The Last Taboo

Research on menstrual hygiene management in the Pacific: Solomon Islands, Fiji, and Papua New Guinea

Final report

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Lisa Natoli (Team Leader, Burnet Institute), September 2017.

Acronyms

ARB	Autonomous Region of Bougainville
DFAT	Department of Foreign Affairs and Trade
FGD	Focus group discussion
FLE	Family Life Education
HREC	Human Research Ethics Committee
IDI	In-depth interview
IPPF	International Planned Parenthood Federation
IWDA	International Women's Development Agency
JMP	Joint Monitoring Programme (for Water Supply and Sanitation)
KII	Key informant interview
FLE	Family Life Education
MHM	Menstrual hygiene management
MoE	Ministry of Education
MoH	Ministry of Health
NDoH	National Department of Health
OCHA	Organisation for Coordination of Humanitarian Affairs
SEAMEO	Southeast Asian Ministers of Education Organization
SI	Solomon Islands
SRHR	Sexual and Reproductive Health and Rights
PNG	Papua New Guinea
WASH	Water, sanitation and hygiene

Executive summary

Managing menstruation effectively and with dignity can be challenging for girls and women in low and middle-income countries. Currently there is limited research on menstrual hygiene management (MHM) in the Pacific region.

This report presents general findings from research funded through the Australian Government, Department of Foreign Affairs and Trade (DFAT), including its innovationXchange. It represents collaboration between DFAT's Pacific Division and DFAT's innovationXchange following an internal DFAT Ideas Challenge. The study was undertaken in 2016-17 and focuses on menstruation and how it is managed by women and adolescent girls in Solomon Islands (SI), Fiji and Papua New Guinea (PNG). The purpose of the study was to explore the challenges experienced by women and girls in managing their menstruation, and whether these challenges make it hard for them to equally participate in school and work and engage with their communities.

Detailed study reports for each of the three countries are available on request. A literature review exploring the determinants and impacts of MHM and associated interventions was undertaken in preparation for the research, and is also available online at: http://www.pacificwomen.org/resources/the-last-taboo-research-on-managing-menstruation-in-the-pacific-lit-review/

The study was primarily qualitative, using focus group discussions (FGD), in-depth interviews (IDIs) and key-informant interviews (KIIs) as the main strategies for data collection. A structured observation of water, sanitation and hygiene (WASH) facilities was undertaken in a small number of schools and workplaces, and an analysis of the availability and cost of sanitary products was conducted in each research site.

The cultural and ethnic diversity in each country, differing expressions of gender inequality and the vast geographic spread of communities should be acknowledged when interpreting the study findings. Key, generalisable findings are as follows:

- Adolescent girls and women, particularly in SI and PNG, face a number of challenges that influence their ability to manage menstruation effectively and with dignity; these challenges interact, and have the potential to negatively influence physical and emotional health, participation at school, work and in the community, and impact the environment.

- Many adolesent girls in SI and PNG lack comprehensive knowledge about menstruation and are unprepared for menarche*. This often results in feelings of shame and embarrassment. While mothers, other female relatives, friends and female teachers are an important source of information and support, they themselves may lack an accurate and thorough understanding of menstruation and MHM. In contrast, adolescent girls and women in Fiji have reasonably good access to education and information about menstruation and its hygienic management, although gaps in knowledge exist - especially in relation to charting the monthly cycle.

  In all three countries, education and information has frequently excluded women and girls with disabilities and there is often a generational gap in awareness, as older woman may have missed out on receiving education about menstruation while in school. Even when menstruation is included in the school curriculum, teachers may feel ill-equipped to teach the topic, and require specific resources and training to do so.

* The first occurrence of menstruation

- Common beliefs and attitudes around menstruation being “dirty” create needless stigma for menstruating women and girls. This stigma makes it more difficult to manage menstruation, contributes to some unwanted behavioural restrictions, and can negatively impact on emotional well being. In SI and PNG, traditional beliefs and the high level of secrecy attached to menstruation results in a number of secretive (and sometimes unhygienic) practices related to washing, drying and disposal of used absorbent materials and personal hygiene. Male attitudes towards menstruation can be an additional barrier to effective MHM. In particular, girls in all three countries reported teasing/harassment by boys, contributing to feelings of humiliation and embarrassment, and potentially absenteeism from school.

- A wide range of reputable sanitary products (such as *Stayfree, Kotex* and *Libra*) are available in urban areas in Fiji and PNG; reputable products are less available in rural areas, with the cheaper, poor quality brands being more common. In Fiji and PNG, products were generally considered to be affordable for those with an income. In contrast in SI, reputable sanitary products are prohibitively priced and much less available; most of the commercially available sanitary products (in both urban and rural areas) are of poor quality (such as *Softex*), many come from China and a number were suspected to be counterfeit.[1]

  While most girls and women expressed a preference to use commercially available sanitary products, if a good quality reusable product was available at an affordable price, many indicated that they would like to use these. Re-usable products generated most interest among women and girls in SI, women in PNG and girls in rural PNG, and among some (urban) adult women in Fiji.

  In all countries, girls and women with less access to money (such as the unemployed, or those on low income and adolescent girls reliant on parents) face affordability challenges and may rely on home-made solutions (of variable efficacy) to manage their menstruation. Women and girls commonly experience fear of leakage and staining, and are subsequently distracted from school or work. Those that are unable to effectively manage their bleeding may opt to disengage with community life, stay home from school, or miss work on days of heavy bleeding.

- In SI and PNG, WASH facilities in schools and workplaces (particularly informal work settings such as markets) are commonly inadequate to meet the needs of menstruating girls and women. Challenges include non-functioning toilets and showers, unclean and poorly maintained facilities lacking in privacy, lack of toilet paper, lack of safe disposal options for used sanitary items, and a lack of soap and water for handwashing and personal hygiene-including washing of re-usable materials, where relevant. Inadequate WASH facilities contribute to unhygienic menstrual management practices (such as improper disposal of used materials) or extended (uncomfortable) delays in changing materials. When WASH facilities are inadequate some girls and women prefer to return home to change used materials-contributing to absenteeism from school and work.

  In comparison in Fiji, WASH facilities in schools, work and public places are generally of a high standard- yet often lack soap for handwashing, toilet paper or safe and discrete disposal options for sanitary materials. Women working in informal workplaces, such as market vendors, face greater challenges in managing menstruation at work as they are often required to share sanitation facilities with the general public. In addition, facilities are sometimes locked, unclean, require a user fee, and do not provide toilet paper or a safe and discrete disposal system. In addition, those living in rural areas may experience challenges in accessing a regular water supply for bathing.

The access needs of those with serious physical disabilities (notably wheelchair users) are commonly overlooked in SI and PNG, and to a lesser extent in Fiji.

Poor MHM practices and a lack of adequate resourcing to enable adequate MHM are adversely impacting the ability of countries to achieve a number of the United Nations Sustainable Development Goals (SDGs 3,4,5,6,8 and 12).[2]

Programming efforts directed toward improving MHM in SI, PNG and Fiji would benefit from a comprehensive approach that considers the broad range of determinants of menstrual health.[3] Specific programming recommendations that respond to the unique set of challenges identified in SI, PNG and Fiji are detailed in the individual country reports. **Critically, any initiatives should be underpinned by a human rights approach, and ensure that women's and girls' voices are central to decision making about any initiatives that impact on them**. High level recommendations that might inform programming and policy at the Pacific regional-level and across different Pacific country contexts are detailed below.

Recommendations

Actors and groups working across the Pacific region (governments, donors, NGOs, UN agencies, churches, regional coordination bodies, and research institutes) can contribute to improving MHM in the following ways.

1. Improve leadership and policy action on MHM in the Pacific region by:

- Advocating for national governments to develop or strengthen policy commitments to addressing MHM in education, sexual reproductive health, gender, WASH and humanitarian national action plans, strategies and policies
- Sharing good practice policy examples between national governments where progress has been made (such as Fiji's LSE curriculum). This might include facilitating exchange visits or cross-learning forums on MHM and integration into existing mechanisms
- Donor investments promoting multi-sectoral solutions to MHM including: safe and affordable products, sustainable infrastructure, education efforts and safe and environmentally-friendly disposal systems
- Building a multi-sectoral community of practice on MHM in the Pacific to share learning across countries and sectors, as well as to spearhead advocacy efforts

2. Improve access to high quality information about menstruation and MHM by:

- Developing guidance for Ministries of Education on integrating MHM into school curriculum which can be replicated across different Pacific contexts
- Developing training materials for Ministries of Education and Ministries of Health to upskill teachers, healthcare workers and others in educating adolescent girls and boys and communities on MHM
- Promoting cross-sectorial education programs to draw on the mutual expertise of sexual reproductive health and WASH practitioners
- Designing and rolling out public campaigns which help break silence and address harmful taboos and beliefs around menstruation

3. Improve availability, affordability, and access to quality commercial menstrual hygiene products in remote parts of the Pacific by:

- Design public private sector solutions to strengthen supply chain of sanitary pads to remote areas of the Pacific
- Investigate tax levy on sanitary items and advocate to national governments to reduce or abolish the tax levy on sanitary pads (determining this was beyond the scope of the project, but it is recommended)
- Support women-led businesses to test business models for developing proto-types and scale-up of local, quality and affordable menstrual hygiene products. Document successes and fails and share with private and public Pacific stakeholders

4. Improve MHM-friendly water, sanitation and hygiene facilities, services and monitoring by:

- Provide training and practical guidance to WASH government personnel on MHM-friendly WASH designs in households, schools, workplaces and healthcare facilities
- In all gender mainstreaming approaches, ensure MHM is core to regional and national sector strengthening WASH efforts
- Collect evidence on MHM at both national and regional level by incorporating indicators into WASH monitoring systems
- Pilot new approaches to safe and environmentally-friendly disposal systems for used sanitary materials

Key stakeholders to drive these recommendations are:

- The Pacific WASH Coalition: in its mission to coordinate support in WASH, the Pacific WASH coalition can integrate MHM improvements into regional monitoring and coordination, into its WASH coordination framework efforts and guidance to national governments
- Secretariat of the Pacific Community: in its mission to strengthen collaboration with Pacific community members, bring multi-sectoral focus to MHM as part of progress towards SDG5 and SDG6 in the Pacific
- SEAMEO or other regional education body to develop guidance on how Pacific countries can integrate MHM into their education curriculum
- Pacific Disability Forum: Advocate and promote the SRHR, MHM and WASH rights of women with disabilities in the Pacific
- DFAT, through its education, WASH and *Pacific Women* programs
- UN agencies with a regional presence such as UNICEF, UN Women, WHO, OCHA can integrate MHM into their multi-lateral regional programs such as women's economic empowerment, WASH and health programs.

Introduction

Managing menstruation effectively and with dignity can be challenging for girls and women in low and middle-income countries. Currently there is limited research on menstrual hygiene management (MHM)[†] in the Pacific region. Studies conducted in countries in Africa and the Asia regions have detailed a range of challenges experienced by girls in relation to managing their menstruation. These include: lack of knowledge about menstruation and how to manage it; harmful socio-cultural beliefs and taboos about menstruation being unclean or dirty; inadequate water, sanitation and (private and safe) hygiene facilities at school; lack of available and affordable absorbent materials; and, challenges washing and drying materials if disposable products are unaffordable.[4] Anecdotal evidence from the Pacific suggests similar challenges, and that these may be a barrier to school participation and attendance, and to employment and income generation,[5] negatively impacting women and girls right to education and full participation in public and community life.

In recognition of this research gap in the Pacific, in 2016 the Department of Foreign Affairs and Trade (DFAT) commissioned formative research to be undertaken in three Pacific countries (the Solomon Islands, Fiji and Papua New Guinea). The research was funded through (DFAT), including its innovationXchange- and represents collaboration between DFAT's Pacific Division and DFAT's innovationXchange following an internal DFAT Ideas Challenge.

The research was overseen by a consortium involving Burnet Institute, WaterAid, and the International Women's Development Agency, and co-ordinated by local partner organisation/s in each of the three countries: Solomon Island Planned Parenthood Federation and WaterAid (Solomon Islands); The International Planned Parenthood Federation's Sub-Regional Office for Pacific (Fiji); and Susu Mamas and Plan International Australia (in PNG).

The research focused on menstruation and how it is managed by women and adolescent girls in Solomon Islands (SI), Fiji and Papua New Guinea (PNG). The purpose of the study was to explore the challenges experienced by women and girls in managing their menstruation, and whether these challenges make it hard for them to equally participate in school and work and to engage with their communities.

Data collection was undertaken by trained local researchers, and took place in an urban and rural setting in each country.

Table 1: Data collection sites

Country	Site 1 (urban)	Site 2 (rural)
Solomon Islands	Guadalcanal	Malaita
Fiji	Viti Levu/central	Vanua Lavu/north
Papua New Guinea	Port Moresby	Autonomous Region of Bougainville (ARB)

[†] Definition of adequate MHM: *Women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear.* Joint Monitoring Program (2012): http:// www.wssinfo.org/fileadmin/user_upload/resources/Hygiene-background- paper-19-Jun-2012.pdf.

Aims/objectives of the research

The aims of the study were to:

(i) Understand how women and girls in each of the participating countries manage menstruation.
(ii) Explore the barriers/challenges experienced by these women and girls in managing menstruation.
(iii) Determine the impact of menstrual management practices on women's and girls' participation in education and income generation.
(iv) Identify opportunities to improve women's and girls' ability to manage their menstruation effectively and with dignity.

Study design

Ethical considerations

The study was reviewed and approved by Human Research Ethics Committee/s (HREC) in each country (Table 2). In addition, the study obtained approval from the Alfred Hospital Human Research Ethics Committee (Melbourne Australia, Ref 321/16).

Table 2: Reviewing ethics committees

Country	Name of HREC	Approval reference
Solomon Islands	• Solomon Islands Health Research and Ethics Review Board	040/16
Fiji	• Fiji National Health Research and Ethics Review Committee • Fiji Ministry of Education Heritage and Arts	2016:101.MC RA 43/16
Papua New Guinea	• PNG Dept. of Education, Research and evaluation steering committee • PNG NDOH Medical Research Advisory Committee	CM2-4-12 MRAC # 17.03

Methods

The study was primarily qualitative, using focus group discussions (FGDs), in-depth interviews (IDIs) and key-informant interviews (KIIs) as the main strategies for data collection. Structured observations of water, sanitation and hygiene (WASH) facilities were undertaken in a small number of schools and workplaces, and an analysis of the availability and cost of sanitary products was conducted in each research site. Data collection took place in one urban and one rural setting in each country.

The content of FGD and interview question guides was informed by the Ecological Framework for MHM[6] and a review of relevant literature. English question guides were translated into local language/s and back translated into English to confirm accuracy. FGDs included a number of participatory activities to stimulate discussion: body mapping, community mapping, the Ten Seed Technique[7] and drawing of an 'ideal' latrine.[8] Field work took place 9th-22nd October 2016 (SI), 16th November- 2nd December 2016 (Fiji), and 23rd-31st March 2017 (PNG).

Study team

The local study teams in each country comprised a mix of female and male researchers, who were trained and supported by staff of Burnet Institute and WaterAid Australia.

Sampling

Purposive sampling[9] via partner organisation networks was used in each study site to facilitate recruitment of pre-specified participant groups (Table 3).

Table 3: Summary of data collection methods and participant groups (by country)

Methods	Country	# FGD, IDI, KII etc	Site 1(urban) # participants	Age range (yrs)	Sex (f/m)	Site 2(rural) # participants	Age range (yrs)	Sex (f/m)	Total
FGD girls in school	Fiji	2	13	16-19	f	-	-	-	54
	SI	2	12	?	f	8	18-21	f	
	PNG	2	10	13-16	f	11	15-26	f	
FGD girls not in school	Fiji	2	6	18-19	f	9	18-20	f	43
	SI	2	6	13-18	f	9	14-26	f	
	PNG	2	7	16-27	f	6	19-29	f	
FGD women (formal[‡] workplace)	Fiji	2	10	23-35	f	10	25-52	f	60
	SI	2	18	20-52	f	5	24-53	f	
	PNG	2	11	24-43	f	6	25-33	f	
FGD women (informal[§] employment)	Fiji	3	14	22-61	f	6	38-50	f	58
	SI	2	8	41-50	f	7	24-46	f	
	PNG	2	10	22-40	f	13	19-60	f	
FGD men	Fiji	2	5	25-68	m	10	38-63	m	50
	SI	2	9	23-45	m	5	30-47	m	
	PNG	2	12	25-70	m	9	30-60	m	
IDI (vulnerable girls/women[**])	Fiji	2	2	31, 35	f	-	-	-	8
	SI	3	3	?	f	-	-	-	
	PNG	3	2	30, ?	f	1	24	f	
KII vendor	Fiji	2	1	?	f	1	?	f	6
	SI	2	1	?	f	1	?	f	
	PNG	2	1	?	f	1	28	f	
KII employer	Fiji	2	1	?	f	1	?	f	6
	SI	2	1	?	f	1	?	f	
	PNG	2	1	?	f	1	41	f	
KII teacher	Fiji	2	2	?	f	-	-	-	8
	SI	2	1	?	f	1	?	m	
	PNG	4	2	26, 32	f	2	32, 25	f	
KII health worker	Fiji	2	1	?	f	1	?	m	6
	SI	2	1	?	f	1	?	m	
	PNG	2	1	37	f	1	?	m	
KII leader	Fiji	2	1	58	m	1	?	m	8
	SI	3	1	?	m	2	?	m	
	PNG	3	1	52	f	2	?	m	
Total participants									**307**
Observations of WASH facilities[††]	Fiji		2			1			10
	SI		2			1			

[‡] work places with fixed hours such as office environments, factories etc.

[§] less structured work places where women have more control over their work hours (e.g. selling food in market places)

[**] such as girls/women living with a disability; experiencing violence; identifying as lesbian, bi-sexual, transgender or intersex; socio-economically disadvantaged; young mothers and young married girls; women and girls in certain professions (e.g. sex work); and women and girls of certain ethnic backgrounds.

[††] these observations occurred alongside KIIs with teachers and employers

	PNG		2			2			
Documentation of availability and cost of sanitary products[‡‡]	Fiji SI PNG		12 26 6			10 12 6			72

All FGDs were sex segregated with efforts made to ensure homogeneity of socio-economic status, community hierarchy and age (although this was often difficult to control for in practice).

In urban and rural locations of each country, a consecutive convenience sample[9] of shops judged as likely to sell sanitary products was taken for the purpose of documenting availability and cost of commercial sanitary products. The number of shops surveyed in PNG (notably Port Moresby) was considerably smaller than in SI and Fiji, with access limited due to security considerations.

Where consent was given, WASH facilities were assessed in the sampled school and workplace at each site.

Data collection and analysis

FGDs and interviews were conducted and documented in local languages (or English- depending on preference of participant group) by members of the local research team. Discussions were digitally recorded with the permission of participants. Where discussions took place in local languages (SI pidgin; Fijian or Hindi; or Tok Pisin in PNG), wherever possible, one member of the local research team was designated to translate discussions as they occurred for one of the international consultants; this enabled the consultants to follow the discussion, and determine interesting discussion points to probe or add to subsequent FGDs or interviews and also to take notes in English. The team then discussed the English notes and those in local language/s at the end of each day, enabling a more nuanced/cultural interpretation of the data.

Preliminary data analysis took place during field work. Using an inductive approach, a coding framework was developed and refined, and systematically applied to the data by the two international consultants. These codes were then organised according to overarching themes, which helped provide a structure for communication of findings. Formal data analysis (applying the same coding framework developed during the field work) took place once the voice recordings had been transcribed and translated into English. In the case of the Fiji and PNG data, the English transcripts were analysed with reference to the preliminary coding, and using QSR Nvivo (Version 10), a qualitative data management and analysis program (QRS International PTY Ltd, Melbourne, Australia). Due to long delays with SI data being transcribed and translated, field notes were manually coded and analysis performed on this basis.

Quantitative data (assessments of WASH facilities and scoping of menstrual hygiene products) was summarised in a narrative format.

Findings were validated by the local research team.

Limitations

The main limitations of this study are detailed below.

– **Sample size and breadth**: Data collection did not occur to the point of 'saturation'. Rather, the sample size (both the number of study sites and individual participants) reflects a pragmatic

[‡‡] these observations form part of the KII with vendors of sanitary products, but also occurred independent of this to allow review of a larger number of shops.

approach and the need to balance strong research with the financial realities of undertaking field work of this nature. As a result, cultural and individual differences within communities and across geographic locations (urban vs rural) in each of the three countries should be acknowledged; findings should be considered in context and not interpreted as being representative of the population as a whole.

- **Sampling bias:** A degree of sampling bias is associated with convenience sampling, especially when this is driven by local staff. Yet, our ability to reach communities and individuals to undertake the study was very much determined by the local research teams, and their pre-existing organisational or personal relationships, and in some instances, their own cultural biases. To balance these realities, the Australian researchers worked closely with local staff during the community engagement process and field work to help guide participant selection, and minimise the impact of sampling bias on study findings.

  While every effort was made to include participants from similar age groups in each FGD, this proved challenging in practice and there was consequently a broad age range in the FGDs with men, women and adolescent girls. This may have impacted on participants' desire to openly respond to questions, particularly for the younger girls or women. The facilitators were aware of these age gaps and made considerable efforts to make every participant feel at ease.

- **The language used in focus group discussions:** This challenge only relates to the study in Fiji and links to the discussion above sampling bias. Where participant groups included a mix of Fijian and Hindi speakers the discussion was facilitated in English. While English is considered to be the national language it is not necessarily the language spoken day to day at community level among those with shared ethnic origin, and this influenced the depth of discussion. In addition, FGDs that included Fijian and Hindi speakers were interrupted from time to time if English words or expressions had to be clarified in local languages. This altered the fluency of discussion, and it would have been preferable to control for this more effectively in the sampling process and ensure that participants had similar ethnic backgrounds. To counter the impact of this limitation we held two 'unplanned' FGDs with women of Indo-Fijian background. We were however unable to schedule additional FGDs with school girls at short notice, and Indo-Fijians were poorly represented in this participant group.

- **Social desirability bias:** The presence of a foreigner in each of the research teams may have contributed to some social desirability bias in the results.

Despite the noted limitations, the findings provide a useful snapshot of current practices and challenges related to MHM, and how this impacts on women and girls in the Solomon Islands, Fiji and PNG. As such, the findings contribute to the evidence base and may usefully inform programming in the region.

Context

SI and PNG face significant economic and human development challenges; both are categorised as low-middle income countries and place 156 and 154 respectively out of 188 countries on the Human Development ranking.[10] [11] While Fiji in comparison has made greater advancement in economic and Human Development indices,[12] overall progress has been marred by fluctuating civil and political unrest- which is common to all three countries and continues to undermine development gains.[13]

While each of the three countries is culturally rich and diverse, the populations share strong Melanesian ancestry. Fiji is also home to a large population (37%) of Indian descent,[14] whose cultural and religious beliefs are quite distinct from those of the Indigenous Fijians.

As a region, the Pacific is recognised as having some of the poorest indicators of WASH in the world. Access to improved sanitation is particularly bad in PNG (56% urban vs 13% rural) and SI (81% urban vs 15% rural), with rural communities being the worst affected.[15]

In PNG and SI, an overwhelming majority of the population (87% and 77.7% respectively) live a semi-subsistence lifestyle in rural areas.[16] [17] Substantial income inequalities exist in all countries, with more than 30% of the population estimated to be living below the national poverty line in PNG, 28.1% in Fiji, and 12.7% in SI.[15] Poverty and income inequalities are often gendered and heightened in rural areas. For example in SI, women in urban areas are less likely to be in paid work than their male counterparts (62% of women vs 88% of men); in rural areas only 19% of women and 42% of men are involved in paid work.[18] In addition, the high rates of violence against women in all countries are a barrier to many women being economically active or having a say in the management of household finances and fully participating in leadership roles locally and nationally.

Gender inequality is a critical development issues in all three countries, impacting every aspect of women's lives from health and well-being to economic independence and participation in decision making- within the home and community, and through to the highest levels of government. Violence against women is both a cause and consequence of gender inequality, and women and girls in the Pacific experience some of the highest rates of gender based violence in the world. In SI, Fiji and PNG, life-time prevalence rates of intimate partner and sexual violence are in the range of 46%-66% for intimate partner violence, and 34%-55% for sexual violence.[19] The customary payment of "bride price", once intended to forge links between two families- has evolved into a practice in SI and PNG that implies 'ownership' of a woman, and perpetuates male dominance and the use of violence by men against their wives. Other customary laws and traditions frequently discriminate against women and reinforce gender inequalities.[20] [21]

For girls and women with disabilities, gender related disadvantage is amplified. Affected individuals are more likely to experience violence and sexual abuse, neglect and deprivation of basic human rights, and have fewer livelihood opportunities- especially in rural areas.[22]

Table 4: Key indicators

Indicator	Solomon Islands	Fiji	Papua New Guinea
Main ethnic groups	Melanesian 95.3%[23] Polynesian 3.1% Micronesian 1.2%	i-Taukei - predominantly Melanesian, 57%[14] Indo Fijian 37%	Predominantly Melanesian, but many diverse cultural groups
% population living in rural areas	77.7%[16] (2015)	46.3% [12] (2015)	87%[17] (2015)
% use of improved drinking water (urban/rural)	93% / 77% [15]	100% / 91% [15]	88% / 33%[15]
% use of improved sanitation (urban/rural)	81% / 15%[15]	93% / 88% [15]	56% / 13% [15]
Gross national income per capita (2011 PPP$)	1,561[10] (low-middle income economy)	8,245[12] (upper-middle income economy)	2,712[11] (low-middle income economy)
% population living below the national poverty line	12.7%[15] (2013)	28.1% [15] (2013)	39.9%[15] (2009)
Human development (index/rank)	0.515[10] (156/188)	0.736[12] (91/188)	0.516[11] (154/188)
Gender inequality (index/rank)	N/A	0.358 (75/159) [12]	0.595 (143/159) [11]
Adult literacy, % aged 15+, m/f	89% / 79%[20] (2009)	99.2% (15-24 yrs, 2002)[24]	70% / 65 % (15-24 yrs, 2009)[21]
% seats held by women, national parliament	2% [15]	16% [15]	0%[15]

% women in ministerial positions	4.3% [25]	13.3% [25]	3.1% [25]
Prevalence of intimate partner violence	46%[19]	66%[19]	58%[19]
Prevalence of sexual violence	55%[19]	34%[19]	55%[19]

Key findings

Menstruation related knowledge

In all countries, menarche represents the transition into womanhood and the taking on of adult responsibilities; in PNG, some of the male participants were explicit in stating that this taking on of adult "duties" includes readiness for sexual intercourse and marriage.

While female relatives are an important source of menstruation related knowledge and support, many adolescent girls in SI and PNG do not know about menstruation before it happens for the first time, and report feeling *"scared"* and *"ashamed"*.

Adolescent girls in Fiji had a reasonable understanding about the menstrual cycle and why it occurs, but lacked knowledge about charting the cycle from month to month. In general, adolescent girls in PNG and more so those in SI had a poorer understanding of the menstrual cycle compared to their Fijian counterparts. This may in part be explained by the Family Life Education (FLE) content on puberty that was integrated into the Fiji national school curriculum in 2010, and the practice in some schools of *"gender sessions",* where girls and boys have sex segregated discussions led by teachers of the same sex; even so, teachers reported that they lack formal training to deliver the FLE curriculum and related information about menstruation, and that they may 'water down' or skip content that they are uncomfortable with. In SI and PNG, physical changes experienced at puberty are touched on within the curriculum, but the extent of discussion is very much dependent on teacher comfort, and girls and boys are taught together- which is considered a barrier to effective discussion.

Image: 'Body mapping' was used with adolescent girls to discuss the changes that occur during puberty and introduce the topic of menstruation. (Fiji 2016)

> ***"One of the difficulties the teachers face- they have the knowledge to teach in class, but they need training in how to teach it"*** **(SI: KII teacher; rural).**

Therefore, while there was broad agreement by participants in all countries that the school curriculum should include menstruation and menstrual hygiene (and be inclusive of boys), the extent to which this occurs is variable (across and within countries). Similarly, participants in all countries felt that parents have some responsibility in educating their children about menstruation, but that parents themselves may lack comprehensive understanding of the topic. In PNG and SI, fathers saw it as mother's role to talk to their daughters about menstruation. Intergenerational gaps in knowledge were apparent in all countries to a varying extent. In Fiji, parents themselves commented that they need education if they are to assist their children; some suggested that the Church could have a role in broadening community awareness about menstruation.

There was also recognition in Fiji that girls with disabilities, especially intellectual disabilities, often miss out on education or information about menstruation.

> ***"…people who have down syndrome… they don't even know what … menstruation hygiene is…so … the Fiji Disabled People's Federation*** **[needs to]** ***… work*** **[with]** ***their DPOs*** **[disabled people's organisations]** ***within their communities for them to be aware*** **[of]** ***the proper channels and the proper information to educate on… like for down syndrome, they need to use pictures… so they can identify what are they facing in reality"*** **(Fiji: IDI, disability, urban).**

Challenge: Girls and women (especially those with disability) may lack basic knowledge of the menstrual cycle and how to chart it from month to month.

Impact: As a result they may not be prepared for their period each month. They may also lack understanding about fertile periods once they become sexually active- limiting their potential to avoid unplanned pregnancies.

Opportunity: The experience in Fiji suggests that the education system can play an important role in bridging knowledge gaps around menstruation, and that sex segregated discussions are a valuable way to overcome sensitivities. Teachers need specific training and educational resources to strengthen their efforts. Teaching resources and strategies may need to be modified in order to be inclusive and accessible to children with disabilities.

Attitudes, beliefs and behavioural restrictions

Menarche has cultural significance for many families, and is commonly celebrated by those of i-Taukei (Indigenous Fijians) and Indo-Fijian background, and by some cultural groups in PNG (such as those from some parts of ARB and Western Highlands). While menstruation is considered a normal bodily function, it is commonly viewed with secrecy in SI and PNG and with discretion in Fiji. Many euphemisms are used to refer to menstruation, with words or phrases relating to the 'moon' and 'betelnut' being common in both SI and PNG.

In SI and PNG, menstrual blood is typically viewed as *"dirty"* and menstruating women are considered *"unclean"*. This belief is also common among Fijians of Indian descent and some i-Taukei. A number of behavioural restrictions can be linked to this belief, although they are reported to be less rigidly observed than in the past. For example, traditionally and still in some parts of SI and PNG, women live in a separate house or are confined to their house and/or do not prepare food for the family while menstruating. Such practices are based on the belief that exposure to menstrual blood will in some way bring bad luck to men and boys (impacting their health and physical strength or their success with fishing, hunting or fighting).

> ***"If in Kwaio, those that are still heathen, they will stay out in a leaf hut … built purposely for that*** **[menstruation]** ***and after 2 or 3 days … they can come back into the village, when they have stopped bleeding… they still practice that kind of living. For us in*** **[the]** ***South too, if when you are having your period, you will leave the village and go live lone and also you will not eat from the same pot as those in your home"*** **(SI: FGD women, informal workplace, urban).**

> **[Referring to practice in Morobe]** ***If the woman does not follow the … custom during her menstruation and makes food and gives to her husband or young boys in the family then she***

makes her husband and the young boys grow old quickly or make them sick. **(PNG: FGD Women, informal workplace; urban)**

When women were asked about how they felt about restrictions on activities of daily living such as cooking and cleaning, attitudes were mixed. Some accepted the restrictions as part of the traditional culture or customs, while others stated that being prevented from undertaking certain tasks was a "waste of time" and could be incredibly "boring". Clearly though, social change is evident and many women (particularly in urban areas) felt that such restrictions are only loosely adhered to or not at all- as in reality it is very difficult not to care for the family. Some however did indicate that such traditions provide a welcome excuse for a break from some responsibilities. In all three countries, persisting taboos and secrecy reinforce gender inequality and beliefs that women and girls are inferior to boys and men.

Sexual intercourse during menstruation is typically avoided by Christians in all three countries as dictated in the Bible (Leviticus), and also by Indo-Fijians of Hindu and Islamic faith. In PNG and Fiji, some men also expressed concerns that having sex with a menstruating woman would cause the man to become sick, or that the woman is at increased risk of becoming pregnant.

"When she is menstruating, she also has the tendency to get pregnant therefore it is a taboo for men to sleep with women when they are having their periods." **(PNG: FGD Men; rural)**

Being unable to attend or participate fully at church was mentioned as an unwelcome restriction by women in rural parts of SI, and also by Indo-Fijian women, who are unable to attend the temple when menstruating, and may use the oral contraceptive pill to regulate their cycle in order to attend important religious celebrations.

"One challenge is that when menstruating we are not allowed to attend church. I don't feel very good about it. Most **[Christian]** ***women would feel the same…"*** **(SI: FGD Women, informal workplace; rural).**

The level of secrecy and stigma surrounding menstruation commonly differed across urban and rural settings (which were generally more secretive and traditional). However, the taboo that exists between brothers and sisters in SI (if brothers see menstrual blood it is considered offensive, so girls need to be very secretive in managing their menstruation) was discussed in both urban and rural settings. Older i-Taukei participants in Fiji noted that this brother/sister sensitivity was traditionally important in Fiji, but less so in contemporary society.

"It's not really a tabu but concerning custom- when we have our period our brothers must not see it. If they see you have period and stain on the clothes you will give them money to show respect for disrespect because they see this" **(SI: KII Health worker; urban).**

Participants in each country commented on food restrictions during menstruation - some of which have nutritional significance, and potentially contribute to deficiencies. For example, in SI and Fiji girls spoke of avoiding red meat during menstruation as they believe it will make the blood *"smelly".* In PNG, some believed that foods high in protein (such as fish) should be avoided believing they result in *"heavy bleeding".*

Beliefs about women needing to avoid fruit and vegetable gardening during menstruation were mentioned by some women in Fiji (of Rabian background, who believe that the plants will die) and PNG (notably those from West New Britain and ARB, who believe that pigs or rats will come and destroy the plants). This restriction may be important if women rely on picking and selling produce for their livelihood. Similarly, the belief by some Fijian girls that they should not wet their hair or swim during menstruation was seen as a disadvantage as it meant they were unable to go fishing.

Some girls reported that boys tease them about menstruation at school, and link the teasing to bribes and absenteeism from school. Teasing was reported by girls in all three countries, but might more appropriately be termed as 'harassment'.

> ***"Oh they will tease us. And sometimes they will just come to you and will be like, 'I know what you have in your bag'. And through that they take money. You give me this and I will keep it as a secret. For some girls they find it fun, but some they find it embarrassing and some of them don't even come back to school for the next day"*** **(Fiji: FGD Girls not in school, urban).**

In each country, older men verbalised the need to be supportive and empathetic toward their menstruating partners and daughters, and in Fiji men spoke of buying sanitary pads for their wife and/or daughter/s. Participants in one of the men's FGDs in PNG commented on the importance of men knowing when their partner (or daughter) is menstruating, and being more understanding that girls and women may not feel up to housework while menstruating. However, as the discussion continued there was a suggestion that men also need to know whether their partner is menstruating in order to avoid 'misunderstandings' if women refuse sex. This is suggestive of more systemic gender inequalities- that women lack rights with regard to decision making and declining sex, and that refusal of sex during menstruation may contribute to domestic violence.

> ***"… [Y]oung people … have some … wild ideas… so when …*** **[a woman]** ***is not … responsive … they might suspect … she is seeing somebody else and these kind of thoughts… I think*** **[a]** ***man has to understand how a woman's body is working so*** **[if]** ***she is not uh responsive, when she is sick, then there must be a respect. I think it is a very important point that men have to understand, otherwise… they might come with some wild ideas and start beating the woman…[C]ommunication with a husband and wife will sort of uh resolve this kind of misunderstanding."*** **(PNG: FGD Men, urban).**

Challenge: Social norms (e.g. the need to be secretive about menstruation), attitudes (such as teasing by boys) and some beliefs (e.g. that menstruation is dirty) create unnecessary stigma for menstruating girls and women. Other cultural beliefs (e.g. girls cannot go swimming during menstruation or work in the garden) and religious beliefs (e.g. that woman cannot attend the church or temple) impose unwanted behavioural restrictions on girls and women.

Impact: Women and girls may experience negative emotions and feel excluded by being prevented from participating in religious, social or cultural activities while menstruating. Teasing by boys may exacerbate girls' shyness and embarrassment of menstruation and may result in emotional distress and contribute to school absenteeism. Income generation (e.g. through gardening or fishing) may be negatively affected.

Opportunity: Social and behaviour change communication within schools and communities, has the potential to address beliefs and social norms that negatively impact on women and girls' ability to manage their menstruation and participate fully in community life.

Menstrual hygiene management practices

Availability and affordability of commercial sanitary products

Compared to women and girls in Fiji and PNG, those in SI had the most limited access to high quality and affordable commercial sanitary products. Most of the available products (mainly pads; tampons were only observed in one of 28 shops visited in Honiara) were made in Indonesia and China, with 'Softex' pads being the most commonly stocked item in urban and rural areas; study participants reported this brand of pads as poorly absorbent and a common cause of rashes and irritation.[§§] Availability of all products was more limited in rural areas, and supply challenges were reported in both urban and rural areas, with stock-outs a common occurrence. The higher quality/globally recognised brands (such as Libra and U-Kotex) were only available in a small number of outlets in Honiara and were prohibitively priced (compared to Softex- refer Table 5) for the majority of girls and women. Pads were not routinely stocked in the schools that we visited and girls indicated that if they get their period unexpectedly at school they need to go home. Also, production and distribution of 'fake' (counterfeit) sanitary pads is a huge problem in China,[***] and our observations raise suspicion that such items are being marketed in SI.

Image Left: Genuine product ('ABC' China)

Image Right: Suspected fake product 'ABG'

(SI, 2016)

Several factors contribute to the excessively high pricing of sanitary products in SI. Wholesalers are subject to a 15% Goods Tax[26] on all imported products. "Drugs, medicines, medicinal and surgical goods" are exempt from this tax, although sanitary products do not currently qualify for the exemption. The high cost of transport is another factor, but we also heard anecdotally that retailers add a 30-40% mark-up on products such as these.

By comparison, in Fiji and PNG we observed a large range of globally recognised brands at generally affordable prices, although availability of these products was more limited in rural areas - where the cheaper/poor quality products were more common. Tampons were more widely available in Fiji and PNG, although lack of knowledge and concerns about usage (such as tearing of hymen) are common, and they remain an unpopular method of managing menstrual bleeding. Some school canteens in Fiji and PNG were observed to be stocking sanitary pads.

In addition, we also heard about another brand of sanitary pad available in SI and PNG but not through retail outlets. This product, called 'Angel's Secret' is distributed through J.M. Ocean Avenue via a pyramid marketing scheme, and packs of 10 (daytime pads) were selling for $100 SBD and 20 PNG Kina. While women reported the product to be very absorbent, it was concerning to hear that the product is being marketed alongside a number of misleading and deceptive claims, such as the products capacity to prevent and cure a range of health problems- including cervical cancer and other gynaecological problems.[27]

[§§] A recent investigation by the Indonesian Consumers Foundation (YLKI) found that sanitary pads heavily treated with Chlorine (including Softex) can cause skin irritation http://www.thejakartapost.com/news/2015/07/07/all-sanitary-pads-indonesia-contain-chlorine-ylki.html

[***] http://www.bbc.com/news/world-asia-pacific-37788670

Table 5: Price comparison of selected sanitary products

Selected items	Cost SBD (AUD equivalent)	Cost FJD (AUD equivalent)	Cost PNG Kina (AUD equivalent)
Libra maternity (10)	$56.00 SBD ($9.52 AUD)[†††]	$4.54 FJD ($2.95 AUD)[‡‡‡]	N/A
Libra super (10)	$30.00 SBD ($5.10 AUD)	$3.40 FJD ($2.21 AUD)	N/A
U-Kotex regular (16)	$32.00 SBD ($5.44 AUD)	NA	9.85 Kina ($3.94 AUD) [§§§]
Kotex regular (20)	N/A	$4.26 FJD ($2.76 AUD)	6.99 Kina ($2.79 AUD)
Softex (8)	$8.00 SBD ($1.36 AUD)	$1.64 FJD ($1.06 AUD)	2.20 Kina ($0.88 AUD)
Protex Her's (10)	$5.00 SBD ($0.85 AUD)	$2.29 FJD ($1.49 AUD)	2.00 Kina ($0.80 AUD)

Across all countries, the capacity to buy commercial sanitary products was most difficult for adolescent girls (reliant on family or boyfriends for money to buy pads), women in informal work settings (commonly those in rural settings with limited income) and women with disability (on limited income or physically reliant on others to purchase pads for them).

> ***"If we have money we will pay for Stayfree*** **[generic term to describe commercial pads]** ***but*** **…[if our parents don't provide money]** ***there won't be any other means but to use pieces of cloth"*** **(SI: FGD School girls; rural).**
>
> ***"…if someone gives me money, that's the first thing I do. I buy my own pads. Because I know that every month I have my menses so I have to look forward to buying them. I don't want to have my menses, you know, and then there is no pad around"*** **(Fiji: IDI, vulnerable women (disability), urban).**

Inability to pay for commercial pads (or challenges related to access in rural areas) is no doubt an important determinant of use of alternative absorbent materials.

Use of other (non- commercial) absorbent materials

Women and adolescent girls in rural and urban sites in all countries (more so in SI and PNG compared to Fiji) reported using a range of other (non-commercial) materials to absorb menstrual blood. These include: cut up rags/cloths/jeans/lap lap or lava lava; face towels; gauze wrapped in bandage; baby nappies (cloth and disposable); banana leaves, newspaper and toilet paper. If these materials are not available, some reported using an extra pair/s of underpants or several layers of clothes.

The Ten Seed Technique[7] was used in FGDs with women and girls to understand preference for various absorbent materials. In each FGD, participants were given ten stones and asked to distribute the stones according to perceptions of preference for commonly used commercial and re-usable absorbent materials (with the assumption of money not being a barrier to purchase of commercial products).

[†††] Exchange rate 1 SBD = 0.17 AUD
[‡‡‡] Exchange rate 1 FJD = 0.65 AUD
[§§§] Exchange rate 1 PNG Kina = 0.40 AUD

Generally, women and girls in all countries demonstrated preference for commercial products, with common reasons being: pads are more absorbent, they are more comfortable and stay attached to pants, they have a plastic layer to protect underpants, and they are easier to use when compared to washing and drying cloths. Some adolescent girls reported that they just don't like seeing the blood or cleaning it from cloths.

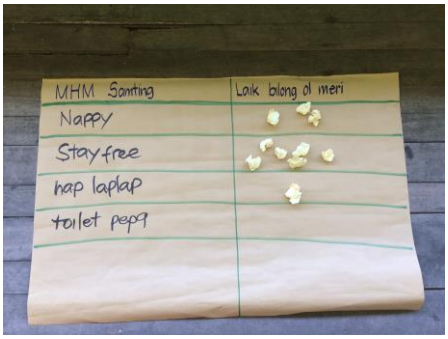


Image: Preference for various absorbent materials as indicated by out of school girls in PNG (2017)

A small minority of women indicated preference for cloths or other such materials. Common reasons for this preference related to cost savings and improved absorbency, as the amount of cloth used can be varied as needed. However, this preference may be explained by the fact that those reporting it are unable to afford and are less familiar/experienced with better quality pads.

Interestingly, despite the overwhelming preference for commercially available products, if a good quality reusable product (see image right) was available at an affordable price, many girls and women indicated that they would like to use these. Re-usable products generated most interest among women and girls in SI, women in PNG and girls in rural PNG, and among some (urban) adult women in Fiji. FGD participants identified benefits in these reusable materials, citing the cost savings each month, the security of the pads (which fit into a moisture proof layer that clips onto underpants) and in the case of the Days for Girls kits, the colourful material that hides stains.

Image: Re-usable pads, such as AFRIpads (left) & Days for Girls kits (right) generated considerable interest in SI & PNG.

> ***"It will be cheaper than pad because you only pay once but will reuse it. The pads are one use only and you will pay every month whereas the other one is pay only once"*** **(SI: FGD women, formal workplace, urban).**

Women felt that there would be opportunities for women's groups to sew and sell re-usable menstrual hygiene materials.

Where women and girls lack access to effective absorbent materials, they report feelings of shame and embarrassment if they experience leakage of blood onto their clothes. Some chose to stay close to home while menstruating, as they worry about odour, and it is often easier than changing materials away from home.

> ***"I feel frightened to go around and meet people because of the smell, so I usually go to the garden to stay away from people in the village"*** **(SI: Working women FGD; rural).**

> ***"If … your flow comes very heavy… you will not want to go to school […] You will be scared that, it will stain your clothes, so you will stay home*****. (PNG: FGD Girls out of school; urban)**

Some adolescent girls reported the preference to avoid participating in sport while menstruating, as they worry about the absorbent cloths falling out. Premenopausal woman highlighted the particular challenges that they face in managing heavy flow.

Challenge: Many girls & women, especially in the SI, lack access to effective and affordable menstrual hygiene materials. This is especially true for adolescent girls that are dependent on their parents, vulnerable women with no or little income, and women and girls living in rural villages.

Impact: Women & girls that lack access to effective menstrual hygiene materials may be distracted from school, work and broader participation in day to day activities because of fear of leakage. Skin irritation and rashes are commonly reported by those reliant on cheap/poor quality products.

Opportunity: Re-usable pad designs may be a more feasible/sustainable solution in settings where good quality commercial pads are unaffordable or where there are significant challenges with disposal of used materials. Stocking of sanitary pads in schools is an effective measure to mitigate girls' need to go home if they do not have sanitary pads with them when needed.

Changing and disposal of MHM materials

In terms of disposal practices, compared to women and girls in Fiji, those in SI (and to a lesser extent PNG) generally experience greater challenges with changing and disposal of used MHM materials due to secrecy. The stigma, beliefs and cultural sensitivities related to menstruation in SI (particularly that men and boys should not see menstrual blood or used MHM materials) compel girls and women to take additional measures when managing their menstruation. For example, women and girls commonly wash blood from commercial pads prior to disposal, and often go to great lengths to ensure men and boys do not see used materials. Some women and girls in PNG also reported washing blood from used sanitary pads before burning them- but for a different reason- believing that burning pads with menstrual blood on them could produce harmful fumes.

> ***"I go to the bathroom and change, rinse off my pad and take it home with me to dispose it"*** **(SI: FGD women, formal workplace, urban).**
>
> **[referring to when in the village]** ***"I have to burn my rubbish to avoid the men and boys in the family to see it"*** **(SI: FGD women informal, urban).**

Women and girls in all countries reported challenges disposing of used sanitary materials discretely and hygienically. Disposal infrastructure was poor across all contexts. If there are no disposal bins in toilet blocks, participants often take used materials home (in plastic or newspaper) and dispose of them there, or throw them into the sea, river or bush on their walk home from school. In the school setting, the potential to be teased by boys further complicates disposal challenges for adolescent girls.

> ***"Some girls put it in a plastic bag and put it in their bags but you know, some boys can be very playful and can go and open their bags and can see it, so it is also not safe to keep it inside the bag"*** **(SI: FGD School girls; rural).**

When disposal facilities are not provided in toilets, places of disposal vary but include: in and around toilets; on window sills in bathrooms; in drains (with flowing water); the sea/river; rubbish bins on the street; the bush; holes dug in the ground; and burning in a pit (beliefs among some in SI- that burning pads will bring a stop to menstruation- prohibit this).

Where disposal infrastructure was present (such as bins) it was often unhygienic, such as having no lid, or poorly maintained. Commercial disposal services for schools and work places are becoming increasingly common in urban Fiji and to a lesser extent in urban PNG, but it was beyond the scope of this study to look at whether this waste was safely managed.

In addition, if sanitation and disposal facilities at schools or in the workplace are non-existent or not usable (i.e. not functional, lacking in privacy or filthy), women and girls prefer to go home to change materials, or delay changing materials for extended periods of time.

> ***"For me, I go to school*** **[while menstruating]** ***but only for half days…during break time I go back home"*** **(SI: FGD School girl; rural).**

Image: When sanitation facilities are inadequate, girls and women prefer to go home to change pads. (PNG, 2017)

The safety implications for adolescent girls needing to travel home alone during the day to attend to MHM needs was highlighted by one woman in Port Moresby.

> ***"For student, if, if a girl is at*** **[school name]** ***secondary, she needs to come to the bus stop, it's a fair bit from the bus stop so safety is one… two it depends on her situation, or how she is flowing, if she saw heavy, how she is going to get home… It depends on their distance to school to home. In the village will be walking… she's… not safe"*** **(FGD Women in formal employment; urban).**

Additionally, in Fiji and SI, women working as market vendors reported feeling unsafe when using public toilets, or when cleaning staff were men (and cleaning toilets while women are actually inside the toilet block). In Fiji rural women who slept in the market reported feeling unsafe accessing toilets overnight.

Across the three countries, WASH service-levels of five schools and five workplaces were carried out in rural and urban sites. Of the five schools observed across the three countries, only one school in Fiji met the WHO and UNICEF emerging JMP service-level standards for school WASH facilities.[28] Most schools failed to meet 'basic' service level standards due to poor functionality of latrines due to lack of water, poor operation and maintenance of facilities which led to cleanliness and disrepair as major barriers to usability of toilets. Advance service levels which apply human rights standards of acceptability and quality were not met or were only partially achieved, with issues related to cleanliness, provision of anal cleaning materials and disposal bins. There were some positive examples of MHM, such as disposal bins inside latrine blocks. Ratio of female students to female latrines was particularly alarming, especially when functionality of latrines was taken into account. Similarly, handwashing facilities at schools in SI and PNG were generally of a very poor standard, some being located at a distance from the toilets, others having no water or an inconsistent water supply, and most not providing soap.

Although global WASH standards for workplaces do not yet exist[29], most formal and informal workplace sanitation facilities observed in each of the three countries fulfilled JMP service-level standards (which are specific to schools).[28] Please refer to **annex** for full details.

However, women in informal work settings (such as market settings) often expressed dissatisfaction with public toilet facilities. For example, sanitation facilities in informal work settings often have reduced opening hours, charge user fees, are insufficient in number, or are poorly maintained. Women working in the Suva market complained about an additional fee for handwashing, because the basin was located inside the shower rooms, not inside the toilet facilities. Those unable to pay the fee use a communal tap located outside the toilets which is shared between women and men. As a consequence it was suggested that handwashing does not always occur.

> **"[A]*fter changing*** **[sanitary pads]*, we have to take our dirty hands to the tap outside in order to wash them... It's degrading treatment towards us women"*** **(Fiji: FGD women, urban, informal employment).**

"There isn't a woman who is bold enough to wash their hands outside... men and even other women stare at us when we wash our hands outside..." **(Fiji: FGD women, urban, informal employment).**

Many of the challenges in managing menstruation that were voiced by women and girls (above) are magnified for those living with disabilities.

"The loo itself is not accessible so what I do is I usually double the pads and **[when]** ***I come here*** **[workplace]** ***I don't change, I just go back home*** **[at end of the day]** ***and I change."*** **(PNG: IDI, woman with disability, urban). [This woman explained that as the work toilet is not wheelchair accessible, she relies on male co-workers to lift her wheelchair into the bathroom so she can empty her catheter bag. She would otherwise need assistance from these men to lift her on/off the toilet if she wanted to use it.]**

During the FGDs, girls and women were asked to consider what improvements could be made to school and workplace sanitation facilities, and to propose an "ideal latrine". Features of an ideal latrine that were commonly articulated included:

- Privacy (sex-segregated)
- Toilet paper
- Doors with proper locks
- Space inside the toilet to change
- A bin inside the cubicle
- Water and soap
- Towels or dryers
- A free supply of sanitary pads kept in a cupboard in the toilet block
- Toilets being well lit and clean
- An attached shower room with a sink

Image: An 'ideal school latrine' - as drawn by school girls in Suva. (Fiji 2016)

In particular, the ability to discretely dispose of used sanitary materials was emphasised by adolescent girls.

"Just to have sanitary bins at just where the toilets are because girls will have to go outside with their rubbish. And it's embarrassing" **(Fiji: FGD, Girls in school, urban).**

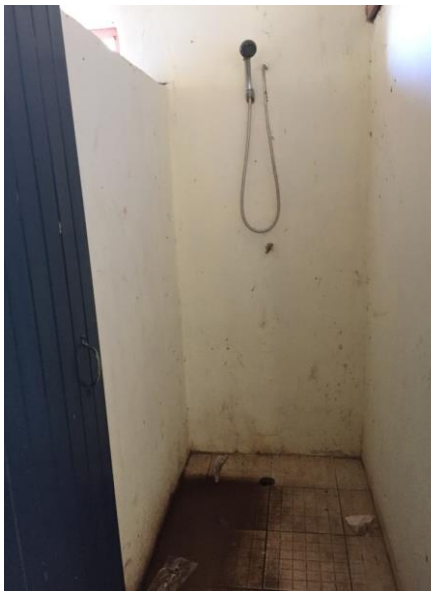
Challenge: Stigma and cultural beliefs make it more difficult for girls and women to change and dispose of used absorbent materials. Lack of access to usable toilets and handwashing facilities and safe disposal options are a barrier to effective menstrual hygiene management.

Impact: Girls and women report losing time from school and work if they go home during the day to change materials, or discomfort and potential increased risk of reproductive tract infection if they delay changing materials for extended periods of time. Current disposal practices may impact negatively on the environment.

Opportunity: Social and behaviour change communication within schools and communities, has the potential to address beliefs and social norms that negatively impact on women and girls' ability to manage their menstruation effectively and with dignity. Governments could set standards related to school and workplace sanitation facilities and ensure that they incorporate MHM considerations. These standards could then be maintained by female led businesses providing cleaning or sanitary products etc.

Personal hygiene practices and washing of re-usable MHM materials

In each of the three countries, women and girls commonly expressed a preference to bathe or shower each time they change sanitary materials, or at least several times during the day. Often this was explained as being necessary to reduce odour and for comfort.



Where shower facilities lack privacy and cleanliness, girls and women prefer to attend to their hygiene needs at home. (SI, 2016)

However despite having a preference to wash regularly during menstruation, girls and women commonly face challenges, particularly in accessing functional and clean bathing facilities away from the home (such as in schools and workplaces) but also at home (especially for those living in rural areas). This is especially true for girls and women in SI and PNG and for women employed in informal work settings in all countries. For example, rural women who travel to Suva to sell their produce and sleep overnight at the market reported having limited access to water for bathing (shower facilities closed from 7pm - 6am) plus the burden of associated user fees ($1.50 per use).

> ***"Some of us frequently bathe and shower*** **[during menstruation]** ***so it's better for us to stay at home. Because we always pay to bath here so we can't be paying to bath three to four times a day"*** **(Fiji: FGD women, urban, informal employment).**

Women in this type of employment reported that it is not uncommon to miss time at work while menstruating, especially if they experience very heavy bleeding, which is common among older peri-menopausal women.

Compared to those in Fiji, women and girls in SI and PNG were more secretive in their personal hygiene during menstruation, and many spoke of washing in the sea or taking a bucket of water to a private location to wash privately to avoid others seeing menstrual blood.

> ***"Sometimes we go to the sea to wash and rinse and then come to the tap stand to bathe ourselves. First the blood is cleaned in the sea so it is not seen at the tap stand"*** **(SI: FGD women, informal workplace; rural).**

This higher level of secrecy was also observed in relation to washing and drying of re-usable absorbent materials. In Fiji washed cloths are usually hung at the back of the clothes line (out of the view of neighbours), but in SI and PNG, women and girls spoke of hanging washed cloths out to dry under other clothes or larger pieces of material, and some even dry cloths inside the house.

> ***"I wash it with my clothes and hang it with the clothes along with my panties and bras. I cover it with the other clothes so that people won't see"*** **(PNG: FGD women, informal workplace; rural).**

> ***"I go to the sea to wash out the cloth…. I usually hang it*** **[the cloth]** ***in my room where nobody can see it…where my brothers and uncles won't see it"*** **(SI: FGD School girl; rural).**

Also, in SI some girls reported that they do not wash and re-use menstrual cloths as they believe menstrual blood is "dirty blood' and should not be touched. This has implications for MHM programming.

Challenge: Many women and girls lack of access to appropriate/private water and sanitation facilities to bathe and wash reusable cloths and stained clothes.

Impact: Girls and women report losing time from school and work if they go home during the day to attend to hygiene needs. Personal safety and health may be impacted when girls and women feel the need to be more secretive in attending to hygiene needs.

Opportunity: Social and behaviour change communication within schools and communities, has the potential to address beliefs and social norms that negatively impact on women and girls' ability to manage their menstruation safely, effectively and with dignity. Monitoring and standards related to school and workplace hygiene facilities should incorporate MHM considerations and be enforceable.

Pain management practices

Typical approaches to menstrual pain management varied between the countries. In PNG and Fiji, women and girls reported using simple analgesia (e.g. paracetamol) to help alleviate menstrual cramps.

> ***"I buy Panadol and drink it to stop the pains. Panadol helps to stop the period pains."*** **(PNG: Women in informal employment; rural)**

In SI however, especially in rural areas, women and girls reported a more passive approach to menstrual pain management, believing that as menstruation is a 'natural' process, it should be allowed to occur without interference.

> ***"To relieve the pain some drink Panadol, but for me menstruation is a natural thing that is meant to run out, so you should not drink Panadol"*** **(SI: FGD women, informal workplace; rural).**

> ***"…even if we have pain, we wait for the pain to go away"*** **(SI: FGD School girls; rural).**

A range of alternative and traditional remedies was also reported to be used during menstruation. (Table 6)

Table 6: Traditional remedies used during menstruation in SI, Fiji and PNG

	Remedy	Rationale
SI	• tying a tight cloth around the belly • drinking more water • light exercise	• Pain management
Fiji	• use of heat (eg. hot water bottle) • drinks made from Copperleaf (Kalabuci damu), spinach (Bele leaf), leaves of the red hibiscus flower (Draunisenitoa), and Gardenia flowers and leaves.**** [30] [31] [32]	• Pain management • To *"help the blood flow"*
PNG	• use of heat (eg. cloths soaked in hot water, rubbing lime powder on abdomen) • Noni juice • Drinks made from the Moringa tree, Periwinkle, and Hibiscus plant	• Pain management • Pain management • Pain management and to 'regulate' menstruation

In all countries, there was some indication that some women and girls take time out from school or work when menstrual pain is inadequately managed.

Challenge: Beliefs and norms in some SI communities are a barrier to effective management of menstrual pain.

Impact: Some women and girls report missing work and school due to menstrual pain.

Opportunity: Social and behaviour change communication within schools and communities, has the potential to address beliefs and social norms about the use of analgesia to manage menstrual pain. Active management of pain might also be included in related school curriculum, and uncomplicated menstrual pain could be managed in school settings where processes/permission to provide simple analgesia are in place or could be introduced.

**** Tonics made from the Gardenia plant are known to be used in the Asia-Pacific region to induce abortion and otherwise regulate menstrual flow. Similarly, tonics made from the Hibiscus plant are used to bring on delayed menstruation, as an abortifacient and to help with menstrual pain.

Discussion and conclusions

Similar to other MHM studies in low-middle income countries, adolescent girls and women in SI and PNG face numerous challenges that influence their ability to manage menstruation effectively, hygienically and with dignity. These challenges interact, and have the potential to negatively impact on physical and emotional health, participation at school, work and in the community, and on the environment. Such impacts can reinforce gender disparities and perpetuate inequalities. Overall, girls and women in Fiji experience fewer challenges in managing menstruation- however difficulties persist for women working in informal settings without private sanitation facilities, those living in rural and remote areas, women and girls with disabilities and for those who are poor.

The range of challenges experienced by girls and women in managing their menstruation in SI, PNG and Fiji are summarised in Figure 1. The impact of these challenges and opportunities to address them are also considered.

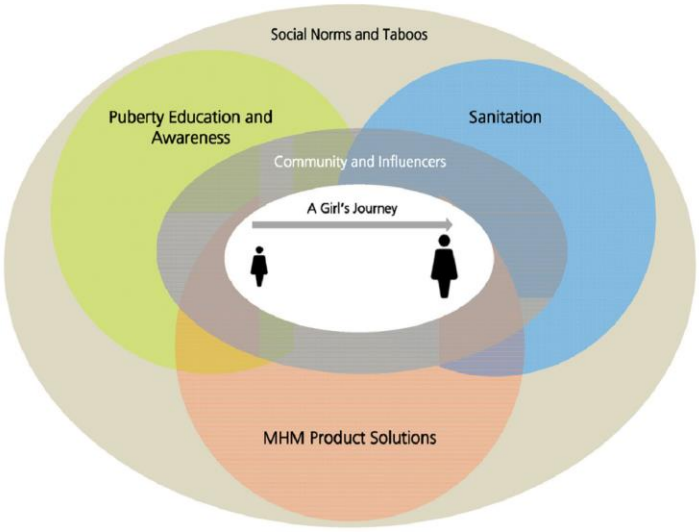
These research findings are largely consistent with available literature on MHM[33] and contribute to the evidence base suggestive that:

- Many girls and women lack sufficient and timely information about menstruation and MHM, resulting in lack of preparation for menarche, reduced ability to manage menstruation effectively and increased fear and anxiety. Similar to the findings from PNG, SI and to some extent Fiji, the available evidence suggests that knowledge of menstruation is poor at menarche[34 35 36] and that school-based education on MHM is often inadequate.[3 37 38] Studies also highlight the importance of training and support for teachers, parents and health workers to provide accurate information.[3 38 39]
- Social norms and taboos around menstruation such as secrecy make it difficult for women and girls to access information and communicate their needs. In settings across Asia, Africa and the Pacific the literature suggests that discriminatory beliefs and attitudes around menstruation can impact on women and girls' ability to effectively manage their menstruation and can exacerbate feelings of shame and embarrassment. [40 41 42 43 44]
- In many parts of the world, puberty and the onset of menstruation often results in changes in girls' participation in school (and subsequently leaving school) with family and social expectations of marriage, child-bearing and other domestic duties.[45 46]
- Women and girls with a disability often face additional challenges to managing menstruation. This finding is supported by studies from Malawi, Kiribati, Solomon Islands and Tonga.[47 48]
- Women and girls who use reusable MHM materials report challenges around comfort and hygiene.[3 49 50] There is emerging evidence to support the hypothesized link between urogenital infections (such as bacterial vaginosis) and poor MHM.[51] In addition, inadequate handwashing facilities may contribute to the spread of thrush and Hepatitis B.[34]
- Price and availability often limit access to appropriate MHM materials (whether reusable or disposable), and government taxes and import duties on MHM products contribute to prohibitively higher costs.[3]
- Access to appropriate WASH facilities is a significant barrier to effective MHM, particularly in rural and disadvantaged households and communities. In the Pacific region, only 30% of people have access to improved sanitation and 52% to improved water sources.[52] Studies indicate that WASH facilities in schools rarely meet the needs of menstruating women and girls.[36 42 53]

Figure 1: Summary of findings across the three countries

Programming efforts directed toward improving MHM in SI, PNG and Fiji would benefit from a comprehensive approach that considers the broad range of determinants of menstrual health (Figure 2).[3]

Figure 2: Comprehensive response to menstrual health



Specific programming recommendations that respond to the unique set of challenges identified in SI, PNG and Fiji are detailed in the individual country reports. General recommendations involve:

- Strengthening puberty education and awareness and challenging discriminatory beliefs and taboos where they exist;
- Improving availability, affordability, and access to quality commercial products and locally made alternatives, especially in schools and workplaces; and,
- Improving WASH facilities and standards to ensure that women-specific WASH needs are met, particularly options for safe disposal of soiled sanitary materials.

Critically, any initiatives should be underpinned by a human rights approach, and ensure that women's and girls' voices are central to decision making about any initiatives that impact on them.

Annex 1: WASH assessment, schools and workplaces

	Solomon Islands		Fiji	Papua New Guinea		Multi-country assessment observations
	School: rural 292 students total	School: urban 1000 students total	School: urban 950 female students	School: urban 574 female students	School: rural 441 female students	*2 rural schools, 3 urban schools. Due to a small data set, rural/urban trends not analysed. Data was disaggregated by sex in PNG and Fiji.*
Water						**Water**
Source	Piped	Piped	Piped	Piped	Borehole	Only 2 of 5 schools in total had a functioning water source. None of the schools in PNG had reliable, functional water source.
Availability	✓	×	✓	×	×	
Functionality	✓	×	✓	×	×	
Sanitation: basic service						**Sanitation: basic service-level**
Type	6 Pour flush	10 Pour Flush	11 Flush	4 Flush	24 Flush	Only one school in Fiji had sanitation facilities which met the definition of 'usable' as per JMP basic service-level standards. While all 5 schools in the study had an 'improved' type of sanitation facility (pour flush) 3 out of 5 schools had no functioning toilets. While all toilets were sex-segregated, at least half of the toilets were not lockable. There were insufficient female toilets per female students, where disaggregated data was collected. When functionality was accounted for, either no toilets were usable or there were up to 190 students per toilet, well abovebelow UNICEF's recommended standard of 30 students per toilet.
Functional	0	0	11	0	3	
Lockable	0	4	6	1	3	
Sex-segregated	6 (3 f: 3m)	10 (5f: 5m)	11 (female)	4 (female)	24 (female)	
Female students per latrine (*Ratio if functionality not accounted for)	n/a	n/a	190 (86:1)	0 (143:1)	147 (18:1)	
Sanitation: Advanced service						**Sanitation: advanced service-level**
Clean	6	0	4	0	4	Toilets were unclean in all schools, except one in rural SI. Most school toilets were sufficiently lit, which may help girls to see check for stains, change materials, feel safe etc, except 1 in PNG and 1 in SI. Disposal bins were present in PNG and Fiji, but usually outside the cubicle. Solid waste was either collected or burned on-site.
Light	6	10	4	4	4	
MHM container	×	×	✓	✓	✓	
Solid waste disposal	Burnt on site	Collected	Collected	n/a	Burnt on site	
Frequency	Weekly	Less weekly	Daily	n/a	Daily	
Incinerator	×	×	×	×	×	No schools had incinerators.
Handwashing						**Handwashing**
Facilities	2	1	3	2	30	While all 5 schools had handwashing infrastructure, three had insufficient water and only one school had soap. Handwashing stations were positioned relatively close to toilets, either inside block or outside block, except in SI where it was far from the toilets.
Water & Soap	Water ✓ Soap ×	None	None	Water × Soap ✓	None	
Distance	>30m	<30m	Outside block	Inside block	In/Out block	
Summary per country	SOLOMON ISLANDS: Limited service: Toilets not useable because no water to flush; handwashing facilities had water but no soap. Acceptability (girl students): high in 1 school because of cleanliness, but poor overall as no MHM disposal bins and no anal cleansing materials/water.		FIJI: Advanced service, but no soap. Acceptability: half clean, but poor- no MHM disposal bins inside cubicle, no toilet paper for cleansing.	PAPUA NEW GUINEA: Limited service: Non-functional due to no water and few are lockable (private);handwashing facilities had no water. Acceptability (girl students): Poor unclean/insufficient light. Good MHM disposal options inside latrine stalls, no toilet paper for anal cleansing.		

	Solomon Islands	Fiji		Papua New Guinea		Multi-country assessment observations
Type of workplace Total number of staff	Formal Urban: 71 total	Informal Urban: n/a	Formal Rural: 12 total	Formal Urban: n/a	Formal Rural: n/a	*There are no global service level standards for workplaces, some school service levels have been applied. Assessments focus on female toilets only, but staff data was not disaggregated by sex.*
Water						**Water**
Source	Piped	Piped	Piped	Piped	Rainwater	All workplaces had available and sufficient water supply except one workplace in PNG which was reliant on rainwater harvesting and experienced seasonal shortages.
Availability	✓	✓	✓	Seasonal	✓	
Functionality	✓	✓	✓	✓	✓	
Sanitation: basic service						**Sanitation: basic service-level**
Type	2 flush	6 Flush	2 Flush	1 Flush	1 Flush	Nearly all toilets across 5 formal and informal workplaces met basic JMP service-level standards of usability: functioning, lockable (private) and sex-segregated. One toilet was not sex-segregated in PNG and this was the only toilet available to female and male employees. In SI one toilet was not lockable. User numbers per latrine were reasonable, except in the case of market vendors using public toilets during their work day.
Functional	2	6	2	1	1	
Lockable	2	5	2	1	1	
Sex-segregated	2 (1m:1f)	6 (female)	2 (1 m: 1 f)	1 (female)	0 (shared)	
Women staff: female latrine	n/a	n/a	n/a	10:1	8:1	
Sanitation: Advanced service						**Sanitation: advanced service-level**
Clean	2	6	2	1	1	Overall the toilets in workplaces were well-maintained with sufficient lighting and cleanliness. Solid waste was collected daily in most places, although data was not available in some instances. In most workplaces MHM bins were available in latrines, however in one workplace in PNG there were no bins, and in the market in Fiji, bins were outside latrine blocks so workers reported not using them.
Light	2	6	2	1	1	
MHM container	✓	✓	✓	✓	×	
Solid waste disposal	Burnt on site	Collected	Collected	Collected	n/a	
Frequency	Daily	Daily	Daily	Monthly	n/a	
Incinerator	×	×	×	×	×	No workplaces used incinerators as a disposal mechanism.
Handwashing						**Handwashing**
Facilities	2	1	1	1	1	Handwashing facilities were availability in all workplaces, but in the market vendors (public toilets) there was no soap and in one rural workplace in PNG there was no water available. Handwashing facilities were located very close to toilets.
Water & Soap	Water ✓ Soap ✓	Water ✓ Soap ×	Water ✓ Soap ✓	Water ✓ Soap ✓	Water × Soap ✓	
Distance	n/a	Outside toilet	Outside toilet	Inside cubicle	Outside toilet	
Summary per country	SI: Toilets usable, sex-seggregated, water/soap. Advanced: Accessible, sufficient quantity, clean, MHM disposal.	FIJI: All improved toilets (flush) useable (private, functional, accessible) and sex-segregated, but shared w general public. Advanced service level features good for formal workplace, BUT poor in informal workplaces: MHM bin outside toilet block, no toilet paper.		PAPUA NEW GUINEA: All improved toilets are useable, expect one which is not sex-segregated. Toilets mostly met global advanced service level standards except one toilet didn't have MHM bin for disposal or water for HW.		

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