lived experiences of the participants in this study. Lastly, impact and importance of this qualitative research was achieved in the ability of the authors to communicate the content as clinical applicable and useful. This impact and importance was ultimately be judged by the readers consuming this study.^{90,92}

RESULTS

Three interrelated themes and subsequent subthemes emerged from the interviews (Figure 2): expectations of youth sport participation, meeting expectations of youth sport participation, and (mis)alignment of cultures.

Expectations of youth sport participation was described as the current youth sport culture as having expectations of money and time to participate in organized sport. (Table 4) Participants described the club and or elite version of sports to be very expensive compared to their interscholastic and/or novice versions. The club and or elite versions of sport are described as more competitive, provide more support from coaches/instructors, and develop better athletes as

compared to the interscholastic and or novice version. It is also described in order participate at these levels families must invest money and time. Theme 1 of expectations of youth sport participation is further supported by the subthemes of money and time (Table 4).

The subtheme of money of the cost of sport was described by participants in this study as sometimes being overpriced depending on the type of sport and its setting whether it was interscholastic, club, travel, and league due to the fees related to each setting, expenses for equipment and gear they would have to purchase yearly, and the expenses related to travel teams. Money was described as an expectation, sacrifice, or something that was perceived as barrier to sport participation for these families (Table 4). Participant 3 specifically described how she as the child had to make the decision for her parents to not have to financially strain themselves for her to participate in club soccer. Her decision to participate only in high school soccer is described as limiting on the level of team she is participating on and the type of coach support she receives as compared to the club team.

Subtheme 2 Time was described as an expectation for sport participation. This was described as time for practices, competitions, and traveling. Time restrictions occurred when the family unit consisted of a single-parent or single-income household due to having to travel far distances for sport and parent work schedules. Time restriction was described by children in this study as balancing school responsibilities, social life, and sport responsibilities (Table 4). Participant 8 describes that they only participate in the high school version of their sport because if he were to double up on a sport with club and high school, "it would've been too much." This is supported by Participant 10 mother and daughter who describe their sport as a huge commitment. Their sport is dance outside of the high school setting. Due to the competitive

nature of their team, Participant 10 mother told her daughter that she will no longer have a social life and this sport would take over their lives.

Meeting expectations of youth sport participation was defined by participants in our study as having a plan of action to participate in sport and meet sport expectations (money and time) (Table 5). Meeting expectations of sport participation was supported by the following three subthemes organization selection, financial, and kinship.

Organization selection was performed by participants as a method of comparing sport settings to ultimately choose which setting aligned best with each of these families and their children. Organization selection was demonstrated when the interscholastic sport or novice team is described as a financially less straining sport compared to the club/travel teams or elite teams. Furthermore, alignment through organization selection was described through culture, diversity, values, and team philosophy (Table 5). Participants 10 and 11 in particular are dancers. Participant 11 mother describes that they selected a dance team that focuses on their Hispanic culture. Participant 10 mother describes that it makes her feel amazing that she could find a team that was all-Hispanic. In doing this, it made her daughter feel included and perform well.

Financial emerged within theme 2 as participants described many methods to minimize the financial expectation of sport participation. This strategy was described in the context of their family unit and in the community through their sport organization (Table 5). The methods used to meet the money expectation of sport were rooted in the participant's culture. From Participant 1 Mother selling ethnic food such as tamales for fundraising or Participant 11 selecting a coach that provided equipment for free to participate in their sport. All of these strategies aligned with the participant's culture and allowed them to participate in their respective sports.

Lastly, kinship referred to the support from family to gain resources and information to aid in youth sport entry and navigating youth sport culture. The subtheme of kinship was rooted in the Hispanic/Latinx family dynamic (Table 5). Participant 4's mother describes this dynamic as an immigrant who married an American man. In doing this, her husband who is familiar with youth sport culture in the United States is able to help her understand the social norms for their daughter as she participates in sport. Furthermore, Participants 5, 8, and 7 all describe older siblings in their families helping them navigate how to successfully participate in sport in the United States through finding resources, teams, and influencing their younger siblings to value sport.

(Mis)alignment of cultures was the final theme of this study. (Mis)alignment of cultures was described by participants as the clashing of the expectations of youth sport participation and Hispanic/Latinx culture. When enough variables in each of these cultures did not align, participants viewed the current youth sport culture as a not being conducive to Hispanic/Latinx youth sport families (Table 6). This was demonstrated by participants reflecting on how they were 1 of very few Hispanic/Latinx athletes on their teams. Reasoning for fewer representation of their race/ethnicity is a consequence of the expectation of money and time and generalized that most Hispanic/Latinx families cannot meet those expectations. Furthermore, favoritism based on race/ethnicity was described by participants. Participant 9 mother and daughter described leaving many teams due to the feeling of not belonging based on their Hispanic/Latinx race/ethnicity.

DISCUSSION

This study focused on the youth sport participation experiences from the perspective of Hispanic/Latinx parents and their high school aged children. The most important finding of this

study was that Hispanic/Latinx youth sport families used aspects of their race/ethnicity to meet expectations of the current youth sport culture. Furthermore, negative consequences such as drop out, not feeling like they belong, and not having fun in their sport occurred when there was enough of a misalignment with both the culture of the child's sport and their Hispanic/Latinx culture. Our study is the first to examine how the current youth sport culture emphasized by sport specialization can impact positive or negative youth sport experiences for Hispanic/Latinx families in the United States.

Parents and their children in our study described the expectations to participate in sport were money and time. This finding is consistent with previous quantitative and qualitative studies suggesting both of these factors are facilitators or barriers to sport participation.⁹³ Literature supporting this finding categorize the child's schedule, parent's schedule and transportation within the time constraint to sport participation.⁹⁴ Within cost are lack of resources, access to good equipment, and transportation as the most frequently listed barrier related to money expectation to sport.⁹⁴ Our study demonstrated that when these two expectations could not be met it could potentially lead to a negative youth sport participation experience and eventually drop out from sport participation altogether. Our findings align with the current pay-to-play culture sport specialization encourages and its negative psychosocial effects it has on youth athletes.⁹⁵ Systematic review conducted by Somerset et al. found these barriers to be exacerbated by the type of sport, poorer backgrounds, single-parent families.⁹⁴ Similarly, Hernandez et al. found that money and time were two of the biggest barriers for low SES youth sport families.¹⁰

Further limitations on sport participation can be attributed to sport specialization in the United States.²⁴ The participants in our study described high rates of time investments to meet

expectation in sport. Six out of 12 participants were classified as highly specialized and described high expectations of money and time to meet their sport participation demands. This expectation may inadvertently pressure a child to specialize or have a negative youth sport experience if they and their family cannot meet the time demand. One of our participants described not meeting the demand of money in club soccer so they had to do the high school version and not feel like they were obtaining the same quality training and coaching as the club athletes. Many studies suggest that high rates of sport specialization are driven largely by trying to obtain a college scholarship or play at higher levels post high school.^{27,56,96,97} The professionalism of sport at an early age can further drive the expectation of money and time parents must invest for their child to participate. Post et al. found that families from higher incomes had higher rates of specialized children.⁵⁶ Families with higher incomes are able to pay for equipment, travel fees, and higher costing sport such as club and elite teams as compared to low income families.²⁸

Outside of sport, researchers have shown that US Hispanic/Latinx families are overrepresented in lower income bracket.⁵⁸ However, an interesting finding of our study is ten out of twelve of our participants met or were above the reported average median household income for 2020. Based on total number of people our participant's household and their total household income, all 12 participants did not classify as low SES based on the 125% to 185% 2021 Census poverty threshold calculations. Most of the participants in our study did not describe the cost of sport to be cumbersome for their family since they were able to meet this expectation with financial strategies, organization selection, and kinship. In contrast to the majority of the participants in our study, in 2016, Hispanics earned 63% as much as whites at the median.⁵⁷ Additionally, more Hispanics (64%) than Whites (40%) had incomes less than \$40,000

and fewer Hispanics (33%) than whites (50%) had incomes from \$40,000 to \$120,00).⁵⁷ Due to this, the general Hispanic/Latinx population could perceive the expectation of money as a greater barrier as compared to White youth sport families. When surveyed, Latino parents cite budget constraints and time restrictions as major reason for foregoing recreational programs.⁹⁸⁻¹⁰⁰ Future studies should aim to focus on the intersection of low income and race/ethnicity and its impact on sport participation.

The families in our study all made a decision to have their child participate in sport and which sport they selected. This was shown to be influenced directly by economic resources, which are necessary to for the cost of sport such as team fees, equipment, and traveling. What is unique for our study is that the Hispanic/Latinx families used their culture to gain financial resources for sport participation. This was demonstrated by selling food and creating side businesses to fundraise for the cost of the sport for their children which supports previous findings in how Hispanic/Latinx populations overcome financial barriers once they immigrate to the United States.^{101,102}

Other families in our study selected particular organizations that aligned with their culture. Ethnicity and generation have been shown to be critical factors in determining sport participation.¹⁰⁰ Various cross-sectional studies cited that Hispanic/Latinx girls were less likely than Black or White girls to play sports.¹⁰³⁻¹⁰⁵ Familial relationships have been reported to be important to the Hispanic/Latinx culture were closely connected to respondent's sport narratives.⁹⁸ Our study found our participant's sport narratives to revolve around sport organization, family support, and feelings of inclusion related to the participant's race and ethnicity. In our study, participants sought out teams that made them feel included by having other teammates and their families identify as Hispanic/Latinx and appreciation toward their

culture by acceptance of the sport itself such as with Floklorico which is rooted in a traditional Mexican folk dancing.^{98,106,107}

In addition, Hispanic/Latinx families were able to rely on their kinship to understand and meet the expectations of youth sport participation. This was demonstrated by one Native-Mexican participant learning what the youth sport cultural norms were in the United States through the help of her white husband who had grown up in the United States and participated in sport himself. Other participants disclosed to us that the child participant in our study was their younger/youngest child. Due to the birth order of the child who was interviewed, they described that their older siblings were the ones to face more barriers to participate in sport such as less number of sports and less time involved in sport. Our study aligned with previous studies citing that older Hispanic/Latinx daughters are the child to take care of the family as compared to older sons.^{98,108} All participants who described an older sibling helping them and their parents navigate the youth sport culture were describing older sisters.

The biggest barrier presented in our study was described by participants as a misalignment of cultures. Participants in our study understood the expectations of what it takes for an adolescent to participate in sport. The catalyst for a negative youth sport experience was rooted in our participant's culture not aligning with the current youth sport culture in the United States. The current youth sport culture supported by high rates of sport specialization exacerbates the need for money and time to participate in sport but also the exclusivity in club sports, hyper-competitiveness, and the lack of diversity in youth sports as well as collegiate sports. These consequences can alienate Hispanic/Latinx youth sport families from feeling included in sport and lead to a negative youth sport experience.^{107,109}

LIMITATIONS AND FUTURE RESEARCH

A few limitations to this study must be acknowledged. First, qualitative research can have biases. The IPA multi-analyst triangulation with an external reviewer attempts to minimize those biases. Second, participants recruitment process was purposeful however, due to the nature of sport participation, the population chosen and is successful in sport participation might not perceive as many barriers as the Hispanic/Latinx population that has dropped out from youth sport participation. Further, the majority of the children in our study were female and from 1 southern state and 1 midwestern state. Future studies should aim to recruit youth that dropped out of sport participation as well as more male representation and from more various states in the United States to better understand potential barriers and facilitators for participation in organized sport. Additionally, we did not ask participants specifically what specific race/ethnicity with Hispanic and or Latinx population. Cultural norms can be different for the various race/ethnicities within the Hispanic/Latinx population. Further, generalizability is not an outcome consistent with assumptions in phenomenology and IPA research. Thus, the findings of this study are intended to represent the subjective experiences of a particular group of participants rather than reflect upon the current state of youth sport culture in the United States. These studies may, however, possess some degree on naturalistic generalizability, which may be reached if Hispanic/Latinx youth sport families who consume the resulting manuscript view findings as recognizable to their own experiences. Future quantitative studies should be conducted to strengthen findings from this study and highlight the importance of minoritized youth sport families in the United States in an effort to promote health and well-being through sport participation.

CONCLUSIONS

Cultural influences are important factors for ensuring sport participation for Hispanic/Latinx families. Align of cultures allows for a more positive youth sport experience. Misalignment of Hispanic/Latinx culture's values rooted in family support and feelings of inclusion related to the participant's race and ethnicity and the current youth sport culture in the United States can limit participation for minoritized families and their children. Thus, future research, programs, and policies hoping to increase equity in sport participation and ensure high quality sport experience need to better understand the cultural influences of not only Hispanic/Latinx culture but other minoritized and under presented cultures in the United States and their relationships to organized youth sport.

ACKNOWLEDGEMENTS

We thank our members of our research team and for their support on this study. We are also incredibly grateful to the Hispanic/Latinx youth sport families who participated in this study for sharing their experiences with us.

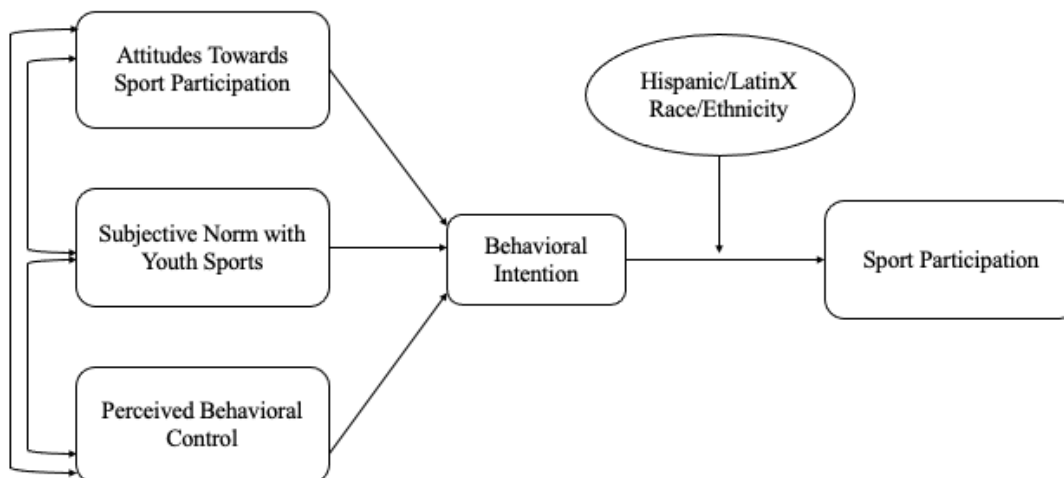


Figure 1. The Theory of Planned Behavior Moderated by Hispanic/Latinx Race/Ethnicity

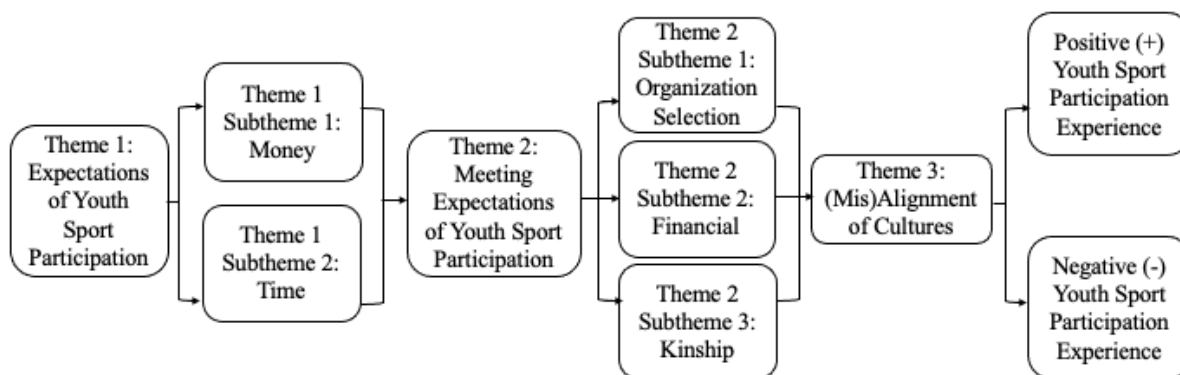


Figure 2. Themes and Subthemes

Table 1. Interview Protocol*	
Introduction	1. Tell me a bit about your child/ tell me about yourself (child).
	A. Grade, age, sex, siblings, etc.

Attitudes	2. You listed the following organized, competitive sport(s) your child participates in and in this setting...what do they (you) like or dislike about those sport(s)?
Refers to the degree which the parent has a favorable and unfavorable evaluation of youth sport participation and sport specialization. Entails consideration of the outcomes of performing the behavior.	A. Tell me how your child (you) got involved in that type or organized sport? (Organized, competitive sports for school team, city league, club team, or travel team?)
	B. Is there anything else that motivates your child (you) to participate in organized sport(s)? /Sport specialize?
	C. Why is (your) _____ sport considered your child's (your) primary sport?
	3. How do you feel about attempting to pursue sport opportunities for your child?
	A. How do you feel one you are successful/not successful in achieving that goal?
	4. Have you seen your child playing sport(s)? How is seeing your child playing make you feel?
	A. If good, can you tell me more about it? Good in what sense?
	5. What is a typical week schedule with organized sport(s) for you and your child?
	6. You listed the following as most and least important aspects of sport for your child (you) on the survey. Could you tell me more?
	A. What are the most and least important aspects of sport for you for your child to participate in organized sport(s) and why?
	B. So, what lead you to do this? /Influenced you?
Subjective norms	8. Who has had the most influence on your experiences involving your child (you) in organized sport(s)? What has been their influence? How have they made the involvement in organized sport(s) of your child (you) easier or more difficult for you?
Refers to an individual's perception of whether significant others approve or disapprove of sport participation and or/sport specialization for their child. It relates to person's beliefs about where peers and people of importance to the parent/child	A. In the context of your family, who has the most influence in your child's participation in organized sport(s)?

think he or she should engage in sport/ sport specialization.	
	B. Has culture: r/e impacted this dynamic?
	9. Your child (you were) was considered would be considered ___ specialized. Do you agree with this?
	A. What do you think is the value in sport specializing or not? (Who has encouraged/discouraged you to sport specialization?)
	B. Reference aware/not aware of sport specialization recommendations
	10. Are you concerned about the risk of injury in youth sports? Could you elaborate on that?
	A. What about your child's sport makes you concerned about risk of injury for your child?
	B. Does your insurance type have an impact on this?
	C. Does culture influence belief on health care system?
	11. About how many of youth athletes receive a college scholarship based on athletic performance. Why do you think that?
	A. How likely your child will receive a college scholarship related to athletic performance. What about your child make this ___ likely?
	B. Has anyone told you the likelihood of your child receiving a college scholarship related to athletic performance? Do you agree/disagree with them? What leads you to believe so?
Perceived competence	12. Are you confident you can locate resources so that your child (you) can be actively involved in organized sport(s) or sport specialize?
Refers to perceived presence of factors that may facilitate or impede participating in organized sport and its relationship to sport specialization. Perceived power contributes to person's perceived behavioral control over each of those factors.	A. What sort of things stop your child from participating in organized sport(s)?
	13. What is most challenging about your experience of involving your child in organized sport(s)/sport specialization?

	14. What is easiest about your experience of involving your child in organized sport(s)/sport specialization?
	15. On an average year how much do you spend on school-related organized competitive sports activity and about how much do you spend on club, travel team, personal coaching...is that cumbersome? Is that normal in comparison to what you know?
Facilitators and intentions	16. Are there any limitations or barriers that affect your ability to enroll your child in organized sport(s)?
Refers to parent and child's perceptions of the ease or difficulty of participating in organized sport (interscholastic, rec, or club).	17. What needs to be done to increase your child's participation in organized sport(s)?
Motivational factors that influence sport participation and sport specialization for the child. How likely are they to participate in sport and sport specialize?	18. Do you or your child (you) have any goals related to their organized sport(s) or primary sport involvement? How do you plan to accomplish these goals?
	19. Closing question: is there anything either of you want to mention/anything that I missed during this interview?

*Items are presented in their original format.

Table 2. Sport Demographics

Participant	Age	Sex of Child	Main Sport	Specialization
1	16	Female	Volleyball	High
2	14	Male	Football	Low
3	17	Female	Soccer	High
4	14	Female	Equestrian	High
5	17	Male	Football	Low
6	15	Female	Swimming	High
7	17	Female	Karate	High
8	17	Male	Football	Low
9	17	Female	Softball	Moderate
10	14	Female	Dance	High
11	16	Female	Dance	Moderate
12	14	Female	Softball	Low

Participant	Location	ADI Decile	ADI National	Parent Race/Ethnicity	Child Race/Ethnicity	Education Level of Parent	THI	Marital Status
1	Texas	8	83	Hispanic/Latinx	Hispanic/Latinx	Associate or 2-year college degree	\$75,001-\$100,000	yes
2	Texas	2	30	Hispanic/Latinx	Some other race or origin or mixed races or origin	Associate or 2-year college degree	\$100,001-\$150,000	yes
3	Texas	3	39	Hispanic/Latinx	Hispanic/Latinx	Less than high school	\$75,001-\$100,000	yes
4	Texas	3	42	Hispanic/Latinx	Hispanic/Latinx	Associate or 2-year college degree	> \$150,001	yes
5	Wisconsin	5	53	Hispanic/Latinx	Hispanic/Latinx	High school diploma or GED	\$50,001 - \$75,000	yes
6	Wisconsin	2	36	Hispanic/Latinx	Hispanic/Latinx	Associate or 2-year college degree	\$75,001-\$100,000	yes
7	Texas	5	60	Hispanic/Latinx	Hispanic/Latinx	Associate or 2-year college degree	\$50,001 - \$75,000	yes
8	California	5	11	Hispanic/Latinx	Hispanic/Latinx	Associate or 2-year college degree	\$75,001 - \$100,000	yes
9	Texas	6	65	Hispanic/Latinx	Hispanic/Latinx	Decline to respond	\$100,001 - \$150,000	yes
10	Texas	4	48	Hispanic/Latinx	Hispanic/Latinx	Associate or 2-year college degree	\$50,001 - \$75,000	no
11	Texas	7	78	Hispanic/Latinx	Hispanic/Latinx	High school diploma or GED	\$25,001 - \$50,000	yes
12	Wisconsin	2	36	Hispanic/Latinx	Some other race or origin or mixed races or origin	Graduate or professional degree	\$75,001 - \$100,000	yes

*Parent Race/ethnicity = Hispanic/Latinx as eligibility requirement

Category	Supporting Quotation
Money	<i>It's almost like you're paying another car payment every month. Then on top of that, you have to pay for your hotel, the gas, food, wherever you go. I mean, it adds up besides the car payment that you make. For example, for us, I can say we pay \$275 a month. –P9</i>

	<i>It's definitely discouraging to see how much people pay to play on a good team. Because people that pay that amount of money have good coaches and they develop good players. And I was never going to ask my parents to pay \$5,000 a year for me to play on a really good team with really good support from coaches and all that. So, I knew that I wasn't going to be on the same level as those kids that played on those teams. –P3</i>
	<i>It can be quite expensive because they go to conventions, and conventions are roughly around \$300. Then when they're learning a new dance, they'll probably bring in a private choreographer, so we have to pay a fee for that and then costumes. Then when it's competition time, we have all these competition fees. And when we have to travel, we have to pay for hotels and everything else that goes on there. –P10</i>
	<i>I always wanted him to go to football camps. It was too expensive, like \$1,200 for a week. I always wanted him to go, him or my older son because his brother played too, but I never could afford it because if we put them both it was more than \$3,000. –P5</i>
	<i>It is a very different world. It is honestly, kind of elitist with how expensive it is. It is understood that this is a big commitment that we were going to make playing this sport because it was going to be a time and financial commitment. –P2</i>
Time	<i>It did at first, when we were joining, and they were giving us our list of this is all the competitions we were going to do and all the traveling that has to be done. Are we ready for this? This is a lot of our time that is going into this. I'm like, "no more social life for you. No more going to friends' parties or anything at that." I go, "this is taking over your life, our life basically." –P10</i>
	<i>My mom would have to be the one to drive me and then basically... that's another reason why I didn't do dance anymore because it was really... there were times where after dance I would just go straight to karate so it would be too much and then... plus freshman year school started getting even harder so trying to maintain my good grades with activities was also equally as challenging. I'm pretty sure that's why I just didn't end up doing dance in the end. –P7</i>
	<i>Doing club sports would have just taken up a lot of time because I would've been in another sport already, like the one I was doing in school. With school sport and the club team outside of school, I just felt that would've been too much. –P8</i>

It's tiring. With the school volleyball season, we go three hours a day every day during season, so sometimes you get burnt out, and you just want a break. That two weeks from school season to club season is really nice, and then you start with the next. –P1

Table 5. Theme 2: Meeting Expectations of Youth Sport Participation

Category	Supporting Quotation
Organization selection	<i>We selected our dance team because they do Folklorico (traditional Mexican dances). You are able to tell a story to the audience through the performance and the beautiful costumes. So, that's very much our culture. My dad is from Oaxaca where Folklorico is mostly danced. It was awesome to have that family background and have my daughter continue it through that organization and learn more about it. If they want to do a dance for a competition, their instructor makes them learn about that dance. Why is it told? What's the background with the costume? –P11</i>
	<i>I went to the YMCA, and I asked them, "How much money do I have to pay for my kids to be in a sport?" They told me, "It depends on what they want to do," and I said, "Which one is the cheaper one?" –P5</i>
	<i>Yeah, it's not cheap, which is why when she was younger and she was primarily in swim, and then we were dabbling in club soccer because that's what was only offered up until sixth grade. Then it was like if you wanted to continue on, she really had to pick one or the other. So, I wasn't as a parent going to make her play in both club sports. I felt like that was too much and also very, very expensive. So, we talked, and she chose to stick with swimming. –P6</i>
	<i>I definitely like club teams more when it comes to that diversity aspect. At school, when I first got there, I only saw one other girl who looked like me, so I became friends with her. It is uncomfortable sometimes, but after I get comfortable with the team, I just look past it. –P1</i>
	<i>It's amazing she can be part of an all-Hispanic team. The girls can get together and do some amazing work on stage. It's great. –P10</i>
Financial	<i>We make T-shirts. We do lots of fundraising. We do tamales once or twice a year, and that can knock out a big chunk of it. I do the bill shuffle. Okay, well I can pay my cell phone bill later because I have to pay this now because it's not an option to move it. It's a certain day every month. I don't have a choice, should I say, for when it comes out. –P1</i>
	<i>One thing that I try to always ask my coach if there's something that we can do, like a scholarship type wise. I always try to get the scholarship because that definitely helps out a lot with the cost. –P5</i>

	<i>Well, the Folklorico dance team that we're on right now is not a financial burden because the teacher provides all the costumes. She was taught old school by her previous teacher that if they're offering you a chance to dance, they're giving you costumes and everything, for you to do it. That, respectfully, when they ask you to dance, to do a performance, you'll do it because they're providing everything for you. –P11</i>
	<i>We've been so lucky and blessed that my husband has his side business by doing decals or printing shirts. It's basically how we have paid for all our three kids' sports. –P9</i>
Kinship	<i>My husband has been in sports since a young age. I came from Mexico where we never did organized sports like that. We played soccer at school, but it wasn't organized, because we didn't live in that big town. It was more composed, like a village almost. So, when my daughter started growing up and participating in sports, none of it seemed normal to me. I would ask my husband, "What do you think of this?" And he's like, "Oh, every kid does that." So that's how he guides me through the culture of what kids do here. –P4</i>
	<i>My older daughter played volleyball in high school. She helped by communicating with the high school coaches and finding scholarships so her brother could play for the high school. I thank God he had this opportunity to play different sports because my daughter never had the opportunity to do much. She was the big sister who helped me raise the younger ones. –P5</i>
	<i>My daughter was an example for my son to be involved in sports. She was our first child to do sports in the United States. So, we learned a lot from those experiences, and it made it easier to get our son involved in so many sports. It was good for them because sport influenced them positively to maintain them concentrated on something positive and help them with their school. –P8</i>
	<i>My older sister was the first one to do sports here (in the United States). She did basketball, cross-country, and all those sports. So, when I started to get interested in sports, it was a lot easier to know the process. –P7</i>

Table 6. Theme 3: (Mis)alignment of Cultures

Category	Supporting Quotation
	<i>No, no, definitely not enough of Hispanics in sports. The #1 thing is that parents need to be supportive to have their kids involved in sport. It has to do with money and time because they are working. Sport is constantly taking them to events out of the city. The Latino community is a culture of constantly working and making ends meet. They do not have that kind of time to dedicate to their children to get involved in sport. The principal excuse is that there is no money or time for sport. –P8</i>

	<p><i>Well, from a financial standpoint, I think club sports are so cost prohibitive. They're so expensive. I think the cost was probably the number one thing because when my older daughter was starting to think about sports, I was still in grad school. Then, when I transitioned to a job, I still didn't have enough money for something like that, especially given that they were going to a private Catholic school. We were putting money into that. From a cultural standpoint, we knew people who had kids in hockey and club volleyball and saw the competitiveness of that environment. It just isn't conducive to how we taught them to get along in sports. –P12</i></p>
	<p><i>I think that, for us, there was something in the culture of some club sports that just didn't mesh with our family in general ... To be honest, there is a culture. Yes, we live in Wisconsin, so the majority is white folks, but there's also a culture of mostly white kids in those sports and feeling a little bit cliquey. Even the parents are cliquey, and so our family did not want to deal with that drama either. –P12</i></p>
	<p><i>We have left some teams because of racial issues. You can see the favoritism. If you don't like that coach, find you another one. I'm sure that you will find the right one. That's what we did. We changed I think three or four teams until finally we find the right one. We've been with this coach for over five years already. –P9</i></p>
	<p><i>There needs to be more promotion of sports in general to the Hispanic and Latino population. From what I see when we go to competition it is mainly promoted to other races and ethnicities. Hispanic and Latinos are competitive, we can be good too. –P10</i></p>

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Secondary School Athletic Trainers' Clinical Management Decisions of Low Socioeconomic Status Patients

CHAPTER THREE

ABSTRACT

Context: There is considerable evidence that patient socioeconomic status (SES) contributes to disparities in health care. For example, SES can influence a physician's clinical management decisions impacting their recommendations on the timing of advanced imaging, testing, and surgical intervention. Athletic trainers (ATs) are uniquely positioned health care professionals who provide direct care with student-athletes who are low SES. However, there is a significant gap in knowledge regarding how a patients' SES influences ATs' clinical management decisions.

Objective: The purpose of this study was to describe secondary school ATs' perceptions of clinical management decisions toward their low SES patients.

Design: Cross-sectional study

Setting: Online survey

Participants: Secondary school ATs who were members of the NATA

Main Outcome Measure(s): An online survey (Qualtrics®, Provo, UT) was distributed to secondary school ATs through the NATA's research survey service. The survey remained open for 6 weeks with reminder emails sent every 2 weeks. ATs were asked about their perceptions of clinical management decisions for their low SES patients (CVI = 0.83 for relevancy). Questions were ranked on a 4-point Likert scale on level of relevance ("not relevant", "slightly relevant", "somewhat relevant", "very relevant") and agreement ("strongly disagree", "disagree", "agree", "strongly agree"). Data were summarized by means and standard deviations (SD), frequencies and proportions (%), and median scores where appropriate.

Results: A total of 380 ATs responded to the survey (years of experience mean=14.9±11.7 years). Most ATs believed that their patient's economic stability (56.7%), health and health care (71.3%), and neighborhood and built environment (59.8%) were relevant (somewhat and very relevant) social determinants of health when providing care. However, only 50.6% of ATs believed their patient's education was relevant when providing care. Most ATs agreed (agreed and strongly agreed) that patient SES impacts referral for advanced care (67.4%) and the reliance on conservative treatment or measures before referral for advanced care (71.2%). ATs identified patient/guardian compliance (70.2%) and type of health insurance (61.5%) as barriers to providing care to low SES patients.

Conclusions: ATs perceived health and health care as the most relevant determinant when providing care to low SES patients. When ATs further considered the SES of patients, they identified all SDOHs as barriers they were ill equipped to navigate as they delivered care and engaged in patient referral.

Word Count: 374

Key words: socioeconomic status, social determinants of health, health disparities, professional development

Key Points:

- Secondary school athletic trainers perceived health and health care as the most relevant social determinant of health when providing care to low SES.
- Most secondary school athletic trainers did not feel prepared from their athletic training education programs to identify, provide care to, or provide comprehensible care to low SES patients.

- Secondary school athletic trainers perceived many barriers relevant to all 5 SDOH to providing care to low SES.

INTRODUCTION

Secondary school athletic trainers (ATs) play a critical role in providing medical services that impact the health and wellbeing of the secondary school community.^{69,110} 15.3 million adolescents attend secondary school and 8 million secondary school students participate in interscholastic sports in the 2018-2019 school year.¹¹¹ 90% of secondary school athletes also report some sort of sports-related injury.¹¹² With nearly half of the secondary school student population in the United States being involved in sports it is crucial to consider the athletic health care they receive. ATs in the secondary school setting are uniquely positioned to serve an integral role in the health care of their student athletes through preventative care treatment, evaluation, primary management, return to sport, immediate care, and emergent situations.¹¹⁰ Due to their unique position in the high school setting, ATs are able to interact with many community stakeholders in sport and athletic health care such as parents, doctors, coaches, administration, and other allied health care providers.⁶⁹

ATs in the secondary school setting must navigate a variety of factors which can impact the standard of care that they provide. These include their patient's socioeconomic status (SES) and social determinants of health (SDOH).¹¹³ SES is a complex social standing within the social determinants of health SDOH. The SDOH are "conditions in the environment where people are born, grow, live, work, play, worship, and age."⁴ The SDOH are conditions or circumstances that are shaped by families and communities and by the distribution of money, power, and resources at global, national and local levels. Inequities of these determinants between groups of people shape how society is organized thus creating hierarchies on the societal level.¹¹⁴ These hierarchies are based on factors such as income, gender, and race which ultimately affects their health and can lead to health disparities we see in the United States.¹¹⁵ Secondary school ATs are in a

position to see many of their patient's SDOH through knowledge of their patient's family's economic stability, neighborhood and physical environment, education level, access to food, community and social context such as support. However, there is no evidence to show how ATs perceive their patient's SES and SDOH and how that can impact clinical decisions for low SES patients.

SES is defined as the social standing or class of an individual or group and is often measured as a combination of income, education and occupation.^{4,19} These three factors of SES are all interrelated with family income setting the precedent for education attainment and occupation outcomes. SES can also encompass a wide range of associated factors such as insurance status, free or reduced-price lunch status, food insecurity, immigration status, and healthy literacy which are important determinants of physical, psychological, and social developments and of inequalities in health related quality of life.^{19,51,116} Low SES status negatively impacts timing of care and clinical outcomes after musculoskeletal injuries.²⁹ For example, low SES patients have anterior cruciate ligament reconstruction (ACLR) surgery delayed by 84 days compared to high SES patients.³⁰ This puts them at risk for further health care disparities such as postoperative complications, decreased range of motion postoperatively, more subsequent re-tears of ACLR and other structures.³⁰ Similar delays are seen with treatment of knee injuries where the odds of getting an appointment with private insurance is approximately 57 times higher than that with Medicaid for adolescents with acute knee injuries.²⁹ These delays are potentially witnessed by ATs as they provide administrative assistance through referrals to their secondary school patients based on their family's insurance or lack thereof. These delays in health care and negative patient outcomes can come from the challenges physicians face when providing care and managing clinical decisions for their low SES patients.

There are many obstacles for the medical care provided in urban areas where there is a high percentage of low SES population.^{84,117} Medical providers serving urban, low SES, minority patients will be confronted with clinical, logistical, and administrative challenges.¹¹⁸ ATs are known to also work in similar locations in the country. Clinician perceptions of patients of low SES have been shown to affect clinical decision making and health care delivery to this population. Providing care to low SES patients has been perceived by clinicians as more challenging due to their patients suffering from greater levels of morbidity, greater psychosocial problems, lower health literacy, lower compliance to the treatment, and not being able to afford certain medication or specialty referrals.^{50,118,4}

Secondary school ATs provide direct care to the pediatric population. Yet, there is a significant gap in knowledge regarding how a patients' SES status influences ATs' clinical management decisions, particularly in the secondary school setting. The purpose of our study was to determine secondary school ATs' perceptions and barriers of providing health care to low SES patient populations. We theorize that ATs will perceive and have similar barriers to physicians when providing care to low SES patients. A secondary purpose of this study was to investigate secondary school ATs' perceptions of preparedness from athletic training programs (ATP) to provide care to low SES patients. We hypothesized that most ATs would not feel prepared by their ATP for clinical management decisions regarding their low SES patient population. This is important because, knowing secondary school ATs' perceptions on how SES affects clinical management decisions can offer insight into the source of the current quality disparities and inform amelioration efforts by highlighting specific challenges to providing high-quality care for their low SES student athletes.

METHODS

Research Design

The study was approved by the Institutional Review Board of The University of Wisconsin-Madison. The overall study design was cross-sectional online survey via Qualtrics (Qualtrics®, Provo, UT). This survey was descriptive in nature and is the first novel attempt to objectively ascertain ATs' knowledge of the SDOH and SES and their perceptions of clinical management decisions in their low SES patients. The survey was distributed to secondary school ATs through the NATA's research survey service. The survey remained open for 6 weeks with reminder emails sent every 2 weeks.

Procedures and Instrumentation

A survey designed to assess AT's perceptions of the SDOH and SES in relation to their clinical management decisions was used (Appendix 1). This survey was designed by three licensed ATs with one having a master's degree in athletic training, one having a master's degree in public health, and the other having a PhD. Non-formalized interviews with six currently practicing secondary school ATs were conducted to advise the PI on survey wording and how satisfactory the survey questions were to answer the research question. After edits to the survey were implemented, a formal content validity process was conducted. A panel of six content-area experts completed the content validity index (CVI) process.¹¹⁹ The panel consisted of five ATs and one MD with specialty in youth sport medicine. The panel had an average of 10 years of licensed clinical experience (range=5-20). The highest degrees obtained by the athletic trainers ranged from a master's degree (N=3) to PhD (N=2), with one athletic trainer in pursuit of their PhD. An item content validity index (CVI) was calculated for the content validity of each

question in the survey with CVI's at or greater than 0.83 being included in the final survey.¹¹⁹ The survey was piloted on 2 groups of ATs in the secondary school setting using a focus group. The survey was divided into 3 sections and included: 1) overview of the study and consent, 2) demographic information and school/employment, 3) perceptions of the SDOH and SES in relation to their clinical management decisions. Section 3 consisted of 4-point Likert scale of level of relevance ("not relevant", slightly relevant", somewhat relevant", "very relevant") and agreement ("strongly disagree", "disagree", "agree", "strongly agree"). The final question on barriers to providing care consisted of a select all that apply with an option to select that there were no barriers. The survey was launched for data collection in July of 2021.

Data Analysis

Data were summarized by means and standard deviations (SD), frequencies and proportions (%), median scores where appropriate. A majority of the results were framed in level of relevance ("not relevant", slightly relevant", somewhat relevant", "very relevant") and agreement ("strongly disagree", "disagree", "agree", "strongly agree").

RESULTS

All potential participants were ATs who are members of the NATA and agreed to be contacted by the NATA to be involved in survey-based research. Inclusion criteria for this study included 1) the participant had selected "yes" to the question, "By clicking 'yes' you consent that you have read and understood the purpose of this study," 2) the participant had to be a practicing secondary school AT at the time of the survey completion, and 3) the participant had to complete the survey in its entirety. The NATA sent out surveys to 7,177 ATs. Of the 7,177 ATs that received the survey, 488 ATs started the survey (6.7% response rate) and 445 ATs completed

part of or all the survey. Of the 445 ATs, one participant did not agree to proceed with the survey and 14 ATs indicated they were not currently practicing secondary school ATs. A total of 430 participants completed 96% of the survey question.

A total of 380 secondary school ATs met all qualifications and completed the survey in its entirety (years of experience mean=14.9±11.7 years) (88% completion rate). Participants and their school demographics, including highest level of education, race/ethnicity, years of ATC clinical experience, secondary school setting, title 1 status of secondary school, free and reduced lunch status of students at their secondary school, and secondary school locale are provided in Tables 7 and 8.

Most ATs believed that their patient's economic stability (56.7%), health and health care (71.3%), and neighborhood and built environment (59.8%) were relevant (somewhat and very relevant) social determinants of health when providing care (Table 9). However, only 50.6% of ATs believed their patient's education and 46.6% of ATs believe their patient's social and community context was relevant when providing care (Table 9).

Most ATs agreed (agreed and strongly agreed) that patient SES impacts referral for advanced care (67.4%) and the reliance on conservative treatment or measures before referral for advanced care (71.2%) (Table 10). However, fewer ATs agreed (agreed and strongly agreed) their patient's SES impacted which doctor to refer them to (48.6%) and their patient's SES impacted how soon a doctor recommends their patient for surgery (44.9%) (Table 10).

Most ATs disagreed (strongly disagreed and disagreed) that their athletic training program (ATP) prepared them on how to identify low SES patients (71.1%), how to provide care to low SES patients (59.2%), and how to make comprehensible care for low SES patients (61%) (Table 11).

The top three barriers to providing care to low SES patients were patient/guardian compliance (70.2%), type of health insurance (61.5%), and home support (60.5%) (Table 12). Time for patient (29.8%), language barrier with patient/guardian (42.3%), and patient/guardian distrust of health care (44.4%) were identified as the as the bottom three barriers to providing care to low SES patients.

DISCUSSION

This study focused on ATs perceptions of SES and SDOH when it pertained to providing care to their low SES patient population. The most important finding of this study was ATs identified health and care as the most relevant SDOH when providing care to low SES patients. However, all five SDOH were identified as part of the clinical management decisions for their low SES patients. For example, the health and health care SDOH consists of health coverage/insurance, provider availability, providers linguistic and cultural competency, and quality of care.¹²⁰ ATs in the secondary school setting interact with each of these factors on a daily basis.¹²¹ This is demonstrated with the scope of practice ATs provide from pre-participation eligibility requiring insurance for student athletes, to interactions with the referral process in the continuum of care for their patients, to seeing diverse populations of students in their secondary schools in the United States.^{69,121-123} A majority of ATs in our study agreed that their patient's SES impacted referral for advanced care and reliance on conservative treatment of measures. A previous study demonstrated the most utilized service for affluent SES schools were strapping services, in average SES schools were modalities, and in disadvantages SES were therapeutic exercises.¹²³ These findings can demonstrate the AT services used in low SES schools try to use less expensive supplies and equipment to uphold a standard of care for their student athletes.

ATs in our study perceive delays in health care and their patient's health insurance as two of the top barriers they encounter with low SES patients. Our findings are consistent with other allied health professionals such as physicians and nurses¹²⁴ which demonstrate that health care providers are more likely to delay diagnostic testing, prescribe more generic medication, and avoid referral to specialty to care for their low SES patients.¹²⁵ However, the majority of ATs (55.2%) in our study disagreed with witnessing doctors delay surgery for their low SES patients. Theoretically, this may speak on the unique role ATs can have with orthopedic surgeons that serve as team doctors for their secondary schools and how this relationship might mitigate delays in surgery for their low SES patients.

ATs also cited patient/guardian compliance and home support as additional barriers to providing care in low SES patients. These findings are interesting in that ATs find all five SDOH relevant to clinical management decisions for their patients. These are determinants are considered within the social and community context of their patients and their families due to family dynamics and responsibilities for each family member can sometimes take priority over rehabilitation sessions and doctor's visits.¹¹³ Patient non-compliance can be mistaken as prioritizing support for other family members such as siblings and elderly relatives or family dynamics of being separated or divorced, blended families, or illness and death in the family affecting their patient's home support.¹²⁶ Patient non-compliance has also been linked with lack of income for resources related to a patient's health care plan as well as an unsafe neighborhood environment, and negative physical environment.¹⁵ Our findings align with previous studies, where people with lower household income are more likely to be perceived as non-compliant.¹²⁷ A low SES parent/guardian might have work conflicts that interfere with management of injuries

an AT may want to provide for their child. While ATs most identify with the health and health care SDOH, they find the other areas impact their care.

Less than half of the ATs surveyed in our study did not rank language barriers or limited English proficiency (LEP) as a major barrier to providing care to low SES patients. Literature supports LEP patients/guardians experience health care disparities related to the quality and safety of medical care.¹²⁸ ATs in our study may have ranked language barriers lower compared to other barriers due to being in the secondary school setting. Secondary schools can provide many resources for LEP students and their families such as translators but these might not be readily available in after school hours when an AT would be providing care at sporting events.¹²⁹ Time for patient may have been ranked low due to secondary school AT's capabilities to interact with all student athletes regardless of their SES. Furthermore, health literacy, their patient/guardian's education level, and distrust of the health care system were also perceived as barriers to providing care to low SES patients. These findings align with similar barriers other health care professionals face when providing care to their low SES patients.¹³⁰ These factors may not rank higher due to secondary school ATs primary interaction to be with the student athletes. ATs in this setting may be accustomed to expecting a lower health literacy and education level from their young patients. Distrust of the health care system may not be as prevalent in a young population that has not had to navigate the health care system on their own.

Understanding the SDOH can help ATs provide better care and better target their patient outreach and engagement efforts by identifying patients who need more community support and social services to overcome barriers to health care.¹⁶ Failure to understand a patient's SDOH and lack of awareness of their importance in health care interactions can result in the hindered ability to provide culturally proficient comprehensive patient-centered care and promote patient health

and well-being.¹²¹ A majority of the ATs in our study indicated they did not feel prepared by their ATP to identify, nor provide care, for their low SES patients. This is similar to findings in other settings such as with family doctors and allied health works not feeling prepared from their respective programs to support their patients.¹²⁴ The Commission on Accreditations of Athletic Training Education recently updated its 2020 Standards for Accreditation of Professional Athletic Training Programs to include the SDOH.¹²¹ In doing this, future generations of ATs can understand their impact on patients and thus influence patient health outcomes positively.

LIMITATIONS AND FUTURE RESEARCH

Our study's cross-sectional design allowed us to better understand secondary school ATs' perceptions of providing care to low SES patient populations. Despite the advantages of a cross-sectional design, we did not specifically ask participants what level of education their athletic training degrees were obtained thus we cannot generalize these findings to a certain level of ATP. Future investigators should see if these findings are consistent with the current master's in athletic training program graduates. Future studies should consider a qualitative methodology to further understand why secondary school ATs perceived the health and health care SDOH as the most relevant determinant as compared to the other four and navigating low SES barriers in providing health care and referral process for advanced care. Qualitative methodology would also allow for understanding of what was provided in AT's ATP and what has been helpful and not useful to them as a clinician in the secondary school setting when providing care to low SES patients.

CONCLUSIONS

ATs perceived health and health care as the most relevant social determinant of health when providing care to low SES patients. Yet, when ATs further considered the SES of their patients, they identified all SDOHs as barriers for their low SES patients. ATs described they did not feel prepared to support their patients in when there were negative consequences of their patient's SDOH and SES. Many other health professionals have indicated not feeling prepared from their health professional programs to navigate barriers related to the SDOH and support their patients. Secondary school ATs are in a unique position to navigate many, if not all, SDOH in their daily practice and improve the health of their adolescent patients. Emphasis in SDOH into professional education such as in the classroom, clinical education, simulations, and interprofessional development can increase awareness to identify the SDOH of their patients. Future research should emphasize how to seamlessly incorporate the SDOH into athletic training programs as well as create resources to support future ATs in navigating the challenges related to providing care to low SES patients.

ACKNOWLEDGEMENTS

We thank our members of our research team and the National Athletic Trainers' Association for their support on this study. We are also incredibly grateful to the secondary school athletic trainers who participated in this study.

Table 7. Participant Demographics

Highest Education	
Bachelor's	103 (27.1)
Master's	249 (65.5)
Clinical Doctorate	9 (2.4)
PhD or EdD	4 (1.1)
Other	15 (3.9)
Race/Ethnicity	
American Indian or Alaskan Native	2 (0.5)
Asian	8 (2.1)
Black or African American	12 (3.2)
Hispanic Latino or Spanish origin	21 (5.5)
Native Hawaiian or Pacific Islander	3 (0.8)
White	326 (86)
Some other race or origin	7 (1.8)
Years ATC	
≤ 4 years	100 (26.3)
5-11 years	94 (24.7)
12-25 years	97 (25.5)
≥ 26 years	89 (23.4)

Data are expressed as n (%).

Table 8. School Demographics

Private school	71 (18.7)
Public school	309 (81.3)
Title 1 school	165 (56.1)
Free lunch eligible students	3016 (83.7)
Reduced lunch eligible students	601 (1.7)
Locale	
City	87 (24.9)
Suburb	126 (36.1)
Town	54 (15.5)
Rural	82 (23.5)
Total number of schools	380 (100)

Data are expressed as n (%).

Table 9. Relevancy of the Social Determinants of Health When Providing Health Care

	Not relevant	Slightly relevant	Somewhat relevant	Very relevant
Economic stability	52 (13.2)	87 (22)	139 (35.2)	117 (29.6)
Education	70 (17.7)	125 (31.6)	134 (33.9)	66 (16.7)
Social and community context	98 (24.9)	112 (28.5)	123 (31.3)	60 (15.3)
Health and health care	33 (8.4)	80 (20.3)	126 (32)	155 (39.3)
Neighborhood and built environment	53 (13.4)	106 (26.8)	137 (34.7)	99 (25.1)

Data are expressed as n (%).

Table 10. Patient's SES Impact on Health and Health Care

	Strongly disagree	Disagree	Agree	Strongly agree
Referral for advanced care	46 (11.9)	80 (20.7)	178 (46)	83 (21.4)
Which doctor to refer	61 (15.8)	138 (35.7)	140 (36.2)	48 (12.4)
Reliance on conservative treatment or measures before referral for advanced care	30 (7.8)	81 (21)	192 (49.7)	83 (21.5)
How soon a doctor recommends patient for surgery	45 (11.7)	168 (43.5)	145 (37.6)	28 (7.3)

Data are expressed as n (%).

Table 11. Athletic Training Program Preparation

	Strongly disagree	Disagree	Agree	Strongly agree
How to identify low SES patients	72 (18.6)	203 (52.5)	94 (24.3)	18 (4.7)
How to provide care to low SES patients	60 (15.5)	169 (43.7)	137 (35.4)	21 (5.4)
How to make comprehensible care for low SES patients	65 (16.8)	171 (44.2)	126 (32.6)	25 (6.5)

Data are expressed as n (%).

Table 12. Barriers in Providing Care to Low SES Patients

	No	Yes
Time for patient	297 (70.2)	126 (29.8)
Type of health insurance	163 (38.5)	260 (61.5)
Language barrier with patient/guardian	244 (57.7)	179 (42.3)
Resources for patient/guardian	230 (54.4)	193 (45.6)
Patient/guardian education	232 (54.8)	191 (45.2)
Patient/guardian compliance	126 (29.8)	297 (70.2)
Patient/guardian distrust of health care	235 (55.6)	188 (44.4)
Delay in health care	186 (44)	237 (56)
Home support	167 (39.5)	256 (60.5)
No barriers	409 (97.4)	11 (2.6)

Data are expressed as n (%).

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Secondary School Athletic Trainers' Navigation of Patient Socioeconomic Status Challenges in Care: A Qualitative Study

CHAPTER FOUR

ABSTRACT

Context: Secondary school ATs are uniquely positioned health care providers and at an optimal public health intersection where they can provide equitable health care to vulnerable low SES adolescents.¹²² ATs are essential in providing a high standard of care which impacts life-long health and physical activity during a critical time such as adolescence. ATs face similar challenges to physicians in treating low SES patients. However, because ATs are in direct contact with patients in the secondary school setting, we believe their challenges and successful strategies in caring for low SES patients may be different compared to previous research done in other medical professions. However, the consequences of low SES population health and health care delivery by ATs has not been explored.

Methods: ATs were asked to share what challenges, if any, they encounter with providing care for their low SES patients and what strategies they find most effective to overcome these challenges. Data were collected via semi-structured audio-recorded interviews and reflective field notes. Interviews were transcribed and analyzed using a four step, interpretative phenomenological analysis (IPA) guided theme development. Data saturation was met, and sample size aligned with other IPA studies. Trustworthiness and credibility were established with research triangulation and Yardley's four principles for assessing quality.

Results: Three interrelated themes and subsequent subthemes emerged from the qualitative interviews (Figure 3): (a) mechanisms for identifying SES, (b) impact of SES on care, and (c) navigating SES challenges in care. ATs described several strategies to identify and support low SES patients; however, their preparation through professional education varied. Many ATs

indicated specific clinical experiences helped them learn about the impact of patient SES.

Participants noted the need to navigate barriers with the health care system through in-house care, which had its own challenges. Their role as a liaison within the health care system was dependent upon establishing trust and rapport with both patients and patient support systems.

Conclusions: When ATs further considered the SES of patients, they identified many barriers they were unprepared from their ATP to navigate as they delivered care and engaged in patient referral. ATs described many strategies that were gained through their ATP clinical education and ATC clinical experiences to overcome barriers to health care related to their patient's SES. ATs have the potential to decrease health disparities through their role as a liaison and advocate for their low SES patients.

Word Count: 393

Key words: socioeconomic status, social determinants of health, health disparities, professional development

Key Points:

- Secondary school athletic trainers described their ATP clinical education was crucial for exposure to low SES patient care.
- Secondary school athletic trainers had many unique strategies to the athletic training profession to navigate SES challenges of their patients such as acting as a liaison among youth sport stakeholders and health care professionals and developing rapport with their low SES patients/guardians.

INTRODUCTION

There is substantial evidence that socioeconomic status (SES) affects individual's health outcomes and the health care they receive. Some examples of health disparities for the low SES population include worse self-reported health, lower life expectancy, and suffer from more chronic conditions, and have limited access to health care as compared to high SES populations.^{17,130} Previous research has demonstrated that compared with other patients, physicians' perceptions of low SES patients has impacted clinical decisions.^{50,125} Physicians accommodate their management plan to suit those with financial difficulties, public/no insurance, and lower health literacy in attempt to aid low SES patients.⁵⁰ However, these changes can inadvertently lead to patients receiving less than ideal or non-standard treatment such as a less aggressive management and/or postponing testing, more generic medications, and avoiding referral to specialty care which leads to worse outcomes.^{17,50,51,125} Many of these less than ideal clinical decisions leave physicians feeling helpless and frustrated when facing with the complexity of SES and its intertwined social determinants of health of their patients.¹³⁰

The field of medicine has historically operated under a "downstream" approach paradigm. Meaning, many individuals do not receive care until there is a disease or injury that has occurred demonstrating only a secondary or tertiary level of prevention.^{13,16} However, this approach has not proven to be effective with patients who are of low SES due to delayed interventions and access to health care. Due to the strong evidence of the negative impact of low SES has on health and health there is a public health priority in the health care system to reduce disparities through an "upstream" approach through a primary level of prevention.¹⁶ Physicians and many other allied health professionals already engage in a wide range of clinical preventative practices with the aim of preventing disease and promoting lifelong health.^{124,130}

Specifically, to athletic trainers (ATs), the health care they provide is in the tertiary level of prevention through rehabilitation and return to sport, secondary level of prevention by evaluation and diagnosis of injuries and medical conditions, and primary level of prevention through pre-rehabilitation program and set protocols for sport participation to mitigate injuries or medical condition from occurring.^{12,16,122}

Secondary school ATs are uniquely positioned health care providers and at an optimal public health intersection where they can provide equitable health care to vulnerable low SES adolescents.¹²² ATs are essential in providing a high standard of care which impacts life-long health and physical activity during a critical time such as adolescence. However, the consequences of low SES population health and health care delivery by ATs has not been explored. ATs provide direct care to a significant number of low SES students attending public secondary schools.¹³¹ Post et al. observed that nearly 95% of all secondary schools in their study used AT health care services at some capacity such as medical coverage and preventative services.¹³² For low SES student athletes, ATs in the secondary school setting might be one of their primary forms of accessible health care.

Hernandez et al. demonstrated ATs face similar challenges to physicians in treating low SES patients.¹³³ Hernandez et al. observed that many ATs perceived type of insurance, patient guardian compliance, and their patient's home support as the top three barriers to providing care to the low SES adolescent patient population.¹³³ These findings show that ATs face similar shortcomings alongside physicians when providing care to their low SES patients once advanced orthopedic consultation, imaging, advanced testing are needed.¹³³ However, because ATs are in direct contact with patients in the secondary school setting, the challenges and strategies in caring for low SES patients may be different compared to previous research done in other

medical professions. Therefore, the purpose of our study was to explore the strategies secondary school ATs implement to overcome the challenges related to providing care to the low SES population. Furthermore, we will investigate how AT's education and clinical experiences prepared them to overcome these barriers they may face when providing care to low SES patients. This is important because understanding current strategies or challenges to overcome barriers related to low SES patient care can help prepare current and future athletic trainers in the secondary school setting to uphold a standard of care and consider the social determinants of health (SDOH) of their patients.

METHODS

Research Design

To further elucidate an understanding of ATs clinical management decisions toward their low SES student athletes, this study utilized an interpretative phenomenological analysis (IPA) research approach.⁷⁶ This qualitative research approach has theoretical roots drawn from phenomenology, hermeneutics, and idiography. IPA represents the phenomenological method in that it is primarily concerned with examining each individual's experiential account versus an objective description of an event. IPA's roots in hermeneutics is demonstrated from this research approach being an interpretative endeavor, where the researchers "make sense of the participant making sense" of their embodied experiences as a secondary school AT providing care for low SES individuals.¹³⁴ Lastly, IPA is idiographic through its concern with understanding the experience of each individual participant in detail.⁷⁹ The goal of this qualitative inquiry was to distinguish the experiences and extricate emergent themes and patterns to enrich the understanding of the role of a secondary school AT providing care to low SES student athletes.

The University of Wisconsin Institutional Review Board reviewed and approved the qualitative study protocols.

Procedures and Instrumentation

A specific qualitative interview protocol was developed (Table 13). Due to the lack of a pre-existing instrument, the research team developed an interview protocol guided by the aims research questions and survey from Hernandez et al.¹³³ The primary research questions included the following: 1) What are, if any, the challenges secondary school ATs face when providing care to their low SES student athletes? 2) Under what patient circumstances, if any, do secondary school ATs encounter difficulty with providing care for their low SES student athletes? 3) What strategies do secondary school ATs find most effective when providing care for their low SES student athletes?

The semi-structured interview protocol was developed to include 11 open-ended questions pertaining to the participants' experiences, challenges, and strategies with providing care for their low SES student athletes. The semi-structured nature of the interview script allows for flexibility to ask clarifying questions that could potentially lead to new topics not previously addressed. When the interview protocol was developed, it was reviewed by content experts to ensure face validity. Prior to the commencement of the data collection, the interview protocol was pilot tested with 3 individuals who meet the inclusion criteria of being a secondary school AT, but who were not participants during data collection. The purpose of these pilot interviews was to prepare the interviewer (PI) and confirm the comprehensiveness of the interview script. Based on the pilot interviews and participant feedback, the interview questions were recorded and/or modified. To ensure consistency across interviews, the PI conducted all the Zoom

interviews for this aim. Due to the census sampling of the survey from the initial study¹³³, participants in aim 2 could come from all over the US. After completing the survey of the initial study conducted by Hernandez et al.¹³³, participants were asked to provide their email address if they wanted to participate in a future qualitative inquiry. An email explaining the purpose of the qualitative portion and an invitation to participate in the study were sent to all those individuals who expressed interest. Voluntary written consent was implied when interested individuals respond to the researcher and indicate that they want to participate. When the individual agreed to participate, a 60-minute interview was scheduled. Prior to the start of each interview, the participant was asked to provide verbal consent for the interview to be digitally recorded via Zoom. At the time, the PI identified any biases by explicitly publicizing their positionality to the participant. Once the interview was complete, audio was extracted and sent to a third-party transcription service. Transcription of the interviews were sent to the participant to ensure validity of the data through member checking. In member checking, the participant was allowed to review their transcript to confirm the data was transcribed correctly and allow for any clarification or removal of data.⁹¹ Each interview was blinded and participants were given a pseudonym.

Participants and Sampling

From the initial cross-sectional survey from Hernandez et al.¹³³, 139 secondary school ATs (37% of the study population) expressed interest in completing a follow-up interview with the research team. Due to the exploratory nature of qualitative research and IPA, approximately 12 participants were needed to reach data saturation.^{76,134,135} Data saturation occurred when the interviewer no longer obtains new information from the participants and sees a redundancy in the

data.^{52,77,81} Participants demographics, including highest level of education, race/ethnicity, years of AT clinical experience, secondary school setting, title 1 status, school locale, and pseudonyms are provided in Table 14.

Data Analysis

Data were analyzed thematically using a four-step IPA analytical process.^{77,90} The objective of this process was to capture and present the results in the form of participants' embodied experiences. In the first step, the investigators read and reread and/or will listen to each participant transcript interview and related field notes several times to develop a deep understanding and familiarity with each participant and implemented multiple-analyst triangulation.¹³⁵ While reading and rereading and/or listening, the investigators will note items of interest and early interpretative commentary in the transcripts and field notes in the form of descriptive and exploratory comments. Second, the investigators reduced transcripts, reflective notes, and descriptive exploratory comments associated with each case into emergent experiential grounded themes and met to compare notes and come to consensus. During this meeting, the team created the initial codebook by discussing their respective themes and conceptualizing the core ideas. At this stage, themes will reflect both the participant's words as well as the authors' interpretation of those words. The codebook was audited by an external reviewer and the consensus codebook was confirmed.¹³⁶ The third step, emergent themes were compared within each participant's documents to form a set of inductive clusters or related themes. Throughout this process, all steps were completed for each participant's data independently at the case level. After thematic clusters are identified at the case level, the final step was to search for patterns and connections across participants through constant comparison.

The investigators reviewed the themes with the rest of the research team to ensure that they are in line with the purpose and framework of the study. Thematic clusters that were considered in line with the purpose and framework of the study were summarized and presented as results.

Yardley's four principles for assessing the quality of the qualitative research for use in IPA studies were followed to evaluate this research study.^{79,90} These four principles include (a) sensitivity to context, (b) commitment and rigor, (c) transparency and coherence, and (d) impact and importance. Sensitivity to context were considered by the principal investigator explicitly publicizing their positionality as a researcher, certified and licensed AT, and a previous low SES youth athlete to participants to uncover any potential biases during the interviews. The participants' voices were demonstrated using an abundant number of verbatim transcript quotes in the results to allow readers to check interpretations. Commitment was supported by inviting participants to review their original transcriptions to correct any misrepresentations, elaborate, or delete content if desired. Participants were not asked to review interpretations of themes as this is incongruent to the generations of data. Rigor or the completeness of the data collection and analysis were supported by utilizing an interview guide that was developed by existing literature in physician clinical decision management and focus on the AT secondary school setting.^{50,137} Transparency was achieved through explicitly describing the research process (recruitment, interview, transcription, and analytic procedure, accounting for research positionality, reflexivity, and bias). Coherence between the research questions and research approach were supported by the value of phenomenological research in explicating lived experiences of the participants in this study. Lastly, impact and importance of this qualitative research was achieved in the ability of authors to communicate the content as clinical applicable and useful. This impact and importance were ultimately judged by the readers consuming this study.^{90,92}

RESULTS

Three interrelated themes and subsequent subthemes emerged from the interviews (Figure 3): mechanisms for identifying patient SES, impact of SES on care, and navigating SES challenges in care.

Mechanisms for identifying SES describes how participants define SES through characteristics and assumptions of the low and high SES populations (Table 15). These definitions come from participant's lived experience with low SES population and can be biased based on these experiences. Within the mechanisms for identifying SES theme, ATs described several strategies to identify low SES patients at the secondary school which was defined as a plan, method, or series of maneuvers for obtaining a classification of a person's SES. This was displayed through methods of observation, using their patient's insurance status, and communicating with youth sport stake holders and their patients. However, their preparation through professional education varied. Preparation was defined as reflection on the AT's athletic training program (ATP) (classroom and/or clinical) and how it prepared these secondary school ATs to identify low SES patients. (Table 15).

Impact of SES on care was defined as an obstacle that prevents progress in the health care delivered to low SES students (Table 16). This theme was further supported by barriers to in-house care which was defined as barriers to health care that was provided in the athletic training high school setting and provided by the athletic trainer. This was described through limitations based on location of the secondary school impacting resources for providing care to student athletes, athlete's financial limitations impacting appropriate equipment for sport participation, language barriers of parent/guardian, and non-compliant patient/guardian due to household dynamic (Table 16).

Another subtheme that emerged in the impact of SES on care was the barriers to health care system which was defined as lack of insurance or limited option to health care services through a public insurance, evaluation from doctors, and time to surgery. This was described by participants as their low SES patient's geographic location impacting their built environment such as the quality of hospitals and clinics accessible, transportation and insurance limitation on access to health care, and institutional distrust of the health care system (Table 16).

Participants noted the need to navigate SES challenges in care, which was defined as a plan of action, methods, use of resources to achieve a certain desired health care goal for their low SES patients (Table 17). This theme is further supported by subthemes of (1) liaison, (2) developing rapport (3) and athletic training program (ATP) experiences. Liaison is defined as a health care provider who works closely with doctors, health insurance administration, school administration, youth sport parents, and community stakeholders. The role of liaison was described by participants as a method to avoid delays in health care and finding resources and advocating for their low SES patients (Table 17). Developing rapport not only included the relationship as a health care liaison but also stresses the importance of developing relationships over time with the students and their parents/guardians to gain their trust as a health care provider (Table 17).

ATP experiences for navigating SES challenges in care is a reflection on the AT's ATP (classroom and/or clinical education) and how it prepared these secondary school ATs to provide care for their low SES patients. Many ATs indicated specific clinical experiences in low SES settings that helped them learn about the impact of patient SES and how to navigate the SES challenges in clinical management decisions. These low SES clinical secondary school sites were

described as valuable for ATs who are currently in the secondary school setting as compared to only having a collegiate sport setting as their clinical site through their ATP (Table 17).

DISCUSSION

This study focused on secondary school ATs experiences with providing care to the low SES patient population. Our study follows up on previous study focused on describing secondary school ATs perceptions of the SDOH and how their patient's SES can impact their clinical management decision when it pertained to referral for advanced care.¹³³ Our study allowed us to explore valuable information based on clinical experiences as certified ATs providing care to low SES patients in the secondary school setting. The most important finding of this study was that ATs experience many challenges with providing care to low SES patients in the secondary school setting. In addition, our study demonstrated that ATs face similar challenges to physicians in treating low SES patients.^{50,125,138} However, because ATs are in direct contact with patients in the secondary school setting, their strategies in caring for low SES were different compared to previous research done in other medical professions. Literature has demonstrated that the SDOH influence patient health and health care.^{15,18,115} The ATs in our study were able to reduce the influence of the SDOH on their patients through awareness of their impact on health outcomes and their strategies to intervene and navigate the challenges associated with their low SES patients. ATs need to be more aware of the SDOH due to its complexity of rarely being a single negative SDOH negatively impacting health, especially in the lives of their low SES patients.^{115,121} Our study is the first to our knowledge to provide qualitative findings on secondary school ATs perceptions, challenges, and most importantly, strategies of navigating clinical care in their low SES patient populations.

Mechanisms for Identifying Socioeconomic Status

Understanding the SDOH can help ATs better target their patient outreach and engagement efforts by identifying patients who need more community support and social services to overcome barriers to health care.¹⁶ The first step in addressing hidden socioeconomic issues as a health care provider is identifying potential social challenges of their patients in a sensitive and culturally acceptable and caring way.¹³⁰ There are a growing number of clinical tools that have been created to help health care providers ask their patients about social issues such as lack of employment, food insecurity, discrimination, taboo topics such as abuse and trauma, and other issues such as low health literacy, legal or immigration status, and distrust of the health care system but none of these tools have been validated for the secondary school setting or with adolescents.¹³⁹⁻¹⁴² ATs in our study relied on many self-taught methods of identifying low SES patients in their secondary school setting. Particularly with observation, ATs relied on various aspects of the social determinants of health (SDOH) to indicate a patient's SES. The SDOH are defined as the environments where people grow, work, and live and the broader set of forces and systems that influence their lives.¹⁵ These forces can include political and economic policies and systems, social policies and norms, and societal institutions. On the individual level, the SDOH appear as housing, employment status, and working conditions.¹¹⁵

Secondary school ATs are in a unique position in which they are able to see an intersection of the SODH in their adolescent patient population. In the case of our participants, ATs were able to identify the SES of their patients' strategies they learned through ATC experience or through their clinical education in their ATP. These strategies revolved around documentation of their patient's insurance status particularly in pre-participation examinations,

with public or non-insured patients being associated with low SES and health care disparities. Furthermore, ATs were able to use their observation skills by noting what method of transportation their patient took to get home after school. Specifically with patients were lacked transportation or had to use public transportation as compared to their more affluent peers.

ATs also used their skill set as a liaison to have conversations with youth sport stakeholders or develop rapport with the patient themselves to identify SDOH of patients. The key indicators for these ATs were based on their patient's housing and its geographic location, free-reduced lunch status, parent/guardian employment status and marital status which have all been shown to be associated with low SES and health and health care disparities.¹⁶ Failure to evaluate a patient's SDOH and lack of awareness of their importance in health care interactions can result in the hindered ability to provide culturally proficient comprehensive patient-centered care and promote patient health and well-being.¹²¹ ATs in our study stressed the need to identify their patient's social challenges and SES in a sensitive in caring way to provide an upstream health care approach. In a study involving a survey of patient perceptions on health care, more than 40% of patients reported that their family doctor was unaware of their struggles related to the SES and SDOH.¹⁴³ Therefore, recent clinical guidance has encouraged health care professionals to have an augmented awareness to of clinicals flags and patient cues through observation as well as incorporate social history questions into the patient encounters.¹³⁰ Previous studies have shown that physicians that know how to ask about their patient's SDOH are more likely to report helping their patients through these issues.¹²⁴

Despite the need for evaluation and awareness of the SDOH, the majority of the ATs in our study indicated they did not feel prepared by their ATP to identify low SES patients. ATs reflected that there was no formal classroom education about the SDOH but that some ATs were

able to learn about the impact of the SDOH on patient health through their clinical education. This is a similar feeling for other clinicians across various health professions.¹¹⁵ In a study involving family doctors and nurse practitioners, 88% of participants agreed that health care workers are at the frontline to address underlying social issues of their patients, yet only one-third had specific ways of asking their patients about these potentially sensitive topics.¹²⁴ There is evidence that compassion and empathy allows the development of rapport with patients to identify social issues and SES challenges, yielding more accurate diagnosis and plan of care.^{124,130,141} For example, a simple screening tool developed by Brcic et al. asked patients “do you ever have difficulty making ends meet at the end of the month?” was found to be 98% sensitive and 64% specific for identifying their patient’s SES based on living below the poverty line.¹⁴² Future research should investigate how these tools function for the secondary school setting and ATs. Integrating crucial SES information into medical record can be helpful in ensuring that athletic trainers and secondary school youth sport stakeholders can take these into considerations when developing a plan of care. Furthermore, the Commission on Accreditations of Athletic Training Education recently updated its 2020 Standards for Accreditation of Professional Athletic Training Programs to include the SDOH.¹²¹ In doing this, future generations of ATs can understand their impact on patients and thus influence patient health outcomes positively.

Impact of Socioeconomic Status on Care

Secondary school ATs in our study shared many experiences where they witnessed the impact of SES on the care they delivered or referred for their patient. Lower SES has been

associated with less access to orthopedic physician appointments based on insurance status, longer wait times, and poorer outcomes for elective procedures.³⁰ Hernandez et al. demonstrated that ATs face many of the same shortcomings as physicians. This may be due to these perceptions highlighting care that is provided when having to access advanced care such as imaging and surgeries.¹³³ ATs also indicated on a cross-section study to rely more on conservative care for their low SES patients.¹³³ A unique aspect of the AT profession is that ATs not only witness potential health care disparities of patients when there is a need to access the health care system but there are barriers to delivery of health care that occur within their own secondary school athletic training rooms. Many ATs stated that in the beginning of their AT careers they would not realize a patient's SES until the evaluation or referral process and sometimes if they were lucky, during the pre-participation examination documents. Once an AT was able to identify a low SES patient this allowed them to have awareness of the complex and interrelated SDOH conditions that impacts their patients. ATs in our study described many experiences of clinical decision barriers related to their patient's SES through patient interactions in in-house care (in the secondary school) and having to access the health care system. Many of these barriers to health care were directly related to their patient and/or patient's parent/guardian's health literacy, primary language, transportation, education level, employment status, income and wealth, housing, public safety, food security, neighborhood environment, and social environment.¹¹⁴ Furthermore, ATs in low SES secondary schools primarily driven by geographic location in rural areas described limited resources in their athletic training rooms and further distances from stores, hospitals, and clinics that would have medical resources for them to provide care to all of their patients. These limitations based on school SES aligns with a previous study that identified the differences reported in AT care were related to costs with strapping and modalities with more

affluent secondary school having access to STIM and ultrasound machines compared to less affluent schools.¹²³ Future studies should investigate the continuum of care for low SES schools impacted by rural settings versus low SES school in higher urbanized areas that might have more opportunities to lessen the negative impact of low SES by accessing advanced care and resources for their AT rooms.

Navigating Socioeconomic Status Challenges in Care

Once a low SES patient was identified, referral for advanced care was impacted and reliance on conservative treatment or measures before referral for advanced care was preferred as described by ATs in our study. This might demonstrate the nature of “in-house” medical care the AT profession is prepared to provide such as acute/sub-acute, chronic, preventative and emergency medical care within our scope of practice. However, the type of “in-house” care of each of these domains are affected by the SES of their secondary school. A previous study demonstrated the most utilized service for affluent SES schools were strapping services, in average SES schools were modalities, and in disadvantages SES were therapeutic exercises.¹²³ Our findings continue to strengthen the AT services characteristics toward low SES populations.

What was unique for the initial cross-sectional study conducted by Hernandez et al. was that ATs neither disagree or agree on how low SES impacts which doctor to refer their patient to and how soon the doctor recommends their patient for surgery.¹³³ When interviewed, ATs explained that their skill set as a liaison allowed them to make relationships with doctors who would be willing to see their low SES patients for free, at sooner times, and provide equitable health care. Furthermore, ATs in our study were able to act as a liaison by connecting their patient and their parent/guardian with resources for public or state insurance, refugee services,

language translation services, free-reduced lunch applications, and equipment for safe sport participation and return to sport. Finding these resources for their patient was done so by collaboration and networking with coaches, school administration, community stakeholders, local hospitals, doctors, nurses, and other health care professionals. Partnerships with multistakeholder such a community groups, public health and local leaders have been successful in improving individual and population health and health equity.^{17,130}

Developing rapport was a crucial component of providing patient-centered that ATs described in our study. This was implemented by ATs having conversations with their patients to build trust and then act as a resource for their patient and their family. Furthermore, ATs were able to provide personalized care and continuous follow up for their patients, especially for those that do not speak English as a first language or have difficulty with health literacy. The interventions implemented at the patient level by the secondary school ATs all demonstrate effective methods of positively impacting delivery of health care and reduction of health disparities.^{13,16,144}

Our study demonstrated that ATs felt unprepared from their ATP to overcome many of the barriers associated with low SES patients and their SODH unless they were able to have a clinical site that exposed them to low SES patient-centered care. Many ATs spoke on these clinical sites as tremendously impactful and making them aware of the SODH related to low SES patients. They were able to learn from preceptors who knew how to navigate these challenges in low SES patient care through their experiences. Other ATs described that having awareness and knowledge of strategies to overcome these barriers through the classroom or clinical setting in their ATP could have helped them feel more prepared as compared to only being in a collegiate setting where their patient population does not have as many barriers to health care. This aligns

with information from the Education Longitudinal Study demonstrating students from the most privileged backgrounds were more than three times as likely to be a college athlete as those from disadvantaged backgrounds.¹⁴⁵ Having college athletics as the primary method of clinical education for MSAT students can hinder understanding of the impact of low SES on clinical care and how to navigate it.

Unfortunately, it is not as simple to ask of ATP clinical coordinators to have low SES secondary schools as clinical sites. As of 2015, only 37% of public secondary schools in the U.S. have a full-time AT.¹⁴⁶ The presence of an employed AT on-site is negatively impacted by the median household income and percentage of free-reduced lunch students of school.¹³² Barter et al. identified significant differences in public secondary school SES and AT services, with secondary schools of lower SES having less access to ATs and the care they provide.¹⁴⁷ Similarly, Robison et al. identified that in schools that employ an AT, schools in disadvantaged SES communities reported lower rates of contact frequencies for injury related care such as less AT room visit days/injury, less AT services/injury, and less AT services/AT room visit days.¹²³ Without an AT preceptor as a contact at a low SES school, it would make it difficult to provide clinical education that exposed AT students to the SDOH. This shows the need for ATP to integrate these concepts of the SDOH into their education programs through clinical case studies, patient simulations, understanding of health statistics, local community programs, legislations, health literacy and language barrier resources.^{121,147,148}

LIMITATIONS AND FUTURE RESEARCH

Research, particularly qualitative research, has inherent biases; however, the IPA and multiple-analyst triangulation with an external reviewer tries to minimize those biases by

requiring consensus in the developing codebook at all 4 steps of the IPA process and implementing Yardley's principles.⁹⁰ Our findings speak to the secondary school ATs' perceptions, challenges, and strategies of navigating clinical care in their low SES patient populations; therefore, these findings cannot be generalized to other settings. We believe our work provides the foundation for future researchers to examine ATs' perception, challenges, and strategies of navigating low SES clinical care in other settings.

Lastly, participants volunteered for this study. Of these 12 participants the majority were mainly white race/ethnicity and from public school settings. Although the 12 ATs were chosen at random out of the 139 ATs that volunteered, self-selection may have indicated certain assumptions and bias toward providing care to low SES patients.

CONCLUSIONS

Our study demonstrated that secondary school ATs are well-positioned to support and advocate for their low SES patients dealing with SDOH challenges to reduce health disparities. Our study makes evident the impact ATs have on low SES patient health care at the patient level, practice level, and community level. Despite being well-positioned, ATs described initially in their careers to be ill-equipped from their ATP to navigate SES challenges as they delivered care, engaged in patient in-house care, and accessed the health care system such as with referral and advanced imaging. ATs were able to lean on their clinical education from their ATP and accumulated experience as a certified AT to provide a high standard of care. MSAT programs should emphasize classroom instruction on the SDOH, clinical education in low SES settings, when possible, low SES patient simulations, and collaboration with other health care professions to best prepare future generations of ATs in the secondary school setting.

ACKNOWLEDGEMENTS

We thank our members of our research team and the National Athletic Trainers' Association for their support on this study. We are also incredibly grateful to the secondary school athletic trainers who participated in this study for sharing their experiences with us.

Table 13. Interview Protocol*

-
1. To begin, tell me about your background as an AT.
 2. What is your definition of a low SES person?
 3. Have you ever found yourself making assumptions about your patients because of their SES? Tell me more about that.
 4. In your secondary school of employment, how do you know which student athletes are of low SES? At what time point do you know their SES? How did you learn about that information?
 5. What experience, if any, do you have in providing care to patients who are of low SES? In what ways, in any, have those experiences changed how you view low SES patients?
 6. In what ways, if any, does your experience in providing care to low SES patients affect your clinical decisions as an AT? Further probe with how this changes once the patient needs advanced care/AT needs to work alongside physician
 7. In what ways, if any, does your experience in providing care to low SES patients affect your workload? Further probe: Does this mean more in house-care or a more conservative care plan?
 8. What are, if any, the challenges you have faced in providing care to low SES student athletes? Further probe: How do these challenges make you feel?
 9. When providing health care to low SES student athletes, what strategies do you feel have worked best for providing a high standard of care? Further probe: Why do you feel those strategies are successful?
 10. What are the biggest barriers, if any, your low SES student athletes face when in the health care system?
 11. In what ways, if any, did your ATP prepare you to provide care for low SES patient population?
 12. Is there anything else you would like to share about providing care to low SES student athletes in the secondary school setting?
-

*Items are presented in their original format. Abbreviations: AT= athletic trainer, SES= socioeconomic status, ATP= athletic training program

Table 14. Participant Demographics

Pseudonym	Sex	School Location	School Setting	Title 1 School	Highest Level of Education	Years of Clinical Experience	Race/Ethnicity
1	Male	Illinois	Private	No	Master's	30	White
2	Male	Pennsylvania	Public	Yes	Master's	3	White
3	Male	Pennsylvania	Private	No	Master's	6	Hispanic, Latino, or Spanish Origin
4	Female	California	Public	No	Master's	19	Hispanic, Latino, or Spanish Origin
5	Female	Kansas	Public	Yes	Master's	11	White
6	Female	Arizona	Public	Yes	Master's	28	White
7	Female	Pennsylvania	Public	Yes	Master's	7	White
8	Female	Idaho	Public	Yes	Master's	6	White
9	Female	Arizona	Public	Yes	Bachelor's	3	White
10	Female	Indiana	Public	Yes	Bachelor's	8	White
11	Female	Indiana	Public	Yes	Master's	29	White
12	Female	Virginia	Public	No	Master's	4	White

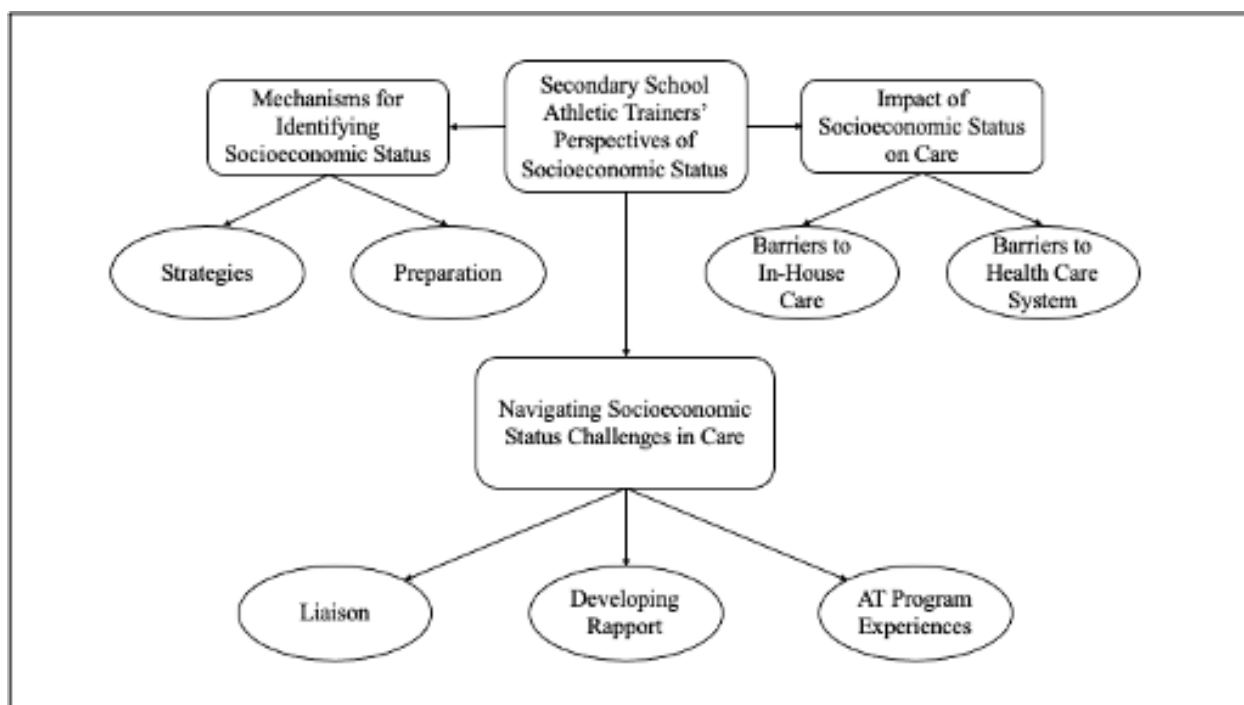


Figure 3. Secondary School Athletic Trainers' Perspective of Socioeconomic Status Themes and Subthemes

Table 15. Mechanisms for Identifying Socioeconomic Status

Category	Supporting Quotation
Strategies	<p><i>"Because you got a kid that's got a \$50,000 souped out Jeep Cherokee driving in and you got another one, that's got a small convertible that you can hear the muffler rattling or the kids that are walking home. And it's not walking because it's close, they're just walking because that's the transportation." – P1</i></p> <p><i>"My biggest thing is when I can look at their physicals and I see that their insurance is either Medicaid or no insurance, or the parents will sometimes disclose to me, "we don't have insurance, we can't afford to go to physical therapy, can we do our rehab with you?" So, it's a combination of that. Either seeing it on the documents or the parents of the kids disclosing it to me." – P10</i></p> <p><i>"I have conversations with coaches, teachers, my athletic director, et cetera, at the beginning of the school year, particularly for the incoming students, because the ones who are sophomores, juniors, seniors, I usually have had before, and I know them. So, I usually have conversations with those other adults about the students, and that's typically where I get my information on their socioeconomic status." – P8</i></p>
Preparation	<p><i>"Most of the time the kids are forthcoming. "Like, yeah, I live in Chula Vista, which is really far away or yeah, my parents are working two jobs, or I have five siblings and my parents are working two jobs." So, it's kind of what other information I can gather from them without directly asking." – P4</i></p> <p><i>"I probably got a better eye opener in my teaching education program because I was assigned to a low-income elementary school. I still remember the teacher that I went with had a lot of years of experience. She said, "This is the best meal they're going to get." It really explained to me that we have like 60% of our students here are very low income that come in. So, I actually got more from my student teaching part than I ever got from my athletic training part. I think that's because you don't have those real experiences...." – P1</i></p> <p><i>"I think it was more so our clinical education that allowed me to get that understanding because my very first clinical site was actually at a very rural high school. So that was kind of my first eye-opening experience of, these kids aren't coming from a lot. These kids are getting a free and reduced lunch and sometimes that's their only means of a meal for that day." – P12</i></p> <p><i>"Oh, it's a rude awakening for me. I would have been prepared if I had one of my clinical rotations at this low SES site or at a similar site. I would have been like, "Okay, I can recognize which athletes are low SES and which athletes aren't." – P2</i></p>

Table 16. Impact of SES on Care

Category	Supporting Quotation
Barriers to in-house care	<p><i>"We don't have that specialty store that some places have. Rehab stuff we're kind of bare on. We don't have a lot of the fancy stuff. The STIM machine came, so that helped, but it's still kind of just getting creative with what we have." – P12</i></p> <p><i>"Cross country training shoes costs \$80 and \$180 per pair these kids can't afford it, but they still want to be a part of the team. I've seen cross country kids that have come in with holes in their shoes and that's the only pair of shoes that they have. So, they wear them to school all day long and then they try to go do a five-mile run and they come in and you wonder why their body is hurting." – P5</i></p> <p><i>"We have a couple of kids whose parents speak very little English or are only Spanish speaking. So, I have to use the child as a translator, which I've learned now is not best practice. When I'm trying to convey information to the parent on how to best care for their child and using the child who we're talking about as the translator, to me, doesn't feel like it's the right thing to do because you shouldn't be using children to translate medical things. They may not understand how to appropriately translate what's going on. My fear is that what I'm saying isn't making it to the parents in a way that they can comprehend and understand and make an appropriate decision." – P10</i></p> <p><i>"Sometimes it's the kids just being non-compliant with daily screenings and rehab. Sometimes it's the families being non-compliant. "If little Bobby has a head injury and can't practice, well he's going to come home and babysit his siblings. So, he doesn't need to see you. He'll come in eventually when he feels better." – P6</i></p>
Barriers to health care system	<p><i>"I think they tend to not get as good of care just based on where they geographically lived. The hospitals and clinics there are not as good as where a lot of my highest SES students live." – P3</i></p> <p><i>"It's about 20 plus miles to the nearest hospital, the nearest specialist, really the nearest health clinic essentially. So, that's a struggle that I have to deal with where I can't just necessarily go, "I think this person should be referred. Okay, great. I'm going to refer them." Do they have the ability to go see this doctor if I was to refer them?" – P8</i></p>

"I may need to explain to the parents that their kid may not get the MRI in two days like another kid on the team did. You know, kids talk amongst themselves. Obviously, I'm not going to share information, but I let them know that it may not be tomorrow that you get your MRI. It may be another week or so. We can help you, but the process may be a little bit different for you." – P10

"My gut says he probably broke his scaphoid. I would've loved to have him get X-rayed, but the mother fought me tooth and nail. Illegal immigrant, didn't want to be in the system, didn't want all that." – P6

Table 17. Navigating Socioeconomic Status Challenges in Care

Category	Supporting Quotation
Liaison	<p><i>"There was one physician practice in town, and I had an amazing relationship with her. It was really easy to say, "Hey, so-and-so got hurt", and she would be like, "I know that family, tell him that I'll see them in a week if I need to see him", or she'd be like, "I can go see him." Sometimes it'd be like, "You know what, I'll stop by their house tonight", and she'd do it for free." – P7</i></p>
	<p><i>"In many instances I play the gatekeeper for medical care. Meaning, if it was something we could take care of in house I would communicate with the parents, and they were happy with it. If it was something that I knew was out of my hands, then I would go through the resources I had available, work with our dropout prevention coordinator, refugee services on campus to get these kids seen. In a lot of instances, if the parents bought into it, you could get them the access, the state health insurance." – P6</i></p>
	<p><i>"My orthopedist is awesome, and I can send my kids to him if I really need it. But there are certain places and there are certain doctors that I just won't send my kids to, because I know that first of all, they will be discriminated against because of what they look like and where they live, and they won't take them because they wouldn't be able to afford it." – P9</i></p>
	<p><i>"I'm more prepared to be able to help them with braces or crutches or things that they need. I have former athletes whose parents are cleaning out when they go away to college. And they say, "can you use this cryo cuffs? Yes. Can you use these crutches? Yes. Can you use these ankle braces? Yes." Because I always know I have kids that can't afford them, and we'll be grateful for them. Especially if they've had previous injuries and stuff like that. I just have never turned down a hand." – P11</i></p>

Developing Rapport

"They need to understand that as an athletic trainer and a teacher that I'm not going to go running around town to tell them what you tell me. I'm a resource that you can use. I can help you. I don't have all the answers, but at least I think being in a community long enough, I know where I can tell them to go to get the answers, to help them." – P1

"I don't think you ever really realize a situation or what a kid is going through until you actually sit down and have that conversation with them. Being able to build that trust is huge, but it takes time. They're not just going to automatically trust you right off the bat because of the situations that these kids come from or go through." – P12

"I don't think they get follow up care or personalized medical care or they get charged a bill and they get stressed about it. Instead, I say, "let's try to avoid that. And then if we need to, we'll do it, but I'm still going to follow up with you regardless of how this case turns out." – P10

"I try talk to them about what I do, what I can do for their kids as an athletic trainer, and I really stress that I'm there to take care of their kids. There's no ulterior motive or anything like that. Some of them, especially with my African American athletes and parents, have disclosed to me that they really just don't trust doctors, or just healthcare in general, because they have been mistreated in the past." – P9

ATP Experiences

"I think we just assumed people had the resources available to them to just do the gold standard of care, which is not the real world. Most of my experiences were in the college setting so everything was kind of in-house and taken care of. What I remember from my first rotation at that high school and what I've even seen now is that there are so many factors that come into the care people actually get. I don't think we ever talked about the fear undocumented people might have going to a doctor's office or language barriers, access to interpreters, things like that." – P3

"My only exposure to diverse populations was at this one site and I think that's what drew me in. There wasn't really a lot of education on certain populations or how to go about if the lower SES student can't afford to go to get an x-ray or something like that. So, it was very eye-opening once I got to that one rotation and then once I was an independent clinician at my school." – P9

"The collegiate level for my undergrad just focused on the athletes who were on our campus. So, every athlete is almost equal at that point because they're living on campus or nearby campus. So, we never really explored or dove into any differences. Everybody can see doctor so-and-so. All had free reign to student health. So there never was an issue of socioeconomic status." – P4

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APPENDIX 1

REVIEW OF LITERATURE

2.1 The Current Youth Sport Culture: The Prevalence of Sport Specialization

Positive effects from organized youth sport are primarily achieved through physical activity but there are secondary health benefits such as having a higher level of physical activity later in life, psychosocial and personal development, social interaction, and higher academic achievement.^{9,149} Youth sport in the United States is a rapidly evolving culture with nearly 8 million high school students participating in sport during the 2018-2019 academic year.¹¹¹ The evolution of youth sport grew tremendously with the development of organized sports through the YMCA in the 1800s followed by other organized sports such as Pop Warner and Little League. In 1976 another major milestone took place with a Romanian athlete, Nadia Camaneci, who became the first gymnast in Olympic history to be awarded a perfect score of 10 for her performance on the uneven bars. Not only was she the first athlete to receive this award but the youngest all-around Olympic gold medalist ever which promoted the mentality of starting youth athletes young and training them hard to be successful. This then led us to study other disciplines such as violinists to better understand how deliberate practice could be the differentiating factor between experts and non-experts. In 1993, Ericsson et al. wrote about the “10,000 hours rule” as a strategy to gain expertise in a skill and popularized as a method to make a successful athlete.¹⁵⁰

Despite organized youth sports having many positive health effects, organized sport can be a double-edged sword regarding its effects on health due to the emphasis on training children like year-round little professional athletes and winning at all costs mentality.^{7,151} Negative effects of the current youth sport culture include the risk of failure in sport performance leading to poor mental health, eating disorders, burnout, pay to play accessibility to sport, and injury.^{27,95,152} Some of these negative effects of the current youth sport culture can be associated with the new

phenomenon of sport specialization which makes this a public health concern for our youth population participating in sport. Sport specialization is defined “The intentional and focused participation in a single sport for a majority of the year that restricts opportunities for engagement in other sports and activities.” Early research exploring sport specialization classified athletes based on the number of sports they played (single sport vs multi-sport participation) but currently sport specialization is measured by the 3-point sport scale that was originally developed by Jayanthi et al.⁸⁷ and is used to classify youth athletes from a low to high level of specialization. The scale consists of 3 questions that are scored categorically (yes=1, no=0), with a score of 0 or 1 considered low specialization, 2 considered moderate specialization, and 3 considered high specialization. This scale has been widely used in the sport specialization literature in a variety of settings and populations. Jayanthi et al were the first to indicate the prevalence of sport specialization in their cohort study with 28.1% of adolescents classifying as highly specialized.²³ In a systematic review and meta-analysis, the prevalence of highly specialized athletes across various sports and athletes of an average of 14.6 years (range, 7-18 years) was found to be 28.4%.¹⁵³ Many studies have reported similar percentages with approximately 30-40% as the prevalence of highly specialized athletes in a club setting.^{96,154-156} However, in a large prospective cohort study the prevalence of high specialized athletes was reported to be 13.4%. This study had 1,500 youth athletes in a variety of setting such as school sizes and locations and various sports represented.²⁵ Large cohort studies have been able to demonstrate the prevalence of sport specialization depends on how factors such as sex and school size with high rates of specialization among female youth athletes and in large sized schools.¹⁵⁷⁻¹⁵⁹ Despite so many studies utilizing the 3-point scale, there is inconsistency with the definition of sport specialization. A consensus based conceptual definition of sport specialization

using the Delphi method has been proposed due to much of the literature in sport specialization not maintaining consistency in what ways sport specialization is measured.²⁴ Sport specialization is now defined as “the intentional and focused participation in a single sport for a majority of the year that restricts opportunities for engagement in other sports and activities.”²⁴

2.2 The Perceived Benefits of Sport Participation and Sport Specialization

Sport specialization has been perceived by adolescent athletes as a beneficial sport participation behavior in order to gain a competitive edge. Previous research have shown these perceptions and beliefs to be influenced by the sex of the athlete with adolescent female athletes having been found to be more likely to participate or be in favor of high levels of intensive training and sport specialization behaviors compared to male athletes.^{21,154} Adolescent athletes are increasingly encouraged to specialize in a single-sport year-round to have a higher chance of obtaining an athletic college scholarship.¹⁵⁹⁻¹⁶¹ Differences in attitudes and beliefs have also been shown between parents and children.⁹⁶ Hernandez et al. reported that parents seem to be more reasonable when assessing college scholarship potential based on athletic performance when compared to children on level of importance (very or extremely important: parents= 26% vs children= 67%).⁹⁶ However, these numbers are still high considering that approximately one-two percent of high school athletes will receive an athletic scholarship. Post et al. reported that 70-80% of baseball parents believed that specialization in baseball would improve their child’s ability and chance of making a college baseball team.⁵⁶ Full scholarships typically will cover tuition and fees, room and board, and course-related books. Unfortunately, according to the NCAA, most student-athletes who receive these athletic scholarships are only covering a portion of a full scholarship.¹⁶² For example, an NCAA Division I school can distribute the allotted 9.9 full scholarships for an average soccer roster of 28-29 athletes but with the caveat of limits on

how many athletes out of the team can benefit from the distribution of scholarships.^{162,163} Despite adolescent athletes being encouraged to specialize in sport at an early age to try to secure these collegiate scholarships, previous studies have actually found it is relatively uncommon for NCAA Division I athletes to have specialized early in high school to compete at a collegiate level.^{156,160,164} Rugg et al. reported that among 1,550 NCAA athletes that participated from years 1960 to 2018 in various sports, only 18.1% of them had specialized in their sport before the age of 15 years old in their retrospective cohort study.¹⁶⁰ Among those, athletes in gymnastics, tennis, swimming and diving, and soccer were significantly more likely to specialize early compared to football and baseball athletes.¹⁶⁰ In a retrospective study comparing current high school, collegiate, and professional athletes, obtaining a collegiate athletic scholarship was commonly mentioned as a driver for early sport participation and focus on a single sport across when it came to factors that drive youth sport specialization.³⁹ Unfortunately the likelihood competing at an elite level is small with a reported 3.3 to 6.8% of high school athletes competing at the collegiate level and an even smaller percentage at the professional level.^{163,165}

Children have reported to be more likely to believe that specialization also improves their chances to play on a travel, all-star, elite, or high school varsity team.^{21,96} Similar findings highlight that for children, increased competition and pressure from parents, coaches, and peers at younger ages and lower levels of play it has become more prevalent reasons to specialize and compete year-round to keep up with peers in their sport.^{21,155,166} Coaches are the primary reason children decide to participate in high volume activity.¹⁶⁶ ^{167,168} Post et al., observed that club coaches had more favorable perceptions toward their athletes participating in a league with no limits on games per day or games per week and that an athlete playing in multiple leagues of different sports at the same time was appropriate.¹⁶⁷ This aligns with, DiSanti et al. who observed

that club coaches were more likely to possess attitudes in favor of sport specialization such as finding it as a positive and adaptive practice for their athletes.¹⁶⁸ In an unpublished study of approximately 1,000 high school varsity coaches Hernandez et al. reported most coaches encouraged multisport participation in the off-season but took issue with their athletes participating in multiple sports if it resulted in an athlete missing time in the coach's sport, even if it was during the off-season. This results in conflicting sport specialization expectations whereby youth athletes and parents might perceive these expectations as mixed messages. It is logical to assume that part of the reason children decides to specialize is that coaches are asking them to do so.

When asked about risk of injury, parents are more concerned compared to children. Previous studies have reported that 43-47% of parents believed that sport specialization would increase their child's chances of sustaining an injury.^{20,56} Mothers are more concerned about injury when compared with fathers.²⁰ This is consistent with previous literature focusing on concussions in which parents are more concerned than children and mothers are more concerned than fathers about concussions.¹⁶⁹ These results demonstrate that more work is needed to identify better ways of messaging the negative aspects of sport specialization to children and parents.^{25,152,156,170,171}

Furthermore. Hernandez et al. reported that the top three factors that children ranked as either "very" or "extremely" important in their sport participation were the opportunity to get better at their sport, physical activity, and having fun.⁹⁶ This was not surprising, as it aligns with previous research ranking "having fun" as the primary reason that children participate in sports.⁴⁴ The primary determinants of whether sport participation is fun for youth athletes is learning and improving at a sport.⁴⁴ Children identified that they did not participate in sport to spend time

with friends.^{21,96} This may be attributed to most of the children subjects participating in club team. It is also possible that most of these children's friends played on the same club team therefore, participating in sports is equivalent to social time with friends. However, 82% of children in a cohort study answered "yes" when asked if they had missed time with their friends in the past year because of sport participation.⁹⁶ This may demonstrate that this set of children cohort see their athletic goals as more important than recreational time with their friends.²¹ The top 3 factors for sport participation for parents were having fun, the opportunity to get better at their sport, and spending time with friends. The differences between children and parents demonstrates the need for individualized messaging to target these top factors to better inform these groups about the potential risks of sport specialization.

In a previous study it was reported that there was also a low level of agreement observed between linked parent-child dyads focusing on the 3-point scale questions.⁹⁶ Specifically, there was a moderate level of agreement between parents and children when asked if they (their child) had quit other sports for a primary sport. There was a low level of agreement for the remainder of the sport specialization scale questions (identifying a primary sport and training over 8 months/year). The results of this dyad analysis agree with the parent-child dyad research across other health care professions concluding that there is low levels of agreement between parents and children.¹⁷² This shows the need to have both parties involved when questioning or consistently using the same group, either parents or children when it pertains to determining the specialization level of a youth athlete.^{20,21,172,173} Knowing the specialization level of an athlete can better equip clinicians to address sport specialization and combat the negative consequences associated with high rates of specialization.

2.3 Injury Risk and Negative Psychosocial Consequences of Sport Specialization

The negative consequences of sport specialization and the associated risk of injuries has been so significant that many medical organizations have released position statements to combat high rates of sport specialization in youth athletes.^{22,87,152,153} Previous studies demonstrated that approximately 20% of youth injuries occur due to sport participation. It is theorized that by participating in multiple sports or sport sampling, youth athletes may be able to minimize the injury risk that comes with participating in sports. Sport sampling has been linked to an increased in athletic skills, increased fundamental motor skills, and less single-action repetitive motions that come with high levels of sport specialization thus protecting against overuse injury.^{37,152,174,175} These expert opinions against sport specialization has led to many research studies demonstrating a link between high rates of specialization and musculoskeletal injuries.¹⁵³ Jayanthi et al. was among the first to survey youth tennis athletes and their sport specialization classification based on the 3-point scale and retrospective injury history in the previous year.¹⁷⁶ It was reported that an injury in the previous year was 55% higher in youth athlete that exclusively participated in tennis compared to multisport athletes in their study (OR: 1.55, $p < .05$).^{87,176} Many studies since then have demonstrated a significant association between high rates of sport specialization and higher rate of injuries. Bell et al. reported that has shown this association of high rates of sport specialization linked to knee injury, overuse knee injury and hip injuries in high school athletes.¹⁵⁸ In a retrospective cohort study among high school female athletes, higher rates of patellofemoral pain, patellar tendinopathy, and Osgood-Schlatter disease in athletes that were highly specialized compared to athlete that participated in multiple sports/sport samplers.¹⁷⁷ Furthermore, Jayanthi et al. reported in their clinical case-control study an increase in acute onset injuries and overuse injuries in athletes that were highly specialized compared to those that were multisport athletes.²³ McGuine et al. reported an association with moderate or highly specialized

athletes from and lower extremity injuries in their prospective study of 1,544 high school athletes from 29 high school in Wisconsin.²⁵ Post et al. surveyed athletes from a variety of sports at practices, tournaments, and athletic competitions in Wisconsin and found higher rates of general injuries overuse injuries, lower extremity overuse injuries, and upper extremity overuse injuries in highly specialized athletes compared to lowly specialized athletes independent of age, sex, and weekly organized sport volume.¹⁵⁵ Another study surveying Team US Olympic wrestlers and NCAA Division I wrestlers demonstrated that wrestlers that specialized at an early age (before the age of 12) had more injuries than those who did not specialize early.¹⁷⁸ Jayanthi et al. was the first to report an association between the degree of sport specialization and the risk of injury in a clinical cohort study of youth athletes followed for 3 years.¹⁷⁹ It was reported in this study that highly specialized athletes, female athletes, and those who trained more hours per week than their age were more likely to develop injuries and overuse injuries even when controlling for age and hours per week of training.¹⁷⁹ The link between injury and youth sport specialization is prominent and further needed in the context of the new consensus definition of sport specialization in youth athletes using a Delphi approach.²⁴

Reasons to be highly specialized are known to be multifaceted and influenced by other stakeholders such as youth athlete peers, parents, and coaches which can not only lead to overuse injuries but also psychosocial implications for youth athletes. Brenner et al. described that sport specialization introduced multiple stressors to youth athletes by increased year-round training volumes as drive for future success or elite status that can increased fatigue and burnout from single sport participation.⁹⁵ These stressors also introduce unfavorable mental health and function in high specialization athletes and the need for perfectionism in their sport participation.¹⁸⁰ Furthermore, highly specialized athletes have been associated with club and

travel sport participation which can influence the amount of rest and sleep these youth athletes are implementing. The multitude of demands that may be placed on high specialized athletes including performing well, academic success to participate in sports, social pressure, physical stress, low quality sleep hygiene can have severe psychosocial implications.¹⁸¹

2.4 Prevalence of Sport Participation and Sport Specialization in Low SES Youth Athletes

There are disparities in levels of physical activity through sport among various sociodemographic characteristics. Fairclough et al. reported that there was a significant positive association between SES and sport participation where high SES parents were able to financially support have the free time to provide their children with sport participation opportunities compared to low SES parents.⁴¹ Other studies support that high and moderate SES families were more likely to have their children participate in organized sports.^{9,63,182,183} Furthermore, other factors of SES such as low family social status and parent unemployment status have been linked with their child's decreased participation in youth sports.^{184,185} The disparity in low SES youth organized sport participation can be partly explained by the cost and time commitment of organized sports in the United States. Previous studies have reported that club sport participation has gained popularity with approximately 50% of high school athletes also participating in a club sport team.^{25,154} This increase in club sport participation comes with a high price. Post et al. reported that families with a total household income of more than 100,000 USD per year and an education attainment of a bachelor's degree or higher involved their child in a high number of club sports compared to those of lower total household income and lower educational attainment.⁴⁵ It was also reported that these families were more likely to have children that participated in sport year-round.⁴⁵ When comparing the cost of the interscholastic sports that are primarily funded through the school and club sports parents on average in spent 1,500 USD per

year on club sports versus 200 USD on their child's interscholastic sport. This average cost difference in different organized youth sport settings can restrict low SES youth sport families from participating in club teams.

The rise in club sports, year-round play to increase a child's chances of having sport success can be partially attributed to the rise in sport specialization. Post et al. reported a significant association between sport specialization classification, training volume and total household income with more children being classified as highly specialized and participating in their sport year-round in the high total household income families.⁴⁵ Similarly, Jayanthi et al. reported that high SES athletes participated in more hours per week spent playing organized sports, more likely to be highly specialized, and participated in more individual sports.⁸ There are currently two studies linking the positive association between SES and sport specialization but with its limitation of selection bias. Post et al. recruited participants from club sport tournaments outside the interscholastic setting and Jayanthi et al. recruited their participants from a clinic setting where these youth athletes were being evaluated for their injuries by a sports medicine specialist.^{8,45} These might not be the most representative of the low SES youth sport populations due to low SES participants constraints with money for club sport setting and access to health care.^{19,33} Furthermore, the experiences of low SES families in sport participation and rates of sport specialization in a more accurate low SES setting has yet to be qualitatively described.

2.5 Sport Participation and Sport Specialization Experiences of Low SES Youth Families

The rise in sport specialization has been hypothesized to jeopardize the opportunities for families of low socioeconomic status (SES) to participate in organized sport. Yet, the low SES youth athlete population has not been fully explored in regard to sport specialization motivations.

It is critically important to determine the experiences of low SES youth sport families and their perceptions and beliefs toward sport participation and sport specialization as well as the barriers and facilitators that might be involved with engaging their child in organized sport and possibly a high rate of sport specialization. Understanding these variables are essential to help identify active participation in safe sport participation for low SES youth. Thus, potentially increasing their participation and appreciation of organized sport. Recent studies have demonstrated that there is increased risk of overuse injury and increase in burnout due to high rates of sport specialization.^{25,44} It was even more critical to understand these behaviors of the low SES youth athlete population because of how detrimental the consequences for this sub population in regard to health care delays would be as compared to the normally studied youth sport population.¹⁷³¹ The overall objective of this preliminary study was to explore the nature and intentions for youth low SES athletes to participate in sport and/or sport specialize what barriers and facilitators these low SES youth families might face.¹⁰

To elucidate an understanding of the participants' experiences as low socioeconomic parents of youth athletes, this study utilized an interpretative phenomenological analysis (IPA) research approach. IPA is focused on examining how participants make sense of their person and social world, and the meaning that experiences within those world hold for them.^{76,79} The goal of this qualitative research was to explore the experiences of low SES families in relation to their child's sport participation and sport specialization rates and to extricate the emergent domains and patterns to enrich the understanding of sport specialization and sport participation for low SES families using the theory of planned behavior⁷⁰ as a theoretical framework. For the purpose of this preliminary study, the adapted socioeconomic status theory of planned behavior model was used as the conceptual framework for the semi-structure interview guides.

Participants were recruited via social media where it was made clear the study purpose, time commitment, and eligibility criteria for the study. Participants consisted of individuals who are parents of youth athletes (ages 8-18) participating in organized sport and of low socioeconomic status. Prespecified eligibility criteria included individuals, (a) identified as a parent, (b) had a child between the ages of 8-18 years old, (c) their child participated in an organized sport, (d) qualified as low socioeconomic status, (e) would be willing to complete a sport participation survey (f) would be willing to complete a 45–90-minute interview. Socioeconomic status eligibility was based on family size and total household income (THI) in compliance with the official 2020 US Census Bureau federal poverty guidelines as issued and published each year.^{82,83} Other SES factors such as education level, free-reduced lunch, insurance type, single parent household, and zip code were collected but were not SES eligibility criteria.⁸² Area of Deprivation Index (ADI) was based off zip code and classified in state score.⁸⁴

12 participants qualified and completed the research study which is typical in IPA studies.^{76,85,86} Prior to data collection, each participant provided informed consent agreeing to participate in the study. Pseudonyms were assigned to participants to protect the participants' identities and of their children or family. The University of Wisconsin Institutional Review Board reviewed and approved the study protocols. Three sources of data were utilized in this study: surveys, interviews, and reflective interview notes. The surveys and the semi-structured interview questions were reviewed by a panel of six experts with experience in the fields of athletic training and/or qualitative research. The surveys consisted of the eligibility survey and the sport specialization survey which asked questions about the SES and their child's sport participation behaviors. Sport specialization level was determined using a commonly used 3-point scale.^{8,87} Level of specialization was based on the answer to the following three questions:

1) Have you quit another sport to focus on your primary sport? 2) Do you consider your primary sport more important than your other sports? 3) Do you train more than 8 months a year in your primary sport? Parents responded with either “yes” or “no” to each question which were scored as a 1 or 0 points respectively. Scores for the 3 questions were summed to determine the level of specialization of their child as low (0-1), moderate (2), or high (3).^{8,87}

The primary source of data were the semi-structured, audio recorded, University of Wisconsin-Madison Zoom video interviews completed by the first author. Each interview began with the interviewer (first author) describing the purpose of the study, as well as their background to expose their positionality. Interviews were guided by a semi-structured interview guide, which included broadly worded questions that were inspired by the IPA framework and the theory of planned behavior moderated by SES focus of this study. Participants were asked to reflect on general experiences as parents of youth participating in organized sport. These general experiences were not specifically prompted to describe experiences across time thus participants were free to describe experiences that were most meaningful, impactful, or memorable as a low SES parent of a youth athlete. Reflective field notes were recorded by the interviewer during and after each interview session. These notes included the interviewer’s and research teams’ feelings about the relationship between the interviewer and interviewee during the interview, initial feelings about the tone and ease of the conversation, and items that stuck out as exceptionally meaningful during the conversation.⁷⁷

Data were analyzed thematically using a four-step IPA analytical process. The objective of this process was to capture and present the results in the form of participants’ embodied experiences.⁷⁷ Multiple data sources, theoretical perspectives, methods, and investigator triangulation were used as suggested by previous IPA researchers.^{89,186-188} Throughout this

process, all steps were completed for each participant's data independently at the case level. After thematic clusters were identified at the case level, the final step was to search for patterns and connections across participants through constant comparison.⁷⁷ The first, second, and third authors reviewed the themes with the rest of the research team to ensure that they were in line with the purpose and framework of the study. Thematic clusters that were considered in line with the purpose and framework of the study were summarized and presented as results. Yardley's four principles for assessing the quality of qualitative research in IPA studies and recommended by Smith et. al. was followed to evaluate this research study.

Based on the data analysis, the following four interrelated themes emerged from the participant transcripts: (a) Benefits of youth sport participation, (b) Negatives and/or barriers to youth sport participation, (c) Strategies for youth sport participation, (d) Facilitators for youth sport participation. These four interrelated themes describe the attitudes and beliefs of sport participation, the subjective norms of youth sport culture, low SES families perceived behavioral control toward sport participation, and barriers and facilitators for low SES families to participate in sport. These 4 qualitative themes further explain the low rates of low SES youth in organized sport, the intersection of pay to play youth sport culture creating a barrier across low SES family aspects such as money, time, strategies, and structural support from youth sport stakeholders. This qualitative study shows the need for minority families such a low SES families to receive external support from local communities and non-profit organizations, more opportunities to quality and competitive organized sports outside the school setting due to the current youth sport culture with sport specialization creating limitations to youth sport opportunities.

2.6 The Social Determinants of Health and Socioeconomic Status Impact on Health, Pediatric Health and Health Outcomes

The social determinants of health (SDOH) are “conditions in the environment where people are born, grow, live, work, play, worship, and age.”⁴ The SDOH are conditions or circumstances that are shaped by families and communities and by the distribution of money, power, and resources at global, national and local levels. These conditions are a major public health concern due to policy choices affecting health at each of these levels. On an individual level, the SDOH such as housing, employment status, and working conditions impact people’s daily lives, determining their risk of illness and ability to access preventative and curative health care measures.

Inequities between groups of people shape how society is organized thus creating hierarchies on the societal level known as socioeconomic status (SES).¹¹⁴ These hierarches are based on factors such as income, gender, and race which ultimately affects their health and can lead to health disparities we see in the United States.¹¹⁵ The Office of Disease Prevention and Health promotion defines SES as the social standing or class of an individual or group and is often measured as a combination of income, education and occupation.^{4,19} These three factors of SES are all interrelated with family income setting the precedent for education attainment and occupation outcomes. For example, low-income families can focus on meeting immediate needs and not accumulate wealth that could be passed onto future generations whereas families with higher and more expendable income can accumulate wealth and focus on meeting immediate needs while able to consume and enjoy luxuries. Education is the second major factor of SES where median earnings increase with each level of education.¹⁸⁹ The highest degrees earn more weekly than those without high school diplomas or college backgrounds.¹⁹ Higher levels of education are associated with better economic outcomes.¹⁹ Lastly, occupation encompasses education and income. Occupational status measures social positions by describing job characteristics, decision making, and psychological demands on the job. Consequently, a person

with little education is at risk for being low income and jobless.¹⁹⁰ SES can also encompass a wide range of associated factors such as insurance status, free or reduced-price lunch status, food insecurity, and built environment which are important determinants of physical, psychological, and social developments and of inequalities in health related quality of life.^{19,51,116} These socioeconomic health disparities can be seen across the life cycle beginning in low birth weight and infant mortality, lower child and adolescent health status and cognitive stimulation, higher mortality and morbidity rates in adults, and ending with greater disparities in disability in the elderly.¹⁹¹

2.7 Health Care Providers' Clinical Management Decisions toward Low SES Health

Delays in health care and negative patient outcomes can come from the challenges physicians face when providing care and managing clinical decisions for their low SES patients. There are many obstacles for the medical care provided in urban areas where there is a high percentage of low SES population.^{84,117} Medical providers serving urban, low SES, minority patients were confronted with clinical, logistical, and administrative challenges.¹¹⁸ For example, Derkshan et al. reported in their 24,105 patient study, patients of higher income had higher rates of MRI, CT, or X-Ray ordered compared to low incomes patients.¹⁹² Clinician perceptions of patients of low SES have been shown to affect clinical decision making and health care delivery to this population. Providing care to low SES patients has been perceived by clinicians as more challenging due to their patients suffering from greater levels of morbidity, greater psychosocial problems, lower health literacy, lower compliance to the treatment, and not being able to afford certain medication or specialty referrals.^{50,118,4} Secondary school ATs are uniquely positioned health care providers and at an optimal public health intersection where they can provide equitable health care to vulnerable low SES adolescents.¹²² Furthermore, more than half of all

children qualify for free or reduced-price lunch which is a proxy for low SES.^{19,193} ATs are essential in providing a high standard of care which impacts life-long health and physical activity during a critical time such as adolescence. However, the consequences of low SES population health and health care delivery by ATs has not been explored. As of 2015, only 37% of public secondary schools in the U.S. have a full-time AT.¹⁴⁶ ATs have direct care with the significant number of low SES students attending public secondary schools.¹³¹ Post et. al. demonstrated that nearly 95% of all secondary schools in their study used at some capacity services of an AT, yet the presence of an employed AT on-site is impacted by the median household income and percentage of free-reduced lunch students of school with lower amount of ATs found in low SES school settings.¹³² For low SES student athletes, ATs in the secondary school setting might be one of their primary forms of equitable health care.

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STUDY 2 (Aim 2&3) SURVEY

Start of Block: study description and consent

Q1

Study description:

Title of the Study: Secondary School Athletic Trainers' Clinical Management Decisions toward Overuse Injuries and Patient Social Determinants of Health in the Adolescent Population
Principal Investigator: Dr. David Bell (phone: 6082652891) (email: drbell2@wisc.edu) Student Researcher: Mayrena Hernandez (phone: 8176007749) (email: mihernandez@wisc.edu) and Kevin Biese (phone: 9208515586) (email: kbiese@wisc.edu) DESCRIPTION OF THE RESEARCH You are invited to participate in a research study about overuse injury treatment and barriers in adolescent athletes as well as what affect an adolescent patient's social determinants of health may have on treatment decisions. After this survey, there will be an opportunity to participate in a Qualitative interview to better understand the barriers athletic trainers face due to a patient's social determinants of health. The purpose of this study is to determine how common overuse injury treatment is in the adolescent athlete population as well as understand the knowledge and barriers to treating these overuse injuries. A second objective is to assess secondary school athletic trainers' perceptions of the social determinants of health and socioeconomic status in relation to their clinical management decisions. Participants will consist of individuals who are employed as secondary school athletic trainers. for the quantitative component will aim to recruit 1,000 athletic trainers employed at secondary schools across the United States. Qualitative component will aim to recruit 12-15 participants from those who take the current survey. WHAT WILL MY PARTICIPATION INVOLVE? Subjects will complete an electronic survey that will take 10 minutes to complete. Participants may opt out at any time from completing the survey. From the end of the survey athletic trainers will be asked if they are further interested in a follow up study related to the the question in the survey. If they select that they interested another survey will be displayed to collect contact information and recruit for qualitative component.

The survey asks questions regarding their perceptions and beliefs of overuse injuries and the social determinants of health of their patient population. Lastly, participants who identify interest for the follow up study will be asked to complete in a semi-structured interview (60 min) to go into depth of factors influencing the clinical decisions toward adolescent youth athlete patient population. The survey and recorded interview will be distributed and collected only by research staff and with a transcription service. ARE THERE ANY RISKS TO ME? For the qualitative component, participants may reveal personal, sensitive, or identifiable information when responding to open-ended questions. This risk will be mitigated by 1) personal, sensitive, or identifiable information will be removed from the research record(s), 2) each potential subject will be told that participation is completely voluntary. Subjects may opt to withdraw from the study at any time, 3) all data will be kept in a password-controlled computerized database to protect subject confidentiality, and 4) data sheets will be locked in secure filing cabinets in the Wisconsin Injury in Sport Laboratory. ARE THERE ANY BENEFITS TO ME? We don't expect any direct benefits to you from participation in this study. WILL I BE COMPENSATED FOR MY PARTICIPATION? There is only compensation for completing the

interview (qualitative component) portion of this study. Those subjects who enroll and complete the study semi-structured interview component will be provided with \$20 upon the completion of the interview. HOW WILL MY CONFIDENTIALITY BE PROTECTED? While there will probably be publications as a result of this study, your name will not be used. Only group characteristics will be published. WHOM SHOULD I CONTACT IF I HAVE QUESTIONS? You may ask any questions about the research at any time. If you have questions about the research after you leave today, you should contact the Principal Investigator Dr. David Bell at 6082652891. You may also call the student researchers, Mayrena Hernandez at 8176007749 and Kevin Biese at 9208515586. If you are not satisfied with response of research team, have more questions, or want to talk with someone about your rights as a research participant, you should contact the Education and Social/Behavioral Science IRB Office at 608-263-2320. Your participation is completely voluntary. If you begin participation and change your mind you may end your participation at any time without penalty. By continuing on to the survey you indicate your willingness to be involved in this study. You will receive a copy of this informational form and should save a copy of this form for your records.

Q2 By clicking "yes" you consent that you have read and understood the purpose of this survey.

Yes (1)

No (2)

Skip To: End of Survey If By clicking "yes" you consent that you have read and understood the purpose of this survey. = No

Page Break

Q3 Currently, do you **primarily work** in the **secondary school** (middle school and or high school) setting?

- YES I primarily work in the secondary school setting with adolescent athletes (1)
- NO I do not primarily work in the secondary school setting with adolescent athletes (2)

Skip To: End of Survey If Currently, do you primarily work in the secondary school (middle school and or high school) setti... = NO I do not primarily work in the secondary school setting with adolescent athletes

End of Block: study description and consent

Start of Block: For high school and middle school ATs

Q8 For this section, respond base on your clinical work with **high school and or middle school** athletes.

Q9 For the purposes of this study, an "overuse injury" is defined as: *an injury that has a gradual onset mechanism of injury with an underlying cause of repetitive microtrauma.*

Adapted from: Niel ER, et al. "Defining the Term "Overuse": An Evidence-Based Review of Sports Epidemiology Literature" *JAT*, 2018;53(3) 279-281

Q10 For the following questions, please think about your high school/middle school patient population and the care that you provide to them during an average school year.

Q11 For injuries that you **evaluate**, what percentage would you classify as overuse?

0 10 20 30 40 50 60 70 80 90 100

Percentage ()



Q12 For injuries in which you **provide treatment**, what percentage would you classify as overuse?

0 10 20 30 40 50 60 70 80 90 100

Percentage ()



Q13 How confident are you in your **treatment** of **overuse** injuries in adolescent athletes?

- Not confident at all (1)
- Slightly confident (2)
- Somewhat confident (3)
- Fairly confident (4)
- Completely confident (5)

Q14 *Considering the complex interaction of your time, the patients time, resources, etc.*, how confident are you in the complete implementation of your treatment plan for your adolescent athletes **overuse injuries**?

- Not confident at all (1)
- Slightly confident (2)
- Somewhat confident (3)
- Fairly confident (4)
- Completely confident (5)

Q15 How much of a barrier is each item below to your ability to treat overuse injuries in adolescent athletes as successfully as possible?

	Not a barrier (1)	Somewhat of a barrier (2)	A moderate barrier (3)	An extreme barrier (4)
Your time (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Patient's time (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Patient compliance (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Timing of the injury in the athletic season (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to modalities (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to appropriate exercise equipment (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Patient's reluctance to rest or reduce sport activity (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If How much of a barrier is each item below to your ability to treat overuse injuries in adolescent... = Patient's reluctance to rest or reduce sport activity [Somewhat of a barrier]

Or How much of a barrier is each item below to your ability to treat overuse injuries in adolescent... = Patient's reluctance to rest or reduce sport activity [A moderate barrier]

Or How much of a barrier is each item below to your ability to treat overuse injuries in adolescent... = Patient's reluctance to rest or reduce sport activity [An extreme barrier]

Q16 In your opinion, why are adolescent patients reluctant to rest or reduce sport activities to treat their overuse injuries? *(check all that apply)*

- Do not want to miss games/competitions (1)
- Pressure from coaches (2)
- Pressure from parents/guardians (5)
- Pressure from teammates (6)
- Athletes think reducing sport activities will hinder their ability to improve at their sport (8)

- Athletes think it is important to display toughness by playing through an injury (9)
- Other (10) _____

Q17 Select all the methods you use when treating an adolescent patient with an overuse injury?

- Cooling modality (ice bag/ice massage/cold whirlpool) (1)
- Heating modality (hot pack/warm whirlpool) (2)
- Strength training (4)
- Suggest/prescribe the use of anti-inflammatory medications (5)
- Aquatic therapy (6)
- Bracing/padding (7)
- Sport activity reduction/restriction (8)
- Movement pattern analysis and exercise program to address deficits (9)
- Stretching/flexibility training (11)
- Manual therapy or self-administered manual therapy (12)
- Taping technique (13)
- Cross-training (variation of exercises and sport movements) (14)
- Instrument assisted soft tissue mobilization (IASTM) (16)

Electrical stimulation (17)

Other (18) _____

Q18 Do you believe that growth spurts, or times of rapid skeletal growth, affect sport-related injury risks?

Yes (1)

Maybe (2)

No (3)

Display This Question:

If Do you believe that growth spurts, or times of rapid skeletal growth, affect sport-related injury... = Yes

Q19 How confident are you in determining if an athlete is going through a growth spurt?

Not confident at all (1)

Slightly confident (2)

Somewhat confident (3)

Fairly confident (4)

Completely confident (5)

Display This Question:

If How confident are you in determining if an athlete is going through a growth spurt? = Completely confident

Or How confident are you in determining if an athlete is going through a growth spurt? = Fairly confident

Q20 What methods do you use to determine if one of your athletes are going through a growth spurt?

- Peak height velocity measurement (1)
- Percent predicted adult height (2)
- Hand/wrist radiograph (3)
- Dental development (4)
- Serial measures of height (5)
- Patient self-assessment of Tanner stages of puberty (6)
- Clinical (by you or physician) evaluation of Tanner stages of puberty (7)
- History or observation over time but no formal method (8)
- Other (9) _____

End of Block: For high school and middle school ATs

Start of Block: Knowledge of overuse injuries growth and sport specialization

Q21 What level of knowledge do you have in **DIAGNOSING** growth and maturation related injuries (apophysitis, tendonitis, etc.)?

- Not knowledgeable at all (1)
- Slightly knowledgeable (2)
- Moderately knowledgeable (3)
- Very knowledgeable (4)
- Extremely knowledgeable (5)

Q22 What level of knowledge do you have in **TREATING** growth and maturation related injuries (apophysitis, tendinitis, etc.)?

- Not knowledgeable at all (1)
- Slightly knowledgeable (2)
- Moderately knowledgeable (3)
- Very knowledgeable (4)
- Extremely knowledgeable (5)

End of Block: Knowledge of overuse injuries growth and sport specialization

Start of Block: High school ATs and clinical decision making

Q26 Description of terms: **Social Determinants of Health (SDOH)** are the conditions in the environment where people are born, grow, live, work, play, worship, and age.

Socioeconomic status (SES) is one's social standing defined by income, educational level, and occupation.

Q27 How relevant are each of these SDOH when it pertains to providing care for your student athletes?

	Not relevant (1)	Slightly relevant (2)	Somewhat relevant (3)	Very relevant (4)
Economic Stability (Parent's employment, student athlete's food insecurity, housing instability, poverty) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education (Student athlete's family: early childhood education and development, enrollment in higher education, high school)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

graduation,
language and
literacy) (3)

**Social and
Community
Context** (Civic
participation,
discrimination,
incarceration,
social cohesion)
(4)

**Health and
Health Care**
(Access to health
care referral,
access to primary
care, health
literacy) (5)

**Neighborhood
and Built
Environment**
(Access to foods
that support
healthy eating
patterns, crime
and violence,
environmental
conditions,
quality of
housing) (7)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q28 Please state your level of agreement with the following statements

Q29 "When considering referral for advanced care (i.e. imaging, ortho consult, etc.) a patient's **health care insurance impacts my decision for referral.**"

- Strongly disagree (1)
- Disagree (2)
- Agree (6)
- Strongly agree (7)

Q30 "A patient's SES impacts my decision on **which doctor** to refer them to."

- Strongly disagree (1)
- Disagree (2)
- Agree (4)
- Strongly agree (5)

Q31 "A patient's SES determines how much **I rely on conservative treatment or measures before referral for advanced care.**"

- Strongly disagree (1)
- Disagree (2)
- Agree (4)
- Strongly agree (5)

Q32 "A patient's SES determines **how soon a doctor recommends them for a surgical intervention.**"

- Strongly disagree (1)
- Disagree (2)
- Agree (4)
- Strongly agree (5)

Q33 "Prior to working as a licensed/certified athletic trainer, I felt that my athletic training education prepared me on how to *identify low SES* patients."

- Strongly disagree (1)
- Disagree (2)
- Agree (4)
- Strongly agree (5)

Q34 "Prior to working as a licensed/certified athletic trainer, I felt that my athletic training education prepared me on how to *provide care* for *low SES* patients."

- Strongly disagree (1)
- Disagree (2)
- Agree (4)
- Strongly agree (5)

Q35 "Prior to working as a licensed/certified athletic trainer, I felt that my athletic training education prepared me on how to make care more **comprehensible** (alternative explanations, resources in different languages, etc.) for **low SES** patients."

- Strongly disagree (1)

- Disagree (4)
- Agree (3)
- Strongly agree (5)

Q36 Select all that apply: **What are barriers, if any, do you face when providing care to your low SES patients?**

- Time for patient (1)
- Type of health insurance (2)
- Language barrier with patient/guardian (3)
- Resources for patient/guardian (4)
- Patient/guardian education (5)
- Patient/guardian compliance (6)
- Patient/guardian distrust of health care (7)
- Delay in advanced health care (i.e. imaging, testing, surgery) (8)
- Home support (9)
- There are no barriers (11)

End of Block: High school ATs and clinical decision making

Start of Block: Demographics

Q4 How many years have you been a certified athletic trainer?

0 5 10 15 20 25 30 35 40

Years certified ()



Q5 How many years of clinical experience do you have?

0 5 10 15 20 25 30 35 40

Years of clinical experience ()



Q6 What is the highest level of education you have obtained:

- Bachelor's (1)
- Master's (2)
- Clinical doctorate (3)
- Doctor of philosophy or education (4)
- Doctor of Medicine (5)
- Other (6) _____

Q7 What is your race/ethnicity?

- White** (Example: German, Irish, English, Italian, Lebanese, Egyptian, etc.) (1)
- Hispanic, Latino, or Spanish origin** (Example: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.) (2)
- Black or African American** (Example: African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.) (3)
- Asian** (Example: Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc.) (4)

- Native Hawaiian or Other Pacific Islander** (Example: Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese, etc.) (5)
- American Indian or Alaskan Native** (North, Centra, South America who maintain tribal affiliation or community attachment) (7)
- Some other race or origin (6)

Q23 Is **your primary high school setting** you currently work at a **public or private** high school?

- Public (1)
- Private (2)

Q24 What is the **zip code** of the **primary high school** you practice as an athletic trainer?

Q25 What is the **name** of the **high school** where you **primarily work**?

End of Block: Demographics

Start of Block: Recruitment



Q37 Thank you for taking our survey! We are currently recruiting participants for a follow up interview (60 minutes via Zoom). Qualifying participants for the follow up interview will be **compensated \$20** for their participation. If you are interested in participating in the interview portion of this study, please provide your e-mail address and we will be contacting you shortly. Thank you for your consideration!

End of Block: Recruitment