

“My menstruation journey in sport was sad and lonely”: The menstruation experiences of Pacific sports women in Aotearoa New Zealand

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Abstract

This research examined the lived experiences of Pacific sportswomen living in Aotearoa New Zealand concerning menstruation and sport. This research looks into understanding how the different cultural beliefs and taboos on menstruation may impact a Pacific sportswoman's life. 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. Guided by the Masi methodology, this research ensures that the Pacific sportswomen's voices remain centered and prioritized. Our analysis illustrates three key findings (1) The intersections of family, culture, and sports; (2) Fears, Silencing, and Questionable Advice in Elite Sport; (3) Changes in sports organizations menstrual knowledge. Drawing upon interviews with 16 Pacific sportswomen living in Aotearoa, our research highlights how culture intersects with gender and other key variables (i.e. socioeconomic considerations) to influence sports-women's experiences of menstruation.

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Keywords

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Pacific Islanders have used sports as a platform to gain a lot of visibility and respect in Aotearoa, New Zealand (hereafter referred to as Aotearoa, the indigenous name of New Zealand). 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 (Mkumbuzi, 2024; Mkumbuzi et al., 2023; Thorpe et al., 2020; Zipp and Hyde, 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 well-being 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. 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

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, well-being performance (Brown et al., 2021; Bruinvels et al., 2017; Heather et al., 2021; McNulty et al., 2020). 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 et al., 2022; Thorpe et al., 2021).

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 et al. (2022) have explained the barriers to menstruation and how it impacts the performance 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 and Doyle-Baker, 2024).

Today, qualitative researchers are increasingly interested in the knowledge and practices of coaches and health professionals. In an Aotearoa-specific study, Schofield et al. (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).

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.

Recent research by Gibbons and colleagues (2024) focused on Fijian sports women's experiences of menstruation, revealing 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 AD 1250–1300, 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 (Leauepepe and Sauni, 2014; Teaiwa and Mallon, 2005). 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 toward 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 and 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, 2023b; King, 2009). A particular strand of interest has been on the experiences of Pacific athletes in Aotearoa, Australia, and across the Pacific Islands (e.g. Manu et al., 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 (Carpenter and Light, 2019; Grainger, 2008, 2017), 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 their 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 (2023b), Balram and Knijnik (2024), 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 et al., 2024; Hawkes, 2023). The recent book by Kanemasu (2023a), *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 (2023a) 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. According to Nakhid and Enari (2024) 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.

Methodology: 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: 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 toward 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 center 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. 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 (2019) 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 well-being, 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 of Waikato and High Performance Sport New Zealand. 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). 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 min, 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

Table 1. Participant information.

| Pseudonym | Sport | Cultural heritage | Age | Athlete status |
|-----------|------------------|-------------------|-----|----------------|
| Sia | Team Sport | Samoaan | 20 | Active |
| Natalie | Individual Sport | Samoaan | 21 | Active |
| Kula | Team Sport | Tongan | 21 | Active |
| Kiana | Individual Sport | Samoaan | 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 | Samoaan | 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 |

defined by Vaiioleti (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). Talanoa is grounded in Pacific customs and traditions of storytelling which involves respect, reciprocity, and being culturally sensitive. Talanoa involves both formal and informal practices which includes face to face conversations which prioritizes trust and mutual understanding. These conversations usually take place in culturally appropriate settings for example, church, community facilities, homes, and sports gatherings. Researchers who use the Talanoa methods would prioritize the relationships with the individuals before data collection. This gives the participants an opportunity to share their own stories when they are comfortable or feel safe to share. Talanoa can be conducted within groups or individual discussions; this approach honors the Pacific values and ensures that no information is missed. 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.

Data analysis

To analyze the data collected from the participants, we used a reflexive thematic analysis approach (Braun and Clarke, 2023). According to Braun and Clarke (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 20 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.

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 toward 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 year 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) (Gibbons et al., 2024; Molnar et al., 2018; Tohit and Haque, 2024), 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. (Tala)

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. (Kayla)

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. (Melisa)

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)

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 sports-person, I don't want it to impact my sporting experience because we all know how our culture makes it seem like a taboo. (Jasmine)

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 toward 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. (Maraia)

Importantly, research does not indicate that hormonal contraceptive usage negatively impacts fertility (Watson et al., 2023), 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”. (Maraia)

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. (Tala)

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: 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 and Bourke, 2022; Marks *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 toward 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. socioeconomic 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 well-being, 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, 2019). 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, 2024; Mkumbuzi et al., 2023; 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 long-standing 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 socioeconomic 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.


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