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**“Mate Ni Vula”, “Masina”, “Va‘ine Fakahē‘aho”, “Eikura”
Pacific Sports Women’s Knowledge and Experiences of Menstruation**

**A thesis submitted in fulfillment
of the requirements for the degree of**

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at

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By

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To Ruby Emma Taylor, my mom

You are the rock of our family, my all-time favorite role model, biggest support and my #1 fan throughout my life.

This journey started with you during our teatime Talanoas, and it's only appropriate that I dedicate it to you.

I love you mother x

Abstract

Pacific women's interest and participation in sports have increased rapidly throughout the decades. Recently, many have become competitive across a range of sports at regional, national, and international levels. Yet very little research is focused on Pacific sportswomen's experiences, or how their cultural identities shape their performance, health, and well-being needs. This thesis focuses on Pacific sportswomen's experiences of menstruation, and in so doing, makes an important contribution to both literature on Pacific sportswomen, and research on menstruation in sport. Research on sportswomen's experiences of menstruation has grown significantly over recent years, but most of this research is conducted by white women on white sportswomen, with findings then generalized to all sportswomen. This thesis identifies a gap in literature, and the risks of excluding sportswomen's cultural identities, practices, and values from research, policy, and practices focused on menstruation in sport.

Adopting a Masi methodology, this project included three methods: a survey of 206 Pacific sportswomen; Talanoa sessions with 21 Fijian sportswomen, and interviews with 16 Pacific sportswomen living in Aotearoa New Zealand. This project aimed to listen to, learn from, and amplify sportswomen's experiences and their understandings of menstruation, cultural beliefs, and the taboos that influence their menstrual experiences. This is a thesis with publication; some chapters are published articles, and others are manuscripts undergoing review. First, the thesis systematically identifies the gap in the literature with a scoping review of research focused on menstruation in sport, that shows that % of research ignores women's

cultural or ethnic identities. This chapter identifies the need for more culturally responsive research methods and culturally safe practices from sports and health professionals working with sportswomen from diverse backgrounds. Following this, results from the survey are presented, highlighting the diversity of cultural knowledge and practices associated with menstruation across the Pacific the survey also reveals the different cultural stigmas, beliefs, taboos, traditions, menstrual health, and sports performance of elite Pacific sportswomen. The following two chapters focus on findings from Fijian sportswomen, and then Pacific sportswomen living in Aotearoa New Zealand, with both amplifying the voices and experiences of Pacific sportswomen and their challenges of gaining culturally informed menstrual health information and support in sporting environments. These chapters describe how culture intersects with gender and other key variables (i.e., socio-economic considerations), and how these influence sportswomen's experiences of menstruation.

Ultimately, this research makes an important contribution to research on menstruation in sport, highlighting the need for culturally responsive methodologies and approaches in research and practice. It provides new and current cultural knowledge that can be used to improve the health, performance, and social support structures for Pacific sportswomen. This knowledge can expand sports and health providers' understanding of Pacific sportswomen's culturally specific needs, knowledge, and values concerning menstruation. Finally, this research supports the development of sport in the Pacific by providing cultural knowledge on how to engage Pacific sportswomen in safe, respectful, and constructive conversations around menstruation in sport.

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First and foremost, I would like to thank God for his gifts of wisdom and knowledge, which have guided me through this academic journey. I would like to thank each Pacific Sportswoman who participated in this research and put their trust in me to be their voice by sharing their stories with the world. Your lived experiences and voices are the heart of this research on menstruation and sport. Each of you has helped cover some of the gaps in the literature on Pacific sportswomen. Thank you for being honest and courageous to share your stories on a very sensitive topic. I am forever grateful, and I hope that I represented each of your cultures and identities accordingly throughout this thesis. I am filled with gratitude and appreciation and hope that this thesis opens more opportunities for researchers and different sporting organizations.

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Prologue

Sitting in the locker room at West Texas A&M University, 15 minutes till game time against the Lady Buffs and I am having these mental games with myself: mood swings, low energy, body aches, cramps, and a hefty menstrual flow. Struggling to stay present, I kept telling myself “You got this, you are the starting middle blocker, you got this, do not disappoint your teammates or coaches, stay positive”. The whistle blew, and I walked out onto the court, the crowd was chanting “LADY BUFFS”. Each step towards the net felt very heavy. I looked around and told myself “Give it 110%”. Two sets in and my emotions got to me. I struggled to stay focused, looking up I heard the referee’s whistle. He called out my number and said “Substitution”. The crowd kept chanting as I walked towards the bench disappointed that this had to be the only game in my collegiate career where I got substituted.

Coach pulled me aside and asked me “What’s wrong Agatha? I need you to get your shit together.” My emotions were all over the place, I could not control my moods, and I just wanted to cry my eyes out. My setter grabbed my arm and said “Agatha, I need you in there, let’s go”. Struggling to snap out of all these mind games, I took three deep breaths, walked back onto the court, and played the game I love. After the fifth set, I shared my concerns about my fatigue, lack of focus, and clarity with the athletic trainer. She looked at me and asked, “Are you on your period?” This caught me off guard, I looked at her feeling very confused, uncomfortable, and in shock knowing that menstrual

discussions with anyone are a taboo topic in my culture. I sat there thinking “What do I say to her?”

This is one of many moments during my career as an elite collegiate athlete in the US that prompted me to ask myself: What do other Pacific sportswomen experience when asked about their menstrual cycles? Do they experience the same feelings of cultural shame and taboo as I do, and if so, how do they navigate these experiences?

Chapter 1: Introduction

I am a Fijian sportswoman, Pacific Islander, and an Indigenous researcher who currently resides in Hamilton, Aotearoa (New Zealand). I was born and raised in Suva, Fiji, and spent 10 years in the United States of America as a collegiate athlete during my undergraduate and master's studies. My experiences within and across different cultures and worldviews of life provide a unique story and perspective. Sports, education, and extra-extracurricular activities have always been priorities in my life. Growing up in a family that was always involved in sports and having a mother who ensured a balance between education and sports, taught me many life lessons—my experience with sports shaped my life through education, travel, and lifelong friendships.

As suggested in the narrative above, at 17 years old, I made a life-changing decision to leave my island home Fiji and move to the United States of America to pursue my career as a student-athlete. From being an islander growing up in a society of many customs and traditions to a new environment that was fast-paced and very different in many ways, this change was difficult; the food, the people, the values, rituals, and everyday practices were all very different from my home in Fiji. However, being strong-minded and determined, I worked hard to adjust quickly to this new lifestyle because I did not want to fall behind.

As the years went by, I realized the importance of female athlete health, a topic we did not consider much during my early sporting career in Fiji. This juxtaposition came to the fore as I was recovering from ACL surgery and was questioned about my well-being. The athletic trainers discussed the importance of nutrition and menstrual health. Before this experience, I did not know the importance of these topics to a female athlete because growing up on the islands we were taught to never show any weaknesses or discuss sensitive topics such as menstruation.

Growing up in Fiji, when a teammate had her period, she would be kept on the bench or even told to skip practices. I became increasingly curious about the intersection between culture and female athlete health and well-being, a topic that few others seemed to be considering but was pertinent to my own experiences as a Pacific sportswoman.

During my Master's, I embarked on a study of the Female Athlete Triad, more recently reframed by many as Relative Energy Deficiency in Sports (RED-S). While looking for articles on Pacific sportswomen, I realized that there was not enough (or any) information to support my writings. While Pacific sportswomen's experiences of menstruation have not been studied, menstruation in the Pacific has been researched in the past. However, much of this earlier research was conducted by anthropologists (not from the Pacific themselves) who talked about it as being 'taboo'. I was surprised and disappointed to note that very rarely has there been research conducted by Pacific women themselves, and none on sportswomen's menstrual health. This encouraged me to seek more answers and focus my doctoral research on Pacific Sports women's knowledge and experiences on menstruation.

A Family Story

Growing up in Fiji, I was always reminded of the important cultural and gender roles and responsibilities and how religion, cultural values, traditions, and customs shape women's everyday lives. It has only been later in life that I've come to critically reflect on the ways colonization and patriarchy may limit the opportunities available to girls and women in Fiji, and the Pacific more widely. I was born in Suva City, Fiji, in the Morrisons Ward, at the Colonial War Memorial Hospital (CWM). My father, Manuel Gibbons, worked as a project manager for Westpac Banking Corporation, and my mother, Ruby Emma Taylor, worked for the World Health Organization (WHO). My older brother Wallace resides with my parents in Suva, Fiji. I come from a very staunch catholic family, and my parent's number one rule was to never miss

Mass on a Sunday. My mother always believed that a family that “prays together stays together”, therefore, every day at 7 pm we would all go into the living room to say our devotions. Religion has a great influence on the daily lives of many across Pacific communities. According to Manuela and Sibley (2013), “Religion and culture are linked in many Pacific societies, and it is difficult to untangle the two” (p. 88). When it came to cultural practices and traditions, my father was very much involved in shaping our knowledge and practices. However, with language being an important part of any culture, my family chose to speak English at home since our education system in Fiji made English a mandatory subject in our curriculum. With Fiji being made up of many Fijian dialects, I became more fluent in the most common dialect, the Bauan dialect, when I was in high school. My mother was a very career-oriented individual, and she worked hard for our family. From a very young age, she taught me the importance of our gender roles, ensuring that I was always helping out with household chores such as cleaning and cooking. My father and my brother's roles involved anything outside the house whether it was cleaning the yard, renovating, or small repairs. My father enjoyed sports, and he encouraged and supported my participation. If not for his support, I would never have been allowed to participate in any sort of sports or physical activity.

As a child and young woman, I only received information about the menstrual cycle from my mother, and in primary school during a Health science class. However, menstruation was never discussed in sporting environments, and it was often framed as a sickness. Therefore, when athletes were menstruating, they would most often miss training. I was also one of these athletes. Too often Pacific sportswomen have not talked about their struggles with menstrual-health-related topics (i.e., menorrhagia, amenorrhea) because of the ongoing stigma associated with

menstruation, and difficulties talking about personal health issues with coaches (particularly male coaches).

Gender plays a significant role in many Pacific cultures, where men and women have distinct cultural responsibilities. Griffen (2006) states, “In Pacific cultures, children are taught their gender roles and socialized into the correct behavior for boys and girls. As children grow older, they are expected to do household chores, which are closely tied to gender. Girls are more restricted in their movements, even at an early age” (p.15). While gender roles vary across Pacific cultures, these responsibilities usually limit the opportunities that women have, especially when it comes to engaging in physical activities or sports (Kanemasu, and Molna, 2017). Pacific Island cultures are plural and multiple, with unique views, but with many placing high value on a woman's modesty. A growing body of research focused on the gendered experiences of Pacific women shows they experience various forms of inequality and marginalization (Murphy, 2010; Balram, 2024; Kanamasu et al, 2020; Molnar et al, 2018). To date, research on Pacific sportswomen’s experiences in elite sport have been limited, and research on Pacific sportswomen’s menstrual health and wellbeing has been non-existent.

Menstruation and Sport: Turning of the Tides

Research on women and menstruation took some time to be included in sports science. Women were often (and continue to be) excluded from many such studies because of the ‘complications’ of the menstrual cycles for scientific research. Today, sports scientists have increased their focus on how menstruation could impact sportswomen's health, well-being, and performance. While much of the research on menstruation in sports has come from various scientific fields (i.e., endocrinology, physiology, nutrition), a growing body of literature is adopting qualitative approaches (i.e., interviews with athletes) to understand their experiences of

menstrual health-related topics (Mkumbuzi, et al., 2021; Zipp, S., & Hyde, M. 2024; Findlay et al. 2020; Brown et al., 2021). For example, in a study by Findlay, Macrae, Whyte, Easton, & Forrest (2020) a common perception among elite women rugby players is that menstruation harmed their athletic performance. Even though there is an increase in research on menstruation and sports, most of this research has been conducted by white women on white women athletes and then is too often applied to all sportswomen. I am concerned that such approaches overlook, even ‘whitewash’, understandings of menstruation in sport, which could negatively impact the support and resources available to non-white sportswomen. This thesis seeks to address this gap in the literature with a focus on Pacific sportswomen’s menstrual health and well-being.

Pacific Women in Sport: Towards a Focus on Athlete Health and Wellbeing

Over the past decade, a growing body of researchers have studied the experiences of Pacific sportsmen (Uperesa, & Mountjoy, 2014), with a particular focus on Pacific male rugby players. However, researchers are increasingly interested in Pacific girls and women’s participation in sports and physical activity. In so doing, researchers have revealed the many ways that Pacific girls and women navigate a range of cultural roles, responsibilities, and practices (Schaff, 2005, 2011; Teevale, 2008). Research has shown that Pacific women are usually responsible first for their families, household tasks, and caregiving before participating in leisure activities such as sports. Therefore, these cultural expectations sometimes create an image that sports are not appropriate for women, especially if they interfere with any cultural responsibilities (Balram, Pang, and Knijnik, 2024). As Hawkes (2023) suggests, many Pacific sportswomen are placed in a position where they may need to prioritize their community responsibilities over their personal goals. For example, when training or competitions interfere with any family or cultural events these sportswomen may be expected to sacrifice their sports

involvement to attend to their communal obligations. Therefore, such cultural values continue to limit the participation of many Pacific girls and women in sports. The recent book by Kanemasu (2023), *Pacific Island Women and Contested Sporting Spaces: Staking Their Claim*, is the most significant contribution to understanding the intersectional complexities of Pacific women's experiences in sport across the region. Kanemasu's (2023) research recognizes the many challenges facing Pacific women in sport, as well as their agency in navigating space for themselves, and 'staking their claim' to participate in sport at all levels. While research is increasingly focused on Pacific girls' and women's sports experiences, very little (if any) has focused on Pacific sportswomen's health and well-being. This thesis seeks to contribute to this gap with a focus on menstrual health.

My Research Approach: Centering Pacific Sportswomen's Voices with Masi Methodology

This research seeks to understand how Pacific sports women navigate different ways of knowing menstruation, including cultural, social, religious, and scientific ways of knowing. This thesis seeks to answer the following primary research question:

- **What are Pacific sportswomen's knowledge and experiences of menstruation in sports?**

It also seeks to understand the following secondary research questions:

- What are the key influences on Pacific sportswomen's knowledge and experiences of menstruation in sport?
- What are Pacific sportswomen's needs and wants for menstrual health-related knowledge and support?

To answer these questions, I adopted a Pacific methodology known as the Masi methodology.

The Masi Methodology is centered around Pacific Women (Naepi, 2019) and encourages a

researcher to consider the participants' cultural values throughout the entire research process. The Masi methodology is a Fijian-specific methodology, and as a Fijian woman, this cultural methodology aligned well with my values, cultural knowledge, and the focus of this project.

I commenced this project with a scoping review of how sports science and menstruation research has considered athletes' cultural and ethnic identities. I utilized an online survey with Pacific sportswomen to identify broad trends and capture some of the diversity of perspectives of sportswomen across different Pacific cultures. I then built upon this survey with two cases that prioritize local knowledge and recognize the importance of cultural context: 1) Fijian female athletes living in Fiji; and 2) Pacific sportswomen living in Aotearoa New Zealand. Utilizing focus groups and interviews with Pacific sportswomen in each location, this research sought to understand the nuances and complexities within their menstruation-related experiences. Weaving the survey, focus groups, and interviews together, this project maps out a broad picture of the gaps in menstrual health-related support across the Pacific, while also acknowledging the importance of place-based knowledge and culturally different beliefs. Ultimately, this study aims to improve the support structures for Pacific sportswomen by highlighting how they are impacted mentally, physically, and emotionally by multiple and competing sporting, cultural, and scientific beliefs about menstruation.

This project received ethical approval from the University of Waikato HREC(Health)2022#15 on 26 April 2022. As per ethical approval, each of the participants had to be between the ages of 18-60 years and have competed nationally or internationally in competitive sports. The locality of this study was across the Pacific (survey) and then focused on Fiji Islands and New Zealand (interviews and Talanoa sessions). The locations are strategic in that they make the most of my current networks and relationships in Fiji, and in Aotearoa New

Zealand for the second case study. The participants shared many different stories of their experiences, and how they navigated the different sporting environments. The diversity of such voices and experiences are reflected in the pages of this thesis, but here are two of the many quotes that highlight the important intersections of culture and athlete health and well-being:

My menstrual journey in sports has been sad in a lot of ways because it was a lonely journey. After all, menstruation in my culture was viewed as dirty or unclean. I was scared to discuss this with my family, coaches, or any support staff (Pacific NZ sportswoman).

My grandparents said that they used to celebrate it back in the day and I wonder what happened over time which makes us feel like it is a taboo topic? Westernization made menstruation seem like a taboo instead of making it better. Something went wrong somewhere. (Fijian sportswoman).

My participant's voices are centered throughout the data collection, analysis, and dissemination phases.

With the support of a co-funded PhD scholarship (Orreco and the University of Waikato), my research aimed to study Pacific sports women's experiences and understandings of menstruation. As well as being beneficial towards the development of sport in the Pacific, my research will assist in creating awareness on the topic of menstruation, and an environment where the topic can be discussed publicly. My research provides information on the importance of practicing cultural safety, the inclusion of ethnicities in menstruation research and sports, and the need for more menstruation educational programs not only at home but in different sporting environments.

This research project currently has three publications, and one under review in the following journals: 1) *British Journal of Sports and Medicine*, 2) *Journal of Sports and Social Issues*, 3) *Women in Sport and Physical Activity Journal*, 4) *International Review for Sociology of Sport* (currently under review). As an early career researcher, I had to upskill across a range of

disciplines and learn different methodological skills (scoping review, survey, focus groups, interviews). I worked to learn different disciplinary styles and approaches because I wanted to ensure the research findings had a wide-ranging impact, with the hope that this knowledge would ultimately shape professional practices (among sports organizations, medical professionals, and coaches) to improve the medical and social support for Pacific sportswomen. Working across disciplines was greatly supported by my supervisory team which was made up of a feminist sports sociologist, a Pacific scholar, sports scientists, and a sports doctor. My supervisory team helped me navigate through the different aspects of this research project. With the different methods, styles, and language used for each journal, I always ensured that I abided by the Masi methodology and worked to ensure that Pacific sportswomen's voices were always centered.

Chapter Summary

This is a “PhD with publication”, which means that some (not all) chapters will be published as journal articles. The following paragraphs provide a brief explanation of each chapter.

Chapter 2 is a scoping review published in the *British Journal of Sports Medicine* titled “Moving from ethnic exclusions to cultural safety: how is athlete ethnicity discussed in research on menstrual health in sports? A scoping review.” This study investigates the inclusion of an athlete's ethnicity in research focused on menstruation and sports. After reviewing 1089 articles related to menstruation and sport, only a total of 55 articles considered ethnicity. This shows that 81% of research conducted on menstruation and sport did not consider ethnicity in their methods, findings, or analysis. This paper makes a case for culturally responsive approaches to menstruation in research.

Chapter 3 is based on the findings and analysis of the online survey has been accepted for publication in the *Women in Sports and Physical Activity Journal* titled “Breaking the silence

and barriers” on culture and menstruation in sport: A Cross-Sectional Survey of 205 Elite Sportswomen across the Pacific.” This chapter addresses a significant, often overlooked topic—the intersection of culture, menstruation, and sports participation among elite Pacific Island sportswomen. This is a timely and crucial area of research, especially given the cultural sensitivities and taboos surrounding menstruation in many Indigenous Pacific communities. This chapter effectively breaks new ground by providing data on an understudied population, adding valuable insights into how cultural perceptions and practices influence sports participation and menstrual management in the Pacific.

Chapter 4 contains the findings and analysis from the interviews conducted with Fijian Sportswomen living in Fiji, and is titled “It's such a taboo subject, everybody's scared to talk about it”: Fijian Sportswomen’s Experiences of Menstruation.” Published in the *Journal of Sport and Social Issues*, this chapter is the first social scientific study on this topic with Fiji sportswomen being the main focus. The chapter offers much-needed primary data and critical observations on cultural and local understandings of menstruation; stigmatization and silencing of women’s voices and experiences concerning menstruation; women’s menstrual experiences/practices in sporting contexts; and the importance of coaches and support staff’s role in menstrual health education.

The last chapter draws upon interviews with Pacific Sportswomen living in Aotearoa New Zealand. This article titled “My menstruation journey in sport was sad and lonely”: The Menstruation Experiences of Pacific Sports Women in Aotearoa New Zealand” has received four constructive reviews and will be resubmitted while this thesis is under examination. This chapter explores the lived experiences of Pacific sportswomen in Aotearoa regarding menstruation and sport. This chapter investigates the influence of cultural beliefs and taboos in these

sportswomen's everyday lives, particularly in the sporting context. These Pacific sportswomen navigate through an intersectional lens that involves family, culture, gender, and sports. Furthermore, guided by the Masi methodology, the voices of these Pacific sportswomen remained a priority throughout the chapter. The analysis reveals three key themes: (1) the interplay of family, culture, and sports, (2) fears, silencing, and questionable advice in elite sports, and (3) shifts in sports organizations' understanding of menstruation.

In this introduction chapter, I have provided an overview of the structure, key points, and strategies used in this research to highlight Pacific sportswomen's knowledge and experiences of menstruation. It started with some insights into my own experiences and reflections on how I navigated culturally diverse ways of menstruation in Fiji and the USA. As this thesis explains, menstruation is a taboo topic in Pacific cultures and has been stigmatized for many generations. Such stigmas and taboos have shaped Pacific sportswomen's experiences of menstruation in sport and society. Guided by the Masi methodology, I surveyed and interviewed Pacific sportswomen across the Pacific islands, to highlight the need for culturally safe educational programs on menstruation, and improved support structures and culturally safe environments where sportswomen feel comfortable having open discussions about menstruation.

Chapter 2: Moving from ethnic exclusions to cultural safety: how is athlete ethnicity discussed in research on menstrual health in sports? A scoping review

Publication Manuscript 1

Gibbons, A. E., Pedlar, C., Hemi, K. V., Bruinvels, G., Hamilton, B., & Thorpe, H. (2024). Moving from ethnic exclusions to cultural safety: how is athlete ethnicity discussed in research on menstrual health in sports? A scoping review. *British Journal of Sports Medicine*, 58(8), 435-443.

Article Link: [Moving from ethnic exclusions to cultural safety: how is athlete ethnicity discussed in research on menstrual health in sports? A scoping review - ProQuest](#)

Abstract

Objective

This study aims to investigate how athlete ethnicity is discussed in the inclusion and exclusion criteria, methodology, findings, and conclusions of research focused on menstrual health in sports science and medicine.

Design

A scoping review of sports-based research conducted on athletes related to (1) menstrual health and ethnicity, (2) how researchers include/exclude participants based on ethnicity and (3) how ethnicity is discussed.

Data sources

Electronic search of PubMed and ProQuest.

Eligibility criteria

Articles were included if they met the following criteria: (1) published before September 2023, (2) published in peer-reviewed journals, (3) participants were women athletes, (4) published in English and (5) relating to menstrual health. Articles were assessed as good, fair or poor quality using the Inclusion of Participant Ethnicity Quality Assessment Criteria.

Results

From the 1089 studies available from the initial database search, 55 studies considered ethnicity. Nine studies met the inclusion criteria and were assessed as either good (22%), fair (44%) or poor (33%) in quality in consideration of athlete ethnicity. 81% of research articles on menstrual health in sports do not consider athlete ethnicity, and when ethnicity is discussed, it rarely meets

the criteria for cultural safety in the research process. Most studies did not factor ethnicity into the analysis and lacked cultural considerations in the research design and interventions.

Conclusion

More careful inclusion of ethnicity in sports menstrual health-related research and recognition of social and cultural influences on health and research outcomes for indigenous and other ethnic minority groups is needed. Such research is required to support coaches, medical personnel and support staff in designing culturally safe environments for sportswomen from diverse cultural and ethnic backgrounds.

Introduction

Over the past three decades, a growing body of research has focused on menstrual health and how it affects sporting performances, health and wellbeing (e.g., Brown et al, 2021, Findlay et al, 2020). However, with few exceptions (Muia, Wright and, Onywera, et al, 2016.; Ferrero S, Abbamonte, Giordano, et al., 2006), much of this research has focused on athletes of Caucasian and European descent, with findings generalized to athletes from distinct cultural and ethnic backgrounds. In 2014, the International Olympic Committee called for more menstrual health-related research to be conducted on non-Caucasian athletes (Mountjoy, Sundgot-Borgen, Burke, et al., 2014). Additionally, other authors have highlighted the lack of consideration of ethnicity in scientific research on sportswomen (Mkumbuzi, Chibhabha, and Zondi, 2023).

Research has revealed how different ethnicities (cultural and religious traditions and value systems) shape women's relationships with menstruating bodies (Bougie, Yap , Sikora, et al, 2019). Many cultural and ethnic communities have unique knowledge, practices and traditions regarding menstruation, some of which are passed down throughout the generations (O'Driscoll, Banting, Borkoles, et al, 2014). While menstruation is often portrayed as dirty and unclean in modern Melanesian countries (The Last Taboo, 2016), some have argued that such understandings of menstruation have been heavily influenced by colonization and religion (The Last Taboo, 2016; Murphy, 2013). As Indigenous scholar and educator Ngahuia Murphy (2013) explains, menstruation in precolonial Māori society was understood as a sacred and powerful time, but cultural protocol informing what women do during this time (i.e., do not go in the water, prepare food or enter burial grounds) were reframed as 'dirty' through processes of colonialism (i.e., white male scholars writing about cultural custom) (Murphy, 2013).

Such research highlights the powerful role that colonization has played in divorcing menstruation from its cultural, social and political context (Murphy, 2013). Moreover, in other contexts where colonization has not occurred, negative attitudes and stigma associated with menstruation may also be evident in different cultures and religions (Ratna, and Race, 2018; Harlow and Campbell, 1996). The taboos, stigma and silencing that have resulted from these processes continue to have an effect, rendering the cultural and ethnic diversity of women's experiences of menstruation in sports invisible or less valid (Johnston-Robledo and Stubbs, 2013). Only a few researchers have considered the importance of culture and ethnicity on women's understanding and experiences of menstruation during sports training, competition and physical activity. In particular, Giles (2005; 2004), codeveloped methods with Indigenous Dene women (Northern Canada) to show how menstrual traditions continue to shape Indigenous women's everyday lives, including participation in sports. Menstrual taboos include not participating in daily activities, or women isolating themselves due to the bad omen that are believed to follow menstruating women, therefore, women prefer not to participate in physical activities when menstruating (O'Driscoll, Banting, Borkoles, et al, 2014).

Other researchers have also explained how cultural traditions and customs prevent sportswomen from Indigenous and ethnic communities from participating in some forms of training and recovery (i.e., not entering the water) during menstruation, which can confuse white sports scientists and trainers who do not understand why the players are excusing themselves from particular tasks.¹⁸ Medical research examining the relationship between ethnicity and menstrual health in sports women is limited (Engmann, Jin, Sun, et al, 2017). Beyond sports, research has indicated higher risk factors for certain menstrual dysfunctions (i.e., polycystic ovarian syndrome) among black and Hispanic women (VanHise, Wang, Norris, et al., 2023) A

study conducted by Li et al (2022) on the different factors that could impact an individual's menstrual cycle showed evidence that participants who identified as Asian or Hispanic experienced longer menstrual cycles when compared with other ethnicities. The researchers were uncertain of the exact cause of this but indicated that stress and the different exposures to both the social and physical environment (i.e., the weather, economic disparity or exposure to racism) could be contributing factors (Li, Gibson, Jukic, et al, 2022). To date, very little sports science or medical research has focused specifically on how athletes' ethnicity and cultural background impact their menstrual health, training and performance. A better understanding of how ethnicity (and cultural knowledge and customs) impacts an athlete's experiences of menstrual health, educational opportunities and medical interventions, is needed to improve athlete health outcomes for all. Sportswomen from diverse ethnicities may respond better to medical intervention and support, and educational initiatives when a culturally responsive approach is taken. Yet research on menstrual health in sports is frequently 'stripped' of its cultural meanings, and as a result, the diversity of sports women's experiences of menstruation is misinterpreted. Identifying gaps in our understanding of menstrual experiences and areas for improvement will ensure that athletes of diverse cultural, ethnic and religious backgrounds receive the appropriate menstrual health support. With the British Journal of Sports Medicine issuing a call for all researchers to critically consider their own and participants' ethnicities and cultural identities in their research design and findings (BmjCom, 2022), it is timely to take a closer look at how ethnicity has been considered in research addressing menstrual health in sport.

Cultural safety on the topic of menstrual health in sports must begin with basic questions about the role of ethnicity in the research, and careful consideration of other intersecting variables that further impact the experiences of girls and women (e.g., socioeconomic

considerations, religion). In this manuscript, we do not use the term ‘race’, but rather ‘ethnicity’. While this can be problematic due to complexities in defining distinct ethnic groups, ethnicity better reflects the cultural complexities of athlete identities (McGannon and Johnson, 2022; Simons, Eisen, and Wiggins, 1995). While ‘ethnicity’ and ‘race’ are often used interchangeably, there are important differences. Whereas ‘race’ often comes with problematic explanations of biological differences ‘ethnicity’ refers to an individual’s cultural affiliation, family ties, and connection and belonging to a community with specific values, practices, traditions and geographical heritage. The primary objective of this study is to answer the following: Within research focused on menstrual health in sports, how is athlete ethnicity discussed in the inclusion and exclusion criteria, the methodology, findings and conclusions? To answer this question, this paper offers a scoping review of (1) research related to menstrual health and ethnicity in sports, (2) how researchers include/exclude participants based on ethnicity and (3) conclusions drawn in the research as to how ethnicity influences menstrual health.

Methods

Equity, diversity and inclusion Our research and author team consist of four women authors and two male authors. This team includes experienced senior researchers from different disciplines all with an interest in female athlete health and well-being representing Aotearoa New Zealand and the UK. The first author (AEG) is an early-career woman researcher from Fiji (a low-middle-income country), and the fourth author (KVH) is a senior Pacific scholar of Kanaka Maoli/Kanaka Oihi (Native Hawaiian) and Cherokee ancestry. The four other authors identify as white and from high-income countries (Aotearoa New Zealand and the UK). Our research was on the inclusion and exclusion of ethnicity in research related to menstruation and sports, and we recognize that our different disciplinary, gendered and cultural identities informed

our interest in this topic and involvement in this study. We acknowledge that our multidisciplinary and multicultural research team shaped the focus of this scoping review.

Data sources and search strategy

A scoping review was conducted using the Preferred Reporting Items for Systematic Review and Meta-Analysis guidelines with the Scoping Review Extension (PRISMA-ScR) (Tricco, Lillie, and Zarin, et al, 2018) except for registering a protocol. The electronic databases PubMed and ProQuest were searched using a combination of search terms as follows (menstruation OR eumenorrhea OR amenorrhea OR menorrhagia OR oligomenorrhea) AND (female athlete OR women athlete OR sports woman OR sport). The language in menstrual health research is changing, with a turn towards more inclusive terminology. Recognizing that transmen and non-binary people assigned female at birth may also menstruate, health organizations and professionals increasingly refer to ‘people who menstruate’ rather than women or females (Babbar, Martin, and Varanasi, et al, 2023; Lane, Perez-Brumer, and Parker, et al.,2022). Due to the time frame of this review, we used both ‘female’ and ‘women/woman’ in the search to recognize changes in how sex and gender are understood differently over this period. After all the article titles and abstracts were reviewed, and duplicates removed, the remaining relevant full-text articles were screened for further citations. Studies were assessed according to the inclusion of ethnicity, or consideration of culture, in their methods, discussion, findings and conclusions. Articles were excluded if the relevant information was not reported.

Table 1 Exclusion and inclusion criteria

| Inclusion criteria | Exclusion criteria |
|--|---|
| ▶ Menstruation and sport | ▶ Articles outside the timeline |
| ▶ Articles published prior to September 2023 | ▶ Editorials |
| ▶ Scholarly literature or academic journals | ▶ Letters |
| ▶ Female athlete health | ▶ Duplicates |
| ▶ Menstrual health-related topics | ▶ Non-female athletes (Wrong target) |
| ▶ Ethnicity of participants mentioned | ▶ Non-menstrual health topics |
| ▶ Articles published in English | ▶ Ethnicity of participants not mentioned |
| | ▶ Articles published in other languages |

Study selection

The inclusion criteria strictly included articles that were published prior to September 2023 (articles that included ethnicity or culture in their methodology, discussion, findings or conclusion). The reference lists were examined for any additional studies that may have been missed. The exclusion criteria included any editorials, letters and articles written in languages other than English, and those with no relevant information to research based on menstruation and sports (see table 1).

Data extraction

The following data were extracted and tabulated from each article the year published, type of study (cross-sectional, systematic review, cohort and randomized controlled trial), methods or research design, ethnic identification and how ethnicity was discussed in the methods, findings and conclusion.

Quality assessment tool

Recognizing concerns that researchers have historically misinterpreted Indigenous peoples and adopted harmful research practices (Smith, Spaaij, and McDonald, 2019), many national health research organizations have provided guidelines as to best practices for minimizing harm and performing culturally responsive research (Mkabela, 2005; Pacific Health Research Guidelines, 2014) to support rigorous review processes of research on, and with, ethnic minority groups. Indigenous health researchers have created tools such as the Te Ara Tika (Guidelines for Māori Research Ethics) (Hudson, Milne, Reynolds, et al., 2019), Pacific Health Research guidelines (Pacific Health Research Guidelines, 2014), the Aboriginal and Torres Strait Islander quality appraisal tool, African Evaluation Guidelines (Harfield, Pearson, and Morey, et al., 2020) and Ethnic Sensitive inventory tool (Ho, 1990) to guide best practices in doing research with, from and for Indigenous and ethnic communities. For example, in Aotearoa New Zealand, research with Māori participants requires scientists to demonstrate respect for cultural values throughout the research process (i.e., extensive consultation; kai/food offered; karakia/cultural prayer at the beginning; support person welcome; Indigenous ownership of data and culturally informed processes for tissue collection and disposal), (Barrow, and Saha, 1988; Edmonds, Cram, Bennett, et al., 2022; Thom, Black, Burnside, et al., 2022).

In the absence of a suitable quality assessment tool for reviewing how ethnicity is considered in sports science and medicine research on menstrual health, we have modified and adapted criteria from Indigenous researchers such as Hudson et al (2019), and the Pacific Guidelines provided by the Health Research Council of New Zealand (Pacific Health Research Guidelines, 2014) to produce 11-item criteria (see table 2). For this review, each article was reviewed with the guidance of the Inclusion of Participant Ethnicity Quality Assessment Criteria (table 3). The articles were assessed using 11 questions, and each question was rated using a

scoring system which was as, ‘0 points for poor’, ‘1 point for fair’ and ‘2 points for good’. To be recognized as a ‘good’ article, the scores had to be between 16 and 22 points, ‘fair’ 8–15 points and ‘poor’ was any score below 7 points. As explained in the Discussion section, we recognize that a poor-fair-good scale represents a minimum standard for evaluating how well these articles and studies take ethnicity into consideration but is not an assessment of the overall quality of these studies.

| Table 2 Inclusion of participant ethnicity: quality assessment criteria scoring tool | | | |
|--|-----------------|-----------------|-----------------|
| Criteria | 0 (Poor) | 1 (Fair) | 2 (Good) |
| 1. The authors clearly identify the ethnicity/ies of their participants. | | | |
| 2. The inclusion/exclusion criteria of different ethnicities were clearly discussed, with ethical consideration for the effects of such decisions. | | | |
| 3. The participants’ ethnicity and relevant cultural context (ie, cultural and religious values) are acknowledged. | | | |
| 4. The study clearly explains the method/s used to consult, seek permission and gain informed consent (including discussion of advantages and disadvantages of participation) from the ethnic group/s being studied. | | | |
| 5. The article clearly mentions the cultural protocols used to create cultural safety in the research process and to respect participants’ cultural values throughout (ie, culturally appropriate collection and disposal of tissue/blood samples; efforts to ensure participants can speak in their preferred language; the research environment is set up to respect cultural values and customs, ie, food, prayer). | | | |
| 6. The authors explain how their own cultural background shaped this study (also known as researcher reflexivity). | | | |
| 7. The research team includes an individual from the same ethnic group/s as those being studied. | | | |
| 8. The research team includes leadership from someone of the same ethnicity as those being studied. | | | |
| 9. The results were discussed without exaggerations or false claims in regard to ethnicity. | | | |
| 10. The results and analysis demonstrate recognition of differences within ethnic groups and take care not to reproduce generalisations across an ethnic group, or between ethnic groups. | | | |
| 11. The article shows evidence that the cultural safety of the participants was a priority throughout the research process. | | | |
| Total of each criterion | | | |

Table 2 Inclusion of participant ethnicity: quality assessment criteria scoring tool

| Author(s) | Year | Study design | Ethnicities included (n, %) A (n=X, Y%) B (n=X, Y%) | Research theme | How ethnicity was considered in the study |
|---------------------------------------|------|---------------------------|---|--|--|
| Muia <i>et al</i> ³ | 2016 | Questionnaire | Kenyan (n=100) Focused only on athletes from Kenya (African ethnicity). However, they mentioned how race/ethnicity could affect the risk of triad. | This study focused on Female Athlete Triad components among Kenyan elite runners. | The authors are from the community and ethnic group they are studying. The key findings are contextualised well, with consideration of the athlete's cultural and socioeconomic background discussed carefully in relation to the findings. |
| Thorpe <i>et al</i> ⁴⁵ | 2020 | Semistructured interviews | Māori (n=8) Māori-Pakeha (n=1) Samoan (n=2) Samoan-Māori (n=3) Samoan-Pakeha (n=2) | This study focused on how athletes' ethnicity and cultural knowledge impacted their experiences of nutrition, body image and menstrual health in elite rugby culture. | The authors are highly reflexive of how their ethnicities shaped this project. Athlete culture was carefully considered in the research design. Researchers worked with an expert in Māori health to ensure best practices in terms of respecting the cultural identities of participants. |
| O'Loughlin <i>et al</i> ⁴⁴ | 2022 | Focus groups | New European (n=11) British (n=3) European (n=1) Irish (n=1) Indian (n=1) Samoan/Niuean (n=1) | This study explores how to support staff, such as medical personnel, to discuss the menstrual cycle and their knowledge of the topic in sports medicine communities. | The researchers discussed the need to have a better understanding of how different ages, cultures and genders influence athletes' experiences of the menstrual cycle. The article included a brief explanation of the Māori-Samoan culture. |
| Nichols <i>et al</i> ⁴⁰ | 2007 | Questionnaire | Caucasian (n=55.3) Hispanic (n=19.9–27.9 –14.0) African American (n=13.7–7.4 –18.3) Asian/Pacific Islander (n=6.8–10.3–4.3) 'Other'/no response (n=3.4) | The study examined the menstrual status, mechanical loading and bone mineral density that female high school athletes may experience during competition or training. | Ethnicity was included in the methodology but excluded in the discussion and conclusion. The study mentions that ethnicity was not significant to the BMD analyses. |
| Mkumbuzi <i>et al</i> ⁴ | 2023 | Questionnaire | African (n=564) | This study examined the menstrual knowledge and experiences of African elite female football players. | This study was focused on female African football athletes and support staff. The findings from this study portrayed the lack of menstruation knowledge among the athletes, and support staff in the African football culture. |
| Heather <i>et al</i> ⁴³ | 2021 | Survey | European (n=80) Māori (n=8) Pasifika (n=6) Asian (n=0) Other (n=4) | This study was conducted in New Zealand with elite sportswomen. The researchers aimed to understand how physiological and social factors influence elite female athletes' health in high-performance sports. | The study identified the important role of sociocultural in elite female athletes' health. The authors acknowledge a need for more research on the culture, ethnicity and health of elite female athletes, especially Māori wahine (women). |
| Barkai <i>et al</i> ⁴² | 2006 | Questionnaire | Caucasians (n=54) Hispanics (n=21) African American (n=13) Asian or Pacific Islander (n=7) Unreported or 'other' (n=5) | This study examined the importance of physical education for an adolescent's growth and the influence of menarche on an adolescent's bone mineral density. | The study explains the ethnic distribution (predominantly Caucasian) noting that it is representative of the local population. |
| Ackerman <i>et al</i> ⁴¹ | 2018 | Questionnaire | White (n=94.5) Black (n=2.7) Hispanic (n=4.6) Asian (n=2.9) Native American (n=0.4) Pacific Islander (n=0) Other (n=1.9) | The researcher examined how low energy availability was associated with RED-S among female athletes living in Boston, USA. | This study only mentioned ethnicity being a limitation in the study and lacked any discussion on the topic of ethnicity. |
| Mkumbuzi <i>et al</i> ⁴⁶ | 2022 | Questionnaire | African (n=42) | This study discusses how menstruation is excluded from football medicine research, and how there is limited research on how menstruation can impact an African footballer's performance. | This study was conducted with African women football players. The findings showed that menstruation could affect an athlete's performance and support personnel must be aware of an athlete's menstrual cycle. |

BMD, bone mineral density; RED-S, Relative Energy Deficiency in Sport.

Table 3 Summary of studies included in the scoping review

Results

The electronic database search identified 1089 articles related to menstrual health, and sports as shown below in the PRISMA flow diagram (figure 1). After the duplicates were removed, 871 abstracts were screened, and 704 records were excluded. Consequently, 167 full-text articles were assessed for eligibility. The lead author (AEG) reviewed 55 articles that met the inclusion criteria (articles that included ethnicity, minorities or culture in their methodology, discussion or conclusion) and concluded the research with 9 articles that included ethnicity, minorities or culture in their methodology, discussion or conclusion. A blinded process with two reviewers (AEG and HT) was then used, with each using the QAT to assess how ethnicity was discussed in the nine articles. All included studies are summarized in table 4.

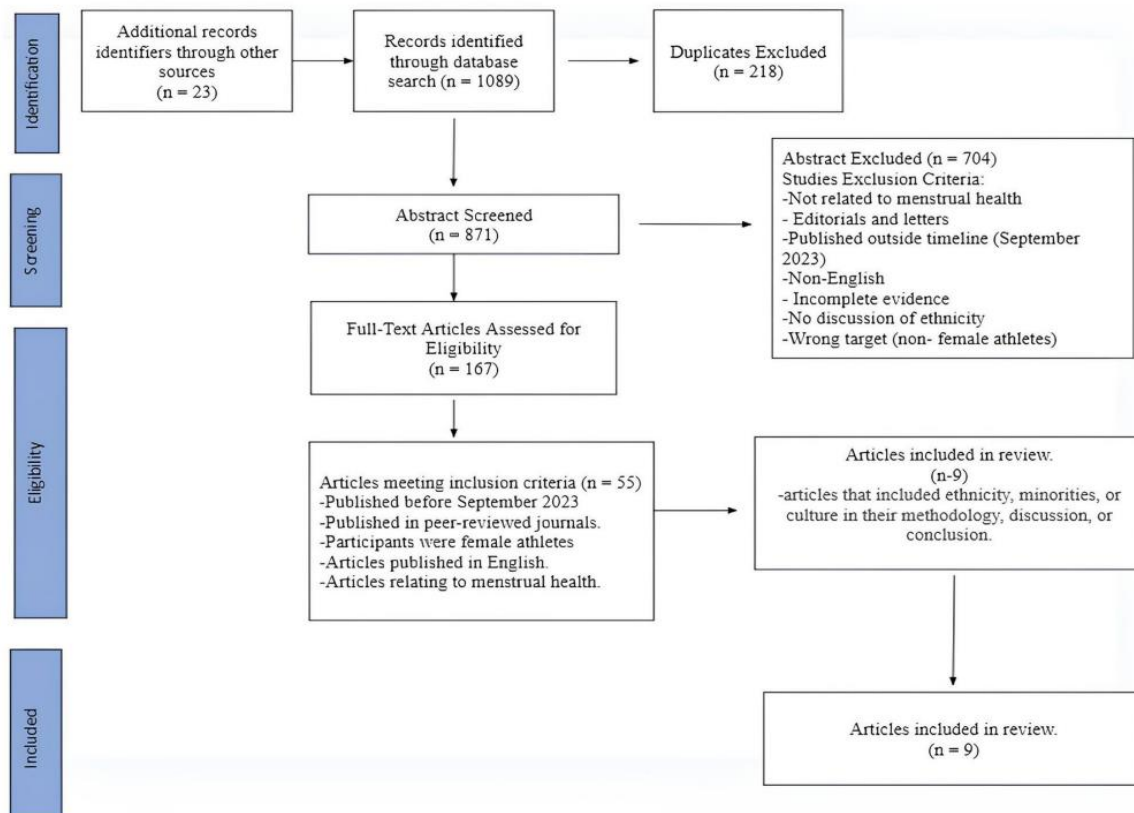


Figure 1 Flow chart summarising the search and article selection. From the 1089 studies available from the initial database search, 55 studies considered ethnicity. Nine studies met the inclusion criteria and were assessed as either good (22%), fair (44%) or poor (33%) in quality in their consideration of athlete ethnicity

Summary of Findings

The nine studies that met the final inclusion criteria used qualitative, quantitative, cross-sectional and screening designs and were conducted in North America (n=3) (Ackerman et al, 2019; Barkai et al, 2007), New Zealand (n=3) (Heather et al, 2021; Thorpe et al 2020) and African countries (n=3).^{3 4 46} (Muia et al, 2016; Mkumbuzi et al 2023; O’Loughlin, Reid, and Sims, 2023) The methodological approaches used were predominantly questionnaires and surveys (n=7), (Muia et al, 2016; Mkumbuzi et al 2023; O’Loughlin, Reid, and Sims, 2023; Ackerman et al, 2019; Heather et al, 2021) interviews (Thorpe and Rolleston, 2020) and focus groups (O’Loughlin, Reid, and Sims, 2023) (see table 3). Specifically, regarding their consideration of athlete ethnicity in their research design and findings, five studies were assessed as poor (0–7 points), (Nichols et al, 2007; Barkai et al, 2007; Heather et al 2021) three as fair (8–15 points) (Heather et al, 2021) and two as good (16–22 points) (Muia et al, 2016; Mkumbuzi et al, 2023).

Ethnicity discussed in methodology but excluded from the analysis

A study of high school athletes in San Diego, California (Ackerman, Holtzman, Cooper, et al, 2017) included different ethnicities in the methodology. However, due to the mixed-ethnic population, and the locality of the high school, the majority of the female athletes were Caucasian. Analysis of covariance (ANCOVA) detected the different bone mineral densities by testing the gynecological age, menstrual irregularity, age and ethnicity. However, the ANCOVA model did not recognize ethnicity and menstrual irregularity as significant factors, so ethnicity was exempt from the results. A cross-sectional study conducted in Boston (USA) explored

Relative Energy Deficiency in Sport (RED-S) via an online questionnaire which included ethnicity, among women athletes aged 15–30 years. Caucasians were the predominant group in the sample (white 94.5%, black 2.7%, Hispanic 4.6%, Asian 2.9%, Native American 0.4%, Pacific Islander 0.0% and other 1.9%) (Pacific Health Research Guidelines, 2014). The authors alluded to the lack of ethnic diversity as a limitation but provided no further evidence on how ethnicity could impact a female athlete's experience of RED-S.

Ethnicity is acknowledged as important throughout the study

Five of the nine articles acknowledged the importance of athlete ethnicity in research focused on menstrual health but did not go into depth as to how ethnicity contributed to their research design or findings. For example, a New Zealand study (O'Loughlin, Reid, and Sims, 2023) examined the understanding of the menstrual cycle in anterior cruciate ligament reconstruction patients and female athletes and health professionals (e.g., sports physiotherapists). Using focus groups, the study found that experiences of the menstrual cycle were taboo not only in the sporting environment but at home, and in different cultural settings. While the authors identified 'cultural considerations' as 'another layer' when considering menstrual cycle conversations in elite sports settings, they did not offer insights into how such cultural considerations were being navigated in the sporting environment or in their research design. Thorpe et al (2020), demonstrated a thorough (rated as 'fair-good') understanding of athlete culture and ethnicity throughout their study of women rugby players. This cross-cultural research team (in collaboration with a Māori health expert) examined the training, nutrition and menstrual experiences of Māori and Samoan New Zealand elite women rugby players, ultimately highlighting the need for more research that unpacks the 'whiteness' of sports science, and particularly how sports scientists and medical professionals educate, treat and support, and study

sportswomen from different cultural backgrounds. According to the authors Thorpe et al (2020), new approaches are needed for research conducted on, with and for Indigenous women athletes in high-level sports environments, with more culturally diverse research teams prioritizing the cultural values of the athletes throughout the research process.

Table 4 Assessment of the selected articles using the qualitative assessment tool

| Criteria | Muia et al ³ | Mkumbuzi et al ⁴ | Thorpe et al ⁴⁵ | Mkumbuzi et al ⁴⁶ | O'Loughlin et al ⁴⁴ | Heather et al ⁴³ | Ackerman et al ⁴¹ | Nichols et al ⁴⁰ | Barkai et al ⁴² |
|---|-------------------------|-----------------------------|----------------------------|------------------------------|--------------------------------|-----------------------------|------------------------------|-----------------------------|----------------------------|
| The author/s clearly identify the ethnicity/ies of participants | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| The inclusion/exclusion criteria of different ethnicities were clearly discussed | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 0 | 0 |
| The participants' ethnicity and relevant cultural context (ie, cultural and religious values) are acknowledged | 2 | 2 | 2 | 1 | 1 | 1 | 0 | 2 | 0 |
| The study clearly explained the method/s used to consult, seek permission and gain informed consent from the ethnic group/s being studied? | 2 | 2 | 1 | 1 | 2 | 0 | 0 | 0 | 0 |
| The article clearly mentions the cultural protocols used to create cultural safety in the research process and to respect participants' cultural values throughout | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| The authors explain how their own cultural background shaped this study (also known as researcher reflexivity) | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| The research team includes an individual from the same ethnic group/s as those being studied | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Does the research team include leadership from someone of the same ethnicity as those being studied? | 2 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| The results were discussed without exaggerations or false claims about ethnicity | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 |
| The results and analysis demonstrate recognition of differences within ethnic groups and take care not to reproduce generalisations across an ethnic group or between ethnic groups | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 |
| The article shows evidence that the safety of the participants was a priority throughout the research process | 2 | 1 | 2 | 2 | 0 | 2 | 2 | 0 | 1 |
| Total of each criterion | 18 | 16 | 15 | 15 | 10 | 10 | 7 | 6 | 5 |

Research with, by and for women from ethnic communities

Muia et al, (2016), studied Kenyan female middle and long-distance runners of African descent and uniquely demonstrated a clear understanding of how ethnic identities could affect data (rated as 'good' using the quality assessment tool). This research reflected on how ethnicity could affect the risk of the Female Athlete Triad and identified an important gap in the literature: data on African athletes and the components of the Triad are very limited because studies have typically focused on the Caucasian ethnic identity. The lead researcher identified as an African. This research considered data on menstrual patterns, disordered eating, weight, height and body composition, and energy availability, and incorporated a nuanced discussion of cultural influences.

Mkumbuzi et al (2022), conducted a study on elite African women football players, coaches, health personnel and referees' knowledge, attitudes and behaviors towards menstruation. This study acknowledges that most research on menstruation and sport is usually conducted in high-income countries and identifies a gap in the literature on the understanding of menstruation in low-income countries, particularly African athletes. The research discovered a lack of knowledge and understanding of menstruation among the athletes and support staff. This research calls for more research on African sportswomen and their understanding of menstruation. The authors also acknowledge how the cohort was very supportive and positive about learning more about the topic of menstruation in sports. Another study conducted by Mkumbuzi et al, (2022), was also focused on African women football players and support personnel. This study aimed to understand the culture and history of African women's experiences of menstruation. This study identifies that even though women had access to sanitary products, some of the athletes would use old rags due to financial difficulties. The research findings showed how the menstrual cycle affected many women during training or competitions. This study calls for more support staff to have a better understanding of African women's football player's social economic and religion-cultural context which impacts the athletes' experiences of menstruation in sport.

Discussion

Our findings demonstrate several areas of concern in terms of ethnicity, indigeneity and cultural safety. This includes the low number of studies that consider ethnicity as a factor at all or include ethnicity in their findings, discussions and conclusions. Outside of sports-related research, multiple studies have shown how there is a major gap in the literature on ethnicity and menstruation. Others have shown how women of diverse cultural and ethnic backgrounds understand menstruation in distinctive ways, and how their everyday practices (i.e., cooking,

working, socializing) are impacted by cultural and/or religious understandings of menstruation (Joshi, 2022; Orringer and Gahagan, 2010). In sport-specific research, however, the under-representation, invisibility and non-participation of women of ethnicity or indigeneity highlight an important gap in the literature (White, 2013; Harlow, and Campbell, 1996). It also signals the failure of research methods, overlooking or ignoring women who may be vulnerable to harm by culturally blind research and medical interventions.

Ethnicity and the ‘good’

We were only able to find 55 studies relating to women athletes and menstrual health that considered ethnicity, however, only 9 considered ethnicity in their results, discussions or conclusions. Using the inclusion of the participant ethnicity: Quality assessment criteria scoring tool (table 2), 22% good, 44% fair and 33% identified as poor. A key finding from this review is that 81% (i.e., 704 of 871 studies reviewed) of the total articles screened for this research did not consider participant ethnicity nor consider how ethnicity could be a contributing factor towards a woman athlete’s menstrual health in sports. The immediate risk incumbent in interpreting and applying such ethnicity-blind research is that findings may be inappropriately and inaccurately generalized for athletes from different cultural and ethnic backgrounds. In so doing, the invisibility of Indigenous, ethnic minority and women of color (WOC) in research methods may make them vulnerable to culturally blind interventions. Without culturally informed care, athletes of diverse backgrounds may not engage fully with medical support and advice.

Furthermore, all the studies included in this review had similar conclusions about the need for more research on how ethnicity can influence women athletes’ understanding of menstruation. Among the minority of researchers who did incorporate ethnicity in the methodology, the majority proceeded to exclude it from their discussions or conclusions, with

some even identifying ethnicity as a ‘limitation’ of the study (Thorpe et al., 2020). Very rarely were the menstruation-related experiences of black, Indigenous or ethnic minority women considered, discussed or the focus of nuanced consideration. Only a few studies illustrated the significance of ethnicity for women’s experiences of menstruation in sports and physical activity (Muia et al., 2016; Mkumbuzi et al., 2022; Heather et al., 2021; Thorpe et al., 2020) with most of these concluding with calls for more research that seeks to understand cultural and ethnic diversity among athlete’s experiences of menstruation. Consequently, to better understand the experience of menstruation in women athletes from different ethnicities, studies need to demonstrate a culturally safe research design that enables better inclusion of ethnicity in data and research criteria.

Importantly, cultural safety is not about simply including a greater diversity of participants in menstrual health in sports research, but rethinking research designs so that sportswomen from ethnically diverse backgrounds feel safe and respected throughout the process. The lack of data on how ethnicity could affect women athletes’ experiences, means that coaches and medical and support staff will experience challenges when working to treat, diagnose and educate athletes from diverse cultural backgrounds. Gaining this insight would help raise the level of understanding and facilitate more discussion and support regarding menstrual health issues. To date, very few researchers or medical support persons have considered how sportswomen’s cultural values and customs impact their understanding of menstrual health and engagement with medical treatment and education efforts.

Therefore, for future research seeking to remedy these absences in research on athlete ethnicity and menstrual health in sports, researchers could begin by following recent guidelines by the BJSM and include an equity, diversity and inclusion statement in the Methods section of

their papers. However, the best practice requires more than reporting on athlete ethnicities and requires researchers to consider how their understandings and assumptions of ethnicity are shaping their methodologies and analyses and to consider whether their approaches to doing research are considered safe and supportive to participants from different cultural and ethnic groups. It is of utmost importance that sports scientists do not merely 'add' more athletes of diverse ethnicities to their studies. Best practice involves expanding the research team to include researchers from the same cultural backgrounds as participants and designing methodologies with athletes' cultural values at the fore. Simply 'adding' athletes from different cultural and ethnic backgrounds to studies that do not genuinely recognize and value their worldviews can marginalize ethnic women from the research process, potentially causing psychological distress through feelings of exclusion and cultural misunderstanding. A medical practice that fails to recognize and respect cultural ways of knowing menstruation also has the potential to do harm (Ho, 1990).

Exclusions, oversight and harm

As signaled above, Indigenous and ethnic-minority researchers are increasingly advocating for research principles, methods and methodologies that are culturally informed. Importantly, ethnicity does not exist in a vacuum, and women from ethnic communities often experience intersecting variables (i.e., socioeconomic deprivation, citizenship, experiences of racism and discrimination) that further impact their experiences in sport and society. The potential for harm through research on indigenous and ethnic-minority women and menstruation that neglects ethnicity (and intersecting variables) in its discussion and in its research, design is ever-present (Thom et al., 2022). Using methodologies that do not respect the ethnic and cultural values of participants could be discriminating, dehumanizing, colonizing, ineffective and

inaccurate.^{50–52} The invisibility of data or skewed results on ethnicity could cause harm to an individual due to the results being generalized, the cultural differences being denied and medical care not respecting women’s culturally specific knowledge of health, wellbeing and menstruation (Gorzynski, Currie, and Gibson, et al., 2021). The lack of information on ethnicity in research may cause harm to an indigenous or ethnic-minority person both mentally, physically and spiritually. Harm can also be caused by non-respectful methodologies, resulting in inaccurate data that could silence different ethnicities’ voices (Ackerman et al, 2019; Thorpe et al, 2020; Joshi, 2022). Furthermore, as sports sociologists have revealed, sports science research that sets out to identify ‘differences’ based on race or ethnicity without carefully reflecting on the origin and ethics of such questions can risk reproducing dangerous racial ideologies (Giles, 2005; O’Loughlin et al., 2023; Mkumbzi et al., 2022).

From cultural competency to cultural safety

Cultural considerations need to be at the forefront when researchers and medical personnel are working with athletes from different cultural backgrounds. Cultural competency is used in some sports medicine and scientific fields (Thorpe et al., 2020). Cultural competency refers to equity-driven approaches to research or healthcare that recognize the significance of social and cultural influences on health and research outcomes for indigenous and other ethnic minority groups experiencing inequitable outcomes in health. In the context of sports research and practice, cultural competency refers to an approach where an individual (i.e., researcher, doctor, psychologist, coach, educator) is aware of the athlete’s ethnicity, increasing their knowledge, and accepting and respecting the differences in cultural ways of knowing (Joshi, 2022; Orringer et al, 2010; Nicholls et al., 2007).

While cultural competency has gained traction in sports medicine and research, indigenous and ethnic minority health scholars are calling for a focus on ‘cultural safety’ rather than competency (White, 2013). In contrast to cultural competency, cultural safety requires researchers, healthcare professionals and associated organizations to ‘examine themselves and the potential impact of their own culture on clinical interactions and healthcare service delivery’ (Harlow, and Campbell, 1996). Therefore, adopting a ‘cultural safety’ approach challenges researchers, health professionals and healthcare organizations to ‘acknowledge and address their own biases’ that may ‘influence the quality of both research produced and care provided’ (White, 2013).

In doing so, cultural safety goes beyond cultural competency, as it ‘encompasses a critical consciousness where healthcare professionals and healthcare organizations engage in ongoing self-reflection and self-awareness and hold themselves accountable for providing culturally safe care, as defined by the patient and their communities, and as measured through progress towards achieving health equity (White, 2013). Put simply, cultural safety requires researchers, healthcare professionals and their associated healthcare organizations to reflect on how their cultural assumptions may be shaping their practice and to ‘influence healthcare to reduce bias and achieve equity within the workforce and working environment (Burchard et al., 2003).

Approaching research on menstruation from a cultural safety perspective call for the researcher/s to engage in deep reflection as to how their own cultural background, and how their own biases and assumptions, could affect the research that they are conducting on other cultures (Thomas and Dyall, 1999). A cultural safety approach also requires the researchers to genuinely invest in exploring methodologies that are culturally respectful, where the athlete is the focus and

they feel safe, valued and respected throughout the research process. An example of a methodology that is culturally safe and respectful would be the CONSolidated critERtia methodology which provides a checklist that focuses on the voice of indigenous people ensuring that they remain the main priority of research, especially in countries that have been impacted by colonization (Ratna and Race, 2018). Furthermore, sports science and medicine research on menstrual health would be greatly enhanced by ensuring greater diversity of perspectives on the research teams, with projects designed to reflect the centrality of athletes' cultural and ethnic values throughout.

Importantly, to move beyond poor-fair-good standards, and towards the 'gold standard' of menstrual health in sport, much can be learnt from those advancing Indigenous research methodologies (Poirier et al.,2022; Thomas, and Dyall, 1999; McGuire-Adams, 2020). While Indigenous sports scholars are developing culturally responsive and relational methodologies that priorities reciprocity, respect and responsibility (Poirier et al.; Muriwai et al, 2023; 2022; McGuire-Adams, 2020), such approaches have yet to be applied in sports medicine research. The 'gold standard' is thus research about, with, and by women from diverse ethnicities and cultures, and medical approaches that value and respect cultural values and traditional knowledge about menstruation. Such models in research and care contradict invisibility and inaccuracy, enhance individual and community self-determination, and are closely linked with more equitable health outcomes for women from diverse ethnicities and cultural communities.

Limitations

This scoping review did not cover all research focused on menstrual health and sport. It was limited to only academic articles published in English, before September 2023. Therefore, other information such as incomplete data, articles outside the timeline, editorials, letters and

articles published in other languages were not considered. It is important to understand that the results of this scoping review were based on nine studies that have used different methodologies. Nonetheless, the assessment criteria are not methodology-specific and can be applied to any research including participants of different ethnic backgrounds. The Quality Assessment Tool developed for the purpose of reviewing the selected articles was not validated, and there are opportunities for future validation. In the meantime, it provides a valuable set of considerations for researchers of sports medicine towards better practice when including participants of different ethnicities in their studies.

Conclusion

Menstruation has been stigmatized and a taboo topic for generations, with commonalities but also stark differences between countries, ethnicities and cultures. Based on the results of this review, the careful consideration of the inclusion of ethnicity in future research could help coaches, medical personnel and support staff to discuss this topic effectively without causing or exacerbating harm. With a greater understanding of how different cultures and ethnicities understand menstruation, medical and sports professionals can better support the menstrual health and well-being of their athletes, which has the potential to positively impact their training and performance, as well as overall feelings of belonging and support in their sporting environments. The inclusion and exploration of ethnicity as a crucial covariate in research would help in deepening such cultural understandings of menstruation experiences, and most importantly how athletes' ethnic backgrounds shape their understandings and engagement with scientific and Western framings of menstruation. Most importantly, future research should not simply 'add' more cultural diversity into samples and then 'stir', but researchers need to rethink their methodologies in ways that genuinely respect and value the cultural diversity of

experiences of menstrual health. Research on menstrual health in sports needs to work towards cultural safety and cultural responsiveness. It is only then that menstrual health in sports research can move towards 'excellence' in terms of how athletes' cultural and ethnic backgrounds are considered in the research designs.

With such knowledge, medical support and educational models can move from generalized findings towards approaches that acknowledge and respect the cultural diversity of athletes, with programmes designed in ways that value different ways of knowing menstruation. The 'whitewashing' of menstrual health research and practice does not meet the needs of all sportswomen today, and there is a need for sport scientists and medical professionals to critically reflect on how their own cultural identities are shaping (and limiting) their research designs and medical practice and may even be doing harm by generalizing their findings for all who menstruate in sport.

Chapter 3: “Breaking the Silence and Barriers” on Culture and Menstruation in Sport: A Cross-Sectional Survey of 205 Elite Sportswomen Across the Pacific

Manuscript 2

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[Article link: “Breaking the Silence and Barriers” on Culture and Menstruation in Sport: A Cross-Sectional Survey of 205 Elite Sportswomen Across the Pacific.](https://doi.org/10.1123/wspaj.2024-0114)

Abstract

The intersection of cultural and ethnic identities with menstrual experiences in sports remains an under researched topic. This study used an online survey with 205 Pacific sportswomen to investigate the experiences and understanding of menstruation within the different Pacific islands. The survey examines the different cultural stigmas, beliefs, taboos, traditions, menstrual health, and sports performance of elite Pacific sportswomen. The primary purpose of this research was to understand how Pacific sportswomen's experiences and understandings of menstruation are shaped by their cultures, and whether this impacts their experiences of and needs for menstrual health in sport. This survey identifies broad trends and captures the diversity of perspectives of sportswomen across different Pacific cultures, while also highlighting shared experiences of ongoing cultural stigma and taboo and lack of culturally responsive menstrual health care in sporting contexts.

Introduction

Over the past decade, a plethora of research has focused on the impact of the menstrual cycle on sportswomen's health and performance (Constantini et al., 2005; McNulty et al., 2020). To date, very little research has considered how athletes' cultural and ethnic identities may impact their experience of menstruation while participating in sport (Gibbons et al., 2024). While various surveys have been used with sportswomen to understand their menstrual health and well-being regarding sports participation and performance (Heather, Thorpe, et al., 2021), very few have considered how cultural ways of understanding menstruation may impact the types of medical support athletes need for health and well-being (Mkumbuzi et al., 2022; Maulingin-Gumbaketi et al., 2022). While research outside of sports has shown the importance of culture on women's menstrual health (Fitzgerald, 1990), very little sports research is focused on the intersection of culture, ethnicity, gender, and menstrual health. A recent scoping review of 1,089 articles on menstrual health in sports showed that 81% of research articles do not consider athlete ethnicity, and when ethnicity is discussed, it rarely meets the criteria for cultural safety in the research process (Gibbons et al., 2024).

This paper seeks to expand the understanding of the importance of culture on sportswomen's experiences of menstruation with a focus on the Pacific region. The Pacific islands are made up of 22,000 islands and 1,200 languages. Across the Pacific islands, there is also diversity in gender roles and cultural practices relating to menstruation. Previous research has shown that Pacific women have different ways of understanding menstruation, with an array of culturally specific practices and unique challenges. For example, Francois et al. (2017) discusses how many women in Fiji have "a lack of understanding of menstruation, pain, fear of staining their clothes or uniforms, and feeling embarrassed, along with an inability to change at school due to lack of supplies" (p. 17).

Similarly, according to Maulingin-Gumbaketi et al. (2021), “Cultural norms, beliefs, and practices” also affect Papua New Guinean women’s ability to “manage menstruation effectively and with dignity” (p. 17). In the Solomon Islands, practices and beliefs surrounding menstruation display the intersectionality between spirituality, gender roles, and cultural traditions (Maulingin-Gumbaketi et al., 2022). Menstruation is believed to be a dangerous and powerful time for women in certain Solomon Island communities because it is understood that their spiritual energy is heightened during this period (Maulingin-Gumbaketi et al., 2022). In research on Samoan women residing in American Samoa and Western Samoa, Fitzgerald (1990) found that they viewed menstruation as a natural, but private, part of a woman’s life. According to Fitzgerald (1990), many Samoan women do not consider menstrual symptoms as disturbing or distressful, but those who do, especially in Western Samoa, feel they have little alternative other than to endure pain and discomfort. In many Indigenous cultures, customs and ideas of menstruation depict women’s bodies as spiritual, natural, and powerful. Such cultural ways of knowing menstruation are often in tension with “dirty” and shameful “Western” versions of menstruation that have been imposed on many Indigenous cultures through processes of colonization and/or religion (Murphy, 2011). Pacific sportswomen may be caught in this tension particularly as many elite sporting environments are strongly shaped by Western, and scientific, ways of knowing health and performance (Thorpe et al., 2020).

Thus, the primary purpose of this research was to understand how Pacific sportswomen’s experiences and knowledge of menstruation are shaped by their cultures, and whether this impacts their experiences of and needs for menstrual health in sport. The primary research question underpinning this study is: How do sportswomen across the Pacific islands, and with Pacific heritage, experience menstruation in sport? For this research, we utilized an online survey

(Qualtrics) with 205 Pacific sportswomen responding. The survey questions covered topics from cultural stigma and taboos in their communities, to experiences of menstruation in elite sports environments. This survey identifies broad trends and captures the diversity of perspectives of sportswomen across different Pacific nations, while also highlighting shared experiences of ongoing cultural stigma, and taboo, and lack of culturally responsive menstrual health care in sporting contexts.

Methods

Survey Design and Recruitment

The aim of this study was to identify broad trends and patterns across the Pacific islands, and thus an online survey was appropriate for this purpose. With ethical approval from a Qualtrics online survey with 71 questions were designed with questions organized into three main sections: (1) Menstrual Health; (2) Sports Training, Competition, and Menstruation; and (3) Menstruation in Sport: Communication and Support. The survey had demographic questions, closed-ended questions with some open text boxes for participants to add further details. The survey was piloted multiple times with members of the research team and Pacific sportswomen.

We recognize that Pacific cultures have historically valued oral traditions, and many people prefer conversations to filling out an online form. However, digital methods have been successfully utilized by Pacific scholars, particularly via the concept of the “digital va” with researchers finding creative strategies to build relations across time and digital space (Faleolo, 2023). Various efforts were made to design a survey that felt culturally safe for the Pacific sportswomen. The beginning of survey commenced with a 3-min introduction video featuring the first author (a Pacific sportswoman herself) explaining the purpose of the research and the questions to expect, which helped participants forge a connection and rapport with the researcher. The survey also included Pacific design features (i.e., hibiscus flowers) to make

participants feel more comfortable and connected to the survey by experiencing a sense of authenticity and cultural safety.

The landing page provided important ethics information and allowed the participants to withdraw from the online survey or return to the survey when available. Once the survey design was complete, a QR code and link to the survey via Qualtrics (www.qualtrics.com) was emailed across the Pacific islands via different national sports associations, as well as via social media platforms, and Pacific Island groups and organizations, with follow-up emails sent to those who acknowledged our emails. The final survey was conducted anonymously and took approximately 30–45 min to complete. Each participant was required to be 10 years or older and were still actively competing at a national or international level. The survey was accessible for 5 Months.

Sample

The minimum level of participation required for this study was national or international competitions from development to professional levels. Participants must have been born in a Pacific Island and identify as a Pacific sportswoman. A total of 268 Pacific sportswomen accessed the online survey, with 243 starting the survey (90%) and 205 (77%) completing all 71 questions. Our analysis includes the 205 Pacific sportswomen who completed all 71 questions. Participants were from team sports (54%), individual sports (25%), or both team and individual sports (21%). Religion played a major role in the lives of these sportswomen with the majority identifying as practicing Christianity (91%). Most participants were from Fiji (71%), Papua New Guinea (6%), Samoa (6%), New Zealand Pasifika (2%), Tonga (4%), Tahiti (2%), Solomon Islands (4%), and Federated states of Micronesia (5.89%). Recognizing the sporting mobilities and migration of Pacific athletes, we asked the athletes to note both their country of origin, and

where they are currently living. It was in the latter that we had various participants citing New Zealand or Australia as their current country of residence.

We recognize that within Pacific nations there may be many different cultures and ethnicities with varied understandings of menstruation. For example, in Fiji, there are Indigenous Fijians, Indo-Fijians, Rotuman (a self-governing heptarchy, generally designated a dependency of Fiji), and various other ethnicities. However, the purpose of this survey was to identify broad patterns and trends across Pacific nations, and thus the quantitative findings do not reveal cultural differences within Pacific countries. Some of the qualitative findings (comments from participants in the open-text boxes), however, do highlight cultural differences and perspectives of menstruation. We note that the data collected from this survey is skewed toward the Fijian sportswomen due to the networks and relationships of the first author. We acknowledge the geographical imbalance of this study as a limitation and recognize the need for more research that better amplifies the menstruation experiences of all sportswomen across the Pacific Islands.

Analysis

An independent statistician from the University in the Mathematics Department assisted in performing the statistical analysis. We used Qualtrics to create frequency tables to examine the various survey questions' responses and relationships between variables such as country, age, and sports. Qualtrics was also used to do cross-tabulation analysis with the data that was collected from the survey reports.

Findings

The key findings from the survey are organized into three sections:

- (1) Pacific Culture and Menstrual Health,
- (2) Menstruation and Sports Performance in the Pacific, and

(3) Menstruation and Sport: Challenges and Calls for Change.

Pacific Culture and Menstrual Health

Every Pacific Island has its own unique culture, as well as traditional beliefs and taboos toward menstruation. The participants identified many words used in their cultures to describe menstruation (see Figure 2).

Despite significant cultural diversity across the region, the survey illustrated that 68% of the participants identified that menstruation was labeled as an illness or sickness. Cultural practices may have enforced taboos and stigmas in different cultures or communities, and 61% of respondents reported experiencing these stigmas and menstrual taboos, including restricted interactions with others, and access to any sacred spaces. Table 2 illustrates the different cultural knowledge and practices that shaped the Pacific sportswomen's experiences of menarche and menstruation, including taboos in different countries. From the data collected, 65% of women from different Pacific cultures recalled their first menstrual experience (menarche) as a new journey into womanhood, and a time of celebration, with their families preparing a feast.

After the celebrations, however, the topic becomes taboo, and women are not allowed to have discussions about menstruation with any male individuals. Therefore, when asked who they would have conversations with regarding their menstrual health-related conditions, the results were highly gendered, favoring conversations with women in their close networks; 36% chose mothers, 22% sisters, 16% husbands/partners, and 6% grandmothers.

Another topic influenced by cultural and religious beliefs was the use of contraceptives. When asked whether contraceptives were considered against their cultural or religious beliefs, 47% of the respondents answered "yes" and 54% answered "no." The survey also showed that 70% of the respondents had never used hormonal contraceptives, 18% had used contraceptives in the

past but no longer do, and 11% are currently using them. Cultural knowledge also impacts women's use of menstrual products. The survey data shows that 62% of the participants used pads or sanitary napkins, 34% tampons, and 2% menstrual cups. Participants offered reasons for their use of menstrual products, and avoidance of contraception (see Table 3) illustrating a connection between cultural and religious beliefs, and their use of menstrual and contraceptive Products.

Menstruation and Sports Performance in the Pacific

The respondents were evenly split (50% "yes" and 50% "no") when asked whether they believe their culture and religion have an impact on menstrual health in sports. Forty-five percent of participants felt that menstrual taboos or stigmas exist in their sports, but 55% disagreed. However, the majority (62%) then reported that these stigmas and taboos were negatively impacting the health of women in sports (see Table 4).

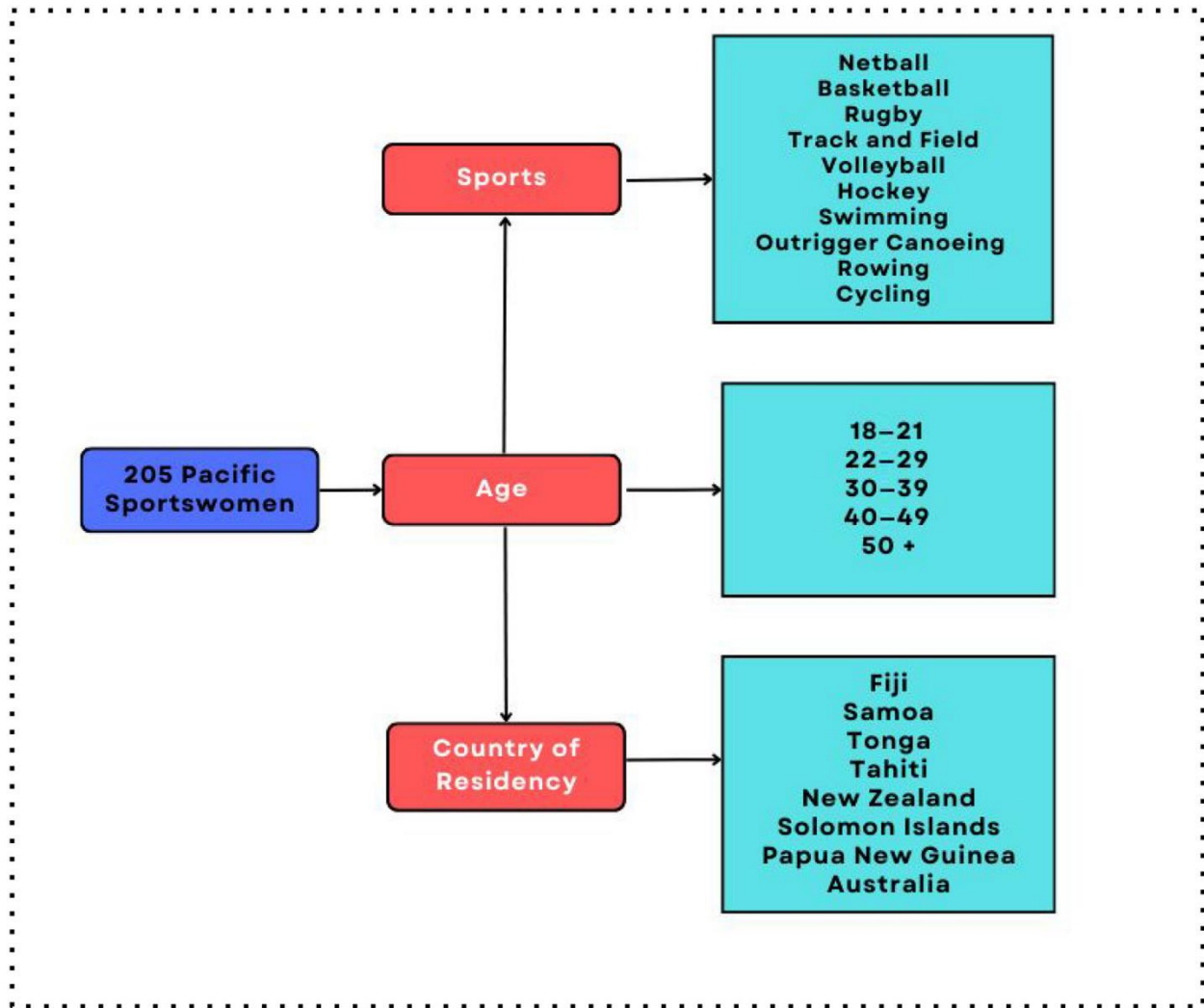


Figure 1 — The diagram shows the range of participants by categorizing them by the different age groups, country of residency, and sport.

| | | | | | | | | |
|--------------------|-------|-------|------|-------|-------|-------|-------|-------|
| Soccer | 5.2% | 1.3% | 0.0% | 33.3% | 50.0% | 25.0% | 50.0% | 0.0% |
| Outrigger Canoeing | 10.4% | 15.0% | 0.0% | 0.0% | 0.0% | 12.5% | 0.0% | 20.0% |
| Cycling | 0.7% | 0.0% | 5.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Swimming | 16.3% | 16.3% | 0.0% | 33.3% | 0.0% | 0.0% | 25.0% | 40.0% |
| Snow Sports | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Para Sports | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Rowing | 1.5% | 2.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

Table 1: Sport and Country of Residence of Participants

The most common belief about having a period while participating in sport was that it “makes no difference to my competition” (40%), followed by “it reduces my performance some of the time” (30%). Some participants stated that they did not pay close attention to their performance during their cycles, selecting “I have no idea” (13%). Furthermore, 9% perceived that their period “reduced my performance most of the time,” and 3% selected “It enhances my performance.” 96% of the respondents have never used medication to prevent menstruation during a competition, and only 4% of the respondents would use medications. Most respondents reported that the training intensity, training volume, and duration caused changes to their menstrual cycle (83%). The most common menstrual change was “I bleed less” (23%), and others experienced more bleeding (18%), shorter menstrual cycles (10%), and longer menstrual cycles (11%). Fifty-seven of these Pacific sportswomen avoided training or asked to be benched

because of various menstrual cycle symptoms they experienced. Menstrual cycle symptoms that caused the sportswomen to miss or modify training, were severe pain or cramps (23%), fatigue (17%), lack of motivation (13%), low mood (11%), body aches (9%), nausea or vomiting (3%), and diarrhea or constipation (2%). Sixty-three percent of the sportswomen would miss training or competitions due to menstruating because of the fear of leakage or just feeling uncomfortable in the uniform. A further 8% noted not having proper facilities or access to changing rooms while menstruating. Only 5% mentioned that it was not appropriate in their culture to participate in sporting competitions, training, or any physical activity during menstruation. Participants shared their disappointment of missing “game time,” “big events like finals,” “not being able to compete after months and months of sacrifice and training,” and letting others down. Menstrual tracking apps were rarely used, with only 12 of the 198 participants using apps to track their menstrual cycle. Of those tracking their cycle, the Apple menstrual tracking app was most used.

Table 2 Menstrual Knowledge and Experiences

| | Menstruation Knowledge and Experiences |
|----------------|---|
| Country | |
| Fiji | |
| | “When menstruation arrives for the first time usual tradition for us Fijians, we have a feast as a way of celebrating her first period” |
| | “In my culture, a celebration with a feast for the girl who had experienced her first menstruation” |
| | “Having a feast to signify and celebrate a young woman’s entrance into womanhood is a cultural practice in the Itaukei culture.” |
| | “When a young girl first experiences menstruation there is a small gathering to celebrate their transition into womanhood.” |
| | “Growing up I was told that all girls when they turn a certain age (11-14 years old) will get what the community would call "women's sickness/disease". By calling it that, it made people (mostly males) think that menstruation is a bad thing that happens to women and young girls. |

| | |
|-------------------------|--|
| | However, on the positive thought, it is a celebration for girls entering womanhood in my culture” |
| | “Menstruation in my culture is of major importance, especially if you are the eldest in the family. There will be a feast and celebration among families.” |
| | “I do know that it is a big deal, and it marks entering womanhood and, in some families, a celebratory event is usually held.” |
| | “It’s a whispered topic. Girls are ashamed to ask for a pad when their ‘friend’ arrives unexpectedly. I often use pads as an emergency dressing for bleeding cuts and injuries. You can’t even imagine the looks and the comments I get when I take it out” |
| | “Rotuman believes that a woman/girl should not wash her hair when she is menstruating.” |
| | “It is the sign of entering womanhood and having a hapang-su which is a special feast to celebrate. The head of the gathering will call out in Rotuman what the gathering is for before we eat.” |
| | “Some Rotuman families within some villages do not let women swim during their menarche” |
| Papua New Guinea | |
| | “In the Papua New Guinea customs, once a girl has had her menstruation, the family usually prepares a small feast for her to celebrate her journey into womanhood.” |
| | “When a girl starts her menstruation there’s a meal prepared for her and the family celebrating the start of her womanhood” |
| Solomon Islands | |
| | "In the Solomon Islands culture, traditions on the topic “menstruation” is considered as powerful, sacred with increased inner abilities and strong enough to heal the ill.” |
| | “In one of the rural areas, women & girls when they menstruate, have to stay in a separate house that is specifically built for such times. The utensils they use to cook and eat do not return with them when they return to their home. These utensils are regarded as dirty.” |
| Samoa | |
| | “Women are not allowed to cook or enter religious places during menstruation because this could contaminate the food or make these sacred places dirty” |
| | “In the Samoa culture, it is “tapu” for women to participate in certain activities such as cooking, or eating certain foods” |

| | |
|---------------|---|
| | “Menstruation is a sign that you have become a woman but that also means you could be restricted from in religious places” |
| | “It is a “gift “whether we want it or not we must love our bodies and take care of the well. However, we must always be aware of the cultural traditions like being restricted from cooking, washing, or cleaning while menstruating” |
| Tahiti | |
| | “Do not pick flowers, fruits, or root crops when you are menstruating because they could turn bad or become dirty, and do not swim in the seawater.” |
| | “We can't touch the trees or they won't produce fruits or flowers anymore” |

Menstruation and Sport: Challenges and Calls for Change

Communication was identified as a major barrier to accessing menstrual health support and information. The data collected on who the respondents were comfortable having conversations with concerning their menstrual-related issues indicated that conversations with teammates (49%) were most common, followed by coaches (16%), managers (12%), doctors (9%), strength and conditioning coaches (7%), and finally physiotherapists (7%). In a follow-up question, Pacific sportswomen reported gender barriers in communicating on topics relating to menstruation, particularly with male coaches (32%), male strength and conditioning coaches (14%), male doctors (11%), male physiotherapists, and male sports scientists (9%). In contrast, the sportswomen reported the fewest communication concerns with female coaches, doctors, and strength and conditioning coaches. The main barriers experienced by the athletes communicating on menstruation-related topics were regarding the gender of staff (30%), stigmas of the topic (24%), expected (or “anticipated”) lack of knowledge by the staff member/s (23%), cultural differences between athletes and the staff (9%), concerns that the conversation could negatively impact their position in sport/team (7%) and religious differences between the

athlete and staff (6%).

The survey data shows that Pacific women are eager for better support from teams, coaches, support staff, and any sporting organization involved with women. Athletes requested more open conversations (23%), more educational seminars (19%), more coaches be educated about menstrual-related topics (17%), support staff to receive more education on menstrual-related topics (14%), more online resources to be available that are specific to Pacific sportswomen’s health (13%), and more educational materials (i.e., pamphlets) (13%). Pacific sportswomen used the open-text boxes to offer their personal opinions on what could be improved in the sporting context for better access to menstrual health information and support.

Table 3: Menstrual Products and Contraceptives

| | Menstruation Knowledge and Experiences |
|--|--|
| Menstrual Products Beliefs and Concerns | |
| | “The use of tampons means losing virginity” |
| | “I do believe that pads are used first and more compared to tampons. As an athlete, it was uncomfortable to wear pads, and discovered tampons on my own” |
| | “Never use tampons unless you’re married. It’s a big no if you’re using it before marriage” |
| | “Parents did not approve of me using tampons because it “shouldn’t go up there” |
| | “In my experience it is unspoken but if you use a tampon, that means you’re sexually active/have already had sex. Therefore, if you are not married from a cultural standpoint and you are using tampons, it is frowned upon because people automatically associate it with you being sexually active or having sex before marriage” |
| Attitudes to contraceptive uses | |
| | “It is a taboo thing to do because it goes against my cultural/religious beliefs” |

| | |
|--|---|
| | “Traditionally in my culture, the belief is that a girl is not expected to sleep with a man until she is married to him, therefore, there is no need to use contraception” |
| | “As a Christian, I feel it could be looked down upon as I’m ‘playing’ with what God has intended” |
| | “In our culture, if you are not married, you should not be having sexual intercourse. Therefore, when using contraceptives to prevent chances of pregnancy, it allows or gives the young woman the power to have sex before marriage” |
| | “My island is very religious so sex before marriage is very frowned upon. This made me feel very uncomfortable whenever I went to the pharmacy to buy my contraceptives” |

Table 4: Menstruation, Sport, and Cultural Knowledge

| Menstruation, Sport, and Cultural Knowledge | |
|---|----|
| Do you feel that culture and religion impact how menstrual health is talked about in your sport? | |
| Yes | 50 |
| No | 50 |
| Do you feel there are taboos/stigmas in your sport about menstruation? | |
| Yes | 45 |
| No | 55 |
| Do you feel taboos/stigma about menstruation are negatively impacting the health of women in your sport? | |
| Yes | 62 |
| No | 38 |

Participant’s Suggestions for Improvement

The participants in this research shared many suggestions for improvement. A key theme was for menstrual education for coaches, and support staff who are involved with sportswomen. Our participants added the following suggestions for improvement in the open-text boxes:

When it comes to sports, coaches and support staff need to be educated on the topic of menstruation to help athletes perform at a high level because, at the end of the day, coaches always have high expectations from their athletes.

Don't be embarrassed or shameful about discussing menstruation because it makes female athletes shy/uncomfortable. This usually lowers our energy, and we can feel discomfort from the person asking questions about our menstrual health and cycle, especially males.

Our participants also discussed the importance of acknowledging the different cultural backgrounds, and learnings to understand how Pacific cultures have different views on menstruation. Participants shared the following suggestions for coaches, and support staff to improve how they approach the topic of menstruation in sport:

I wouldn't say the coaches should consider culture when talking about menstruation but at least acknowledge our cultural backgrounds.

If coaches are part of a team, they should consider their athletes' cultures and learn from them. I also believe there's absolutely nothing wrong with discussing menstruation, and these conversations about menstrual health in sports should be normalized and everyone should be well educated enough to talk about it.

It is a delicate subject, and the different cultural beliefs should be considered by every sportswoman. I believe there are many barriers and those involved with sportswomen need to be understanding, and comfortable when discussing menstrual issues.

These athletes felt it was the responsibility of their coaches and support people to consider their cultural identities and ways of knowing to ensure best practice, including when discussing a sensitive topics such as menstruation. The Pacific sportswomen also shared how menstrual health is important and should be a top priority for any individual involved with sportswomen:

I think menstrual health is an important aspect of a female's performance in any sport. It is important to take into consideration the importance of menstrual health and how it can impact performance. Every sportswoman is different and therefore, their cycle will be different.

Being from an Island that competes internationally has many pros and cons. The Menstruation Topic is a con in that many of these women do not have access to certain resources that will enhance or improve their competition level. These resources must be readily available for everyone on the team.

As these comments highlight, menstrual literacies and resources are not reaching many sportswomen in the Pacific, and thus, there is a need for greater investment in ensuring Pacific

sportswomen and sport organizations are receiving adequate menstrual health knowledge.

Discussion

According to the report titled *The Last Taboo* (2017) commissioned by the Australian aid program “Pacific Women Shaping Pacific Women” Development, “there is little recent research on menstrual health and hygiene in the Pacific studies in the Solomon Islands and Papua New Guinea, and anecdotal evidence from Vanuatu” (p. 24). This is the first study to consider Pacific sportswomen’s understanding and experiences of menstruation. Like any method, surveys have strengths and limitations, but the findings from the 205 Pacific sportswomen participants reveal broad trends across the region. While we were unable to focus on differences within Pacific Island countries and communities, we hope the findings presented herein are useful in starting a discussion about how menstruation relates to and interacts with Pacific cultures within and beyond sporting contexts.

While some findings from this survey mirror previous research on sportswomen’s experiences of menstruation (Heather et al., 2021), there are also many insights that are specific to Pacific sportswomen and highlight the importance of approaches that consider how culture, ethnicity, and gender intersect to impact sportswomen’s menstrual health knowledge, experience, and needs. Every culture and religion may have different beliefs around menstruation, and with the Pacific region including so many diverse cultures, values, and ways of life, it is not surprising that Pacific sportswomen have varied experiences and understandings of menstruation. Across the sample, the levels of knowledge about menstruation were diverse with considerable variation, especially around the topic of contraceptives and menstrual health-related issues. Across the sample, however, the Pacific sportswomen demonstrated in-depth knowledge of their own

cultural ways of knowing menstruation, and the different cultural celebrations, taboos, and unspoken practices. The participants used the open-text options to offer detailed reflections and commentary on their personal experiences in their families, communities, and sporting contexts. Some described the challenges and frustrations they experienced when offered conflicting advice from families, coaches, and teammates, whereas others found ways to navigate cultural stigma and taboo in their communities and sport.

Much of the menstrual knowledge that the participants shared has been passed down through generations and has been shaped through processes of colonization and religion that often-reframed Menstruation as a weakness (Murphy, 2011). Participants reported how menstruation in their sporting environments was also portrayed as “sickness,” and they were often discouraged (by family, friends, coaches, or teammates) from any physical activity or competitions while menstruating. As a result, some of these sportswomen (28%) would cancel training, call in sick, or ask to be benched, without sharing the real reason with their coaches or teammates. It is likely that such communication barriers cause many challenges both for the athletes and their coaches.

The cultural stigma and taboos regarding menstruation have been ingrained for many decades therefore making these conversations difficult to have both in the home and sports, especially with men. Misunderstandings and cultural taboos also influenced how the Pacific sportswomen managed menstrual pain. Only 4% of the participants would take countertop painkillers such as Panadol and Ibuprofen to manage the pain. Many of the participants would rather endure the pain in silence rather than seek medical attention. Here the findings align with Fitzgerald (1990) earlier research on Samoan women, with our research highlighting that some Pacific sportswomen may not seek out and receive the menstrual health support they need due to

cultural norms. Many of the participants lacked knowledge of the different menstrual cycle phases, the hormonal changes that take place across the menstrual cycle, and how the menstrual cycle could affect their performance, but were interested in learning more on this topic.

Additionally, the knowledge around menstrual products was also, very limited as many participants only used menstrual pads and were discouraged from using tampons due to cultural taboos that they could lose their virginity through such usage (Arago'n, & Cooke-Jackson, 2021; Medley-Rath, 2007). A few participants mentioned that their mothers or grandmothers advised them to use old clothes or flannels as menstrual pads, but this was mostly due to the lack of funds or access to shops. As the survey results indicate, such practices caused concerns (of leaking and slippage) during training and competition that were rarely considered or understood by coaches or others in a high-performance sporting environment. While previous research has highlighted that sportswoman prefer to talk to women coaches and support staff about menstruation-related topics (Heather et. al., 2021), this survey reveals not only the importance of the gender of staff, but also their cultural positionings and knowledge. In the Pacific, many coaching and support staff roles continue to be held by men, and our survey findings suggest the need for more Pacific women in coaching and support roles to ensure Pacific sportswomen feel safe in accessing menstrual health information and support.

Beyond gender, our survey reveals the importance for all coaches and others working in the high-performance sporting environment, to have knowledge and respect for the cultural identities of the athletes they are working with. Such cultural competencies are particularly important when having conversations about culturally sensitive subjects such as menstrual health. In our previous work, we have highlighted the importance of cultural safety and the need for sports medical and health professionals to consider the intersecting roles of culture, ethnicity,

and gender when providing educational resources and health support for sportswomen of different cultures, ethnicities, and religions (Gibbons et. al., 2024a). The survey brings to the fore the importance of culturally responsive health care for Pacific women in sport, and education initiatives that recognize the influence of culture on what athletes, coaches, and support staff feel comfortable talking about. According to Pacific Sportswomen, such information needs to be culturally appropriate, with consideration for the settings needed for effective educational programs (i.e., where the athletes and/or coaches feel safe discussing such topics).

Limitations

There were several limitations in this research. As noted, the strong participation among Fijian sportswomen is likely to have been influenced by the first author's relationships and connections across the Fijian sports community. We acknowledge that some athletes in the Pacific, particularly those in rural and remote areas, may not have access to the internet, or mobile devices due to cost and connectivity. There are over 1,000 languages spoken across the Pacific, and we acknowledge that only offering the survey in English may have limited some Pacific sportswomen from participating.

We also acknowledge limitations in our sampling strategies. While many sports organizations acknowledged emails (eventually), few sent the survey out to sportswomen within their organizations. This is possibly because they did not consider the topic important, or they were concerned as to what the findings might reveal, or ongoing cultural stigma and taboo influenced their willingness to support the study. The first author spent months sending follow-up emails, giving presentations, and trying to navigate Pacific sports organizations as key "gate keepers" of the survey. Upon reflection, we consider relying primarily on sports organizations

for dissemination was a limitation as some chose not to send it out. Upon recognizing this challenge, the first author used informal networks and connections across the Pacific to share the survey widely among athletes and sports teams. However, such recruitment strategies led to some imbalance in the geographical diversity of participants.

With our focus on understanding broad trends across Pacific sportswomen, we acknowledge that cultural and geographical differences within Pacific islands are largely missing from the analysis. Future research would do well to focus on differences within Pacific nations, including with sportswomen from different cultures, locality (urban or rural), and education levels. In our previous research, we have utilized Talanoa methods with Fijian sportswomen to reveal greater nuance and complexities among the athletes (Gibbons et. al., 2024b). We hope the quantitative and qualitative survey data presented in this paper offers a foundation for more place-based and culturally specific research to build.

Conclusion

Pacific cultures are diverse, with each Pacific nation unique in so many ways. The results here show the high importance that cultural and social factors play in the experiences of Pacific sportswomen regarding menstruation, in both their communities and sporting contexts. Sportswomen from different Pacific regions experience different taboos, cultural stigmas, and silencing surrounding menstruation. This silencing of menstruation could also be a contributing factor to the widespread miscommunication or misunderstandings on the topic. However, many of the islands had similar menstrual experiences; some islands had the same taboos, but different sporting experiences. To empower these Pacific sportswomen, sporting organizations need to implement education, training, and comprehensive support for any support staff, or athletes in the sporting communities. This involves not only the understanding of female athlete health but

also the cultural factors associated with different menstruation beliefs across the Pacific communities. In Pacific nations (i.e., Fiji, Samoa, Tonga), more education and resources are required for Pacific sportswomen.

In conclusion, implementing educational programs that are tailored to support coaches, athletic staff, and sportswomen on the different cultural beliefs surrounding menstruation in different islands would be very beneficial. The programs would encourage these individuals to communicate more confidently with Pacific sportswomen about menstrual health. Furthermore, this creates a networking opportunity for Pacific sportswomen, coaches, medical personnel, and sports scientists where they could share their knowledge and resources to discover ways to enhance the overall support for these athletes. As this survey highlights, such educational initiatives must consider the unique cultural contexts and work with Pacific sportswomen to ensure resources recognize the local, place-based, cultural, and contextual knowledge that is shaping athletes, coaches, and health professionals' understandings of, and approaches to, addressing the important topic of menstrual health in sport.

Chapter 4: “It’s Such a Taboo Subject, Everybody’s Scared to Talk About It”: Fijian Sportswomen’s Experiences of Menstruation

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Link to research: [“It's Such a Taboo Subject, Everybody's Scared to Talk About It”: Fijian Sportswomen's Experiences of Menstruation](https://doi.org/10.1177/01937235241269975)

Abstract

Despite a growing body of research focused on women's experiences of menstruation in sports, most of this has been done by white women on white women and then applied to sportswomen from diverse cultural and ethnic backgrounds. Very rarely are the menstruation-related experiences of Black, Indigenous, and women of color considered, let alone the focus of such studies. To date, no research has explored Pacific sports women's experiences of menstruation. In this research, we adopt a contextually relevant Masi methodology approach to understand how Pacific sports women navigate different knowledge (i.e., scientific, family, cultural, religious, and social media sources) about menstruation in their everyday lives. Drawing upon Talanoa sessions (informal interviews and focus groups) with 21 Fijian sportswomen from a range of sports, we highlight the many ways sportswomen's knowledge has been overlooked, and their health needs ignored. We reveal how cultural and family knowledge shapes Fijian sportswomen's menstrual practices in and out of sports, and the lingering silences and stigma shaping coaching and medical support. Thus, this research seeks to improve the support structures for Pacific sportswomen by expanding sports and health providers' understandings of culturally specific menstrual health needs and knowledge.

Keywords: Menstruation, Sport, Fiji, Sportswomen, Culture, Taboo

Introduction

After many years of silencing and stigma, the topic of menstruation in sports is garnering increased attention and focus. Athletes are speaking out about their experiences of menstrual health-related issues (i.e., leaking while playing, pain, and discomfort), with sports organizations and researchers increasingly focused on developing structures and strategies to better understand and support sportswomen throughout the menstrual cycle (Adam et al., 2022; Mkumbuzi et. al., 2022). However, culture and ethnicity tend to be overlooked in much of the research, policy, and media coverage on this topic (Gibbons et al., 2024). As non-sporting scholars have revealed, cultural ways of knowing menstruation vary considerably, with ethnicity and religion shaping how girls and women experience menstrual health (Uskul, 2004). In this paper, we build upon a small body of literature that has considered how culture and ethnicity shape women's experiences of sport and physical activity (Giles, 2005; Thorpe et al., 2020) focusing specifically on Fijian sportswomen. In this paper, we use a Masi methodology (a cultural methodology specific to Fijian women), drawing upon interviews and focus groups with 21 competitive sportswomen we present three key themes: (1) menstruation in Fijian society, (2) menstruation in sports, and (3) the critical role of coaches in menstrual health knowledge and understanding. In each section, we highlight how gender and cultural ways of knowing menstruation intersect to impact the sports women's experiences of menstrual health. Ultimately this paper offers a significant contribution toward a better understanding of how culture and ethnicity shape sports women's experiences of menstruation in their families, communities, and sporting contexts, and the importance of sporting structures and health professionals rethinking their approaches through educational discussions such that cultural ways of knowing menstruation are understood and respected.

Literature Review: Menstruation, Culture, and Ethnicity

While a significant body of literature is focused on the cultural construction and social discourses surrounding menstruation (Laws, 1992; Newton, 2016), some have called for research that acknowledges more localized, cultural and place-based ways of knowing menstruation. For example, Johnston-Robledo and Stubbs (2013) argue that “when menstruation is stripped of its social, cultural, and political meanings, the diversity of women’s experiences with and perspectives on menstruation are neglected” (p. 1). In response to such concerns, literature on specific cultures and contexts has shown that cultural customs, rituals, religious beliefs, forbidden traditions and traditional knowledge on the topic of menstruation shape women’s local menstrual practices, and knowledge of menstrual health in wide ranging ways (Bobel et. al., 2020). Across this diversity of beliefs, practices, and knowledge, a common theme in the literature is that “menstruation means impurity” (Thapa & Aro, 2021) and other expressions of the so-called menstrual taboo or stigma.

The literature on menstruation and indigeneity shows that Indigenous cultures can be contrasted with various religious perspectives and Westernized perspectives on menstruation not least because they are less likely to view menstruation as dirty or “bad” and frequently narrate it as something natural, healing, or even powerful. For example, Mendlinger and Cwikel (2006) conducted interviews with women from different countries in the Middle East, the United States of America, and North Africa. This article discussed the cultural customs and rituals, religious beliefs, forbidden traditions, and traditional knowledge on the topic of menstruation. According to the authors, in Ethiopia, mothers and daughters spoke more freely about menstruation, with the menstruation hut often central in their discussions. Continuing, the authors explain that the hut was ever-present in Ethiopian daily life and a “natural part of a daughter’s education”. In this study, the menstrual knowledge of the older Ethiopian women was “traditional and embodied”

(p. 72). This culture ensured that they kept sacred the old traditions around menstruation, and this included the women separating themselves from society because this is “the time when she is at the height of her power”, with the women using this time to meditate about their life’s “purpose” and focus (p. 84). Like the men’s sweat lodge in other Indigenous North American cultures, the menstrual hut was associated with women’s spiritual purification and strength.

Despite the rich heritage of menstruation knowledge, tradition, and practice in Indigenous communities, scholarship on Indigenous women’s menstrual health practices and literacy has been described as “severely lacking” with “little to no information on how Indigenous beliefs may differ from the broader society in which they live” (Ciccio et al., 2023, p. 1). Menstruation thus provides the opportunity to decolonize (Risling Baldy, 2016) and indigenize literature and research by exploring more deeply the reality of different forms of menstrual knowledge and practices for Indigenous women currently and in the pre-colonial past.

Menstruation in the Pacific

Cultural understanding of menstruation in the Pacific is a topic that needs to be more widely researched, particularly from indigenous and local perspectives. Researchers have noticed that, due to cultural taboos and stigma, this topic is rarely discussed openly, and this has led to the lack of research and attention in this area. In so doing, Pacific women may not be receiving the menstrual health support they deserve. In 2017, the authors of “The Last Taboo” (Literature Review, 2016) wrote that “there is little recent research on menstrual health and hygiene in the Pacific studies in the Solomon Islands and Papua New Guinea and anecdotal evidence from Vanuatu” (p. 24). Research on certain aspects of culture and menstruation in the Pacific is increasing, partially because of widespread issues of period poverty in the Pacific islands which impact human rights. Several reports and studies, for instance, have been undertaken by United Nations agencies and organizations (The United Nations Educational, Scientific and Cultural

Organization (UNESCO), World Health Organization (WHO), regional development funds such as the Asian Development Bank, and numerous non-governmental organizations (NGOs) such as WaterAid, Diva for Equality (Fiji), and Fiji Women's Rights Movement. These reports often focus on human rights and development issues, sexual health and hygiene education, access to hygiene resources, and related issues of gender discrimination. Such reports frequently portray cultural traditions or accounts of menstruation as challenges or obstacles to the implementation of human rights such as those included in the United Nations Convention on the Rights of Women (CEDAW). Adopting a deficit framing, such reports tend to cast Pacific women as disadvantaged, discriminated against, and poor. Like these international sources, other existing research on menstruation in the Pacific often uses a Western lens to approach menstruation in the Pacific and does not directly relate to the specific cultural traditions and practices in the Pacific. Wilbur et al. (2022) used mixed methods, including data analysis, focus groups, and in-depth interviews in their study in Vanuatu to explore the complex relationship between menstruation, disability, sanitation and water facilities and health services, and stigma and discrimination. The authors briefly describe "socio-cultural beliefs" about menstruation that are reminiscent of some of the Yurok accounts including some of the positives of "taking a break" from regular work and chores, but they also relate the very real struggles of lack of access to water and sanitation (Wilbur et al., 2022).

While studies are beginning to explore more of the socioeconomic complexities impacting Pacific women's menstrual health, there remains a tendency to narrate Pacific women as victims or passive actors in societies and communities where they experience the negative impacts of menstruation. In contrast, other research studies reveal how indigenous Pacific beliefs and practices around menstruation seemingly empower women and cast them in a powerful light.

Knight (1985) reported customs in Papua New Guinea that whenever a male individual encounters a rainbow snake it is believed that the individual may be cursed, or death is near. The only way to reverse this curse is to seek a menstruating woman. The menstruating woman will need to perform a massage or give him a drink of water that has soaked leaves stained with menstrual blood. Kanaka Maoli (Native Hawaiian) researchers (Kuahiwinui, 2018) have explored traditional Indigenous understandings of menstruation, including their stay in the hale pe'a (a structure for menstruating women) as a sacred time where women were seen as strong. Such research "(re)writ[es] and (re) right[s] Indigenous menstrual practices" within the literature and against previous literature which assumed that these practices "were oppressive towards women" because they internalized the "Western menstrual taboo" (Risling Baldy, 2017). Similarly, studying how pre-colonial āori understood menstruation in Aotearoa New Zealand, Murphy (2011) explains: "In the Māori culture menstrual blood symbolizes the power of creation and destruction" (p. 13). According to Murphy (2011), "menstruation was not seen as a "curse" but as a blessing – a time when women could rest and take time for themselves, while the men took care of the meals and heavier work" (p. 83). However, Murphy (2011), also identifies colonization as the reason that many contemporary Māori women are not able to talk about menstruation publicly.

As early White male scientists documented cultural practices and protocol, they misread Indigenous practices around menstruation (i.e., women not preparing food or entering sacred sites) as signs of Māori thinking about the menstruating wāhine (women) as dirty and unclean. However, as Murphy (2011) makes clear, this was a gross misunderstanding of cultural practices and customs, that has had devastating effects on Māori women's menstrual health (i.e., unwilling to seek medical advice). As these examples highlight, many Pacific cultures have their historical

and contemporary ways of knowing and understanding menstruation. However, through processes of colonization (including the introduction of religion), some of these ways of knowing menstruation have been forgotten, revised, or reinterpreted. As another overlay of identity, menstrual taboos, and myths can also be associated with religion. In contemporary society, many religions continue to practice sets of beliefs and taboos towards menstruating women (Kaundal & Thakur, 2014). In some religions, women who are currently menstruating were not to attend places of spirituality (i.e., mosques) or engage in some religious practices. Thus, a further insight from the literature is that Indigenous women, including the women of the Pacific, may also belong to diverse religions that may promote or practice menstrual understandings that are in tension with Indigenous and pre-colonial ways of menstrual knowledge and practice. In places like Fiji, religious understandings of menstruation may bear similarities but also differentiate Indigenous women from other ethnicities. For instance, the literature demonstrates that in Fiji, the Hindustani religion teaches that food will become contaminated if it is prepared by women during menstruation. Therefore, it must not be taken to the temple or given to their husband (Mohamed et al., 2018). Due to the cultural aspect of menstrual taboos, Indo-Fijian women have different reactions to these restrictions. Therefore, some women believed it was just a “waste of time”, and some women viewed this as an opportunity to take time off from family chores and to rest (Mohamed et al., 2018).

The current literature in Fiji reflects socio-cultural and religious factors with strong indications of menstrual taboo. According to Mohamed and colleagues (2018), “Fijian women and girls may have been less likely to experience and report menstruation related behavioral restrictions due to social and cultural changes and a move away from traditional lifestyles or simply cultural differences in the way menstruation is perceived between countries” (p. 12). A

study conducted by Sniekers (2005), *From Little Girl to Young Woman: The Menarche Ceremony in Fiji*, discussed the experiences of Fijian women and the topic of menstruation. The participants for Snieker's research felt ashamed to even mention the word "menstruation":

Though women did talk about the topic of menstruation, they were reluctant sometimes. They were hesitant in pronouncing words like "menstruation". They said words like "you know" or they fell silent for a short moment. Shame and fear can be reasons why people do not discuss menstruation and related topics like sexuality. (p. 403).

In Fiji, when women experience menstrual pains, they often use herbal medicine to cure the menstrual discomfort or pains. This practice has been passed down for many generations (Blyth, 1887) and still exists today. A recent study conducted by Chand et al. (2018), described how herbal medicine is still associated with both the Indigenous Fijians and Indo-Fijian communities today: "The parts of the plant that have been reported to be used were the leaves, stem, flowers, barks, roots, and fruits; these help to relieve menstrual cramps, gastritis, treat measles and dengue" (p. 13). Cultural knowledge and customs surrounding menstruation are important in many women's lives, but often medical and health research focused on menstruation overlooks the importance of such intergenerational knowledge. In contrast to menstruation narratives of Pacific women as helpless victims or passive actors, this literature reveals Fijian women as knowledge holders with answers to their bodies.

Menstruation in Sport: Culture and Ethnicity

To date, very little medical or sociological research on menstruation in sports has focused on the importance of culture or ethnicity. Here we highlight a few notable exceptions. In one of the first studies to examine Indigenous women's knowledge of menstruation and physical activity, Giles (2005) used a Foucauldian approach to understand local tradition in the Dehcho region, northwest territories of Canada. Focusing on the different menstrual traditional and

physical practices, she reveals Indigenous communities weave cultural traditions with knowledge of menstruation. Continuing, Giles (2005) explained: “Though attitudes towards female reproductive capabilities and the impact of exercise have changed, Euro-Canadian women still tend to view menstruation as a “problem” that needs to be dealt with, often in a secretive manner” (p. 15). A recent study conducted by Thorpe et al. (2020) examined the menstrual experiences of Māori and Samoan women rugby players in Aotearoa New Zealand, highlighting the need for more research that unpacks the “whiteness” of sports science, particularly how sports scientists and medical professionals educate, treat, support and study female athletes from different cultural backgrounds. The authors conclude with a call for more research on the experiences of Māori and Pacific athletes who prioritize their ways of knowing health and well-being in elite sports environments. According to Thorpe et al. (2020), “Māori participants in our study did not reveal strong cultural understandings of menstruation, perhaps as a result of all-pervasiveness of Western discourses of the medicalized performing body in high-performance environments and the broader society in which they are immersed” (p. 78).

More recently, Gibbons et al (2024) have offered a systematic review of the literature relating to menstrual health in sports and identified longstanding gaps and silences about the experiences of non-white sportswomen. To date, the menstrual experiences of Pacific, and specifically Fijian, sportswomen are yet to be considered. The risk in such silences is that Pacific sportswomen are not receiving adequate menstrual knowledge and support, which could impact their health and performance. This research is important because it centers on Fijian sports women’s voices, to advance knowledge and improve support for Fijian sportswomen. This research addresses the cultural and social aspects that are crucial for developing menstrual health literacy in sporting environments.

Context: Gender and Sport in Fijian Society

Every culture is unique, with different views of women's bodies. There are many different gendered identities and experiences in contemporary Fiji, with differences between those living in urban settings and those in more remote, traditional, village environments. According to Singh et al. (2022), "Women, especially in rural communities are equipped with family, environment and health-related knowledge due to their experience, dependence on ecosystem services and vast social networks" (p. 3). As well as rural and urban differences, there are also ethnic and religious differences, with the population consisting of predominately Indigenous Fijians (Itaukei and Rotuman's) and Fijians of Indian descent (Indo-Fijians or Fiji Indians). While the majority of Indigenous Fijians are Christian, the Indo-Fijian population includes various religious orientations, including Hindus, Muslims, Sikhs, and a growing number of Christian converts. Gender, culture, and religion intersect to shape the everyday lives of Fijian women in a range of ways. Fijians enjoy participating in sports and many extracurricular activities. For example, the game of rugby is more than just a game; athletes play for the people, their families, and friends. According to Presterudstuen (2010), "To play rugby was viewed as an important way to show commitment and sacrifice for 'Noqu Kalou, Noqu Vanua' (lit. My God, My Country), and thus considered a constitutive practice for Fijian men" (p. 242). Even though sports participation is very popular in every Fijian community, the participation of Fijian women has received less attention.

According to Sugden et al. (2020), "There are no reliable statistics about female participation in Fijian sports, yet it is well known by locals (though not widely understood) that engagement in sportive activities is rare among Indo-Fijian girls and women" (p. 769). Despite such claims, Fijian sports women participate in many sports such as netball, volleyball, track and field, basketball, soccer, and rugby. Even though Fijian women are showing more interest (and

international success) in sports, they have continued to experience inequality and discrimination, even with the changes in women's rights that have been implemented by the Fiji government. According to Balram et al. (2022), "the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) is one of the most relevant documents not only to protect but also improve the lives and the rights of girls and women across all dimensions of their social, cultural, and educational lives" (p. 2). Even though the CEDAW is now part of the country's legal structure, women in Fiji "still struggle with several aspects of gender equality and discrimination" (p. 2), including in sports. However, after the outstanding (bronze medal winning) performance of the Fijiana Sevens team at the 2020/2021 Tokyo Summer Olympics, the sport of women's rugby has gained more attention and athletes are switching from other sports (i.e., track and field) in the hopes of one day winning a medal at the Olympic games. According to Salalo (2022), "Athletics Fiji is finding it hard to retain top female athletes following the popularity of rugby on the local front."

Despite international success, women rugby players still face stigmatization due to pervasive cultural norms and values, and the sport being male-dominated since the colonial days. According to Kanemasu and Molnar (2020), Fijian "women rugby players experienced widespread disapproval, stigmatization and sometimes physical/verbal abuse in their homes and communities for challenging the masculinist/heteronormative logic central to the hegemonic rugby discourse" (p. 402). Furthermore, Kanemasu and Molnar (2020) explain that "in the face of such relentless punishment and disapproval", the women remained "resolutely committed to the game" (p. 402). Research on Fijian sportswomen acknowledged that women face many challenges while pursuing their sports, including lack of financial support and respect, and ongoing inequality. Fijian sportswomen sacrifice a lot to represent their country, and it is not an

easy journey but through perseverance and determination many Fijian sportswomen have become successful whether it is in sports, education, employment, or within their families (Kanemasu, 2023). To date, research on women's sport in Fiji has focused predominantly on rugby, and none has focused on sports women's health, or menstruation specifically. According to Maulingin-Gumbaketi et al. (2022), "lack of menstrual knowledge was commonly linked to taboo and secrecy resulting in limited communication, shame, and embarrassment" (p. 13). Therefore, the lack of knowledge and support for Fijian sportswomen's menstrual health could lead to anxiety, stress, and confusion affecting their participation and performance, and possibly their long-term health and well-being.

Masi Methodology, Talanoa, and Pacific Sportswomen

For many decades, Pacific cultures have experienced various forms of colonization, including that in research. For too long, Western researchers have used Western research methods to study Pacific peoples, cultures, and communities. However, Pasifika researchers have found ways to decolonize research methods using traditional and contemporary Pasifika methodologies. According to Naepi (2019), "Pacific research methodologies can be understood as a resurgence practice for people who have always been scientists and whose scientific practice was interrupted by colonialism" (p. 1).

Masi Methodology

Given this project was led by a Fijian woman, conducting interviews and focus groups with Fijian sportswomen in Fiji, we considered it appropriate to take inspiration and guidance from the Masi methodology. The Masi methodology was derived from the cultural Fijian practice of Masi making which is a Fijian bark cloth created predominantly by women, and

highly valued in Fijian culture. Each community has a traditional way of designing its own Masi. In traditional Fijian culture, the Masi was used to communicate with the gods (Naepi, 2019). However, in contemporary society, the Masi continues to be highly valuable and is used as a traditional gift for weddings, birthdays, achievements, and deaths. The Masi methodology is not only centered around the voice of Pacific women but also takes into consideration different values such as respect, relationships, cultural competency, meaningful engagement, reciprocity, utility, rights, balance, protection, capacity building, and participation.

According to Naepi (2019), “Masi methodology abides by general Pacific research values while also centering Pasifika women’s voices” (p. 238). The Masi methodology is designed to help a researcher understand the process of doing research with Pacific women and ensure that Pacific women’s voices are the main priority and always respected. According to Naepi (2019), “its potential to be a powerful tool for recording Pacific women’s experiences of this world is unlimited” (p. 240). A Masi Methodology frames this entire project from the design of interview questions through to analysis, with Talanoa sessions an essential method for listening to and collecting the voices and stories of Fijian sportswomen.

Talanoa Methods

“Talanoa” is a research methodology created by Timote Vaoleti (2006). Talanoa is a gathering of individuals to have conversations, discussions, or just storytelling. According to Vaoleti (2006), “Talanoa can be referred to as a conversation, a talk, an exchange of ideas or thinking, whether formal or informal” (p. 23). Storytelling has been used to pass down knowledge and understanding throughout Pacific history, and Talanoa is shaped by such cultural knowledge, customs, and values. Furthermore, the Talanoa methodology creates a connection between the researcher and participants. According to Vaoleti (2006), “Talanoa firmly places the power to define what the Pacific issues are within the encounter between the researcher and

the participant” (p. 26). In this project, we combined Talanoa (Pacific approach to conducting interviews and focus groups) with Masi methodology, bringing cultural and gendered knowledge and methodologies together to create a safe space for Fijian sportswomen to share their stories and lived experiences of menstruation.

Participant Recruitment

With ethical approval from the University of Waikato, we commenced the recruitment process, focusing specifically on Fijian sportswomen who currently or in the recent past had competed at a national and/or international level in at least one sport. The recruitment strategy revealed some of the challenges of talking about menstruation in sports. After multiple attempts with different sporting organizations, the first author (a Fijian sportswoman herself) was able to get in contact with various Fijian sportswomen. Each participant received an email with information about the project, as well as a consent form. In total, nine Talanoa sessions with different sports teams (focus group sessions consisting of 5–12 participants) and 12 individual interviews (interview questions included the early experiences of menstruation, menstrual health, menstrual products, family, culture, and sports participation) were conducted with a total of 21 sportswomen. The women ranged from 18 to 48 years old and participated in a range of sports, including rugby, swimming, track and field, basketball, netball, volleyball, touch rugby, tennis, and soccer (See Table 1: Participants Interview Information). Some of the participants were identified as belonging to mixed ethnicity (e.g., Fijian Tongan), but all identified primarily as Fijian. In this research, we respect and prioritize women’s self-identification, even if this differs from governmental terminology (e.g., Fijian Indian rather than Indo-Fijian). Many participants are practicing Christians (Methodist) and Catholics, including the Fijian Indian participants (Methodist).

The Talanoa Sessions

In the Fijian culture, a formal Talanoa session usually involves kava (a traditional drink in the Pacific Islands made from the roots of the *Piper methysticum* tree) but we provided food and beverages (cakes, bread, pies, tea, and coffee) due to the strict nutrition plans that some participants were following. Talanoa sessions and interviews took place in locations of convenience to the sportswomen, including locker rooms, meeting rooms, and cafes. Each of the participants was asked 30 questions about their knowledge and experiences with menstruation. However, shaped by Talanoa, these questions were used simply as prompts, and the conversations were often very free flowing, with the athletes guiding much of the dialogue. While the questions were used to guide the conversation, the Talanoa sessions centralized sportswomen's own individual and collective storytelling. The Talanoa (focus group sessions) and interviews were all audio-recorded and transcribed by the first author. Furthermore, due to the language barriers with some of the sportswomen, the Talanoa sessions were conducted in the Fijian language, translated, and later transcribed (by the first author). During the interviews, each participant was observed, and behaviors and reactions toward the questions and dialogue were documented as notes. The participants were either very comfortable or uncomfortable when discussing their menstruation knowledge and experiences, thus reflecting the key themes from Snieker's (2005) study cited above. The lead author worked to create a culturally safe and supportive environment for the athletes to share their experiences, with consideration for the privacy and comfort of the locations, offering of food, use of humor, storytelling and sharing her own experiences as a Fijian athlete. Recognizing the sensitive nature of this topic, each participant was given a pseudonym with all efforts not to reveal the identities of the sportswomen.

Table 1. Participant’s Interview Information.

| Participants (pseudonym) | Sports | Cultural Identity |
|--------------------------|------------|-------------------|
| Akosita | Individual | Fijian |
| Losalini | Team | Fijian |
| Leba | Team | Fijian |
| Mele | Team | Fijian |
| Gina | Individual | Fijian Tongan |
| Lagi | Team | Fijian |
| Brenda | Team | Fijian–Chinese |
| Cecilia | Team | Fijian–Rotuman |
| Asena | Team | Fijian |
| Alisi | Team | Fijian |
| Mere | Team | Fijian |
| Inise | Individual | Fijian |
| Mereisi | Team | Fijian |
| Sala | Team | Fijian |
| Courtney | Individual | Fijian–Indian |
| Seini | Individual | Fijian–Rotuman |
| Ruby | Individual | Fijian–Samoaan |
| Maria | Individual | Fijian–European |
| Belinda | Team | Fijian–Rotuman |
| Alena | Team Sport | Fijian |
| Samantha | Individual | Fijian–Indian |

Data Analysis

We engaged in a reflexive thematic analysis (Braun & Clarke, 2006) to identify and prioritize the key themes. Importantly, our researcher positionings shaped this project, particularly the identity of the first author. As a Fijian sportswoman, her understanding of the Fijian culture’s customs, traditions, different upbringings, and experiences with menstruation, were important in creating a safe environment where the participants were confident to share their experiences. Before every interview, she shared some of her own experiences as a Fijian sportswoman, leaving home straight out of high school to pursue her dreams and playing elite sports in the United States of America. As an Indigenous Fijian researcher, understanding cultural safety was a priority throughout the Talanoa and interviews, and the analysis and writing

process. Fijian sports women's voices were always centered, and the main topic of discussion for this research. The broader research team brings different strengths to the project, including feminist research on sport and menstruation, Pacific methodologies, and sports science research on menstrual health. Throughout this research process, we individually and collectively reflected on how our varied researcher positionalities shaped this project, including the analysis presented herein. Importantly, the first author led this project, and as a Fijian sportswoman herself, demonstrates the importance of more research focused on menstruation in sport by, with, and for women of varied cultural and ethnic identities. The research team is made up of two Pasifika researchers (AG, and KH), and four white researchers from New Zealand and the United Kingdom (HT, BH, CP, and GB), with the research team bringing together expertise in sports sociology, sports science, sportswomen's health, and Pacific methodologies.

Results and Discussion: Fijian Sports Women's Experiences of Menstruation

We have organized our key findings into three parts. Firstly, we discuss how cultural ways of knowing menstruation shaped the sportswomen's initial experiences of menstruation. Secondly, we focus on women's understanding and reflections of menstruation and sports in Fiji. Thirdly, we share some of the suggestions made by the participants on how to improve Fijian sportswomen's experiences and knowledge of menstruation.

Menstruation in Fijian Society

In many parts of Fijian society, menstruation is still a taboo topic. However, the topic is gaining more attention, and families are increasingly having open discussions with their daughters. In his study of Indigenous Fijian culture, Sniekers (2005) explains, "The first

menstruation is the only time when menstruation is marked by a ceremony in Fiji. All other menstruations do not get this special attention. People do not discuss menstruation openly” (p. 403). The family invites other family members and celebrates this special occasion with a feast where traditional foods will be served. In their research on menstruation in the Pacific, Maulingin-Gumbaket et al. (2022) write that “at the center of a menarche ceremony is not the adolescent girl, but rather traditional, familial, and hierarchical ways of being—thereby a girl’s first menstruation is appropriated by her family to affirm and celebrate these values through collective feasting and nourishment of the communal body” (p. 13). For some of the Fijian sportswomen in our study, they recalled their first period as a special moment, and a celebration of entering womanhood. However, a few of the participants expressed how they were embarrassed or felt shame during their early menstrual experience:

I got my first-period experience in the village. It was half an hour by boat to the closest shop, so I just used the toilet paper. I just thought that it was embarrassing because we never talked about it at home and so yeah, I just kept it to myself until I gained the courage to pull my oldest sister to the side and then she’s the one that guided me on what to do. (Seini, 35 years old)

Some of the women mentioned how they were ashamed to start a conversation with family members, especially during their first experience of menstruation. As the following comments from Maria (40 years old) suggest, many of the sportswomen wished that they had more discussions as a family around the topic of menstruation:

Before my first menstrual experience, it wasn’t spoken about very much in the house. But when my younger sister got her period, my parents were more open about the topic. My sister is eight or nine years younger than me. I noticed my mom and dad too would talk about it to her very openly. So over time, they discussed a lot of things openly, but during my time, not even my dad acknowledged periods. But no, I think he already knew about it, but he just didn’t want to make me feel uncomfortable in front of my brothers because there’s such a big age gap between my younger sisters and me.

As highlighted in the quotes above, for many Fijian sportswomen, their first experiences of menstruation were shaped by implicit understandings of stigma and taboo through silencing. In the Fijian culture (and other cultures in the Pacific), “matavuvale” (family) plays a major role in the development of an individual. As various Pacific scholars have highlighted, family is central to Pacific communities and ways of life (Brison, 2007; Forrest et al., 2021). Cecilia (23 years old) described how her family created a safe space where they could discuss their menstruation experiences as a family, however, the topic of “sex” was still very much taboo:

I grew up overseas, yeah, it’s like spoken about. It’s not like a taboo. I must speak about that with my parents. There are three girls in my family so my dad’s also really understanding. So, we are open about topics like periods and stuff. My mum is as well, and I speak about contraception. But topics like sex are still like a no, no. I know we all do it, but then, you know, like after pregnancies happen and stuff and you feel like you must hide it from your parents.

Our research highlights the importance of the family for the women’s understanding and experiences of menstruation and the very different ways that families approach the subject.

Some of the participants with prior knowledge before their first menstrual experience were not ashamed and understood that it was a way to welcome womanhood. This was particularly the case with the younger participants. Mele (20 years old) mentioned: “When I was 12 years old my mom already knew what to do because we’re all girls, so she told me like it was a big thing and advised me on what to do and then she told my dad.” Another participant Akosita (18 years old) expressed how having a menstrual cycle was hard to accept even though her mum had shared with her information about menstruation. Akosita described her experience: “My mom, you know, had already briefed me to be aware of it, but I think for me it was just probably just like a shock, like looking at blood coming out of me.” A few sportswomen who had parents or siblings who were part of the medical profession mentioned that the topic was not sensitive or taboo in their family.

Many of the participants (including those of mixed ethnicity) referred to their menstrual cycle as “tauvimate” or “sickness.” Mere (25 years old), shared how she was educated on the topic, but her menstrual cycle was referred to as sickness:

Growing up, I was told that all girls when they turn a certain age (11–14 years old), they will get what the community would call “women’s sickness”. By calling it that, it makes people (mostly males) think that menstruation is a bad thing that happens to women and young girls. We were not taught why it happens.

Such comments highlight the variation in the ways Fijian families talk about menstruation in the home, and how such approaches impact Fijian sportswomen’s lifelong relationships with their menstrual health. While many of the women spoke of cultural taboos or silencing of the topic of menstruation, others recalled their first period as a time of celebration. Many families would have a “kana” (feast) to celebrate their daughter entering womanhood, especially if she was the eldest daughter in the family. The term “kana” in the Fijian culture refers to a family gathering, feast, or celebration with lots of food and beverages being provided. In this research, some participants also mentioned grandparents telling them stories about how menstruation was historically understood as very sacred and a celebration. Such comments align with Sniekers’s (2005), findings that “during the menarche ceremony, the girl is going through a rite of passage whereby she passes the different stages of separation, transition, and incorporation and transforms from a little girl into a young woman” (p. 421). According to Sniekers (2005), “The taboo of leaving the house when bleeding is related to mana, the sacred and special power of the menstruation blood” (p. 410). However, Sniekers (2005) continues to explain that such ceremonies, and a recognition of the powerful time of menstruation, are rare in contemporary Fijian society. As Lagi (21 years old) explained,

My grandparents said that they used to celebrate it back in the day and I wonder what happened over time which makes us feel like it is a taboo topic? Westernization made

menstruation seem like a taboo instead of making it better. Something went wrong somewhere.

The comments from Lagi are perceptive here, highlighting awareness of the processes of colonization (perhaps including the introduction of religion) in separating Fijian families from important cultural ceremonies and shifting understandings of menstruation as a time of power to silencing.

The family and cultural ways of knowing menstruation also shaped the women's relationships with menstrual hygiene products, particularly tampons. In the Indigenous Fijian culture, many female figures in the family (i.e., mothers, grandmothers, aunts, older sisters) do not authorize their daughters, nieces, or sisters to use a tampon. Tampons have been sexualized due to the impression that a girl may lose her virginity through insertion. As Samantha (aged 48) recalls:

Culture in terms of pads, I remember when I used the tampon a friend of mine, said "Hey, you can use this", and I went and tried the tampon. However, my aunt gave me a good lecture on using tampons because it was believed that you could lose your virginity. So yes, it is a taboo from a cultural aspect.

In the Fijian culture, many young women are encouraged to use pads instead. Brenda (23 years old) describes her experience as follows:

My mom didn't want me to use tampons. I think just the whole idea of something being stuck up there. She just said we could only wear pads, it's taboo to use tampons.

In such comments, we hear of young Fijian women navigating their menstrual health with their family (particularly mothers and aunts) and how cultural knowledge (i.e., don't use tampons) is passed down through generations. As we discuss below, this cultural knowledge continued to shape the sportswomen's experiences of menstruation in training and competition environments later in life.

Menstruation and Sports in Fiji: Discomfort, Leaking and Product Displacement

International research has highlighted the challenges for sportswomen during their menstrual cycle. This research has focused particularly on uniforms (i.e., white shorts), but other issues include access to bathrooms, as well as pain and discomfort during training and competition (Heather et al., 2021; Marashi et al., 2023). According to Findlay et al. (2020), “Psychological symptoms manifested as worry, distraction, negative mood states, feeling tearful and emotional, reduced motivation and feelings of agitation. These symptoms have been noted in the general population and an elite athletic population” (p. 3). Many professional athletes such as Lydia Ko, Carla Papac, and Dina Asher-Smith have expressed how menstruation plays a major role when it comes to their performance during competitions or training. Many of the Fijian sportswomen spoke of similar challenges of menstruating while training or competing:

It takes a lot out of me and my day having to worry about how I will manage my period around training and even more so when I compete. This takes me away from the visualization of my race plans and all my energy diverts to my period rather than being focused on how I am going to perform to my best. (Sala, 32 years old)

Mentally, it has the biggest impact. I feel I am at a disadvantage if I am racing another girl who doesn't have their period (and the physical symptoms that limit us). (Losalini, 18 years old)

I get bad cramping on day one and day two. Sometimes it's like to the point when I'm thinking of everything from praying to yoga to try [to] heal it, other than pain relief medication. But typically, when I'm on my period day one and day two because of the awkward cramps and stuff, I tend to have a big drop of energy and you know a lot of discomfort when doing things like running for basketball. And stuff like that, or even swimming just being extra conscious. (Maria, 40 years old)

Some sportswomen have learned to adapt and fight through the pain. However, others shared how having their menstruation during competition days brought a lot of stress and anxiety.

As well as the physical discomfort and logistical considerations of training and competing while menstruating, some struggled with cultural attitudes and beliefs that women should not engage in physical activity during their menstrual cycle. For example, Leba (18 years

old) found the decision of whether to not train because of her period challenging: “I struggled with whether I should train when I got my period, and it came down to my goals and how best I wanted to achieve them.” The Fijian sportswomen navigated such cultural beliefs in a range of ways. Some did not train or compete when menstruating because they had internalized the belief that menstruation should be treated like a sickness, and due to their lack of knowledge about sports and menstruation. This was explained to us by Belinda (41 years old):

In school when we had swimming, without prior knowledge of the period. Athletes understood that if you are menstruating you don't swim! If you have your menstruation, [you] must not take part in any physical activity. However, over the years I read somewhere that when I go into the pool it stops. So that changed my thinking and understanding of periods. It's like a taboo here in Fiji or an unspoken rule that athletes should sit out during menstruation. The stigma stops athletes from wanting to learn more about the topic.

The sportswomen in our sample offered a range of perspectives on how they negotiate such cultural ways of thinking about menstruation, with some not training or competing during menstruation, and others choosing to do so.

Among the latter, the most common fear the Fijian sportswomen expressed was the fear of leakage. The fear of leakage or product displacement was a major limitation, both physically and mentally, as this distracted some athletes from their game plans, and brought discomfort. In the sports that had white or light-colored uniforms, the athletes described their efforts to ensure that they had a spare change of shorts just in case of an emergency. Others spoke of how tight-fitting and revealing uniforms (i.e., togs, skirts) prompted concern about exposing their menstrual products or blood-stained clothing:

The fear of leakage is a big limitation for me physically and mentally, especially being in a swimsuit and having to walk on deck and to the block for a race. I lose my focus on my races because I am worried and trying to manage my period and some discomfort. It impacts my preparation not only during competitions but during training as well. (Alena, 45 years old)

I played netball growing up so like our netball dresses, it was like a one piece and the underwear was like our tights that were attached to the skirt. And you'd be embarrassed to wear it due to the fear of leakage or that your pad could be seen when you jumped. (Ruby, 36 years old)

Another common fear was having their menstrual products (particularly pads) fall out or being exposed. Athletes would prepare for games by ensuring their uniforms were fitted properly, and to the extent that athletes would wear double pads due to the fear of leakage. Some of the sportswomen recalled witnessing another player's sanitary product being exposed, so they would always take extra precautionary measures. For example, in volleyball, the uniform athletes wear can be very short, and athletes are always worried about people seeing their pads during games or practices:

It was the fear of leakage. Sometimes we wore double pads and like made sure that they were tight on, so they didn't move out of place. I think I wore pads before, but in one PE class, oh my gosh, we were playing basketball and somebody's pad fell out and ever since then, I think I've just been scared that this might happen to me. So, I don't use pads. When I play a sport, I just use tampons. Just for the fear of it falling. (Inise, 30 years old)

For volleyball, I just used the pad, although it was uncomfortable because you are wearing shorts. When you touch you know the backside of your shorts, it makes you wonder, can somebody see my pad sticking out or something? (Alisi, 25 years old)

A swimmer also explains her experience with menstrual products as frustrating, particularly the need to change products regularly:

I always use pads during swimming since you are in the water, just don't use pads, and then when you come up you will have to change. That's why it's the most frustrating for me because every time, I'd be like waiting for my next event, I'd have to change every time. (Lagi, 21)

As this section has illustrated, while there are cultural norms about the use of pads rather than tampons, Fijian sportswomen adopted a range of practices that best suited their needs. Some wore multiple pads and modified their uniforms to minimize distraction, whereas others wore tampons but only for the duration of a competition.

The sportswomen who participated in the Talanoa also had similar answers when asked about the use of hormonal contraceptives. Of the 21 participants interviewed, only one participant used contraceptives to help with her menstrual pains and regulate her flow during competitions. However, other sportswomen use Panadol to help with their menstrual pains. In Fiji, hormonal contraceptives are usually not associated with the menstrual cycle or sports. The use of contraceptives is usually associated with unwanted pregnancy and family planning. According to Naidu et al. (2017), “Fiji has a low contraceptive uptake rate and high rates of unplanned pregnancy and sexually transmitted infections (STIs)” (p. 223). Naidu et al. (2017) also explained how the use of contraceptives was common among women who were working professionals or had a higher level of education. Our findings contrast with research on athletes in Western contexts where oral contraceptives are often used to regulate and manipulate the menstrual cycle (Oxfeldt et al., 2020; Schaumberg et al., 2018), highlighting how cultural ways of knowing shape athletes' menstrual health practices.

The Need for More Awareness of Menstruation in Sport: The Critical Role of Coaches and Support Staff

Herein we see how sportswomen actively navigate different ways of knowing menstruation, including some conflicting expectations and norms between their Fijian culture and competitive sport. International research has highlighted the importance of normalizing conversations about menstrual health in sports (Findlay et al., 2020) and expanding coach and medical support staff knowledge about menstruation in sports (Brown et al., 2021). However, as our research highlights, such information sharing, and educational work must take into consideration not only gendered silences and stigma but also how intergenerational cultural

knowledge shapes coaches' and athletes' willingness to engage in such initiatives. Furthermore, considering how gender and culture intersect to impact the knowledge landscape in elite sporting contexts is important, and educational initiatives must be locally specific, recognizing how processes of colonization, religion, and cultural ways of knowing shape athlete's needs regarding menstrual health, and coaches' willingness to engage in female athlete health-oriented initiatives.

According to Brown et al. (2021), "Improving both athlete and coach knowledge and providing education on the menstrual cycle, correct terminology, constructing positive conversations, and changing the perception of awkwardness could significantly reduce the discomfort and outdated nature of not having conversations relating to the menstrual cycle" (p. 64). However, rarely do researchers or sports practitioners consider how culture may change such conversations, or rather, how cultural knowledge and context should be considered to ensure such conversations are respectful of different ways of knowing menstruation. Some of the Fijian sportswomen offered nuanced and thoughtful suggestions as to how to improve knowledge and understanding of menstruation in sports. For example, Courtney (35 years old) acknowledged the power of longstanding cultural taboos and stigma, and identified a need for greater education in families and schools:

It's such a taboo subject and everybody's either scared to talk about it or tries to avoid it. So, I think educating the younger generation about menstruation is part of the female body function and not a sickness. Just more details about it so they have a better understanding, and everyone is a bit more open to the topic, not only to the females but to the males as well. So, males have a better understanding and as they get older, it would be easier to discuss. Talk about it with their peers, sisters, females, and any other athletes.

Participants also pointed out their frustrations and experiences with different coaches and support staff. Since this is a very taboo topic in Fiji, only a handful of coaches dare to bring it up with

athletes. Some participants shared how they were just ignored, told to fight through the pain, or find ways to get through the cramps, bloating, and heavy flows:

It was never something to discuss; only the managers would tell us to prepare if we were leaving for our tournament. Like if you're traveling, and it is the same time as your period, please come prepared for it. The previous coach was very religious, and only the manager could talk to the girls. Like, if he had something to say to us, he would go through the manager, who was a female, and then she'd approach us. (Sala, 32 years old)

It feels more like ignorance in my experience in the sense that they would rather not know when we are menstruating. There will never be an initiation of the topic to see how we feel or how it affects us and how best they could best support us. (Belinda, 41 years old)

I struggled with a male coach who would say "So what?" when I would say I had my period. Female teammates yes, we just share the same struggles and frustrations, and usually when we are on tour in our hotel rooms just resting. Coaches never wanted to acknowledge this topic. (Mere, 26 years old)

There were a couple of times when earlier on when I was, you know, bloated or cramping or heavy flow or uncomfortable for swimming. And I had a swimming coach, and she would say "OK, just put a tap on it and swim. You'll be fine". So that was when I think I came to learn that no matter what, we can still train, and push through. She was just mainly like, "There's always a way to swim". (Cecilia, 24 years old)

These comments highlight the complex intersections of gender (both male and female coaches), culture, and in limiting the conversations, considerations, and empathy for sportswomen during menstruation. While cultural taboos meant that many coaches refused to talk about menstruation, some athletes noted that a few coaches were becoming more aware of the importance of the subject: "Some coaches are different. This current coach is probably the first one that I've come across who has spoken about it" (Gina, 20 years old).

Many of the athletes highlighted the need for coaches and medical support staff to better understand sportswomen's experiences of training and competing while menstruating, with the hopes that such knowledge might enhance empathy and awareness of the importance of the topic:

I feel this needs to be part of the coaching curriculum. So just as a topic about you know, inclusivity about understanding women in sports. Whenever they have women coaches, they must be able to talk about it openly... So, whether it's during a team briefing, or the induction of athletes, and even like coaching sessions, like when the athletes come in to train, it could be like a checklist, or you talk about it openly and you say these are very important. So yeah, including it in the coaching curriculum, and making it a significant part of team preparation. (Samantha, 48 years old)

The participants also talked about the need to create spaces where female athletes could discuss not only topics around menstruation but also other topics relating to their physical and mental health:

Well, I think if you influence a group of people, especially if they're females, provide space for them to be able to talk about not just menstruation, but also anything like understanding their bodies or mental health. Yeah, maybe like having medical groups come and talk to women about being more aware of their periods and their bodies and listening to their bodies. So, providing this space, I think. And communities can start talking about it more with an open mind. (Seini, 35 years old)

As highlighted in this quote from Seini, it is not just the topic of menstruation that is overlooked, but female athlete health and well-being more broadly in the Fijian sporting system that continues to dedicate most of its limited funding and resources to male athletes. While sportswomen are eager for better education and information, any educational sessions for coaches or athletes in Fiji must acknowledge the cultural context, and the power of longstanding cultural taboos and silencing. Such educational programs need to acknowledge, understand, and respect the cultural context for participants (coaches, sports professionals, athletes) to feel comfortable and safe in such learning environments.

Conclusion

In this paper, we drew upon Talanoa sessions with 21 Fijian sportswomen to reveal their knowledge and experiences of menstruation in sports. Guided by the Masi methodology and ensuring that the voices of these women were always the main priority, we discovered three key

themes. Firstly, menstruation in Fijian society is still a taboo subject, particularly if males are present. However, some of the athletes mentioned how their parents were increasingly willing to talk about menstruation, suggesting signs of social change regarding the attitudes towards menstruation. Secondly, the Talanoa sessions with the sportswomen showed that they navigate an array of challenges while menstruating, particularly discomfort and pain that is not acknowledged by coaches, and concerns about leaking or displacement of menstrual products (mostly pads) while training or competing. Thirdly, many of the athletes acknowledged the difficulties of navigating cultural stigma and taboo, particularly the unwillingness of coaches to listen to or empathize with their experiences of menstruation. These athletes called for change from the grassroots level in sports and in the classrooms, as important for changing cultural attitudes towards menstruation, which will then lead to more coaches and sporting professionals being willing to talk on the subject. More education is needed on the topic, with the Fijian people, and sporting and health professionals, needing to understand that menstruation is not a “sickness”, but part of a woman’s bodily function, and an integral part of female athlete health.

While the Fijian sportswomen in this study were culturally and religiously diverse, our data did not reveal significant variations across those of different ethnic and religious backgrounds. Many of the participants came from religious families and often noted this in the interviews, yet they rarely spoke specifically about how religion shaped their own and other’s experiences of menstrual health in sports or daily life. This silence is noteworthy. We anticipate that religion and ethnicity were often combined when the sportswomen spoke of the influence of “culture” on menstrual knowledge and practices in Fijian society and sport. Future research would do well to focus more closely on how ethnicity and religion shape sportswomen’s experiences of menstruation, and their preferences for approaches to menstrual health support.

In sum, this paper highlights the value of culturally responsive methodologies that create safe spaces for sportswomen's experiences of menstruation as shaped by the gendered and cultural contexts in which they live. We conclude with a call for more research that considers the menstrual health experiences of sportswomen from diverse cultures and ethnicities, particularly research that centers on the voices of Indigenous and ethnic minority sportswomen. It is only when we create space for sportswomen's multiple and nuanced experiences of health and wellbeing in different contexts that coaches and health professionals can better understand and cater to their unique needs, rather than fitting them into existing systems of Westernized knowledge that have for too long silenced and ignored cultural ways of knowing menstruation. Our research also highlights the importance of research methodologies designed by, with, and for women from Indigenous and diverse cultural positionalities.

Chapter 5: “My menstruation journey in sport was sad and lonely”:

The Menstruation Experiences of Pacific Sports Women in Aotearoa New Zealand

Manuscript 4

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Article Link: [“My menstruation journey in sport was sad and lonely”: The menstruation experiences of Pacific sports women in Aotearoa New Zealand](#)

Abstract

Recently, scholars have been calling for greater cultural considerations in menstrual health research and practice. Guided by Masi methodology—a Pacific methodology that centers the voices of Pacific women—we draw upon interviews with 16 Aotearoa-born Pacific sportswomen across various sports to understand their experiences of menstruation. In so doing, we reveal the challenges they experience, including menstrual poverty, lack of menstrual and reproductive health education, and a historical lack of support in elite sport. However, our research also highlights signs of change, with Pacific sportswomen demonstrating their agency in accessing and sharing menstrual health information in communal ways. As well as educating more coaches and health professionals to engage in more culturally responsive menstrual health initiatives, we argue that sports organizations should look to provide resourcing for Pacific sportswomen (and Pacific women researchers) to create culturally safe environments for athletes to share their own knowledge and experiences of menstruation in sport in communal, relational and respectful ways. In so doing, we identify the need to challenge the power relations inherent in many menstrual health literacy initiatives in sport, and to center sportswomen’s cultural and embodied knowledge. Weaving a Masi methodology approach together with the voices of the athletes, we come to understand Pacific sportswomen as holding powerful knowledge about menstruation that will be valuable for future generations. Engaging a Masi methodology approach, we come to understand Pacific sportswomen as holding powerful knowledge about menstruation that will be valuable for future generations. We conclude by identifying the need to the power relations inherent in menstrual health initiatives that assumes ‘experts’ (medical, coaches) have the expertise, while silencing Pacific sportswomen’s voices, and overlooking their embodied and cultural knowledge about menstruation.

Introduction

Pacific Islanders have used sports as a platform to gain a lot of visibility and respect in the Aotearoa, New Zealand (Aotearoa hereafter). Today, Pacific islanders dominate Aotearoa's most loved sports, rugby and netball. Many Aotearoa-born Pacific sportswomen like Ruby Tui (rugby), Dame Valerie Adams (shot put), Dame Beatrice Faumuina (discuss), Shiray Kaka (rugby), and Vilimaina Davu (netball) are well known for their athletic excellence and celebration of their cultural identities. Yet to date, very little research has focused on the experiences of Pacific sportswomen in Aotearoa. Guided by Masi methodology—a Pacific methodology that centers the voices of Pacific women—we draw upon interviews with 16 Aotearoa-born Pacific sportswomen across various sports to understand an important aspect of their sport performance and health experiences: menstruation. In so doing, we reveal the challenges they experience, including menstrual poverty, lack of menstrual and reproductive health education, and a historical lack of support in elite sport. However, our research also highlights signs of change, with Pacific sportswomen demonstrating their agency in accessing and sharing menstrual health information in ways that feel appropriate to them.

Research on menstruation in sports is growing rapidly, yet very little focuses on how athletes from non-White and non-Western backgrounds experience menstruation in sporting contexts. Recognizing such gaps, some scholars (Zipp, & Hyde, 2024; Thorpe, Brice, and Rolleston, 2020; Mkumbuzi et. al., 2023; Mkumbuzi, 2024) have called for more research examining the intersections of menstruation and cultural knowledge, and medical practices and sporting cultures that respect sports women's different ways of understanding menstrual health and wellbeing as shaped by various beliefs, cultural narratives, and perceptions. This paper builds upon and extends this literature by focusing on the menstruation experiences of Pacific

sports women living in Aotearoa New Zealand (hereafter referred to as Aotearoa, the indigenous name of New Zealand). Ultimately, we call for more research that amplifies the voices and experiences of Pacific women who participate in sports. It is crucial to build a supportive and culturally safe environment where they receive the social support and medical care needed to be healthy and successful athletes, and for Pacific sportswomen's cultural and embodied knowledge to be recognized and valued.

Literature Review: Menstruation, Sport and Pacific Culture

Menstruation is the natural biological process that women (as well as many non-binary and trans-men) go through on the monthly basis (ranging from 24-38 days). The menstrual cycle usually consists of four phases (Day 1 to 5 Menstrual phase; Day 6- 13 Follicular phase; Day 14 Ovulation phase; Day 15-28 Luteal phase) with a regular menstrual cycle said to be a sign of a healthy reproductive system. Over the past three decades, sport scientists have examined how sporting participation (and sport-related stressors) can impact the menstrual cycle, as well as how menstruation can impact athletes' health, wellbeing performance (Bruinvels et al., 2017; Brown et al., 2021; Heather et al., 2021; McNulty et al., 2020).

Over the past decade, qualitative research has increasingly examined sportswomen's experiences of menstrual health. Some of the first qualitative studies revealed how the pressures on sportswomen (i.e., body image, disordered, overly disciplined cultures) contributed to hormonal changes that negatively impacted their menstrual health, with some experiencing secondary amenorrhea (loss of menstruation) (Thorpe, 2014, 2015, 2016). Thorpe and colleagues engaged an array of theoretical approaches (from feminist post-structuralism to new materialisms) to understand how biology and culture intersected to impact sportswomen's experiences of the menstrual cycle, particularly in relation to the health conditions of Low

Energy Availability and Relative Energy Deficiency (Schofield, Thorpe & Sims, 2022; Thorpe, Clark & Brice, 2021; Thorpe & Clark, 2020).

More recently, qualitative studies have examined sportswomen's experiences of menstruation with a focus on the different barriers, the impacts on sporting performance, the cultural barriers and stigmas, and the lack of education and resources. For example, researchers such as Goorevich, and Zipp (2024) and Mkumbuzi (2022) have explained the barriers on menstruation and how it impacts the performances of sports women due to the stigmas, silencing, lack of education, coach and player communication discomfort, and the other risks of menstrual related health issues. Researchers are increasingly focused on sportswomen's perceptions of how menstruation impacts their training and performance, and their preferences for menstrual health support and education (Findlay et. al., 2020; Van Den Berg & Doyle-Baker, 2024). Drawing upon interviews with Canadian female athletes competing at national and international levels in team and individual sports, Van Den Berg and Doyle-Baker (2024) found sportswomen have a "desire for symptom management strategies" and more evidence of menstrual cycle training periodization to optimize performance (p. 1). Some athletes also expressed challenges in "balancing health with performance" and "felt ill-informed on how hormonal contraceptives could potentially impact performance" (p. 1).

Qualitative researchers are increasingly interested in the knowledge and practices of coaches and health professionals. In an Aotearoa-specific study, Schofield, Thorpe and Sims (2022) drew upon semi-structured interviews with high-performance and elite coaches, to critically examine the experiences, lessons learnt and methods of coaches who adopt "proactive" approaches with their sportswomen regarding LEA and RED-S. Also, in the context of Aotearoa, O'Loughlin and colleagues (2023) examined the menstrual knowledge of health and non-health

professionals working in the sports medicine clinic. Drawing upon focus groups with 18 participants (2 orthopedic surgeons, 9 sports physiotherapists, 3 patients, and 4 athletes), the research revealed that while the broader sports medicine community does not routinely discuss the menstrual cycle in the clinic, “health professionals have specific strategies to enable comfortable menstrual cycle conversations” (p. 139). Some key barriers to in-clinic menstrual cycle discussions included athlete and health professional age, gender, and culture. Ultimately, the article highlights the “importance of developing trust, giving context, using screening tools, and being aware of each patient’s sociocultural status when discussing the menstrual cycle in the sports medicine clinic” (O’Loughlin et. al., 2023, p.154).

Despite a growing body of qualitative research on sport and menstruation, much of this research continues to focus on white sportswomen, coaches, and health professionals. There is a gap in the literature on how the cultural, ethnic, and religious identities of athletes may impact the way they manage their menstrual cycles or the menstrual health support they desire from coaches and medical professionals. To date, just a few studies have illustrated the importance of culture for women’s experiences of menstruation in elite sporting environments. In a study focused on the experiences of Māori and Samoan women rugby players in Aotearoa, Thorpe et. al, (2020) identified the ways Indigenous women athletes navigate between Westernized scientific ways of knowing menstruation in sport, with their cultural knowledge, customs, and practices. Examining the menstruation experiences of the African women’s football team, Mkumbuzi (2022) concluded that sporting organizations need to be considerate, and practice cultural safety when working with sportswomen from low-income settings, as their experiences on menstruation may differ from those in a more Westernized environment. Recent research by Gibbons and colleagues (2024) focused on Fijian sports women's experiences of menstruation,

revealed ongoing stigma, silencing, and taboo of menstruation both in Fijian society and in sporting contexts. The menstruation experiences of Pacific sportswomen in Aotearoa, however, have yet to be considered. In contrast to Fijian sportswomen in Fiji, Pacific sportswomen in Aotearoa navigate a distinctive space as they participate in multi-cultural sports teams, in a country with a bi-cultural foundation (Te Tiriti of Waitangi being a document / Treaty of central importance to the history and constitution of Aotearoa), but most often with white coaches and health professionals. Thus, we now need to turn to contextualizing the cultural positioning of Pacific women in Aotearoa society and sport.

Pacific People in Aotearoa

The history of Pacific Islanders' migration to Aotearoa has been a story of resilience, determination, courage, and change. While Pacific communities have been a part of Aotearoa history since the great migration across the ocean between 1250-1300AD, it is particularly with immigration waves from the 1970s that Pacific people have gained more visibility and recognition for the important roles they play in the development of the social and cultural aspects of Aotearoa (Teaiwa & Mallon, 2005; Leaupepe & Sauni, 2014). While Pacific peoples have been welcomed into Aotearoa under different labor migration trends, their experiences in Aotearoa have included racialized discrimination and rigorous immigration policies, including the Dawn Raids of the 1970s (Hall, 2017). In 2021, the Ardern government formally apologized for the violence and racism experienced by Pacific communities before, during and after the Dawn Raids, yet negative stereotypes and racial discrimination towards Pacific people continued to persist (Brown and Norris, 2023).

As of the 2023 Aotearoa Census, people of Pacific heritage make up 8.9% of Aotearoa society, with 62% of Pasifika Aotearoa living in Auckland. Embodying cultural values from their

Pacific countries, the Pacific diaspora in Aotearoa is built around the family, village, and community (Gordon et. al., 2013). Another important aspect of many Pacific cultures is religion (Neville et. al., 2024). In the Pacific Aotearoa community, Christianity is the most practiced religion, with the church playing a significant role in many Pacific communities and families. A growing body of research focused on the gendered experiences of Pacific women in Aotearoa shows they experience various forms of inequality and marginalization, including a significant pay gap which Monolagi (2022) refers to as the ‘brown glass ceiling’, as well as health and educational disparities (Estelles et. al., 2023). Research is also increasingly revealing the injustices Pacific women experience in the Aotearoa medical and health system, including concerning menstrual health and fertility treatment (Ellis et. al., 2024; Shaw & Fehoko, 2023).

Pacific Athletes in Aotearoa

Sport sociologists have examined the cultural, social and economic factors influencing the development of sport and physical activity in the Pacific (e.g., Kanemasu, 2024; King, 2014). A particular strand of interest has been on the experiences of Pacific athletes in Aotearoa, Australia, and across the Pacific Islands (e.g., Manu, Cassidy, and Hapeta, 2024; Teaiwa, and Mallon, 2005; Uperesa, and Mountjoy, 2014). Much of this literature has focused on the experiences of Pacific male athletes, particularly those in rugby, and their migration experiences from the Pacific islands to Australia (Hawkes, 2023; McDonald, and Rodriguez, 2014;), Aotearoa (Grainger, 2008, 2017; Carpenter, and Light, 2019), and the United States (Uperesa, 2022). Across this literature, Pacific athletes are celebrated for their athletic talents and ‘Pacific flair’ but often experience various forms of racism. Research has also shown that sports organizations often overlook the importance of cultural ways of knowing and being in their treatment and support of Pacific athletes within professional sports systems. Among the first to

examine this topic, Schaaf (2006) explored the participation motivation for Samoan male rugby players in Aotearoa, revealing the importance of family, religion, and community in the lives, and the tensions they navigated in sporting systems that did not acknowledge these important aspects of their identities (e.g., games and training on Sundays which clashed with their religious, family and community responsibilities).

While much of the research on Pacific athletes has focused on men, and particularly male athletes' migration to countries of Aotearoa, Australia, and the US, a growing body of scholarship considers the experiences of Pacific women in sport and physical activity. Researchers such as Kanemasu (2021), Balram (2021), and Dorovolomo (2020) have examined the experiences of Pacific sportswomen with a particular focus on how they have navigated gender in traditionally male-dominated team sports of rugby and football. Research on Pacific girls' and women's participation in sports and physical activity shows that they often must prioritize a range of cultural roles and family responsibilities over their sporting participation (Balram, Pang and Knijnik, 2024; Hawkes, 2023). The recent book by Kanemasu (2023), *Pacific Island Women and Contested Sporting Spaces: Staking Their Claim*, makes a significant contribution to understanding the intersectional complexities of Pacific women's experiences in sport across the region. Kanemasu's (2023) research recognizes the many challenges facing Pacific women in sport, as well as their agency in navigating space for themselves, and 'staking their claim' to participate in sport at all levels.

To date, little academic attention has been given to the sporting experiences of Pacific women living in Aotearoa. The work of Schaaf (2005) is an important and early exception, in which she examined the body image experiences of Pacific Aotearoa sportswomen, and how they were expected to look a type of way that was satisfactory and based on the views of white

male fantasies. Another study by Teevale (2008) examined the experiences of Pacific women playing netball in Aotearoa and the ideas of positional segregation and ‘island flair’.

Despite their significant successes and visibilities in the New Zealand sport landscape, less than a handful of scholars have examined Pacific women’s experiences of sport and physical activity in Aotearoa. As Nakhid and Enari (2024) state, very little is “known about the racialized experiences of Indigenous, Brown, and Black female athletes at the systemic and institutional levels in the social institution of sport” in Aotearoa (p. 1). Continuing, Nakhid and Enari (2024) explain that, while Pacific sportswomen in Aotearoa are widely recognized for their physicality, endurance, and strength, they are rarely acknowledged for their intellect, and this shapes how coaches and support staff treat Pacific athletes. To our knowledge, no research has focused on the health needs of Pacific sportswomen in Aotearoa, or their experiences of menstruation.

Methods: A Masi Methodology for Pacific Sportswomen in Aotearoa

Over recent decades, Pacific scholars have worked hard to decolonize research methods by developing their own culturally specific methodologies. According to Naepi (2019), “Pacific research methodologies can be understood as a resurgence practice for people who have always been scientists and whose scientific practice was interrupted by colonialism” (p. 1). For this research we used the Masi methodology. The term Masi refers to a Tapa cloth or a Fijian bark cloth, and as a methodology “abides by general Pacific research values while also centering Pasifika women’s voices” (Naepi, 2019, p. 238). In the Fijian culture, the women from different villages would have certain traditional patterns and designs to indicate where the Masi originated. The Masi was then used as a connection to the gods (Naepi, 2019). Pacific scholar, Sereana Naepi (2019) developed the Masi methodology, providing guidance on how to

collaborate and work with Pacific women throughout the research process, with research practices that are tailored towards Pacific women's unique cultural and gendered values.

Masi methodology is deeply rooted in Indigenous Pacific knowledge, customs and traditions. It uses storytelling to share knowledge and is explicitly designed to centre the voices of Pacific women while acknowledging their Pacific values of respect, relationships, cultural competency, meaningful engagement, reciprocity, utility, rights, balance, protection, capacity building, and participation. As a methodology, Masi is not prescriptive on the types of methods used but rather encourages researchers to carefully consider the cultural values of the women they are working with. In this way, data collection could be gathered during group discussions, village meetings, cultural ceremonies, or any practice that is significant to the Pacific women being studied. One of the main facets is ensuring that the Pacific women's voices are the main priority and should be always respected (Naepi, 2019). As well as creating culturally safe and respectful spaces for Pacific women to participate meaningfully in research, Masi methodology also recognizes Pacific women as holders of knowledge, and thus collaborators in the research process. As Naepi (2021) states: "Masi methodology recognises that Pacific women have knowledge that is valuable for future generations, sees knowledge making as communal, and recognises that the work and knowledge that Pacific women do, and hold is valuable throughout our lives" (p. 66). As our research reveals, Pacific sportswomen have knowledge of menstruation that is valuable for future generations of girls and women in sport.

Researcher Positioning

The cultural and gender identities of the researchers were important in shaping this project, from framing of the research questions, and design of the methodology, to analysis and representation. Two of the authors are Pacific Island women from Fiji (first author) and Hawaii

(third author) living in Aotearoa, two are white women with expertise in women's sports science, health, and wellbeing, and two are white men with expertise in sport science, medicine, and female athlete health. A Fijian sportswoman living in Aotearoa, the first author conducted the interviews, drawing upon her cultural networks, relationships, and knowledge in building connections and relationships with participants. To build rapport and comfort, she would begin each interview by sharing her experiences and work to ensure that cultural safety was always practiced and that the voices of these sportswomen were always central. Time was spent before each interview to ensure a strong understanding of the Pacific sportswomen's cultural identity, and to show respect for their different cultural practices and traditions within each interview. With the Masi methodology, the first author practiced the Pacific research values to respect, protect, and acknowledge each sportswoman's cultural customs and traditions, and to listen to, learn from, and amplify their knowledge of menstruation.

Talanoa Methods: In Dialogue with Pacific Sportswomen

This research received ethical approval from the [university affiliation removed for blind review], and [sports organized removed for blind review]. As well as working with a national sports organization for recruitment, the first author drew upon her connections and relationships with the Pacific community to support the purposive sampling process. The participants were invited to participate if they identify as having Pacific heritage, and are currently living in Aotearoa, and have competed in at least one sport at national and/or international levels.

Each participant received a consent form, and more information on the research through an email before the interviews, and these sportswomen were between the ages of 20-60 (see Table 1.0 below). In total, 16 Pacific sportswomen, all born in Aotearoa, participated in this study, and they identify with a range of Pacific cultures and ethnicities. The sample included

both current and retired athletes. The first author conducted six interviews in-person and 10 online (via Zoom or Microsoft Teams) due to the locality of these Pacific sportswomen. Interviews lasted between 45 to 60 minutes, with all audios recorded and later transcribed by the first author. The interviews were full of culturally specific language and sayings. For example, menstruation was referred to as *tauvimate*, *Eikura*, or *masina*. Thus, it was important that the first author took the time (close to 65 hours) to personally transcribe the interviews.

All participants were provided with the questions prior to the interview, this was important to give them time to consider their responses, and to ensure they were respected as powerful knowledge-holders. We used a semi-structured Talanoa-style approach. As defined by Vaioleti (2006), “Talanoa can be referred to as a conversation, a talk, an exchange of ideas or thinking, whether formal or informal. It is almost always carried out face to-face” (p. 23). For the online interviews, we took inspiration from Fa’avae and colleagues (2022) conceptualizing of e-Talanoa, the modification of Talanoa methods for online environments. The research conversations were guided by key themes focused on their early experiences of menstruation, the role of family in sharing their knowledge of menstruation, their current understandings and practices relating menstrual health, hygiene and reproductive health, and their experiences of menstruation and sports. The Talanoa-inspired approach was appropriate for this study as it created a space for the Pacific sportswomen to lead the conversation and to share their knowledge of menstruation in different parts of their lives, but with space for the researcher to share her own experiences in an ‘exchange of ideas’ that recognized both researcher and participant as engaged in a communal practice of knowledge sharing. Food and beverages were provided for in-person interviews. We did not observe any key differences in the participants’ comfort or depth of discussion across the in-person and online interviews, which we attribute to

the use of e-Talanoa to help create ‘digital va’, a culturally-designed shared space across time and place.

Table 1: Participant Information

| Pseudonym | Sport | Cultural Heritage | Age | Athlete Status |
|-----------|------------------|-------------------|-----|----------------|
| Sia | Team Sport | Samoan | 20 | Active |
| Natalie | Individual Sport | Samoan | 21 | Active |
| Kula | Team Sport | Tongan | 21 | Active |
| Kiana | Individual Sport | Samoan | 21 | Active |
| Angie | Individual Sport | Tongan | 23 | Active |
| Amelia | Individual Sport | Cook Islander | 23 | Active |
| Tina | Team Sport | Tongan | 25 | Active |
| Jasmine | Team Sport | Rotuman | 30 | Active |
| Tala | Individual Sport | Samoan | 33 | Retired |
| Christie | Individual Sport | Solomon Islander | 34 | Active |
| Daniella | Individual Sport | Rotuman | 35 | Active |
| Kayla | Team Sport | Fijian | 37 | Active |
| Melean | Team Sport | Fijian | 39 | Active |
| Maraia | Individual Sport | Tongan | 42 | Retired |
| Melisa | Team Sport | Fijian | 43 | Retired |
| Rosemary | Team Sport | Cook Islander | 60 | Retired |

Data Analysis

To analyze the data collected from the participants we used a reflexive thematic analysis approach (Braun and Clarke, 2023). According to Braun et al., (2023), “Reflexive thematic analysis does not provide a strict method – ‘recipe’ to follow but requires situated and reflexive researcher engagement” (p.612). The first author analyzed each transcript, searching for the

different themes before bringing individual experiences into dialogue with other participants, and used words for coding. After multiple reviews of the codes through this thematic analysis process, we identified three key themes: (1) The intersections of family, culture, and sports; (2) Menstrual fears, silencing, and questionable menstruation medical advice; and (3) Observations of change within sports organizations. The first and second authors worked closely throughout the process to check and refine interpretation, clarify themes and develop the analysis. As a reflexive thematic analysis, this Pacific and non-Pacific dialogue was constructive in our collaborative research processes. Importantly, the first author's positioning as a Pacific sportswoman and researcher was critical to the entire process, including final decisions about what themes and which quotes are included in the subsequent analysis.

Our aim was not to look for generalizable findings, but rather to amplify the nuances within the women's experiences. This was particularly important given these women have diverse cultural identities, and they have participated in a range of sports across the past twenty years. In this way, culture, ethnicity, gender, and time were all important themes across the data set, and we have organized our analysis to reveal differences, similarities, and changes over time. Importantly, the sportswomen vary widely in age (from 20 to 60), and thus at the time of the interviews may have been experiencing menstruation in different ways. Due to the age range of participants, we acknowledge that they may have clear memories of menarche, and menstruation in sport (based on being current or retired athletes). With the presence of menstruation in public discourse also increasing, there are a range of factors that are influencing individual experiences, and their memories and articulations of menstruation in sport.

Reflexive Positionality

The cultural and gender identities of the researchers were important in shaping this project, from framing of the research questions, and design of the methodology, to analysis and representation. Two of the authors are Pacific Island women from Fiji (first author) and Hawaii (third author) living in Aotearoa, two are white women with expertise in women's sports science, health, and wellbeing, and two are white men with expertise in sport science, medicine, and female athlete health. A Fijian sportswoman living in Aotearoa, the first author conducted the interviews, drawing upon her cultural networks, relationships, and knowledge in building connections and relationships with participants. To build rapport and comfort, she would begin each interview by sharing her experiences and work to ensure that cultural safety was always practiced and that the voices of these sportswomen were always central. Time was spent before each interview to ensure a strong understanding of the Pacific sportswomen's cultural identity, and to show respect for their different cultural practices and traditions within each interview. With the Masi methodology, the first author practiced the Pacific research values to respect, protect, and acknowledge each sportswoman's cultural customs and traditions.

The reflexive thematic analysis was also shaped by these cultural values. We analyzed each transcript, before bringing individual experiences into dialogue with other participants. Through this thematic analysis process, we identified three key themes: (1) The intersections of family, culture, and sports; (2) Menstrual fears, silencing, and questionable menstruation medical advice; and (3) Observations of change within sports organizations. Our aim was not to look for generalizable findings, but rather to amplify the nuances within the women's experiences. This was particularly important given these women have diverse cultural identities, and they have participated in a range of sports across the past twenty years. In this way, culture, ethnicity, gender,

and time were all important themes across the data set, and we have organized our analysis to reveal differences, similarities, and changes over time.

Results and Discussions: Pacific Sports Women's Menstrual Experiences in Aotearoa

This section is organized into three key sections. Firstly, we examine the intersections of family, culture, and sports. Herein we consider some of the important social, cultural, and economic factors (e.g., period poverty) that influenced the Pacific sportswomen's early experiences of menstruation. Secondly, we highlight the Pacific sportswomen's experiences of menstruation-related fears in sport (i.e., leaking), as well as the silencing of menstruation-related topics during their early sporting experiences, and the questionable menstruation medical advice that some Pacific sportswomen received in the past. In the third section, we reveal how some Pacific sportswomen have seen changes in how their sports organizations engage in the topic of menstrual health and performance.

The intersections of family, culture, and sports

The interviews started with a discussion of the Pacific sportswomen's earliest memories and experiences of menstruation. Such recollections highlighted how family, culture, educational contexts, and economic factors impacted their early menstruation experiences in a range of ways. Writing about young women's experiences of menstruation in Papua New Guinea (PNG), Maulingin-Gumbaketi et al (2021) explained that "Menarche signifies the ending of childhood and beginning of womanhood and is associated with cultural beliefs and ritualized practices. These beliefs and practices vary according to different cultural and language groups" (p.2). This was certainly the case among our participants, many of whom recalled their first menstruation experience as confusing, stressful, and fearful. Participants expressed that these mixed emotions

were due to the lack of knowledge and education on menstruation in the home. For example, Maraia recalled:

I was 14 years old when I got my first period. I did not know at all or have any kind of detailed knowledge about what our first menstrual experience would be like. I did not know what it was all about. But I went to an all-girls school so they kind of spoke about those in health classes and that was the only knowledge I had of menstruation (Maraia).

While some schools offered menstruation-related information, many of our participants recalled ongoing silence in their families and culture. For example, Kayla explained:

From my cultural beliefs as a Pacific island woman, the male figures are not to know if you are menstruating it is taboo, and males in my life also did not show any kind of understanding or interest towards menstruation.

A Pacific sportswoman of Tongan heritage born in Aotearoa, Kayla's parents moved to Aotearoa for better opportunities for the family, especially for their children's education. Despite moving to a new country, the family continued to practice the cultural traditions of the islands.

In many Indigenous communities, colonization has played a major role in menstruation becoming a taboo topic in Aotearoa (Murphy, 2011). In the Pacific islands, each island has its customs and traditions towards menstruation, each shaped differently by forces of colonization as it intersects with culture, religion, and family practices. Writing about young women's experiences of menstruation in Papua New Guinea (PNG), Maulingin-Gumbaketi et al (2021) note that "Preparing young girls for womanhood is a communal activity in the family where different members of immediate and extended families are involved. The grandmothers and aunties play a significant role by supporting mothers to have direct communication with menstruating young women about the meaning of body changes" (p.12). However, among some of our participants, lingering cultural stigma and taboos meant that these conversations were not being had in the home. With many of the participants being first-generation in Aotearoa, their families still practiced the cultural ways of knowing menstruation in the Pacific islands. For

example, Sia shared “My first-period experience, I was scared to tell my mom. I waited a few days, and I finally dared to tell her.” Such silencing about menstruation was likely strongly influenced by the cultural beliefs and traditions held by parents who have migrated to Aotearoa, with such stigmas contributing to the embarrassment and shame experienced by some Pacific girls and young women. While mothers and grandmothers would not openly discuss menstruation, they were often privately supportive during their daughter's first menstrual bleeding. For example, Natalie recalls:

I got my period when I was 7 and I did not have any formal conversation with my mum or anything. Without any knowledge, I ran to my mum, and she took me to get menstrual pads but did not have any conversations about what I was to experience or to help me understand what I was going through.

The key point here is that while the conversations might not have been had in the home, the Pacific women found quiet forms of care and support among women in their families.

Many of the participants also shared how they were brought up in low-income families, with parents working multiple jobs. With the financial constraints within recent migrant families, buying sanitary products was considered expensive, and this added more financial strains to families' budgets. Various participants shared how their mothers encouraged creative practices to manage their periods. For example, Rosemary explained:

Because menstrual products were very pricey back then my mom would tell us to use rags, and she even prepared buckets to soak the used rags that we used as pads.

Period poverty is common across Aotearoa, and our participants revealed how financial challenges within the home limited their ability to purchase menstrual products. Some commented that it was a fear of discussing menstruation with their mothers that drove some young Pacific women to use makeshift solutions such as old socks, toilet paper, or clothes:

I would skip school because I was scared to have an accident in school, and I was scared to let my mum know because she would say to go use my dad's old socks (Kula).

I was scared to ask my mum to buy pads, so I used toilet paper, and this made me scared because of blood stains (Amelia).

Importantly, it was often the intersection of poverty and ongoing cultural taboos that shaped young women's early experiences of menstruation and menstrual hygiene practices.

In some cases, period poverty and stigma meant they were unable to attend school, not only falling behind on academic tasks but also their sports training, which was upsetting to the young Pacific sportswomen, as Maraia recalls:

Not being able to afford menstrual products was frustrating. I say my period ruined my life in school. I felt that my coaches and teachers were disappointed in me, but I could not explain why I was absent.

Period poverty could also discourage young female athletes from participating in sports and achieving their ambitions due to discomfort, anxiety, and embarrassment. Some recalled their appreciation when free menstrual products were available:

Pads were so pricey that we waited to go to school because this was the only place to provide pads, especially on away trips (Melean).

At a very young age, we were poor, we didn't have a lot of money to be able to afford menstrual products. Eventually, we went to Intermediate School where they supplied some products there, but I was very interested in using tampons from a very young age (Tina).

My mum said to use old rags and make sure to soak them after I change, so imagine during competitions I would have spare rags in my backpack. However, female coaches were very supportive during periods and provided tampons (Melisa).

In 2021, recognizing the widespread impacts of period poverty on young people who menstruate in Aotearoa, the New Zealand government launched a policy in which free sanitary products were to be provided in schools. According to Tohit, and Haque (2024), the New Zealand government's policies provided relief to those experiencing period poverty, but this would be the best way to break stigmas and normalize menstrual discussions. While this policy came out after

most of our participants were in school, it is an important initiative that is enabling future generations to have easier access to menstrual products. From a young age, many Pacific sportswomen learned to navigate between Westernized ways of knowing menstruation (via schools and later via sports organizations), and their cultural customs and traditions. For example, according to some of our participants, they were not supposed to participate in physical activity during menstruation. For example, Tala, a Samoan athlete, explained that she would not tell her parents when she was menstruating because they would direct her to not participate in any kind of physical activity:

From my teachings, when Polynesian women get their period, it's like they're supposed to spend the whole week in bed and not do any physical activities. However, I was told by my coaches and support staff that we could still participate in physical activity. I would hide it from my parents and get out of the house.

In such comments, we hear how the young Pacific sportswomen were navigating between cultural ways of knowing menstruation and conflicting advice from their sporting environment. Similarly, Kayla, who was born in Aotearoa but brought up in the islands, reflects upon the conflicting knowledge about menstruation between her culture and sport:

Compared to what it's like back in the islands, especially around menstruation and the different cultural beliefs around menstruation. It is different when I am with coaches, and when I am at home with my family. My coaches encouraged us to play but culturally we are supposed to be secluded and stay away from men.

Melisa also recalls her decision not to tell her mother when she was menstruating in fear that she would not be allowed to attend training or sports competitions:

Whenever I got my period, I didn't tell my mom because, you know, that woman has her own beliefs about periods. But I was very staunch about wanting to do sports and to be sure that I did not miss any training, so I just kept it quiet whenever I menstruated.

In these quotes, we see how these sportswomen understand Pacific and family beliefs but actively navigated these to continue training and competing.

The Pacific sportswomen described their challenges of accessing menstruation-related information, and their efforts to continue their sporting participation even when it ran counter to cultural beliefs, values, and practices. For example, Melean, a Fijian sportswoman, recalled:

My menstrual journey in sports has been sad in a lot of ways because it was a lonely journey because menstruation in my culture was viewed as dirty or unclean. I was scared to discuss this with my family, coaches, or any support staff.

Melean's experience highlights how the views of menstruation from a cultural perspective has led to isolation, shame, and limited discussions with family members, coaches, or support staff.

Similarly, Jasmine, with Rotuman heritage, explained:

Due to a lack of education at home, I had to set myself up through the minimal education they gave us and the sex education in Intermediate School, but I pretty much taught myself how to utilize menstrual hygiene and my menstrual health. This was hygiene for me, mostly as a sportsperson, I don't want it to impact my sporting experience because we all know how our culture makes it seem like a taboo.

Jasmine illustrates that she had to educate herself on menstruation, and how to practice menstrual hygiene because she was determined to pursue her sporting dreams. These early menstruation experiences shared by our Pacific sports women living in Aotearoa demonstrate the struggles that they endure to become successful athletes. These experiences also illustrate how Pacific sportswomen were consistently having to navigate different menstrual beliefs, knowledge, and practices, as well as having to negotiate financial constraints in their everyday lives. This section highlights the additional challenges Pacific sportswomen are faced with to not only stay in sport, but also to compete in sport. Drawing upon a Masi methodology, however, this section also highlights Pacific sportswomen as highly agentic in seeking out and utilizing appropriate knowledge and resourcing about menstruation as young women and as athletes.

Fears, Silencing, and Questionable Advice in Elite Sport

Here we turn to focus on their menstruation experiences in elite sporting environments. The athletes described a range of challenges as they entered high-performance sporting spaces, particularly concerns with leakage and uniform discomfort. Such concerns were heightened among those participating in sports of high visibility through live coverage on television or social media. The fears of leakage caused stress, anxiety, and distraction during training or competitions. Kiana, Jasmine, and Kayla were from team sports and indicated that their fear of leakage during any intense physical activity, training, or competitions would be a distraction, and add unnecessary stress to their routines and performances:

In terms of the fear of leakage wearing dresses and short tights. This fear was because we were on live TV, and I did not want to be seen with a stained uniform (Kayla)

The fear of leakage because of uniform color would distract me from my game plan because I would be stressed. I am physically and mentally strained because I would constantly check my uniform throughout the game (Jasmine)

The fear of leakage is always a big one, especially when you're playing. We've got kind of like short dresses, some with a kind of bike short, and on live television my family's watching so I do not want them to go through that trauma of seeing my uniform stained (Kiana)

While many sportswomen experience fears of leaking (Taim et al, 2024), the quote from Kiana highlights the concerns among Pacific sportswomen that publicly leaking could disgrace their families. The key point here is that cultural stigmas and taboos around menstruation further exacerbate the worries that Pacific sportswomen experience about leaking, particularly the worry about bringing shame on their families.

The other challenge faced by these Pacific sportswomen was the use of oral contraceptives. In many Pacific Island families, oral contraceptives remain a taboo topic due to the religious beliefs, menstrual taboos, and concerns about the use of Westernized medicine. Pacific Island cultures are highly influenced by Christianity, which discourages members from

using contraceptives or family planning due to the moral concerns or the fear that it could interfere with fertility. According to Cammock et al. (2023), in an Itaukei (Fijian) family, discussions on family planning or the use of contraception are very difficult and differed between the parents and younger family members because parents expected their children to adhere to practicing abstinence before marriage. If Pacific parents learned of their daughter's usage of oral contraceptives, they would often assume they were involved in premarital sexual intercourse even if they were not (Cammock et. al., 2023). Additionally, it is a widespread understanding that Pacific women's core role in society is motherhood. Therefore, this creates stigma and pressure towards the use of contraceptives, especially if the mother later experiences fertility challenges. As Fehoko and Shaw (2023) recently revealed, Pacific women in Aotearoa experience heightened "family, spiritual, cultural and fertility care barriers" to accessing assisted reproductive technologies (p. 1).

Many of our participants learned to navigate the different understanding on oral contraceptives by relying on advice from doctors and those in their sports environment. When it comes to their sporting performance, most of the Pacific sportswomen leaned into the highly Westernized medical and scientific knowledge available within their elite sporting environments. Previous research has shown how female athletes may use oral contraceptives to manipulate the menstrual cycle (Schaumberg et. al., 2016). Similarly, our participants described how they used the Oral Contraceptive Pill (OCP) to manipulate their menstrual cycle, giving them more control as to when their period would fall:

From a very young age, I jumped on the pill to control my menstruation and 90% of the time it worked. Other times it did not work so, you know it would just come naturally. I controlled that and tried to manipulate my cycle to be at my peak phase during major competitions (Angie).

A month in advance I would start manipulating my cycle so it would land on the dates before a competition and make sure that my period ended before, so I was at my strongest during competitions (Natalie)

The contraceptives I am currently on are to help control the heavy blood flow, and to ensure that during the competition the flow is normal (Sia)

Before the competition, I would use the pills to shorten my cycle because there is a time in your menstruation cycle phase when you are more prone to having more energy. I manipulated my cycle so by the time I got my period I made sure it was completed in just 2-3 days so it did not impact my performance (Christie).

Interestingly, while oral contraceptives are understood in specific ways in Pacific cultures, the Pacific sportswomen in our study rarely discussed experiencing tensions in their OCP usage. We suggest that such findings are indicative of the strong power differentials between the ‘experts’ in sport (i.e., coaches, doctors) and Pacific sportswomen.

According to Langan-Evans et al., (2024), physicians play an important role in the decision making of sportswomen when counseling them on the use of contraceptives (p. 3194). While many Pacific sportswomen were (and continue to be) encouraged by their doctors to use contraceptives not only to prevent pregnancy but also to manage symptoms and/or help with performance, some came to question such advice later in their careers. For example, Maraia described how her sports doctor encouraged her to manipulate her cycle to ensure she was at her strongest phase during competitions. Due to her lack of education and understanding of menstruation at the time, she trusted the advice provided by her sports doctor. However, later in her career, she came to question this advice:

My experience with contraceptives was bad, especially after retirement, when I wanted to have children, and I could not have them naturally. Because I'm sorry I could not have my kids during my career. But they don't know why so they did some tests on my eggs (Maraia).

Continuing, Maraia voices her disappointment in the lack of information available to her during her athletic career:

If contraceptives impact a woman's health and menstruation like this, it is important to be educated. After my career, I realized that I just can't have babies. I had to pay to have a child, and I wish I had known this earlier in my career.

Importantly, research does not indicate that hormonal contraceptive usage negatively impacts fertility (Watson et al., 2023; Ahmadi et al., 2025), but this is Maraia's interpretation. Under the guidance of Masi methodology, it is important we value her perspective and recollection of events (even when not medically accurate). Furthermore, Maraia explained how cultural ways of knowing pregnancy, expectations and pressures, and ongoing superstition, shaped her own experiences of conception:

Learning about how menstruation could impact Women's Health, especially in a high-performance sporting environment... is huge because culturally it impacts you, especially when people talk about your struggle to bear a child. Families will start asking questions like "What's wrong with you? Why did you do that? You should have done this instead"

In such quotes, we hear of the specific cultural influence on Pacific sportswomen's experiences of menstrual health, and particularly the additional shame she experienced as a Pacific woman unable to conceive naturally. This example highlights the need for medical professionals in sport to consider the culture of their athletes, and to ensure they have opportunities to ask questions that might be specific to their cultural values and practices (i.e., around reproductive health, fertility).

Pacific sportswomen also spoke of how menstruation caused challenges and tensions in their training and competition, particularly regarding conversations with male coaches. For example, Tala recalls the silencing in her sporting environment around menstrual health and the impact of menstruation on training and performance:

You do not talk about menstruation, and coaches knew about it but did not have much knowledge of it. When I would have bad cramps or heavy flows, I would bring it up with the coaches, but they would find it difficult to have the conversation especially if it was a person of the opposite sex.

Due to bodily and hormonal changes during the menstrual cycle, some recalled their discomfort with public weigh-ins, or experienced frustration with weight-related competition categories:

Menstruation is challenging! It would negatively impact me because during your cycle you would either lose or gain weight. Especially right before weighing in for competitions. ... and this could be disappointing when you do not put on weight right before your event (Daniella).

While such experiences may be common among sportswomen, the Pacific sportswomen's voices highlight the intersection of the cultural and gendered challenges in talking to male coaches and support staff, thus rendering the sportswomen often feeling as though they had to navigate their sporting and cultural worlds by themselves. As highlighted by Masi methodology, Pacific women's knowledge is often communal and highly relational, but many Pacific sportswomen in Aotearoa felt alone in navigating the tensions between their cultural and embodied knowledge of menstruation, and what was expected of them in high performance sporting environments in which white men (as coaches, medical professionals) often have the most power to define what was (and was not) valued knowledge.

Changes in sports organizations menstrual knowledge

Over the past five years, some sports organizations in Aotearoa have invested in greater understanding, awareness, and advocacy around menstruation, health, and performance. For example, the High-Performance Sport Aotearoa WHISPA (Healthy Women in Sport: A Performance Advantage) working group has led various conferences, educational campaigns, and research, calling for "appropriate gender balance in coaching and support staff, as well as

comprehensive education of coaches and support staff on female's health" (Heather et. al., 2021, p.7). Various other national sports organizations (NSOs) (i.e., rowing, and netball) have been proactive in developing menstrual health literacy programs with sportswomen and coaches. Some of our participants who are current athletes commented on how their sporting organizations are introducing workshops and seminars that educate them on the importance of menstrual health, and how it could impact their training and performance:

As of 2022, my sports have introduced seminars to the athletes to discuss the menstrual cycles, and how they affect the bodies, sporting performance, and ways in which we could care for our menstrual health (Christie).

I think last year (2023) was the first year that we were introduced to menstruation and the players' association introduced a seminar around menstrual cycles and how they can affect our body. So, that was the first introduction level for everyone, and we can all be on the same page about menstrual knowledge (Jasmine).

We have had workshops conducted on menstruation, but this is the first time for us to learn more about menstruation through our sporting association. But we usually have these discussions with our teammates whenever we are experiencing our periods (Rosemary).

Most Pacific sportswomen considered such initiatives to be valuable and much needed, particularly considering such conversations rarely took place within the home due to ongoing cultural stigma. While some noted that schools also now offer more information about menstrual health, this knowledge was highly variable and not specific to sports (Hylton & Bourke, 2022; Marks & Walker et. al., 2024).

Aotearoa sports organizations are increasingly offering menstruation-related support and advice. Yet such educational initiatives must also consider the cultural dimensions of menstruation:

My sport has opened discussions on how the menstrual cycle could impact different people, but that is the only discussion we have had about menstruation and sport, [these conversations] have nothing to do with culture (Tina).

Previous research has identified the gender of coaches and support staff as an important consideration in whether sportswomen are willing to talk about menstruation-related issues. According to Heather et. al. (2021), Aotearoa sportswomen often avoid such conversations with male staff, instead seeking out women staff (i.e., physios) or teammates to discuss such sensitive topics. Building upon such findings, our research highlights the importance of both the gender and cultural identities of coaches and staff. In Aotearoa, rarely are coaches or support staff of Pacific heritage, and thus many Pacific sportswomen experience a double barrier (gender and culture) when seeking out safe and supportive conversations about menstrual health.

Pacific sportswomen in Aotearoa experience menstruation through an intersectional lens with their family and cultural values and practices, intersecting with gender to shape their experiences in sporting contexts. As the attention and awareness towards menstruation and sport increases across Aotearoa sporting organizations, many Pacific sportswomen have used their own embodied knowledge to break the barriers and stigmas that exists around menstruation. Pacific sportswomen are increasingly taking about menstruation with their fellow athletes, and younger athletes are increasingly being encouraged by older and retired Pacific athletes to share their experiences. In so doing, Pacific sportswomen's communal approaches to sharing knowledge relating to menstruation and subtly challenging existing stigmas and taboos that surrounds menstruation and sport. Furthermore, by having these conversations amongst themselves, Pacific sportswomen are disrupting who is considered an 'expert' on menstruation in sport. In this way, they are in the process of creating a more inclusive and culturally safe environment where Pacific sportswomen from different cultures can share their unique ways of knowing menstruation and articulate their need for, and versions of, culturally responsive menstrual health information and support.

Conclusion: Centering Pacific Knowledge in Menstrual Health Literacies

Drawing upon interviews with 16 Pacific sportswomen living in Aotearoa, our research highlights how culture intersects with gender and other key variables (i.e., socio-economic considerations) to influence sportswomen's experiences of menstruation. The Pacific sportswomen in this research described their menstrual experiences as being a "sad and lonely journey" due to ongoing cultural stigma and taboo, and discomfort when having menstruation conversations with family, coaches, and teammates. However, even though our Pacific sportswomen's experiences were deeply rooted in their various cultural beliefs and personal understanding, one aspect they highlighted was the importance of breaking these taboos and stigmas by creating safe spaces that have culturally appropriate support systems to encourage sportswomen to have open discussions without feeling embarrassed, unsupported or lonely. In some cases, Pacific sportswomen have been forced to fit within Westernized scientific models of sport that have not supported their menstrual health and wellbeing, or valued their cultural, embodied and communal ways of knowing menstruation. Yet as our research reveals, some Pacific sportswomen are engaging in conversations with each other about menstrual health in sport.

In hierarchical, patriarchal and colonialist sporting models, Pacific sportswomen have not been valued for their knowledge (Nakhid and Enari, 2024). Going forward, as the Masi methodology highlights, knowledge is power, and many Pacific women hold valuable knowledge that is beneficial not only for today's generation but for the future generations (Naepi, 2021). While we concur with recent calls for menstrual health literacy and educational programs that are respectful, culturally safe, and tailored to the different cultural beliefs and traditions of menstruation (Mkumbuzi et. al., 2023; Mkumbuzi, 2024; Thorpe et. al., 2020), a

Masi methodological approach encourages us to go one step further. Rather than calling for more (white) sports scientists, coaches and educators to invest in more cultural education around menstruation, it is important to disrupt the longstanding power relations in whose knowledge counts in sporting environments. Arguably, sports organizations should listen to Pacific sportswomen and center their knowledge and voices in the shaping of menstrual health literacies and educational programs in sporting contexts. As a Masi methodology reminds us, Pacific sportswomen have powerful knowledge for future generations, and sports organizations would do well to value their knowledge, and provide resourcing for Pacific sportswomen (and Pacific women researchers) to create culturally safe environments for Pacific athletes to share their own knowledge and experiences of menstruation in sport in communal, relational and respectful ways.

The focus of this paper has been Pacific sportswomen living in Aotearoa. However, we hope the insights and arguments herein can be transferred more widely to research and practice on menstrual health in sport in other contexts. Future research needs to pay more attention to athletes' different cultural knowledge of menstruation and to investigate how these cultural factors intersect with gender and socio-economic variables to impact sportswomen's training and performance, and their health and well-being before, during, and beyond their sporting careers. Researchers and sports organizations alike should work to ensure sportswomen's knowledge is centered and valued, with effort to ensure the voices of Indigenous and culturally marginalized sportswomen are heard. We hope such recommendations are taken up both by national sports organizations, as well as sports organizations that seek to have international reach, or have a mandate to be a global governing body (e.g. FIFA, IOC), as well as researchers working on menstruation in sport related topics. To ensure all sportswomen receive the menstrual health

education and support they deserve, it is necessary to move beyond the whiteness that has dominated menstruation in sport-related research and resources for decades, and to question the longstanding power structures that often render Indigenous sportswomen's knowledge less valuable, invisible, or unheard. No sportswoman should have to feel alone in their menstrual health journey in and beyond sport.

Chapter 6: Conclusion

The key objective of this thesis was to investigate Pacific sportswomen's experiences and knowledge of menstruation, using Masi methodology to ensure that the Pacific women's voices always remained centered. The research questions driving this research are as follows: (1) What are the key influences on Pacific sportswomen's knowledge and experiences of menstruation in sport? (2) What are Pacific sportswomen's needs and wants for menstrual health-related knowledge and support? In answering these questions through a PhD with publication format, I have made original contributions to at least two bodies of literature. Firstly, I identified a gap in scientific and medical research on menstruation and sport, revealing the overwhelming whiteness of research on menstruation in sport, with very little consideration given to athletes' cultural and ethnic identities. In my subsequent work I then offered culturally responsive and respectful approaches to understanding the topic through the case of Pacific sportswomen, with the values of Masi methodology shaping my methods (survey, Talanoa, and interviews) and ensuring Pacific sportswomen's knowledge of menstruation was listened to and valued. Throughout my research, I have offered suggestions for both researchers and sport professionals (i.e., coaches, doctors, support staff) to move beyond White, Western ways of thinking about menstruation in sport, and towards approaches that center the unique health needs of Pacific sportswomen. This is the first study to focus on Pacific sportswomen and menstruation's unique experiences.

Secondly, this thesis contributes to research on Pacific women in sport. Early research on Pacific girls and women in sport and physical activity sportswomen was often conducted by researchers who do not come from a Pacific background. However, with the growth of research on Pacific women and physical activity, there is a need for more research to be conducted by Pacific women researchers. I also captured and amplified the voices of Pacific sportswomen and

their Indigenous knowledge that could be valuable in the lives of future Pacific sportswomen. The chapters of this thesis reflect the diversity of experiences of Pacific sportswomen from different Pacific islands who shared their menstrual experiences through a cultural and sporting lens, and how they navigated through the different stigmas, taboos, and beliefs around menstruation. This is also the first study to focus explicitly on the health of Pacific sportswomen, and among a few studies that examine the experiences of elite Pacific women in a range of sports. Therefore, my thesis seeks to address these gaps in the literature by centering the voices and experiences of Pacific sportswomen, and I hope it contributes to improving the support systems for Pacific sportswomen focusing on health and well-being and prioritizing cultural safety, ensuring cultural values and practices are incorporated into sports and education programs.

In this chapter, I offer some personal reflections on my experiences as an athlete, and now as a researcher studying a topic that is close to my heart, doing research with and for my own community of Pacific sportswomen. In this chapter, I will offer a summary of key findings across the project and then explain the importance of using methodologies (e.g. Masi methodology) that are culturally safe for the participants in any research with Pacific women. Following this, I present my experiences as an Indigenous researcher focusing on reflexivity, positionality, and personal reflections. This chapter and thesis will conclude with future directions and how this research could be implemented for the growth and future of sportswomen in the Pacific.

A Summary of Key Findings

The primary findings presented in this chapter are designed to address the two research questions outlined in the introduction and offer insights from an Indigenous Pacific researcher's

perspective. The first perspective is improving practices by prioritizing cultural safety and providing culturally safe sporting environments for Pacific sportswomen to feel comfortable sharing their menstrual experiences or concerns. The second key finding is the importance of Pacific sportswomen's health and well-being both at home and in sporting environments. Finally, Pacific Islanders are often homogenized and grouped as a single entity in research however, it is important to understand that every island has its unique cultural practices, traditions, and beliefs, including about women's participation in sport, and menstruation.

- “We want to be heard”: Pacific Sportswomen's Lived Experiences

This thesis demonstrates the importance of cultural inclusivity, respect and responsiveness by ensuring that ethnicity is always considered throughout all stages of the research design. As discussed in Chapter 2 (*British Journal of Sports Medicine* publication), ethnicity is rarely included in research on menstruation and sports. In subsequent papers, using a survey, Talanoa with Fijian sportswomen, and interviews with Pacific sportswomen in Aotearoa New Zealand, the Pacific sportswomen in my study consistently illustrated how they persevered and navigated different sporting environments with many challenges in which gender and culture intersected to shape the opportunities and support available to them. Many of these women had given careful consideration as to how to appropriately navigate, and/or challenge, longstanding patriarchal and/or Western frameworks, structures and ways of knowing and doing. Many have worked hard to break barriers to have the confidence to discuss their menstruation experiences outside of their homes. I am honored and grateful that they trusted me enough to share with me such intimate, and sometimes taboo, experiences of menstruation.

This thesis also demonstrates the importance of practicing cultural safety in sporting environments and highlights how many Pacific sportswomen feel uncomfortable sharing their menstrual experiences due to gender differences or cultural incompetencies among staff. Therefore, this thesis makes an original contribution to menstruation and sports research in the Pacific Islands, and identifies the need for more culturally safe sporting environments for Pacific sportswomen's health and wellbeing.

There is a growing body of research on Pacific sportswomen in sports and physical activity. However, there is still a gap in the literature on Pacific sportswomen's health and wellbeing therefore, this thesis identifies the need for more research in this area through the topic of menstruation and sport. I hope future research will build upon this area, exploring important health-related topics such as concussion and anterior cruciate ligament (ACL) injuries among Pacific sportswomen. As an early career researcher, I also see exciting opportunities to advance in this field by prioritizing mental health and well-being issues.

- Use of culturally appropriate methodologies

In addition to acknowledging that there is a need for more research on Pacific sportswomen, this thesis illustrates the importance of using culturally appropriate methodologies that align with the key values within Indigenous cultures and communities. Using the Masi methodology (Naepi, 2021) for this thesis aligned with the principles and values of Pacific cultures, taking into consideration both gender and cultural values and practices. The Masi methodology shaped my whole thesis from the recruitment of participants through to the analysis. Very often Pacific cultures are homogenized in research, but this thesis explains how every culture has its unique cultural practices, taboos, and beliefs surrounding menstruation. For example, the final two chapters showed some similarities between the experiences of Fijian and Pacific sportswomen in

Aotearoa New Zealand, but also many differences shaped by the distinct contexts in which the women have grown up, and in the way, sport is organized and supported. This research highlights that it is important to always be aware of and acknowledge the cultural differences between Pacific Islanders when conducting research. Masi methodology also offered a culturally-appropriate approach to analysing (weaving) the intersections of gender, culture, ethnicity and religion within Pacific sportswomen's experiences of menstruation.

As a Fijian early-career researcher, the Masi methodology assisted me in capturing the uniqueness of each Pacific culture involved in this research. I used our ancestors' storytelling methods to engage participants in their menstrual experiences in sports. My experiences as a high-performance athlete also helped me engage more in similar menstrual experiences in sports. For example, when conducting interviews, I would ensure that the athletes were aware of my sporting and cultural backgrounds. This provided leverage and a deeper connection to our discussions on the intersections of our often shared menstrual and cultural experiences. Growing up in a Pacific culture, food is our love language. Food brings a family together and can be used as gifts and a token of thanks. Therefore, centered on the Masi methodology, I ensured that during my face-to-face interviews, I provided food and drinks to make my participants feel comfortable and safe sharing their stories with me.

- Researcher reflexivity, positionality, and reflections

This thesis contributes insightful and valuable findings regarding menstruation and sport in the Pacific Islands. However, it is important to acknowledge that this journey had many challenges and lessons during the three years. Acknowledging and reflecting on these challenges is important for creating pathways and opportunities for more culturally responsive future research

on menstruation and sport. In this section, I share my experiences as an Indigenous researcher, and my positionality as a Fijian sportswoman living in Aotearoa New Zealand.

As a Pacific sportswoman, and an Indigenous researcher, one of the many challenges I experienced was trying to connect with sporting organizations across the Pacific. Many of these organizations explained that due to the lack of internet, their responses were delayed. Some organizations did not respond at all. Being a Fijian, born and raised in Fiji, and an elite Pacific athlete, I assumed that I would have better access to athletes. As well as technological challenges, many of these sporting organizations had gatekeepers who would agree to be part of my research but then make it very difficult to work with them. Upon reflection, I suspect this may have been due to either 1) worries about the discovery of weaknesses in their sporting organizations, especially on the topic of women's health, and/or 2) taboos about the topic deeply embedded within sports organizations. Even in working with sports organizations that offered their support (i.e., High Performance Sport New Zealand), I faced many hurdles before I was finally given access to invite their athletes' participation.

In many cases, due to long delays or silence from sports organizations, I had to use my personal networks, including using my social media platforms, to gain access to athletes. In many cases, I gained considerable support from my Pacific communities and networks both in Fiji and New Zealand to connect me with Pacific sportswomen. After collecting my data, I reflected on how sporting organizations in Fiji did not trust me enough to research their sportswomen. However, I know that my research is valuable, and it was ultimately my relationships within the sporting community that proved critical in gaining access to participants. Over time, I have received a lot of feedback from sports clubs about how this research will help in the development of sports not only in Fiji but also across the Pacific Islands. I hope this

research helps debunk longstanding taboos (about menstruation and/or about Pacific women researchers) in sporting contexts and makes future research easier for those seeking to do research in, with and for Pacific sportswomen.

Another challenge I experienced was my positionality in Aotearoa New Zealand. In many cases, I was viewed as an ‘outsider’ because even though I was a Pacific sportswoman, I was not raised in New Zealand. Having not grown up here, my network was considerably more limited to my personal connections (i.e., colleagues, friends, acquaintances), but these relationships proved hugely instrumental in helping me connect with potential participants. Throughout my study, I drew support from the Pacific communities in Aotearoa, New Zealand, particularly from the Auckland and Hamilton regions to assist me in recruiting Pacific athletes. This took a few months, but the wait was worth it, and I was able to conduct interviews with many Pacific sportswomen living in Aotearoa, New Zealand. As suggested above, I also had some challenges working through the New Zealand sports system. One of my supervisors was in a leadership role with High Performance Sport New Zealand during this study, and he played a critical role in connecting me with key people within the organization. Yet still, even with one foot in the door, I had to conduct multiple presentations and meetings with the High-Performance Sports New Zealand team, send multiple emails, and do a lot of follow-ups to gain access to the different sporting organizations. Once I gained access to the specific sports organizations, I had to conduct presentations again for them to understand the research I was conducting. This challenge taught me to be patient and trust the process. It also highlighted the importance of building relationships, and the time needed to build awareness, understanding and trust in research and researchers. I am grateful to all who took the time to support my research at various stages of the project.

Finally, there were challenges navigating my way to publish in different journals. I was motivated to ensure the research had an impact across a number of fields, and thus I worked hard to publish in sports science, sports medicine, and in social science journals. But, as an early career researcher, it was often challenging learning about the different disciplinary expectations, as well as the formats and writing styles for each journal, and then responding to the very different views and suggestions from reviewers. I learned a lot throughout these processes though, about both myself as a researcher and what is important to me, and about different disciplinary expectations. My first publication in the *British Journal of Sports Medicine* (BJSM) was by far the most challenging, particularly as this was my first attempt at writing an academic article, and I was learning to follow the strict rules of a ‘scoping review’ while also finding my own voice as a researcher. This publication took over a year of writing multiple drafts, thousands of changes in dialogue with my supervisors, and then responding to reviews, until my first article got published. Upon reflection, this first journal article was a huge learning journey. These challenges have developed my career as a researcher and broadened my knowledge of the different strategies needed to meet the varied requirements of academia, and journals from different fields of study.

Future Directions: Putting Research into Practice

The principal aim of this research was to amplify the voices of Pacific Sportswomen by empowering them and creating spaces where they were able to feel safe and to be open to discuss their experiences of menstruation. This research also addressed a gap in the literature and provided information to researchers, and sports professionals (i.e., coaches, doctors, support staff) around the world on the importance of considering and respecting athletes different

ethnicities and cultures. Menstruation is a very sensitive and taboo topic in many Pacific cultures, however, using the Masi methodology I was able to create safe spaces for my participants to ensure they were comfortable sharing their experiences and understandings of menstruation and sports with me. My research has portrayed that Pacific sportswomen are confident, strong, and mentally tough individuals who often must navigate situations that may not always feel in their best interests. Grounded by their cultural beliefs and traditions around menstruation, they have persevered and adapted to Westernized ways of knowing menstruation in sport and society.

My experience as a Pacific sportswoman, representing my country at the collegiate level in the United States of America was very similar to many of my participants. In the past, this topic was very sensitive, and I was never comfortable sharing my menstrual issues with anyone including sports doctors. Being brought up around this stigma made me wonder if other women experienced the shame and embarrassment that I did whenever the word “menstruation” was brought up. This journey started many years ago and as this chapter of my research journey closes, I need to state that I am extremely proud of every participant in this research. I know that it is very often not an easy topic to discuss so I thank all of them for putting their trust in me and openly sharing their stories. Using their knowledge and experiences, this research contributes to the future development of women’s health in Pacific sporting organizations and also creates space for more coaches, support staff, and sportswomen to be openly aware and comfortable sharing their menstrual experiences. My research also contributes to the cultural differences between the Pacific Islands and that it is imperative to create culturally safe environments for all athletes on the topic of menstruation regarding their unique cultural practices, taboos, or beliefs.

Finally, this section will focus on the different ways I aim to disseminate my work. My original aim for this project was to make meaningful contributions to Pacific sportswomen's opportunities and support systems. Thus, my future research endeavors will focus on creating platforms to advocate for Pacific sportswomen's health and well-being. I have applied for a research grant (Play for Equity Fund from Team Up) that I would use to work with a Pacific artist to co-create Pacific art and animations that are unique to Pacific cultures and encourage more individuals to engage in menstrual health programs whether it's for coaches, staff, or athletes. With or without this grant, I will also use my social media platforms to create culturally safe spaces, awareness, and more information on menstrual health for Pacific sportswomen. I will use platforms such as Instagram, TikTok, Facebook, and even YouTube (short videos, personal stories) to help sporting organizations engage more in content that educates them and helps in normalizing discussions or conversations on menstruation and sports. Additionally, I will be looking to collaborate with other Pacific sportswomen, sporting organizations, and community leaders, to reach a broader audience. This could assist in breaking stigmas and taboos and provide accurate advice concerning menstruation and sports. I hope to empower current and future Pacific sportswomen and provide them with the knowledge and resources that are needed to help them confidently manage their menstrual health from a sporting context.

As I close this chapter of my academic journey, and look into the future, I hope that my thesis provides the knowledge and understanding that has been missing in literature for many years. I hope that Pacific sportswomen know that they are seen and heard, and for once are not left out in research. As a Pacific sportswoman, a Fijian, and an Indigenous researcher, I hope to inspire more athletes and encourage Pacific women who are also researchers to keep persevering and continue representing our different cultures, beliefs, and ways of being in the world.

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Appendices

Appendix 1: Ethical Approval

The University of Waikato
Private Bag 3105
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Hamilton, New Zealand

Human Research Ethics Committee
Roger Moltzen
Telephone: +64021658119
Email: humanethics@waikato.ac.nz



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

17 May 2022

Agatha Gibbons
Te Huataki Waiora School of Health
DHECS
By email: agatha.gibbons@gmail.com

Dear Agatha

HREC(Health)2022#15 : Pacific Sports Women's Knowledge and Experiences of Menstruation

Thank you for your responses to the Committee feedback.

We are now pleased to provide formal approval for your project.

Please contact the Committee by email (humanethics@waikato.ac.nz) if you wish to make changes to your project as it unfolds, quoting your application number with your future correspondence. Any minor changes or additions to the approved research activities can be handled outside the monthly application cycle.


We wish you all the best with your research.

Regards,

A handwritten signature in black ink, appearing to read 'Roger Moltzen'.

Emeritus Professor Roger Moltzen MNZM
Chairperson
University of Waikato Human Research Ethics Committee

Appendix 2: Co- authorship Forms



THE UNIVERSITY OF
WAIKATO
Wāhau Whangānui a Hōiake

Co-Authorship Form

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This form is to accompany the submission of any PhD that contains research reported in published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in your appendices for all the copies of your thesis submitted for examination and library deposit (including digital deposit).

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Chapter 2: Moving from ethnic exclusions to cultural safety: how is athlete ethnicity discussed in research on menstrual health in sports? A scoping review

| | |
|---|---|
| Nature of contribution by PhD candidate | All data collection; Analysis; Full first draft; Editing (four drafts); Submission to British Journal of Sports Medicine; Editing reviewer comments (4x submissions). |
| Extent of contribution by PhD candidate (%) | 80% |

CO-AUTHORS

| Name | Nature of Contribution |
|-------------------|---|
| Holly Thorpe | Nature of Contribution: Analysis; Editing; Advising; Assistance with reviewer comments. |
| Keaka Hemi | Nature of Contribution: Analysis; Editing; Advising; Assistance with reviewer comments. |
| Bruce Hamilton | Nature of Contribution: Analysis; Editing; Advising; Assistance with reviewer comments. |
| Charlie Pedlar | Nature of Contribution: Analysis; Editing; Advising; Assistance with reviewer comments. |
| Georgie Bruinvels | Nature of Contribution: Analysis; Editing; Advising; Assistance with reviewer comments. |
| | |

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

| Name | Signature | Date |
|-------------------|--------------------------|-----------|
| Holly Thorpe | <i>Holly Thorpe</i> | 17/2/2025 |
| Keaka Hemi | <i>Keaka V. Hemi</i> | 17-2-2025 |
| Bruce Hamilton | <i>BA</i> | 16.2.25 |
| Charlie Pedlar | <i>C Pedlar</i> | 26.2.25 |
| Georgie Bruinvels | <i>Georgie Bruinvels</i> | 17.2.25 |
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Chapter 3: "Breaking the Silence and Barriers" on Culture and Menstruation in Sport: A Cross-Sectional Survey of 205 Elite Sportswomen Across the Pacific

Nature of contribution by PhD candidate: Conception of Manuscript, Data collection, Data Analysis, drafting of work, revising and journal submission.

Extent of contribution by PhD candidate (%)

80%

CO-AUTHORS

| Name | Nature of Contribution |
|-------------------|---|
| Holly Thorpe | Support to design, data analysis, editing, and revision of Manuscript |
| Keaka Hemi | Analyzing, Editing, Advising |
| Bruce Hamilton | Analyzing, Editing and Advising |
| Charles Pedlar | Analyzing, Editing and Advising |
| Georgie Bruinvels | Analyzing, editing and advising |
| | |

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- ❖ that the candidate wrote all or the majority of the text.

| Name | Signature | Date |
|-------------------|--------------------------|----------|
| Holly Thorpe | <i>Holly Thorpe</i> | 2/3/2025 |
| Keaka Hemi | <i>Keaka V. Hemi</i> | 17.2.25 |
| Bruce Hamilton | <i>BH</i> | 16.2.25 |
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Chapter 4: "It's Such a Taboo Subject, Everybody's Scared to Talk About It": Fijian Sportswomen's Experiences of Menstruation

Nature of contribution by PhD candidate: Conception of Manuscript, Data collection, Data Analysis, drafting of work, revising and journal submission.

Extent of contribution by PhD candidate (%): 80%

CO-AUTHORS

| Name | Nature of Contribution |
|-------------------|---|
| Holly Thorpe | Support to design, data analysis, editing, and revision of Manuscript |
| Keaka Hemi | Analyzing, Editing, Advising |
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Chapter 5: "My menstruation journey in sport was sad and lonely":
The Menstruation Experiences of Pacific Sports Women in Aotearoa New Zealand

Nature of contribution by PhD candidate: Conception of Manuscript, Data collection, Data Analysis, drafting of work, revising and journal submission.

Extent of contribution by PhD candidate (%): 80%

CO-AUTHORS

| Name | Nature of Contribution |
|-------------------|---|
| Holly Thorpe | Support to design, data analysis, editing, and revision of Manuscript |
| Keaka Hemi | Analyzing, Editing, Advising |
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