Struggling in Silence: The Untold Stories of Menstruators in Conflicted-Affected Areas in Sudan

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A thesis submitted in partial fulfilment of the requirement for the degree of

Master of Science in Public Health

by

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Abstract

Introduction
Sudan is a politically unstable country with a long history of armed conflicts and a recent outburst of conflict displacing many. Conflicts have a toll on individuals' health and well-being, yet little is captured on the effects of conflicts on menstrual experiences. This study aims to study how conflicts might affect menstrual health by studying menstruators' experiences, the role of social and community factors, as well as service provision in trying to meet menstruators' needs in conflict-affected settings.

Methodology
A literature review was conducted of peer-reviewed and grey literature from Sudan and similar contexts between 2003 and 2023. Data was abstracted from VU electronic library, Google Scholars search engine, and humanitarian agencies websites, among others. The Menstrual Health framework was used to guide and answer the research objectives.

Results
Social norms and taboos restrict menstrual health and hygiene management, and armed conflict further limits access to acceptable menstrual resources and services. Despite having access to interventions targeted to menstrual needs, menstruators didn't utilise these services and products unless they were culturally appropriate. Humanitarian interventions often focus on products and sanitation solutions. Only a few were found to address knowledge needs and gender inequalities.

Discussion
To have effective humanitarian responses, menstruators need to be consulted and engaged in designing, implementing, and monitoring the interventions. Menstrual education, products, and infrastructure need to be addressed together while planning programs. A cross-sectoral collaboration between sectors like education and protection should be followed.

Keywords: Menstruator, Menstrual Experience, Menstrual Health, Armed Conflict, Sudan.
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Table of Content

Abstract .... *II*

Table of Content .... *III*

List of Figures and Tables .... *V*

List of Figures .... **V**

List of Tables .... **V**

Abbreviations .... *VI*

Glossary .... *VII*

Dedication .... *IX*

Acknowledgement .... *X*

Introduction .... *XI*

Chapter 1: Background *12*

1.1. Sudan **12**

1.2. Conflict **13**

1.3. Humanitarian Response Guidelines **15**

Chapter 2: Problem Statement, Justification, and Objectives *16*

2.1. Problem Statement **16**

2.2. Justification **17**

2.3. Objectives **18**

Chapter 3: Methodology *19*

3.1. Study Design and Approach **19**

3.2. Search Term Combination **19**

3.3. Study Area **20**

3.4. Limitations **21**

3.5. Conceptual Framework **21**

Chapter 4: Study Findings *24*

4.1. The Menstrual Experience in Sudan **24**

4.2. Gender, Menstruation, and Conflict **24**

4.3. A Menstruator's Journey During Armed Conflict **25**

4.4. 'Social Norms and Taboos' and 'Community and Influencers' **26**

4.5. Menstrual Education **27**

4.6. Product Solutions **28**

4.7. Sanitation **30**

4.8. Interventions **33**

Chapter 5: Discussion *36*

5.1. Summary of the Main Findings 36
5.2. Addressing the Menstrual Experience in Sudan 37
5.3. Gender: Inclusion vs Exclusion 38
5.4. Menstrual Health Framework 38
5.5. Strengths and Limitations 39
Chapter 6: Conclusion and Recommendation *41*
6.1. Conclusion 41
6.2. Recommendations 41
6.2.1. Humanitarian Responses 42
6.2.3. Policymakers 43
6.2.2. Research and Development 43
References *44*
Annex *53*
Annex 1: Map of Sudan Showing Neighbouring Countries, as well as Locations where IDPs and Refugees Flee to *53*
Annex 2: The Original Menstrual Health Framework Developed by the Bill and Melinda Gates Foundation and FSG (reimagining social change) in 2016. .... *54*
Annex 3: A Table Showing Different Types of Menstrual Products *55*
Annex 4: UNFPA Dignity Kit *56*
Annex 5A: Illustrations of an Ideal Menstrual-friendly Toilet *57*
Annex 5B: An Ideal Menstrual-friendly Toilet Criteria *58*
Annex 6: Assessment of Menstrual Experience Considering Resource Availability: A Matrix Analysis *59*
Annex 7: Discrete Chute System *61*

List of Figures and Tables

List of Figures

Figure 1: Sudan Map Showing the Ongoing Conflicts in Darfur, Nuba Mountains, and the Blue Nile. The Recent Armed Conflict in Khartoum is Shown in Black. The Map Also Shows South Sudan in Grey, Which Gained its Independence from Sudan in 2011. 14
Figure 2: The Adapted Menstrual Health Framework. It Shows the Added Themes and the Menstruator's Journey. 22

List of Tables

Table 1: Overview of Inclusion and Exclusion Criteria 19
Table 2: Keywords Combination Used for Literature Search Using Boolean Operators 'AND' and 'OR' 20
Table 3: Research Objectives-Framework Matrix 23

Abbreviations

BRCS/DRC	Bangladesh Red Crescent Society and the Danish Red Cross
CSOs	Civil Society Organizations
CVA	Cash and Voucher Assistance
FGD	Focus Group Discussion
FMOH	Federal Ministry of Health
GBV	Gender-Based Violence
HiAP	Health in All Policies
HIV	Human Immunodeficiency Virus
IDPs	Internally Displaced Persons
IWAG	Inter-Agency Working Group on Reproductive Health in Crisis
JEM	Justice and Equality Movement
KII	Key Informant Interview
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Agender
LMICs	Low- and Middle-Income Countries
M&E	Monitoring and Evaluation
MHH	Menstrual Health and Hygiene
MHM	Menstrual Hygiene Management
MIRA	Menstrual Information and Research Assistant
MISP	Minimum Initial Service Package
NGO	Non-Governmental Organisation
Oxfam	Oxford Committee for Famine Relief
PHC	Primary Health Care
PMS	Premenstrual Syndrome
PVC	PolyVinyl Chloride
RSF	Rapid Support Forces
SAF	Sudanese Armed Forces
SES	Socioeconomic Status
SLA/M	Sudan Liberation Army/Movement
SMOH	State Ministry of Health
SNSHSF	Sudan National Sanitation and Hygiene Strategic Framework
SPLA	Sudan People’s Liberation Army
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health and Rights
STIs	Sexually Transmitted Infections
TMC	Transitional Military Council
UN	United Nations
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene[i]

Glossary

Cloths: **'**Cloths are reusable pieces of fabric worn externally to the body, in underwear or tied to the waist to absorb menstrual flow. They're made from either newly purchased pieces of fabric (mostly cotton) or old fabric repurposed from clothing or another use.' [1] (p.22)

Cycle (Menstrual Cycle) **'**A complex reproductive process in the female body that begins at puberty with menarche or the first period. It usually begins around the ages of 10 to 16, and ends at menopause (average age is 51), when menstrual periods stop permanently.'[2] (p.27)

Internally displaced People (IDPs), according to the United Nations Guiding Principles on Internal Displacement, IDPs are 'Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised state border.'[3]

Menarche 'The first menstruation, or the onset of the menstrual cycle.'[2] (p.24)

Menstrual blood is **'**Bodily fluid that is made up of blood, vaginal secretions, and cells of the endometrium which are released from the uterus to the vagina during menstruation if there is no pregnancy.'[2] (p.26)

Menstrual Cycle (cycle) **'**A complex reproductive process in the female body that begins at puberty with menarche or the first period. It usually begins around the ages of 10 to 16, and ends at menopause (average age is 51), when menstrual periods stop permanently.'[2] (p.27)

Menstrual Experience 'Includes knowledge, thoughts, feelings, beliefs, narratives, and practices related to menarche and menstruation, issues related to access to menstrual care products, and the impact of menstruation on daily living.'[4] (p.3)

Menstrual facilities **'**Are those facilities most associated with safe and dignified menstruation, such as toilets and water infrastructure.'[5] (p.8)

Menstrual Health and Hygiene (MHH) is **'**A term that encompasses both Menstrual Health Management (MHM) and the broader systemic factors that link menstruation with health, well-being, gender equality, education, equity, empowerment, and rights.'[2] (p.33) The term also includes health as a response to interventions focusing solely on hygiene practices, while recognising that hygiene is essential to menstrual health.'[2] (p.33)

Menstrual Hygiene Management (MHM) is 'A term that originated in the WASH sector and is mostly used in the context of international development and humanitarian programming. It entails that women, adolescent girls, and people who menstruate are using a clean menstrual management material to absorb or collect menstrual blood, which 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 safe and convenient facilities to dispose of used menstrual management materials.'[2] (p.35)

Menstrual Period (Menstruation or Period) **'**The regular discharge of menstrual blood and mucosal tissue from the inner lining of the uterus through the vagina. It signals the beginning of a person's menstrual cycle. Normal menstrual bleeding lasts from 2-7 days per menstrual cycle.'[2] (p.43)

Menstrual Products (Period products) 'Physical internal or external products used to absorb or collect menstrual blood and effluent.'[2] (p.41)

Menstrual resources refer to menstrual education, products, supplies, facilities, and health services.[1]

Menstrual supplies 'are other supportive items needed for MHH, such as body and laundry soap, underwear, a bucket, underwear, clothes pins, a storage bag, instructions, and pain relief items.'[5] (p.8)

Menstruation (Menstrual period or Period) 'The regular discharge of menstrual blood and mucosal tissue from the inner lining of the uterus through the vagina. It signals the beginning of a person's menstrual cycle. Normal menstrual bleeding lasts from 2-7 days per menstrual cycle.'[2] (p.43)

Menstruation-related disorders means a non-regular or abnormal menstrual cycle or flow, which may affect menstruators to a different degree. They include premenstrual syndrome, dysmenorrhea (painful menstruation), irregular menstruation, heavy menstruation fibroids, endometriosis, and adenomyosis.[6]

Menstruator 'An inclusive term to describe all people who experience menstruation. This is a gender-neutral term used to refer to all people who may experience menstruation as a biological function. This inclusive term is used to denote that not all people who experience menstruation identify as women (i.e. trans men, nonbinary or intersex individuals) and that not all women menstruate (ie. post-menopausal women, or women who have undergone a hysterectomy, women who may not menstruate due to other reasons like hormonal issues or illnesses).'[2] (p.44)

MISP ' A set of priority lifesaving SRH services and activities to be implemented at the onset of every humanitarian emergency to prevent excess sexual and reproductive health-related morbidity and mortality' [7] (p.g.2).

Period (Menstruation or Menstrual Period) 'The regular discharge of menstrual blood and mucosal tissue from the inner lining of the uterus through the vagina. It signals the beginning of a person's menstrual cycle. Normal menstrual bleeding lasts from 2-7 days per menstrual cycle.'[2] (p.43)

Period Products (Menstrual Products) 'Physical internal or external products used to absorb or collect menstrual blood and effluent.'[2] (p.41)

Refugees are people who have been forced to flee their homes and have crossed an international border to find safety in another country.[8]

Water, Sanitation, and Hygiene (WASH) 'A key public health issue within international development that focuses on universal, affordable, and sustainable access to water, sanitation, and hygiene.'[2] (p.64)

Dedication

To all menstruators in humanitarian settings facing a dire shortage of resources
To refugees and internally displaced persons
To the marginalised and vulnerable populations
To those in detention, people living with HIV, LGBTQIA+ community, and people with disability
To you, I dedicate my work

Acknowledgement

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Introduction

I'm a medical doctor by profession and a passionate menstrual health and hygiene activist. I have been working in this field for over three years now. The more I work on it, the more I fall in love and the more I realise how much there is to learn. I'm grateful for my medical background, which has equipped me with critical skills, and my curious personality, which drives me to continue learning.

Growing up, I had a lot of questions related to menstruation, but unfortunately, I couldn't find satisfactory answers. It was only during medical school that I started getting satisfactory answers to my questions. One thing led to the other and three years ago, I started my initiative 'Let's Talk Period!' that promotes and advocates for menstrual health and hygiene. Through Let's Talk Period! I engage with and empower thousands of menstruators in Sudan and other countries.

I had planned to conduct qualitative research on menstrual experiences in Sudan, but due to the recent conflict, it was no longer feasible. Despite having invested time and effort into the topic, I had to find a new one. Based on my observations as a menstrual health activist in Sudan, I noticed that many menstruators raised concerns about their periods becoming longer, heavier, or even absent in the first few months of the conflict. This could be attributed to the stress caused by the conflict and displacement. While several menstruators expressed their need for menstrual products, other menstruators offered them support with products. Menstrual health activists led campaigns and raised funds to provide menstrual products to those in need. This form of social solidarity between menstruators enabled them to maintain their dignity during this difficult time.

Witnessing this through Let's Talk Period platform led me to think and reflect on the topic. I was inspired to conduct my thesis on the influence that armed conflict has on menstrual experiences. I wanted to get a deeper understanding of how conflict affects access to menstrual resources and products, what role the social norms play during this critical time if any, and whether the interventions target menstruators' needs. Given the urgent need for research, especially with the ongoing conflict affecting millions of lives and the limited literature available, I hope to contribute to the continuous efforts to promote equitable and sustainable menstrual health and hygiene management in Sudan. My goal is to provide evidence-based recommendations to aid in the humanitarian responses to this ongoing crisis in my beloved country Sudan. Recently, I went to see the Canal Pride Parade in Amsterdam. I was happy to see the UNHCR boat celebrating inclusivity, and I found it very relevant to my thesis topic. I will leave you with a picture of what is written on the boat taken by me.

Chapter 1: Background

1.1. Sudan

This chapter describes the context of Sudan, highlighting its key features. Additionally, a background on the conflict and humanitarian responses guidlines.

1.1.2. Geography and Demography

The Republic of Sudan is located at the nexus of Middle East and Sub-Saharan Africa. It shares borders with the Red Sea and seven countries: Egypt, Libya, Eritrea, Ethiopia, South Sudan, Chad, and Central African Republic. Khartoum is Sudan's capital and the Blue and White Niles confluence.[9] Sudan was the largest African country before the secession of South Sudan in 2011, which decreased its size by nearly a quarter.[10] Sudan occupies a land of 1.88 million km^2 with a population of 46.8 million inhabitants and a 1:1 male-to-female ratio.[9,10] The life expectancy at birth is 65.5 years, with an annual population growth of 2.6%.[9,11]

Arabic is the primary language spoken. Both Arabic and English are recognised as official languages by constitutional law.[12] Sudan is home to 70 living indigenous languages.[13] Islam is the dominant religion, with 91% of the population following it.[14] Sudan is a diverse country with more than 597 tribes that speak over 400 different languages and dialects.[15] The majority of them live in rural areas, with only 36% residing in urban areas.[16] The literacy rate for people above 15 years is 61%.[17]

1.1.3. Economy

Although much of Sudan is desert or semi-desert, natural resources constitute the foundation of its economy. The agricultural industry contributes to 30-35% of Sudan's GDP, supporting about 65% of the population, and employing around 41% of the total workforce.[18] The employment rate is 19.8%.[11] In 2020, 65% of Sudan's population lived below the poverty line.[19] Two-thirds of Sudanese people reside in rural areas, where there are significantly higher rates of poverty compared to urban areas. Inequalities persist between states, with a state like Northern Darfur experiencing poverty rates three times higher than Khartoum. Living conditions are predicted to continue to be negatively impacted by high inflation, lack of commodities, and the recent conflict. [20]

Since the secession of South Sudan, Sudan lost three-quarters of its oil production and nearly half of its revenue and has not recovered.[21] This decline is reflected in the country's GDP, which dropped from 2034.5$ to 816.5$ in 2018 just before the revolution.[10] In 2020, the GDP was 730 $[11,] and it rose to 1102$ per capita in 2022.[22] Sudan is a lower-income country and is one of the 49 countries in the least developed countries category.[23] The current GDP growth rate is 1.9%, with an inflation rate of 154.9%, and GDP of 34.33 billion $.[24]

1.1.4. Health System and Infrastructure

The Sudanese health system is characterised by decentralised leadership authority. This is evident by adopting the three-tier system: federal, state, and district level (locality). The Federal Ministry of Health (FMOH) is responsible for the monitoring and evaluation (M&E), training, coordination, and providing national health policies and strategies. The State Ministry of Health (SMOH) is responsible for implementing the FMOH strategies and plans. The localities are responsible for the implementation and provision of services. Along with FMOH and SMOH, the military medical services, police, universities, and the private sector offer health services in Sudan. The key services offered by the localities are primary health care (PHC), health promotion, water, sanitation, and hygiene (WASH), and raising the community's engagement in caring for their own health.[25]

Sudan is implementing the Health in All Policies (HiAP) strategy to increase the involvement of various sectors and address factors affecting health in a holistic way. The government spent 1.8% of its GDP and 11.6% of its total expenditure on healthcare in 2014.[26]

1.1.5. Political Situation

Sudan is particularly vulnerable to natural and human-made disasters. Numerous disasters like floods, internal conflicts, and violent outbursts increase the burden of communicable diseases and the need for high-quality emergency healthcare.[27] In line with this thesis focus, the below section describes the key elements of current and ongoing conflict.

1.2. Conflict

Sudan has one of the biggest refugee populations in Africa because of the numerous conflicts in the neighbouring region and flooding. Sudan maintains an open border policy and grants refugee status to newcomers. Central African Republic, Chad, Eritrea, Ethiopia, South Sudan, Syria, and Yemen are the top nations from which refugees come.[28] With 1,144,675 individuals reported by the end of March 2023, Sudan continues to host a large number of refugees and asylum seekers.[29] Of which 53% are males and only 41% live in camps.[28] In 2016, the number of refugees and internally displaced persons (IDPs) was 421,454, and 2,225,557, respectively.[26]

Armed conflict is a term used as an alternative to war given the legal issues surrounding the definition of war and the evolving nature of the violent political clashes. Armed conflicts can be between or within states. It can involve non-state actors like locally armed militia, private armies, and paramilitary forces.[30]

1.2.1. The Nuba Mountains and the Blue Nile

Nuba Mountains is an area located in South Kurdufan state. After the war started between Sudan and Southern Sudan formerly (now South Sudan) in 1987, some of the Nuba people hosted a commander from the Southern Sudan People’s Liberation Army (SPLA). The meeting aimed to start a riot against government of Khartoum. The Sudanese government responded with genocide against the Nuba people, and it was the start of an ethnoreligious war. Jihad took place against the Nuba people, especially its predominantly Muslim population, who were considered apostates. In an additional effort to alter the demographics of the area, the regime forcefully relocated tens of thousands of Nuba people to ‘peace villages,’ isolating the women and subjecting them to sexual assault by Arab forces.[31] The Sudanese government has been fighting a war against rebels in South Kordofan and the Blue Nile since the middle of 2011, which are two large states near the country's border with South Sudan.[32] No estimate were found on the number of casualties, refugees, or IDPs.

1.2.2. Darfur

Darfur is a region in Western Sudan, and it encompasses five states: North, West, East, South, and Central Darfur. Nearly a quarter of Sudan’s population lives in Darfur.[33] It’s home to nearly 6 million people from 100 different tribes. [32] Some tribes are nomadic and wander the countryside, while other tribes work in agriculture and live on their own land. The majority of agriculture tribes identify as black Africans, as opposed to the majority of nomadic tribes, who identify as Arab. [32]

Long-simmering ethnic conflicts between African and Arab tribes started to flare-up into armed conflict in the late 1980s. The conflicts were episodic, in 2003 a riot against the Sudanese government was started by the Justice and Equality Movement (JEM) and the Sudan Liberation Army/Movement (SLA/M) as a result of continuous economic marginalisation and insecurity.[34] In response, the

government in Khartoum established the Janjaweed[i], an Arab militia force that started fighting the African communities in Darfur. Within a year, hundreds of thousands of people fled westward to refugee camps in Chad. Tens of thousands were killed, while many were internally displaced. According to estimates, since 2003, between 400,000-600,0000 have been killed, three million are internally displaced, 840,000 are returnees, 234,000 are refugees, and 4.7 million need humanitarian assistance.[35,36]

1.2.3. Khartoum

On the 15th of April 2023, an armed conflict erupted between the Sudanese Armed Forces (SAF) and the paramilitary forces the Rapid Support Forces (RSF) which was formally fighting in Darfur. In 2018, the Sudanese people started a revolution against the government, which was led by Omar Albasheer back then. In 2019 he was overthrown, and the Transitional Military Council (TMC) took over with promises to give the lead to the civilians.[37] From the 15th of April until 9th August, over 3 million people have been internally displaced within the country, and nearly 880,000 have crossed the border into neighbouring countries, reaching nearly 4 million individuals. 181,000 of the refugees displaced to the White Nile State, Eastern State and Port Sudan, and 24.7 million need humanitarian assistance.[38,29] Figure 1 shows the conflict-affected areas in Sudan and Annex 1 shows a map with more details of the recent conflict.

Figure 1: Sudan Map Showing the Ongoing Conflicts in Darfur, Nuba Mountains, and the Blue Nile. The Recent Armed Conflict in Khartoum is Shown in Black. The Map Also Shows South Sudan in Grey, Which Gained its Independence from Sudan in 2011.

Source: Operation Broken Silence Non-Profit Organization, 2019 [39]

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[i] Currently known as the Rapid Support Forces.

1.2.4. Effect of Conflict on Health Systems

Existing healthcare services are impacted by conflict; the degree to which depends on how shock-resistant the system is.[40] Conflict damages infrastructure, including hospitals, schools, and water supplies.[40,41] This hinders access to healthcare by destroying communications and transportation. Travel become risky and expensive.[40] Since the recent conflict, a minimum of 46 hospitals including maternity hospitals have been ambushed, leading to tens of casualties.[42,43] Hospitals have been occupied by conflict parties demanding priority treatment.[44] The RSF have killed people in hospitals creating a dire shortage of medical expertise and supplies.[32,45] Due to the hazardous conditions, healthcare providers might be arrested, killed, or displaced.[32,40,44,45]

Attacks on maternity hospitals compromise women's and girls' sexual and reproductive health (SRH).[42] All the hospitals in Genina and Nyala (the two major cities in Darfur state) have been attacked influencing access to care.[42] This led that more than 200,000 pregnant women being denied access to life-saving healthcare and medications to treat pregnancy complications.[42] Trained midwives by humanitarian organisations risk their lives to reach pregnant ladies in their homes to help them deliver and provide essential care.[42] As health facilities close, healthcare professionals struggle to provide the SRH Minimum Initial Service Package (MISP).[46]

1.3. Humanitarian Response Guidelines

1.3.1. Minimum Initial Service Package (MISP)

In humanitarian response, the MISP for SRH is an internationally recognised standard. It was developed by the Inter-Agency Working Group (IWAG), a coalition of individual and institutional members founded in 1995.[47] MISP is the minimum set of services to be provided in a humanitarian setting. Once the situation stabilises, comprehensive SRH services should follow. These services are evidence-based that aim to prevent and manage sexual violence consequences, decrease maternal and newborn morbidity and mortality, and arrange transition to comprehensive services.[48]

1.3.2. The Sphere Handbook

A coalition of humanitarian non-governmental organisations (NGOs) founded Sphere in 1997, to increase the effectiveness of humanitarian responses and accountability. Two fundamental principles form sphere philosophy. The first principle emphasises that individuals residing in humanitarian settings have the right to life with dignity and the right to receive help. The second principle focuses on taking every possible measure to minimise human suffering. These principles are implemented through the Humanitarian Charter and Core Humanitarian Standards. Along with the Protection principles, they form Sphere Handbook, one of the most frequently used humanitarian resources worldwide.[49]

Chapter 2: Problem Statement, Justification, and Objectives

2.1. Problem Statement

Politically, Sudan is highly unstable country and civilians pay the cost of conflicts.[50] Armed conflict has direct effects like morbidity, mortality and displacement, and indirect effects like disrupting the health and economic systems.[45,51] The negative indirect effects are considerably worse because it affects larger population.[50] Conflict is to 'develop in reverse' which means it reverse the development achieved over time through loss of infrastructure, disruption of systems, and breakdown of social structures.[50,51] Effects of conflict on health include injuries, mental illnesses, and limited access to SRH services among others.[45,40] During conflicts, there is an increased number of cases of sexual violence and sexually transmitted infections (STIs).[51] Conflicts are estimated to decrease life expectancy by one year. [50]

Menstruation[i] marks the beginning of menstrual cycle[ii]. While menarche[iii] is an indicator of a girl's entrance to womanhood. Regular menstruation signifies a healthy reproductive system. It's sign of fertility and the ability to conceive and give birth to children.[52] Over 800 million menstruators[iv] of the reproductive age (15-49) are menstruating on any given day.[53] Menstruators in low- and middle-income countries (LMICs) face challenges concerning menstruation like limited access to menstrual education or facilities. Additionally, menstrual-products are expensive. Nevertheless, it's still considered a taboo and social stigma that is not talked about.[54] Sociocultural norms influence menstruators' access to essential health services and their participation in the community by excluding them from social events or performing certain tasks.[54] Menstruation stigma is exacerbated by gender inequalities,[55] which are further exacerbated by conflict.

Globally, 3.6 billion people lack access to clean toilets, 2.4 billion people lack access to basic hygiene facilities and one in four individuals doesn't have access to menstrual-resources[v]. [33,56] In Sudan, only a third of households use improved sanitation[vi]. A big disparity between wealthy and the poor is evident. 75% of people in the richest quantile use improved sanitation, and only 3% in the poorest quantile. Only 55.4% of Sudanese households have access to soap and cleaning materials. 30% of households in Sudan practice open defecation. This ranges across states, the highest being in Kassala with 44.9% and the lowest in Khartoum with 1.7%.[33] Approximately 24 million people across the country lack access to adequate sanitary facilities due to the nation's deteriorating WASH infrastructure.[46]

Worldwide, there are 108.4 million forcibly displaced people, of which the majority are IDPs, followed by refugees and asylum seekers, and a significant number of them menstruate.[57,58] Along with the already existing difficulties menstruators go through, they face bigger challenges during conflicts. Conflicts affect the menstrual-experience negatively.[58,59] Access to clean water is a major concern as thousands of IDPs leave their communities and move to nearby villages.[32,41] Since IDPs require assistance from humanitarian organisations to drill for water and install wells, there is no water in many new villages.[32] Damage to WASH facilities causes morbidity, due to the large amounts of people using them leading to limited accessibility.[41,45] Conflicts are estimated to restrict access to clean water to an additional 1.8% of the population.[50] Rural areas are more affected than metropolitan ones in

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[i] See glossary.
[ii] See glossary.
[iii] See glossary.
[iv] See glossary.
[v] See glossary.
[vi] Improved sanitation means that human excreta is hygienically separated from human contact. For example, flushed down a toilet to a sewage system.

terms of WASH infrastructure.[40] This, in turn, has an effect on menstrual hygiene management[i] (MHM) and sanitation.

Access to menstrual health is a human right.[60] Human rights and international laws are breached during conflicts.[45] Along with the limited access to menstrual-resources, menstruators face social and societal restrictions.[55] For instance, in Nepal menstruators are prohibited from praying, participating in social activities, cooking, and doing household activities.[61] Changes in the surrounding environment, social networks, and socioeconomic level can have an effect on displaced menstruators' capacity to manage their periods. Particularly young-menstruators who might encounter menarche during displacement. Social taboos that discourage conversation about menstruation, combined with a lack of comprehensive SRHR information, present additional barriers to managing menstruation safely, hygienically, and with dignity.[62]

Under the guidance of the FMOH, the Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF) was created in 2016 through a process of consultation. This process involved the combined efforts of local governments, civil society organisations (CSOs), the private sector, United Nations (UN) agencies, development partners, and humanitarian donors.[63] To strengthen menstrual health and hygiene[ii] (MHH), promote growth, and reinforce menstruators' health and rights, the SNSHSF ratified multiple policies concerning humanitarian settings and gender.[63] The policy addresses the needs of people with disabilities, and vulnerable populations by promoting capacity building for gender equity.[63]

2.2. Justification

While menstruation is a fundamental aspect of human existence, it has only recently begun to receive attention. Most of the existing literature primarily focuses on menstruation in young and humanitarian settings leaving other age groups and aspects underrepresented. The link between menstruation and conflict is rather minimal. While a lot is known and said about the effect of conflict on health, menstruation seems to be underserved.

Although armed conflict started in Sudan in the last century, a notable lack of academic literature concerning the intersection with menstruation exists. Most of the literature focuses on menstruators in Khartoum. However, limited attention has been given to exploring regions significantly affected by conflict, such as Nuba Mountains, Darfur, and the Blue Nile. The available literature primarily consists of grey literature generated by international humanitarian agencies, focusing on reproductive and maternal health situations.

It's crucial to study the effect of conflict on public health in general and in SRH in specific, especially that we have an ongoing conflict now. This study sheds light on the effect of conflict on menstruation by collecting literature from Sudan and similar settings. It focuses on the menstrual-experiences and needs of IDPs and refugees. Through this research, we aim to study this intersection from a public health perspective, a right-based approach using a gender lens. By delving into menstruators' needs, challenges, support, access to resources, and how these factors shape their menstrual-experience, we seek to generate a comprehensive understanding of this topic. We also aim to contribute to the existing body of research in this area. This contribution can help inform evidence-based policies and targeted interventions to effectively address the needs of menstruators in conflict-affected areas. Furthermore, our efforts align with the goal of promoting inclusivity, gender equality, empowerment, and combatting negative social norms.

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[i] See glossary.
[ii] See glossary.

2.3. Objectives

2.3.1. General Objective:

To explore the effect of armed conflict on menstrual experiences and access to resources, in order to present recommendations for improved humanitarian responses.

2.3.2. Specific Objectives:

1. To explore menstruators' experiences in terms of changes, challenges, and support in conflicted-affected areas.
2. To study the influence of social and community factors on menstruators' experiences in conflict-affected areas.
3. To examine the access to knowledge, products, and sanitation in conflict-affected areas.
4. To assess the effectiveness of interventions addressing menstrual health and hygiene management needs in conflict-affected areas.
5. To present recommendations to humanitarian organisations to improve their responses and better target menstruators' needs in conflict-affected areas.

Chapter 3: Methodology

3.1. Study Design and Approach

To achieve the study objectives, a thorough literature review was conducted using variety of resources. Google and Google Scholars search engines were used to abstract data. For peer-reviewed published articles, the VU Electronic Library and PubMed online database were utilised. Additionally, reports and grey literature were accessed from reputable international organisation websites, including United Nations High Commissioner for Refugees (UNHCR), United Nations Population Fund (UNFPA), IWAG, Wash Aid, Menstrual Health Hub, and the World Bank. Due to the ongoing conflict, official governmental websites were down. The relevant national policies, data, and reports were accessed through Google, and some were already downloaded prior to the conflict. Reports and articles available on the Share-Net platform, course materials from the 'Menstruation in a Global Context' Edx[i] online course, and KIT's SRHR track module, were used as supplementary sources of information. Furthermore, the Menstrual Information and Research Assistant (MIRA) was employed to identify additional relevant literature.

To address the limitation of available literature specific to Sudan, literature from other countries in the region with IDPs and refugees was included, such as Uganda and Tanzania. To gain more specific insight from conflict-affected settings, literature from other LMICs, like Myanmar, was included where there was insufficient literature available from settings closer to Sudan. More on this will follow in the discussion.

Exclusion criteria were applied to narrow down the data. Table 1 shows an overview of the criteria. Due to the limitation in the literature from Sudan, two exceptions were made in terms of the publication year. One study was included to provide insight into the age of menarche over the past 50 years. The other study was the only one exploring menstruation among Sudanese and other nationality refugees and migrants. However, the findings weren't categorised by refugee status. The literature search was conducted systematically, and the data obtained were organised based on the themes derived from the conceptual framework.

Table 1: Overview of Inclusion and Exclusion Criteria

Criteria	Inclusion criteria	Exclusion criteria
Language	English	Other languages
Year of publication	2003-2023	Before 2003
Geographic location	Sudan, Africa, Asia, LMIC	Europe, North America, HIC
Study design	Qualitative, Quantitative, mixed, case studies	Non-empirical articles

3.2. Search Term Combination

Table 2 shows the search terms combinations used in detail.

[i] There is no full form of edX.

Table 2: Keywords Combination Used for Literature Search Using Boolean Operators 'AND' and 'OR'

Specific Objective	OR	Key words	AND	Theme	AND	Geographical Location
1		Menstruation, Menstrual cycle, Menstrual health, Menstrual health and hygiene, Menstrual hygiene management, Menstruator,		Gender, Experiences, Challengers, Changes, Enablers, Menarche, Menopause, Menstruation-related disorder, Support, Culture, Religion, Taboos, Stigma, Gender norms, Socioeconomic,		Sudan, Darfur, Nuba, Khartoum, Blue Nile, North Africa, Sub-Saharan Africa, SSA, Middle East and North Africa MENA, Conflict-affected areas, LMICs, Tanzania, Uganda, Nigeria, Bangladesh, Myanmar, Syria, Lebanon
2				Culture, Religion, Taboos, Stigma, Gender Norms, Socioeconomic, Sociocultural, Social Norms, Community, Influencers, Society Expectations, Gender Expectations,		
3				Gender, Knowledge, Awareness, Education, School, Products, Disposable, Reusable, Availability, Accessibility, Acceptability, Adequacy, Affordability, Quality, Durability, Quantity, Sanitation, Water, Soap, Gender-segregated, Communal, Privacy, Safety, Dignity, Agency, Violence, WASH, Menstrual-friendly toilets, Female-friendly toilets, Violence, Safety, Waste, Disposal, Washing, Drying, Infrastructure, Facilities,		
4				Gender, Interventions, Programs, Projects, Humanitarian aid, Humanitarian Response, Emergency, Sustainability, Inclusivity, Equity, Research, Development, Monitoring, Evaluation, Cash and Voucher Assistance, Dignity Kits, Social Norms, Sanitation, Community Engagement, Products, Education, Sanitation, Healthcare Services, Health System, Health Seeking, Barriers, Menstruation-related disorders, Pain, Menstruation-related disorders.		

3.3. Study Area

This study seeks to investigate the menstrual-experiences of refugees, IDPs, and people residing in conflict-affected areas of Darfur, Khartoum, Nuba mountains, and the Blue Nile State.

3.4. Limitations

Throughout the course of this study, several limitations were identified. A notable lack of literature addressing the intersection of conflict and menstruation in Sudan was identified. While there is some literature on young-menstruators residing in Khartoum, it doesn't adequately cover the conflict dimensions. Qualitative research would be the ideal approach in this case, but due to the ongoing conflict, it wasn't feasible. Selection bias was another limitation where certain contexts were overrepresented because of protracted settings allowing for more research. To address this, studies from acute settings were included. Many studies in this research were qualitative, which could lead to underestimating the challenges menstruators face, especially if data collectors were males. Some studies were qualitative, while others were mixed, making it difficult to compare the findings. Grey literature was used making it challenging to assess methodological rigour.

3.5. Conceptual Framework

The study utilises an adapted Menstrual Health Conceptual Framework. Annex 2 shows the original framework. The framework was originally developed by the Bill and Melinda Gates Foundation and FSG[i] (reimagining social change) in 2016. FSG is a mission-driven consulting company. They discuss the framework in-depth in their report. [64]

The framework explores the journey of menstruators from premenarchal phase to menopause. It considers the interplay between education, sanitation, and products as the three pillars of menstrual health. It delves into the influence of 'community and influencers' and 'social norms and taboos' on menstruators' experiences. It examines the role that interventions play in promoting MHH. The framework also analysis the role of policy and research.

The Menstrual Health Framework was chosen because it is comprehensive and encompasses all the dimensions of MHH. Other frameworks like the 'Integrated Model of Menstrual-Experiences' disregard research and policy aspects. However, some adaptations were made to capture the complexities of MHH in conflict-affected areas where gender, age, and interventions play a significant role. Figure 2 shows the adapted framework to suit the study's objectives. Table 3 shows the research objectives-framework matrix in detail.

The following is the list of modifications made:

- To promote inclusivity and cover all ages and genders, the term 'Menstruator' will replace 'Girl'.
- The terms 'Young' and 'Adult' menstruator will be used to refer to adolescent girls (10-19 years)[ii] and women (>20 years)[iii], respectively when age is relevant.
- The addition of three themes namely 'Gender', 'Interventions', and 'Armed Conflict'.
- The themes 'Community and Influencers' and 'Social Norms and Taboos' will be analysed together.
- The study will focus on the inner circles and exclude 'Research and Development' and 'Policy' from the analysis.
- 'Research' will be renamed to 'Research and Development'.
- Conflict is the main issue discussed in all themes, and as such, the themes will reflect how it affects them.

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[i] There is no full form of FSG.

[ii] According to the WHO guidelines.

[iii] According to the WHO guidelines.

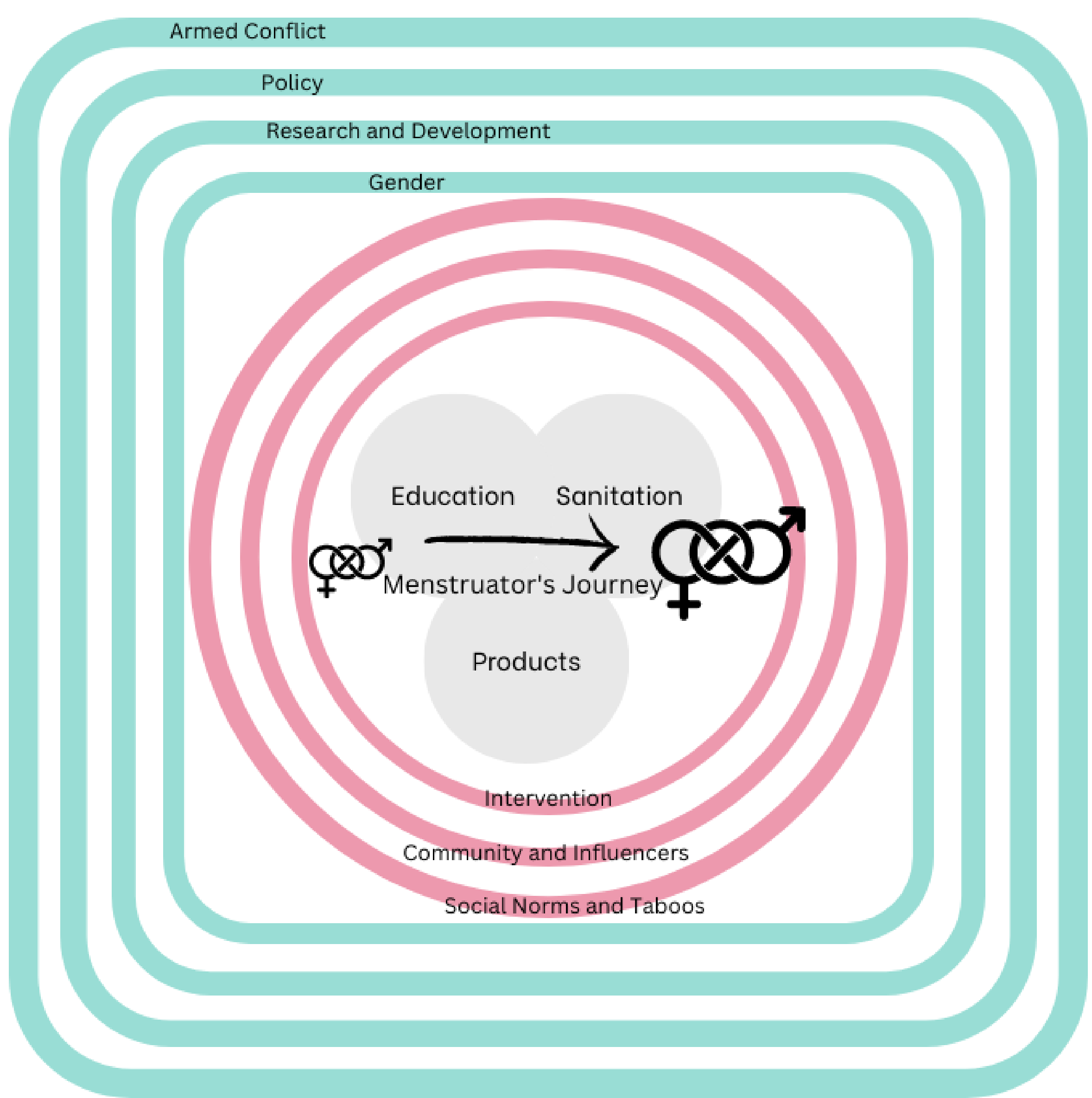

Figure 2: The Adapted Menstrual Health Framework. It Shows the Added Themes and Menstruator's Journey.

Source: Created by the researcher using Canva graphic design platform.

Table 3: Research Objectives-Framework Matrix

Research Objectives	*Themes from the framework*	*Subthemes*
To explore menstruators' experiences in terms of changes, challenges, and support in conflicted-affected areas	– Gender – A menstruator's journey	– Age of Menarche – Gender, Menstruation, and Conflict – A Menstruator's Journey
To study the influence of social and community factors on menstruators' experiences in conflict-affected areas	– Community and influencers – Social Norms and Taboos	– Restriction in Movement and Mobility – Secrecy and Shame
To examine the access to knowledge, products, and sanitation in conflict-affected areas	– Education – Products – Sanitation	– Education: Pre-menarche Knowledge and Source of Information, Ready to Learn, Effect of Menstrual Knowledge on Practices, Awareness of the Available Healthcare Services and Barriers – Products: Products Used Before and After Conflict, Availability, Accessibility, Acceptability and Adequacy, Affordability, Quality and Durability, Quantity – Sanitation: Water and Soap, Privacy, Safety, and Dignity, Menstrual-friendly Toilets, Waste and Disposal Management, Washing and Drying Facilities
To assess the effectiveness of interventions addressing menstrual health and hygiene management needs in conflict-affected areas	– Interventions	– Men and Boys' Engagement, Dignity Kits, Cash and Voucher Assistance, Cocoon Mini, Discrete Chute System,
To present recommendations to humanitarian organizations to improve their responses and better target menstruators' needs in conflict-affected areas		

Chapter 4: Study Findings

I will start the findings by introducing the current menstrual-experience in Sudan, then I will analyse literature from similar contexts. Through this journey, we will gain an understanding of how gender, sociocultural factors, education, products, and sanitation interact. Afterwards, we will delve into interventions targeting menstruators' needs, with the themes aligning in the order of the specific objectives.

4.1. The Menstrual Experience in Sudan

4.1.1. Age of Menarche[i]

The age of menarche can be affected by multiple factors like nutrition, Socioeconomic Status (SES), health, genetics, and environmental factors.[65] The menstrual cycle duration is affected by factors like age, weight, diet, and exercise.[65] According to studies conducted in Sudan between 1980 and 2020, the average age of menarche remained between 13 and 14 years.[65–69] Slight menarche delay was observed in menstruators from low SES backgrounds, or big families[ii] living in rural areas.[65-67] The mean menstruation length was between 4 and 5 days.[65,66,68]

The most common menstruation-related disorders[iii] were premenstrual syndrome (PMS), irregular periods, and dysmenorrhea[iv], which caused young-menstruators to skip school and use painkillers.[66,68] The primary source of information were mothers, sisters, grandmothers, and teachers. Friends and media played a role as well.[68,69] The majority were prepared for menarche, and their mothers were the first to ask for help.[69]

Menarche is an abrupt event that carries mixed emotions. It was seen as a significant event in menstruators' lives. Menstruators said that menarche was a precise turning point in their lives, and they perceived it positively, although for not long because their families expected them to behave in a certain way.[69,70] Menstruators said they felt grown up.[69] To them, menstruation meant being a woman, getting married, and being able to conceive.[69,70] They reported feeling attractive, responsible, and able to express themselves better. The most common emotions menstruators felt were fear, embarrassment, and anger.[69] Menstruators were advised to avoid boys, but didn't understand the relationship between menarche, sex, and pregnancy [70].

Although families celebrated menarche with gatherings and animal sacrifices, menstruators felt ashamed, shy, and embarrassed during these celebrations.[69,70] These celebrations meant a public announcement that they're now menstruating women who are ready for marriage. Menstruators didn't like their menstruation status to be disclosed.[70]

4.2. Gender, Menstruation, and Conflict

The type[v], length and the location of emergency contribute to different circumstances for those affected.[71] Displaced menstruators face difficulties expressing their needs to humanitarian teams, mostly males, who may not be trained to deal with menstruation.[71] Transgender, intersex, and non-binary people face stigma, violence, and marginalisation from their communities, which reduces their

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[i] See glossary.
[ii] A big family refers to more than 6 individuals as defined by the researcher in the study.
[iii] See glossary.
[iv] Painful periods.
[v] Human made or natural disasters.

chances of accessing essential services.[72] In the African context, there is a lack of literature exploring MHH and gender identities. The first MHM symposium shared articles on the topic.[73] Transmen in Zimbabwe struggle with lack of gender-neutral bathrooms.[74] In displacement, young-menstruators avoid using bathrooms because men and boys are around. It was hard for Syrian menstruators to locate safe and private places to change pads, so they wore them for longer.[75] Menstruators avoided buying menstrual-products from male sellers. Gender of the seller, affordability, and accessibility are issues facing menstruators when purchasing products. Even in emergencies, menstruators felt uncomfortable buying or getting pads from males or seeing male doctors.[76] The level of education and occupation of fathers influence access to and affordability of products.[75]

Moving forward, the analysis will focus on IDPs and refugees living in camps and settlements. The context of menstruators' place of residence will be emphasised, rather than their ethnicity or nationality.

4.3. A Menstruator's Journey During Armed Conflict

During displacement, menstruators find difficulties to carry with them menstrual-products.[i][71] Unfortunately, needs of menstruators are placed last when it comes to family priorities.[77] During menarche, menstruators reported mixed feelings ranging between fear, embarrassment, and discomfort in Bangladesh, and shock, fear, surprise, and shame in Uganda.[78,79] In Uganda, families serve as the primary source of information and social support system. However, menstruation is not typically discussed among adult-menstruators hence their knowledge is filled with myth. Young-menstruators got their knowledge from their teachers, and they felt comfortable discussing periods with their peers.[79] In Tanzania, menstruators viewed menstruation as a private and only discussed it with women or their husbands, which typically involved telling that they're menstruating because it's taboo to have sex while menstruating [76].

After being exposed to conflict in Lebanon for a short period, menstruators experienced menstrual-abnormalities[ii] that persisted for more than cycle. The duration of exposure had direct correlation with severity of menstrual-abnormalities which resolved without any intervention.[59] Following displacements, menstruators in Nigeria reported experiencing heavier and irregular periods.[80] Menstruators residing in Uganda indicated that their menstrual-experience changed significantly. Prior to displacement, they used to work and buy menstrual-products, but now they're given free products.[81] The conditions of camps in Uganda, like poor housing, shortages of food, and financial struggles have affected how menstruators perceive and prioritise their menstrual-needs.[79]

Menstruators in Tanzania had restricted movements during their periods because of the mental and physical conditions they experienced.[76] Leading them to stay home fearing that they smell bad.[76,82] Similarly, young-menstruators in Uganda skipped school because they lacked access to products, feared leaking, teasing, or experienced pain. [79,81] Which affected their education.[iii] [81]

Menstruators in different contexts supported each other. They sought each other's assistance with household tasks or with items like menstrual supplies and products.[76,77,79] Moreover, they respected each other's dignity.[77] In Tanzania, while some menstruators tried their hardest to deal with discomfort, others stocked up on supplies. However, many of them were dependent on their families.[76] [iv] Males acknowledged their partners go through pain and feel restricted.[76]

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[i] See glossary.

[ii] It means irregular period that is different from their regular periods like it becomes heavier or longer.

[iii] Other causes for school absenteeism will be mentioned in the following themes.

[iv] Mostly mothers and daughters and to a lesser extent husbands.

4.4. 'Social Norms and Taboos' and 'Community and Influencers'

Displaced menstruators face challenges and barriers that are intensified by gender inequality, discriminatory sociocultural norms, poverty, and lack of essential services.[71,75] Additionally, the social and power dynamics they face make them less likely to ask for improved menstrual-resources.[75] As a result, many menstruators don't have their menstrual-needs met.[71] Displacement can further worsen the situation by restricting movements and opportunities,[71] whereas menstrual-needs seem to increase as the analysis in the previous section revealed.

4.4.1. Restriction in Movement and Mobility

The primary reason for lost livelihoods and people's severe vulnerability in conflict-affected areas is their inability to move freely due to insecurity.[41] Refugees and IDPs are affected more than other groups by restrictions on mobility. Which can sustain and reinforce taboos about menstruation and negatively influence menstruators' attitudes and practices.[41] Despite menstruation being a physiological process, menstruators' perception and management of it depends on their sociocultural norms.[70] In several cultures, menstruation is viewed as something filthy, shameful, dirty, and private that shouldn't be talked about.[71,75,76,81,83] This can lead to physical exclusion of menstruators from their home or prohibiting them from performing certain activities like cooking, fetching water, bathing, praying, or having sex.[75,76,84] Additionally, they might be excluded from participating in social gatherings or eating certain food.[75,84] Menstruators reported other restrictions, such as pain, and fear of leaking and staining.[85] Pain[i] made it difficult for them to do tasks like cleaning, cooking, or performing daily activities like gathering firewood or water. [76]

4.4.2. Secrecy and Shame

The topic of menstruation is avoided, leaving young-menstruators unprepared for menarche and susceptible to misconceptions.[54] Even in emergency settings, staff may be inadequately equipped to address menstrual-needs. The shame, stigma, and secrecy of the topic make it challenging to create ideal solutions that are context specific. Sociocultural norms influence how menstruators approach menstruation, including what products they use, how they dispose of them, and how they wash and dry them.[75] All these restrictions contribute to the negative feelings menstruators experience making it harder for menstruator to raise concerns, ask for help, or buy menstrual-products.[71,75,78]

Due to secrecy and shame, menstruators performed unhygienic practices exposing them to risks. In Myanmar, menstruators continued the practice of burying their pads as they did before being displaced, even though there were ample large rubbish bins accessible. This was due to social norms that prohibited period blood and pads to be seen by others. It was made worse by the lack of gender-segregated bathrooms which increased the chances of men and boys seeing their waste. Despite advocacy from WASH staff, menstruators refused to use these bins. The small space of the camp and the lack of privacy made it difficult for menstruators to bury their pads during the day, leading some to do it at night or to dispose of them in latrines which led to clogging of pipes. Male workers responsible for dislodging pipes refused to remove the clogged pads due to stigma and taboo.[75] Similar issues were reported in Nigeria, where menstruators feared witchcraft or becoming infertile if anyone saw their waste. Moreover, they feared getting diseases if they burned their waste.[80][ii]

In Bangladesh, menstruators made sure they have daily baths and use underwear during periods. However, over a third followed sociocultural taboos like not wearing new clothes and using separate bed covers.[78] Menstruators in Uganda believed that getting their menstrual status known places them in danger of psychological and physical assault from men and children. They also feared that others

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[i] More about pain is discussed under 'Awareness of Health Care Services and Barriers'.

[ii] More about waste is discussed under 'Waste and Disposal Management'.

will find their used pads and use them to humiliate and degrade them publicly.[86] In Syria, menstruators used black plastic bags to hide the used pads and then threw them away in their household bathrooms. The displacement and conditions menstruators in Syria went through made it hard for them to follow their taboo normal routine. Which helped in demolishing them. Conversely, the displacement in Myanmar didn't affect their adherence to taboos.[75]

4.5. Menstrual Education

Some of the challenges menstruators face is the lack of information on menstruation.[77] The analysis is divided into the following subthemes: Pre-Menarche Knowledge; Ready to Learn; Effect of Menstrual Education on Practices; Awareness of the Available Healthcare Services and Barriers.

4.5.1. Pre-menarche Knowledge and Source of Information

Prior to menarche, some menstruators had no knowledge about menstruation. For those who did, it was through female family members. In Syria and Uganda, the majority of menstruators learned about menstruation from their female family members[i], peers, and teachers, while only a few in Bangladesh did so. [75,78,81] However, the information they received was insufficient or mixed with misconceptions.[75,81] In Uganda, some menstruators were confused during menarche.[81] In Myanmar, menstruators reached out to their mothers and sisters for guidance on how to manage periods.[75]

4.5.2. Ready to Learn

Menstruators expressed their desire to receive menstrual education, despite feeling that the staff providing it is incompetent. In Syria, mothers indicated that they feel unprepared to educate their daughters. Moreover, they showed interest in receiving reproductive and menstrual-health education that prepares them to educate their daughters and covers a broad range of topics, including menopause.[75] In Uganda, a mixed method study revealed that 75% of adult-menstruators feel they lack knowledge and all of them wanted to learn more, preferably from female sources.[81] Similarly, in Myanmar, menstruators expressed their interest in receiving culturally-appropriate MHH education due to lack of other resources.[75]

Menstruators in Myanmar and Lebanon described WASH staff as uncomfortable delivering menstrual-resources in a culturally acceptable manner. Despite sharing the same culture, staff members find it challenging to discuss menstruation. This is due to lack of training and cultural barriers that hindered their ability to communicate.[75]

The UNFPA in Sudan is educating menstruators about MHH, Gender-Based Violence (GBV), and protection from sexual exploitation as part of risk mitigation tools. They focus on protecting from GBV, eliminating stigma, and enhancing access to specialised services.[87]

4.5.3. Effect of Menstrual Knowledge on Practices

Having knowledge on menstruation is crucial for maintaining good hygienic practices. However, when distributing MHM materials, there was insufficient education on MHH.[71,75] A study in Bangladesh showed a positive correlation between level of knowledge and hygiene practices.[78] Menstruators with high levels of knowledge were more likely to use disposable pads compared to others. However, there was no correlation between the level of knowledge and seeking medical care, taking daily baths, or practising sociocultural taboos.[78] In another study in Bangladesh, menstruators didn't change their pads regularly because they weren't instructed on the frequency of changing pads or how and where to dispose of them. It was their first time using disposable pads, and this lack of knowledge led some to flush the used pads in the bathrooms.[77] A similar case occurred in Myanmar.[75]

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[i] Mainly mothers and sisters.

4.5.4. Awareness of the Available Healthcare Services and Barriers

Healthcare services are severely impacted by conflict and highly depend on humanitarian assistance, particularly concerning menstrual health. In many settings, menstruators weren't aware of available healthcare services. Although menstruators in Uganda suffered from pain, they had no access to painkillers and didn't know where to seek help. Some menstruators suffered from menstruation-related disorders that required medical attention, while others underwent painful periods due to circumcision. Many weren't aware they had a healthcare clinic in the camp, and those who did sought treatment for other illnesses but not menstruation-related disorders. Young-menstruators showed mixed feelings about asking for painkillers. They highlighted challenges in accessing healthcare and noted that the services delivered weren't adequate.[85] Similarly, in Bangladesh, 75% of menstruators didn't seek medical care for menstruation-related disorders.[78]

In Tanzania, menstruators reported experiencing discomfort and pain, including headaches, nausea, back and stomach pain. Some menstruators' symptoms were so bad that they sought healthcare, while others developed rashes from wearing cloth during menstruation. Many menstruators expressed concerns about long-term health issues from using old cloths. They also indicated that assistance with pain management would improve their quality of life. An adult menstruator reported having excruciating discomfort in her genitalia every time she bleeds. While many menstruators reported having sought advice from medical facilities, few of them had received any sort of treatment. While the rest used traditional medications.[76]

4.6. Product Solutions

There are different types of menstrual-products.[i] The analysis is divided into the following subthemes: Product Used Before and After Conflict; Availability; Accessibility; Acceptability and Adequacy; Affordability; Quality and Durability; Quantity.

4.6.1. Products Used Before and After Conflict

Displacement affects type and availability of products used. Several studies have indicated how menstruators had less choice over products, or their need to use different products. In Bangladesh and Uganda, disposable pads weren't commonly used prior to displacement.[78,81] The reasons in Bangladesh varied including affordability, availability, and lack of awareness, while in Uganda it was mainly due to affordability.[78,81] Alternatively, menstruators in Syria used reusable pads regularly.[75] In Myanmar, pre-conflict menstruators used cloths.[ii] The situation was similar in Nigeria and Tanzania, where the majority of menstruators used cloths.[76,80] Menstruator's choice of menstrual-products post-displacement was affected by multiple factors like what was provided in the dignity kit, the frequency of distribution, mobility, ability to wash pads, and financial situation.[75]

Dignity kits[iii] seem to be the most common way of providing menstrual-products to menstruators. In Tanzania, Bangladesh, and other humanitarian settings, United Nations Children's Fund (UNICEF), UNFPA, Oxford Committee for Famine Relief (Oxfam), and other NGOs distribute dignity kits to menstruators, GBV survivors, and women who gave birth.[76,88] Even though menstruators received dignity kits, they reported insufficient resources to manage menstruation.[77] (see below on quantity).

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[i] See annex 3 for details and illustrations.

[ii] See glossary.

[iii] See annex 4 for more details on what is inside a dignity kit.

4.6.2. Availability

Menstrual-products are being made available and accessible in all humanitarian settings assessed in this review by humanitarian organisations through dignity kits. The frequency of distribution and the type of products provided depends on the context. In Sudan, although the UNFPA is distributing dignity kits and there's an urgent need, there are restrictions on availability. [87]

In numerous settings, there was a lack of menstrual-products.[77] As mentioned previously, menstruators in Bangladesh, Myanmar, Nigeria, Tanzania, and other settings were introduced to disposable pads after displacement.[71,75,76,78,80] Menstruators had positive reviews about disposable pads in Tanzania and Myanmar.[75,76] They felt comfortable using them with no concerns about leaking.[75]

In Nigeria, NGOs distributed reusable pads, while in Uganda they distributed disposable pads.[80,81,85] Menstrual-products were sometimes distributed regularly, and this gave the menstruators the duty of taking care of them.[80] Menstruators in Uganda and Tanzania reported facing challenges accessing products and expressed their needs for products and underwear.[76,85]

Many Syrian refugees from high SES bought pads from pharmacies and supermarkets.[75] Yet, this wasn't an option for most refugees and IDPs, who turned to re-use products or free bleed[i]. In various humanitarian settings, menstruators had to reuse cloths because products weren't available or affordable.[77] When disposable pads were unavailable in Myanmar and Uganda, menstruators used rags and cloths. [75,81,85] While in Tanzania, they used dirty cloths, wet and dirty reusable pads, or free bled. [76] Similarly in Bangladesh, they used old cloth, reusable pads, cotton, or free bled.[78] Reusable pads weren't usually available in the local markets of Myanmar and Tanzania, and if they were, they weren't affordable.[75,76] Alternatively, In Myanmar, dignity kits were sold in some cases due to financial difficulties. Two families gathered their two dignity kits, sold one and shared the other one.[75]

4.6.3. Accessibility

During displacement, menstruators had severe lack of access to necessities like menstrual-products and supplies.[86,89] They also needed access to safe and hygienic storage to store reusable pads.[80] A systematic review found that 34% of menstruators in humanitarian settings lacked access to menstrual-products.[77] However, in Tanzania, menstrual-products were available and accessible to menstruators within walking distance to the distribution centres within the camp, and menstruators didn't mind walking or standing in queues.[76]

4.6.4. Acceptability and Adequacy

Menstruators had different preferences for using products that differed according to age and context. They showed willingness to try new products. A systematic review found that 54% of menstruators in humanitarian settings had access to adequate disposal facilities.[77] Menstruators in Myanmar and Nigeria liked using reusable pads, although it was a challenge caring for them.[ii] [75,80] Adult-menstruators in Nigeria perceived reusable pads as better option than cloths.[80] They appreciated that reusable pads didn't stain, were securely fastened and didn't shift in position. The only negative aspect was they required several pairs of underwear. Which they needed to buy because the quantity provided by NGOs was insufficient.[80] In Tanzania, menstruators enjoyed using reusable pads, particularly when water and soap were available. They perceived them as cheaper, and cost-effective. Moreover, reusable pads reminded them of cloths, but with no leakage.[76]

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[i] Free bleeding means not using any menstrual product and letting the blood flow.

[ii] More about menstrual-products care and maintenance will be discussed under 'Washing and Drying Facilities'.

Conversely, young-menstruators in Nigeria preferred using disposable pads because they're thrown away after use. They didn't like to wash the reusable pads, and they felt they're less absorbent. They indicated avoiding changing reusable pads outside home.[80] Although menstruators in Nigeria used pads, they were open to trying other products if they're comfy and would make their lives easier.[i] [80]

4.6.5. Affordability

Money plays a major factor in product choice, the direct cost for pads was expensive.[76] Most menstruators couldn't afford to buy them and considered them luxury items.[76,81] They had to rely on NGOs to get them.[76] As for the indirect cost, no menstruator mentioned bribes or having to engage in transactional sex.[76] Menstruators preferred using disposable pads in Syria and Uganda, but they couldn't afford them.[77,81] In Lebanon, because kits weren't distributed regularly, mothers who could afford them got them for their daughters. Those who couldn't used tissue paper instead.[75]

4.6.6. Quality and Durability

Some of the major challenges faced by menstruators are the lack of good quality menstrual-products and the lack of soap to care for reusable pads.[77] In Tanzania, menstruators were told that reusable pads can last up to a year. However, the pads started getting smelly and wear down after six months. To extend the life of products, menstruators took good care of them and requested buckets for personal hygiene.[76]. In Nigeria, menstruators had challenges maintaining their products which affected their durability.[80]

4.6.7. Quantity

Menstruators reported insufficient pad provision. Menstruators in Tanzania complained that the number of pads wasn't sufficient, and the frequency of distribution wasn't adequate. The number of pads menstruators used varied between 4 - 24 per period.[76,77] In Tanzania, menstruators were given one or two pairs of underwear which wasn't enough.[76] In Lebanon, menstruators noted that the distribution of dignity kits wasn't frequent, and some adult-menstruators didn't receive any pads for a year.[75,77] Due to the insufficient distribution, young-menstruators saved disposable pads to use them outside home.[75]

4.7. Sanitation

Sanitation investigates how menstruators manage periods in terms of supplies, infrastructure, and facilities.

4.7.1. Water and Soap

During conflicts, there is limited access to water and soap for drinking, bathing, and toilet use.[75–77] As the cost of commodities rises, many menstruators choose not to use hygienic menstrual-products in order to save water and other resources.[46] In Tanzania and Uganda, menstruators expressed their need to access water and soap and their preference for taking showers at least twice a day. However, the majority didn't have access to menstrual supplies. Less than 25% of menstruators in Uganda reported having access to adequate handwashing facilities.[76,81,90] In Tanzania, menstruators had to prioritise water for drinking, cooking, and other family members' needs before their personal hygiene.[76] The lack of water made it a challenge for menstruators in Bangladesh to wash their reusable pads.[91] Similarly, the majority of menstruators in Brazil couldn't wash their hands frequently.[90] In Lebanon menstruators suggested distributing baby wipes or pre-wet napkins.[75]

In Bangladesh, water points were far from bathing facilities, making it hard to carry water to bathing places.[91] In Nigeria, Uganda, and other contexts, soap wasn't provided regularly in camps, and it wasn't

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[i] Others here refer to menstrual cups.

affordable in the local markets.[77,80,90] To wash their reusable pads, some menstruators soaked their reusable pads in water and scrubbed out the blood, but it didn't get rid of the smell.[80] Others washed their pads using salt or ash.[77,80] And some chose to throw away their reusable pads.[80] After displacement in many settings, young-menstruators missed school because they didn't have soap to clean their reusable pads.[82]

4.7.2. Privacy, Safety, and Dignity

During humanitarian emergencies, menstruators struggle to find safe and private spaces to manage their periods with dignity.[86] In Tanzania and Bangladesh, they expressed their need for privacy.[76,91] It was their first concern and was essential for them to feel clean in order to keep their dignity intact.[76,91]

Menstruators faced challenges that latrines were far and had no lights at night.[75,77,80,91] Some menstruators feared being attacked or subjected to sexual violence while others were intimidated by the idea of using latrines at night without lighting. Menstruators coped differently, In Lebanon, they woke up early (4-5 am) to use the latrines, although it was still dark and long distance to walk.[75] In Bangladesh, menstruators didn't eat or drink at night, so they don't use latrines. Moreover, they didn't change their pads during the night because they feared the stigma of being seen.[91] In Uganda, menstruators asked for lights to protect their safety.[86] In Nigeria, menstruators used flashlights which were hard to handle especially while changing pads. NGOs provided battery-operated flashlights, but batteries weren't affordable.[80]

In Syria, although bathrooms were dirty, they were discreet and preferred by young-menstruators to change their pads, because the walls of their houses were made of transparent plastics.[75] In Tanzania, there was no privacy in the latrines. Four to five households shared one latrine. Menstruators demanded readily available latrines with good protection and locks. They desired the ability to change their pads in peace.[76] In Bangladesh, water points were opened, and there was no privacy to have showers there, and some of the bathing areas had no roof.[91]

4.7.3. Menstrual-friendly Toilets[i]

As mentioned previously, conflicts put pressure on the already limited WASH infrastructure.[46] In March 2023, the bulk of menstrual-facilities in South Kordofan state were found to be poorly managed and inadequately maintained as a result of looting, shortage of supplies, and lack of maintenance.[46]

Menstruators have raised many concerns regarding menstrual-facilities. Some of them were: inadequate in number, focused on quantity rather than quality, located far away, crowded, communal resulting in long queues, uncomfortable, not segregated by sex, had no locks, dirty, lacked cleaning materials, not maintained regularly, lacked water, and had wide gaps between the walls making it visible from outside.[75–77,86,89,91] All these factors led menstruators to wash less and rush during bathing which was stressful during period.[76,80,81] The majority of menstruators in Bangladesh felt latrines were the main issue, and if fixed it would have a positive impact on their lives. However, they also expressed their concerns that men and boys don't follow the rules of segregated bathrooms.[91]

Often school bathrooms in Nigeria and Uganda were dirty, lacked water and locks, and weren't segregated, leading young-menstruators to go home to change their pads which affects their attendance.[80,81] In Tanzania, menstruators avoided using shared latrines due to the fear that a man could walk in. Some menstruators had to hold urine and faeces for long that caused them stomach pain. Sometimes they had to urinate in the bushes. Single women didn't have latrines in their household because there was no one to dig it for them. They resorted to using their neighbours'

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[i] See annex 5 for illustrations and details about the ideal menstrual-friendly toilet.

toilets, who weren't happy about it.[76] In Myanmar, some families constructed small washrooms near their homes to access sanitation easily and be able to change pads at night.[75,77]

Male architects and engineers predominated when it came to planning and designing WASH infrastructure. They incorporated gendered presumptions into their work. They didn't consider how much room menstruators needed to feel comfortable or take privacy and safety concerns into account. Although displaced Somali menstruators expressed their need for privacy, they were left out of the designing stages of WASH programs.[90] Menstruators weren't consulted, and when they were, it was usually for the site and not design.[91] However, engaging men in the development of WASH facilities can help promote their use by menstruators, since men make the decisions for menstruators.[88]

4.7.4. Waste and Disposal Management[i]

In numerous humanitarian contexts, menstruators lacked methods to dispose of the used menstrual materials.[76,77] In Nigeria, the unavailability of disposal methods led menstruators to throw pads in toilets, burn, or burying them. This resulted in clogged pipes, and difficulties emptying septic tanks which eventually led to decreased toilets capacities. Menstruators were asked by community elders and WASH staff not to throw pads in latrines. But they weren't given other alternatives. So, they resorted to burying pads like they used to do. Covered bins were suggested as disposal method inside bathrooms but menstruators had concerns of others opening them. They didn't prefer burning because they believed fumes might harm their health. But it was a better option for them than a trash bin.[80] Similarly, in Bangladesh, menstruators preferred burying used products as they used to do. They viewed their menstrual-products as private and they didn't want others to see them.[88] Menstruators in Uganda didn't want to use bins without locks as they felt uncomfortable with their waste secure.[86]

4.7.5. Washing and Drying Facilities

In various contexts, menstruators encountered difficulties in accessing safe, and dignified private facilities for washing and drying their pads[ii], and they reported their need to access them.[76,] As a result, their product choices have been affected. In Bangladesh, the lack of access to these facilities exposed menstruators to increased risks of getting health issues and exploitation.[77,90]

In Tanzania and Nigeria, menstruators hid washing and drying pads because it's private. They wanted to care for them without anyone rushing them or facing the danger of having them stolen.[76,80] Similarly, in Bangladesh, menstruators were ashamed of washing their reusable pads in bathing facilities because men could see them.[91] Everyone stood in line and menstruators didn't have enough time to wash their clothes.[91] There were no separate washing facilities, so they washed them in the shower.[91] In Nigeria, most menstruators used bathrooms to wash their pads.[80] This ensured their privacy and the ability to dump the bloody water into drainage system.[80] Sometimes the soakaway filled up due to overuse which made it challenging to use bathrooms. [80] In Myanmar, some washing facilities had an extra space covered by a curtain to allow menstruators privacy when washing pads.[77]

In Myanmar, Nigeria, and Tanzania, some menstruators hung their pads inside houses or outside underneath other pieces of clothing.[75,76,80] In Tanzania, this piece is called Kanga.[iii,76] In Bangladesh and Myanmar, menstruators dried their pads inside their households where it was dark and had no air. They worried their pads could get stolen if left unattended.[75,91] While in Nigeria, menstruators dried reusable pads at night on the roof and woke up early to take them.[80] In Myanmar, because they put

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[i] Connected with 'Secrecy and Shame' subtheme.

[ii] 'Pads' in this subtheme refer to reusable pads unless stated otherwise (i.e., disposable pads)

[iii] Kanga is a big piece of cloth made of cotton and it's 1.5m in length. It's worn by women and men in many parts of Africa.

pads under mattresses, it took longer to dry. As a result, menstruators had to wear them wet, which caused them irritation and discomfort.[75] Similarly in Nigeria, the pads weren't completely dry, especially in rainy seasons and sometimes menstruators didn't have enough time to wash them. When this happened, menstruators used cloths. This increased their fear of staining or smelling bad.[80]

Young-menstruators in Nigeria highlighted the lack of leakproof bags to store used pads. They feared that if they put the used pads into their regular bags, they would stain or make bad odours.[80] In Myanmar and Syria, the lack of privacy for washing, drying, and disposing of products influenced menstruators' product choices, leading to a preference for disposable pads.[75] In Uganda, some young-menstruators practised good hygiene by washing reusable products with soap and water before sun-drying them. They worried that using cloths and rags could harm their health.[85] When menstruators in Nigeria were asked, they suggested having an ad hoc structure that is not roofed to allow the drying of their products.[80]

Annex 6 summarises the interplay between MHH pillars through matrix analysis.

4.8. Interventions

Humanitarian interventions focused mainly on one aspect of MHM. This might be due to limited funding available. The below analysis presents an assessment of the effectiveness and shortcomings of commonly used interventions.

4.8.1. Men and Boys Engagement: Addressing Social Norms

Men and boys' engagement is crucial for the success of menstrual health programs. In Uganda, men and boys showed interest in learning about menstruation.[81] Educating men helps to normalise menstruation and eliminate harmful stigma.[86] Fathers have stressed the importance of discussing menstruation with their partners, so they can utilise it for family planning and ensure their partners have enough menstrual-products.[81] In Tanzania. every year on Menstrual Hygiene Day[i], all NGOs collaborate to celebrate through dancing, speeches, and different activities. They engage men with the aim of increasing MHH knowledge.[80]

In contexts such as the Rohingya camp where men control the movements of menstruators, NGOs have put significant effort into involving men in designing menstrual-facilities. Bangladesh Red Crescent Society and the Danish Red Cross (BRC/DRC) engaged men in discussion, highlighting their role in finding solutions. Men actively participated in designing menstrual-facilities. Oxfam employed similar approach convincing men to support sex-segregated WASH spaces. Discussions among the WASH team cantered around where to place latrines to avoid the use of improvised household toilets. The involvement of men in discussions resulted in debates about potential locations and ultimately led to compromises and acceptance. The experience highlighted the significance of involving prospective users.[88] Involving men and boys help address social norms and improves mobility and accessibility for menstruators.

4.8.2. Dignity Kits: Addressing Products Needs

Dignity kits have been the standard intervention provided by NGOs for many years despite the financial and human resources cost.[76] They're distributed in acute and protracted humanitarian settings.[92] The School of International and Public Affairs at Columbia University conducted an evaluation of the effectiveness of dignity kits in four countries affected by natural disasters and armed conflict. The evaluation included field visits, key informed interviews (KII), focus group discussions

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[i] Menstrual Hygiene Day is celebrated on the 28th of May each year.

(FGD), and participatory ranking methodology with stakeholders and beneficiaries. The report tackled four aspects which are: appropriateness, coverage, effectiveness, and impact.

The report found that dignity kits are helpful, culturally-appropriate, context-specific, and respond to menstruators' needs. However, they're not designed to address immediate life-saving needs. The distribution of dignity kits focused on women and girls of reproductive age (15-49 years) in humanitarian settings. However, due to the limited availability, the distribution was constrained, and community leaders and local organisations chose the beneficiaries. The distribution typically occurred about three weeks after the needs assessment. There were varying degrees of coordination with UN agencies, NGOs, and government with varying degrees of success. Transportation costs were the main financial burden of providing dignity kits.

Dignity kits met the needs of menstruators and allowed them to save money for other commodities. Dignity kits' impact extended to family members who utilised its items. However, based on the analysis presented in this study, it seems that dignity kits can't meet all needs and are inadequate for the population in terms of products and quantity provided. Dignity kits did provide a sense of mobility and recognition for menstruators. The impact on accessing other services varied; in Muslim countries, kit provision improved access or mobility, while in Latin America, it facilitated access to additional information services.[93]

4.8.3. Cash and Voucher Assistance: Addressing Products Needs.

Cash and Voucher Assistance (CVA) are well-known interventions that are proven to be effective in protracted humanitarian settings.[94] Compared to other methods, they offer flexibility, cost-effectiveness, and require less administrative work.[95] In Bangladesh, vouchers were given to menstruators to choose from a variety of products. They were given cash when attending sessions on MHH. This intervention had positive impact on menstruators and the local economy. Through it, menstruators were provided with agency. Moreover, shopkeepers started using technology and witnessed an increase of 14% in their revenues from menstrual-products. The intervention was successful and showed an increase in the uptake of menstrual pads from 32% to 96%.[94] However, for the program to succeed some factors need to exist, like operating markets, menstruators accessing markets, sellers willing to engage, accessibility of supporting services like mobile banking, approval by the government, and security.[95]

4.8.4. Cocoon Mini: Addressing Sanitation Needs

Cocoon Mini is a menstrual-friendly toilet that is specially designed to create safe space for managing menstruation in humanitarian settings. It was developed in collaboration with young-menstruators in Uganda. It's semi-permanent latrine and washing area that is constructed inside residential compounds and is available to families in the neighbourhood. Cocoon has a private latrine and spaces for showering and laundry with an immediate water connection. Menstruators prefer it because it's comfortable and encompasses the necessary elements of menstrual-friendly toilet.[86]

The Cocoon is tailored to menstruators' needs, providing them with the opportunity to manage their periods with dignity. It provides enhanced access to water sources. The cost of building one Cocoon is 360$. According to 95% of the menstruators, Cocoon had improved their ability to manage menstruation. The camp residents have given positive feedback about it and showed enthusiasm for having additional ones constructed. The inclusion of the water supply had advantages for the whole community. [86]

4.8.5. Discreet Chute System[i]: Addressing Sanitation Needs

Discrete chute system is a new system that BRCS/DRC has developed for disposing of menstrual-products in protracted humanitarian settings in Bangladesh. The aim of the system is to prevent burying, burning, or throwing of the used pads into the toilets. It works by connecting the toilets to an externally closed cement container using a long polyvinyl chloride (PVC) pipe. The system transfers menstrual waste from the toilets to the cement container. Menstruators can throw their used pads discreetly. The container is locked and hidden, ensuring that toilet users can't access it.[88] Waste management staff empty the container at least twice a day, burning the contents into ash, as was done prior to displacement.[96] Menstruators say that this system addressed their cultural beliefs and makes sure that no one can see their waste. The new system received positive responses and enthusiasm from menstruators and was viewed as desirable and acceptable.[88]

[i] See annex 7 for pictures of the system.

Chapter 5: Discussion

I will start by summarising the main findings, highlight menstruators' journeys in Sudan and how a gender lens needs to be adopted. Moreover, I will reflect on the use of the framework and the strengths and limitations of the study.

5.1. Summary of the Main Findings

Conflicts have both direct and indirect effects. My thesis investigated conflict's indirect effect on MHH. As shown from the analysis, conflict limits menstruators' access to menstrual-resources. As such, it's important that menstruators have access to these resources to manage their periods.

5.1.1. Sociocultural Norms and Taboos

Based on the findings, the most important factor in menstrual-experiences is sociocultural norms. They play a significant role in menstruators' perception, approach, and management of menstruation. Gender inequality, discriminatory sociocultural norms and conflict can worsen menstruators' experiences and access to resources. Restriction of movement reinforces negative social norms which in turn influences menstruators' attitudes and hygienic practice.

Regardless of menstruators' displacement status, they followed their sociocultural norms. This was evident in adult-menstruators, who preferred reusable pads over disposable pads because they reminded them of cloths. Additionally, they hid washing and drying their pads, buried and burned their pads and didn't talk about menstruation. Menstruators requested menstrual education from female sources. In this case, the sociocultural norms played an empowering role in driving menstruators to seek knowledge, but at the same time, it restricts them from receiving it through sources other than females. Sociocultural norms have influenced menstruators' health-seeking behaviour. Although menstruators were aware of the availability of healthcare services, they chose not to seek help for menstruation-related disorders.

It is important to note that what I found interesting is how similar the menstrual-experience is across various settings in terms of challenges, misconceptions, and support systems. However, there were differences regarding disposal methods and product preferences which could be attributed to age. While adult-menstruators preferred reusables, young-menstruators preferred disposable pads. Some menstruators burned their pads while others threw them in bins.

5.1.2. Education, Products, and Sanitation

Menstruators in various contexts faced similar challenges in accessing menstrual-resources leading them to perform unhygienic practices. The lack of menstrual-products led menstruators to wear pads for longer, reuse dirty pads, or free-bleed. The lack of guidance on product use led menstruators to wear pads for longer times affecting their health. It also led them to dispose of them in the toilets which clogged the pipes and reduced their capacity. The limited access of menstrual supplies has led menstruators to soak their pads in water and salt to clean them. Others had to throw away their reusable pads prematurely[i] due to lack of supplies. The lack of culturally-appropriate disposal methods led menstruators to bury or burn pads or throw pads in toilets which caused further issues. The lack of washing and drying facilities led menstruators to use cloth or dirty and wet pads and not change them frequently which compromised their health. Because these methods weren't hygienic or reliable, they affected menstruators' health and community participation. Menstruators feared they would leak or smell bad. Moreover, young-menstruators skipped school during periods which affected their education. This self-exclusion along with the sociocultural norms exclusion reinforces gender

[i] It means to dispose of pads while they are in good shape because they can't wash them.

inequalities and negatively affects their quality of life and most importantly their mental health and well-being which wasn't addressed in the literature.

5.1.3. Interventions

Some interventions are standard in humanitarian settings like dignity kits. However, their contents are context specific. While other interventions are specific to one context like the chute disposal system. Other interventions depend on the type of conflict. In protracted conflicts where there is a humanitarian-development nexus, CVA is implemented. Some interventions targeted gender inequalities through engaging men in designing menstrual-facilities to increase their uptake by menstruators. However there was lack of interventions addressing menstrual-health education.

Prior to displacement, some menstruators used cloths while others used pads. Despite NGOs distributing pads, NGOs didn't demonstrate how to use them. This guidance was particularly important for those who didn't use pads before especially since NGOs were the primary source for products.

Despite the presence of interventions addressing menstruators' needs, they weren't utilised because they didn't address sociocultural norms. Sociocultural norms are the primary factor to address when designing a humanitarian response and can be done by consulting menstruators on their need. In some settings menstruators expressed their need to get menstrual-health education and were specific about the topics. Additionally, menstruators in Nigeria asked to have ad hoc structures where they could dry their pads in privacy, and for leakproof bags to keep their used pads.

Sphere Handbook recommends addressing sociocultural norms. However, this is overlooked when designing interventions which result in underutilisation. The handbook further recommends consulting menstruators in designing menstrual-facilities but not on product choice or quantities leading to insufficient product distribution.

Although MISP prioritises distribution of culturally-appropriate menstrual-products, MHH is not a priority. This explains why MHH has not received adequate attention. It also explains why sociocultural norms are not considered when designing interventions and why there is fragmentation[i] in humanitarian responses. Furthermore, it elaborates on why the staff delivering menstrual-resources is incompetent.

5.2. Addressing the Menstrual Experience in Sudan

Based on the findings, Sudan's diversity, the presence of two types of conflict, and considering the limited resources, I have proposed two plans, one for each setting. For both settings, the plan involves supporting cross-sectoral collaboration in designing and implementing humanitarian responses and recruiting and training female staff.

For the acute settings of Khartoum and Darfur, the plan involves distributing standard dignity kits containing disposable pads, as access to menstrual supplies is limited. Demonstrations on how to use and dispose of the pads will be made. A distribution schedule will be available, so menstruators know when to expect their kit. Additionally, menstrual supplies and menstrual-friendly toilets will be provided, along with safe, and private disposable methods, and washing and drying facilities. The toilets will be located away from boys' and men's toilets and made sure they don't access them.

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[i] Means not addressing the three pillars of menstrual health together (i.e., products, education, and sanitation).

For the protracted settings of Nuba Mountains and the Blue Nile, the plan is like the acute settings, but with room for more activities. It will start by conducting consultations with menstruators to capture their preferences. A culturally-appropriate menstrual and reproductive health education will be provided, and the community will be engaged to dismantle stigma. Reusable pads will be provided through VCA programs to ensure sustainability and agency. Menstruators will be made aware of the availability of healthcare services. Ad hoc structures and leakproof bags will be provided. If feasible, Cocoon Mini toilets will be built.

Throughout the implementation phase, a room will be kept for unexpected challenges like in procurement, transportation, or communication. As a result, the plan will be flexible to allow for adjustments based on feedback received and changing circumstances. Ultimately, I hope to provide IDPs with sustainable, inclusive, and equitable MHM that fosters agency.

5.3. Gender: Inclusion vs Exclusion

As I began planning and writing my thesis, I made the conscious decision to use 'menstruators' as a gender-neutral term that covers all people who menstruate including women, girls, intersex, transgender, and non-binary individuals. This term is relatively new and has not been widely used in literature, especially in LMICs. Based on my experience, I had the assumption that the needs of the lesbian, gay, bisexual, transgender, queer, intersex, and agender (LGBTQIA+) community in LMIC are not addressed. However, reviewing the literature, none of the research I analysed covered menstruators other than girls and women. Not even addressing their existence or needs. I hope by including 'menstruators' as a key term in this study to draw attention to menstruators and perhaps push future research to be inclusive.

I used the term 'menstrual-friendly toilets' instead of 'female-friendly toilets' when referring to menstrual-facilities to advocate for inclusivity. Excluding nonbinary, intersex and transgenders perpetuates stigma and discards their experiences. We aspire to build a safe, supportive, inclusive, and equitable environment for menstruators where they can express themselves and access resources with no stigma or shame. Policies and interventions should be inclusive. We need to recognise and respect the diverse and unique experiences of menstruators and promote inclusive languages, so we can move into an equitable and inclusive society.

I note that while I used the term 'menstruators', the literature I found focused solely on women and girls. As a result, caution is needed when generalising the results to all menstruators. Other marginalised populations who weren't covered by literature include people in detention, people living with human immunodeficiency virus (HIV), and people with disabilities. Therefore, it is important to conduct further research to address these gaps and limitations.

5.4. Menstrual Health Framework

Although the analytical framework used was comprehensive to cover a wide range of aspects concerning MHH, I had to adapt and expand it further to address my study objectives. The inclusion of 'Gender' allowed me to understand how gender norms, gender inequalities, and societal expectations influence menstruators' access to resources. By covering a wider range of 'Age', I was able to capture the difference in product preferences between young-menstruators and adult-menstruators and how the young are more comfortable discussing periods than adults. I was able to reflect on how young-menstruators' education was affected meanwhile adult-menstruators' community participation wasn't affected as much. The addition of 'interventions' enabled me to understand how crucial it is to have context-specific interventions and the importance of designing easily accessible and sustainable solutions that foster agency. 'Armed conflict' showed me the unique challenges menstruators face and the urgent need for solutions that ensures privacy, security, and

safety. The adaptation of these themes enhanced the relevance and applicability of my research findings. As a result, contributed to a more comprehensive understanding of menstrual-experience in conflict-affected areas and added depth and insights to the study.

Despite 'Research and Development' and 'Policy' being integral parts of the framework, they weren't studied due to time limitations. Nonetheless, these aspects are crucial in shaping the menstrual-experience on a macro level. Ultimately, the adapted framework helped me reach my objective. I would advise using it as starting point and adapting it to future studies according to the objectives.

5.5. Strengths and Limitations

My research focused on the emergency context in LMICs, specifically on IDPs and refugees. Although they have different definitions, I discussed them together because they share many characteristics in terms of menstrual-experience, humanitarian needs, and access to resources. This approach also aimed to enrich the research pool.

During my research, I found limited literature. Sudan is a unique and diverse country with both Afro-Arab characteristics.[97] To supplement my research, I drew on literature from other conflict-affected contexts with similarities to Sudan in terms of geographic location, language, religion, and ethnic reasons. I included neighbouring countries like Kenya and Uganda. Additionally, Muslim and Arab countries like Syria and Lebanon sharing the same language and religion as Sudan. I also looked at literature from Myanmar due to its ongoing ethnic protracted conflict, which is like the conflict in Darfur, Nuba Mountains, and the Blue Nile. However, it's crucial to exercise caution when applying research findings or designing humanitarian responses in Sudan since none of these countries are Afro-Arab like Sudan. Differences in culture, social norms, education, and other factors should be considered. While there are differences, I found more similarities than differences in terms of MHM, even though the nature of cultural preferences and practices differed.

Additionally, sociocultural norms have a significant influence on the menstrual-experience, which differs between and within each country. Menstruators in Khartoum won't be receptive to using reusable pads. While in Darfur, the Blue Nile and Nuba Mountains, menstruators will appreciate using reusable pads. As for disposal methods, the majority in Khartoum throw pads in trash bins, and a few burn them. However, in the other conflict-affected areas they throw them in pit latrines or burn them. Therefore, it's necessary to acknowledge the differences within Sudan and consult menstruators on their needs and preferences regarding MHM.

Furthermore, there is a distinction between the recent conflict in Khartoum and the flare-up in Darfur, as well as between the protracted conflicts in Nuba Mountains, and the Blue Nile. In Khartoum and Darfur, the need is for humanitarian aid, while in the Nuba Mountains and the Blue Nile, the need is for humanitarian-development nexus. Although there was already a humanitarian nexus in Darfur for the last 20 years, the needs have shifted to purely humanitarian.

The conditions menstruators go through whether related to conflict, social norms exclusion, or self-exclusion, all combine to produce a significant effect on menstruators' mental health and well-being. All these factors play a stressor role and impact hormonal balance causing menstrual irregularities. This stressor can exacerbate the existing menstruation-related disorders further and affect menstruators' mental health and well-being further. Despite being a significant factor in influencing the menstrual-experience, none of the literature I analysed has addressed this issue.

The menstrual-experience covers a life journey approach starting from menarche to menopause. Although menopause is a part of the menstruators' journey, it hasn't been addressed in any of the

literature I studied. In one study, menstruators expressed their desire to learn about menopause. Most of the literature focused on menstruation and menarche but none on menopause.

Although this study lacked ‘gender and policy analyses, and ‘research and development’, nonetheless, its the first of its kind to analyse the effect of armed conflict on menstrual-experience. This research was able to delve deeper and capture menstruators' experiences and has successfully addressed its objectives.

Chapter 6: Conclusion and Recommendation

6.1. Conclusion

This study aims to explore the effect of armed conflict on menstrual-experiences and access to resources, in order to present recommendations for improved humanitarian responses. Menstruation is viewed as a topic that is taboo, shameful, and private. These sociocultural norms have a significant influence on how menstruators manage their periods and perceive their experiences. Socioeconomic and sociocultural factors heavily impact access to menstrual-resources. Even with the occurrence of armed conflict and displacement, accessing and utilising these resources relied heavily on sociocultural norms. During conflicts, menstruators faced additional challenges in accessing menstrual education, supplies, products, and facilities. It's important to recognise that these resources are interconnected, and lack of access can have a significant impact on how menstruators manage their periods. The interplay between sociocultural norms, and the limited resources to manage periods, make MHM additionally challenging for menstruators in conflict-affected settings.

The lack of adequate menstrual education has resulted in menstruators engaging in unhygienic practices like wearing pads for long or throwing them in the toilets, leading to clogged toilets. The lack of menstrual supplies led menstruators to use cloth, reuse dirty pads, or free bleed. The unavailability of private and safe washing and drying facilities has exacerbated the situation, forcing menstruators to continue using unhygienic methods. All these unhygienic practices don't only negatively affect menstruators' health, but also lead to self-isolation, affecting well-being, mental health, and overall quality of life.

In any humanitarian setting, certain interventions, such as dignity kits are standard procedures. However, the content of these kits is tailored to specific contexts. Some interventions are context-specific, like the Cocoon Mini, while others depend on the type of conflict and overall context, as seen in the CVA programs which are commonly used in humanitarian-development nexus. Although humanitarian responses made sure that their responses were targeted at menstruators' needs, only those addressing sociocultural norms were utilised. Therefore, it's crucial to design interventions that address sociocultural norms. For instance, the chute discrete system. Moreover, active engagement and consultation with menstruators in designing, M&E, and implementation is key to successful interventions.

Despite menstruation being a normal physiological process and the protracted conflict in Sudan, there is a notable lack of literature addressing this intersection. There is a huge knowledge gap in research, policy, menopause, and the intersection with mental health. Therefore, future qualitative research should focus on these areas.

6.2. Recommendations

Based on the critical analysis of the literature, it's evident that the current situation of menstruators needs improvement, particularly in accessibility and acceptability. Humanitarian organisations need to adapt their interventions to menstruators' needs and sociocultural norms.

Below are my recommendations targeted to humanitarian responses, policymakers, and future research. Through these recommendations, we aim to support menstruators with improved agency, privacy, and dignity in managing their periods to achieve the overall goal of providing an equitable, inclusive, and sustainable humanitarian response to menstruators in Sudan.

6.2.1. Humanitarian Responses

6.2.1.1. Participatory Consultations

Given that many menstruators are not familiar with the products they receive through dignity kits and based on the low utilisation of resources, participatory consultations can be used to tackle this issue. Through these consultations, we can understand the local context, identify menstruators' preferences, and needs, and determine what is feasible. This can be done through multiple approaches, including age-specific FGD with menstruators to provide young-menstruators with the space to express their needs. Another approach is one-to-one consultations with menstruators. Additionally, consultations with community leaders and the local staff. By engaging menstruators in designing, implementing, and M&E interventions, we can enhance the cultural appropriateness of the developed strategies and increase their uptake.[96] This is ideally done in protracted setting like Nuba Mountains and the Blue Nile. However, in acute settings like Darfur and Khartoum, there is an urgent need for products and resources, and consultations may not be feasible.

6.2.1.2. Menstrual Health Through Community Engagement

The analysis showed menstruators need more menstrual-health education, especially when exposed to new products or having to adapt practices for MHM. Menstruators expressed a desire for culturally-appropriate education on menstrual and reproductive health. Interestingly, men and boys showed interest in knowing more. This is important as men play a significant role in supporting menstruators in households and controlling their mobility, which can impact their experiences.[98] To address these concerns, its crucial to use the findings from participatory consultations and engage with communities to provide a comprehensive education. CSOs should be involved. The curriculum should focus on addressing sociocultural norms and work towards dismantling menstruation stigma. The knowledge provided should be age and context-specific, culturally-appropriate, and based on a human rights approach.[99]

6.2.1.3. Capacity Building and Training of the Staff

Bearing in mind the requests menstruators made to have female staff providing menstrual-resources and considering the lack of training of the local staff, it's crucial to provide capacity-building training. These trainings should aim to enhance staff's cultural awareness and improve the effectiveness of the interventions. Additionally, the trainings should address staffing shortages and high turnover rates. Although the local staff is skilled, they're usually not trained for emergency situations.

To meet the needs of menstruators and respect cultural norms, separate training should be conducted for each gender. The focus should be on recruiting and training more female staff, while male staff should be trained to understand menstrual taboos, stigma, and the daily challenges faced by menstruators.[100]

6.2.1.4. Collaboration Between Humanitarian Agencies and Sectors

Recognising that the three pillars of menstrual health are interrelated and the lack of one influence access to others, it's vital to support cross-sectoral collaboration within and between agencies and sectors. The collaboration aims to tackle the demand side and ensure that resources are available to menstruators at all times.[71,75] This approach is also needed when designing programs to have more effective responses. [100]

A study showed that WASH sector has the greatest potential to take on the leadership position for the holistic approach, especially in early phases of the response.[71] However, assistance is needed from other sectors like health, education, protection, and non-food items.[71,100] The collaboration can involve providing menstrual-resources in healthcare facilities. Alternatively, schools could provide emergency menstrual-products and menstrual-friendly toilets for menstruators and female staff.

Humanitarian agencies should collaborate and exchange their experiences, approaches, and responsibilities to ensure effective responses.[100]

6.2.3. Policymakers

Even though my thesis did not cover a full policy analysis. It's known that there is currently a lack of MHH policy in Sudan, and MHH is not a priority in the MISP. Therefore, it's recommended that MISP make MHH a priority because it will benefit menstruators and the community in many aspects. Firstly, access to MHH is a human right and crucial to achieving gender equality. Secondly, it will increase access to opportunities, and improves the quality of life, leading to economic growth. Additionally, it will reduce the risk of developing health complications related to unhygienic practices.

Due to the ambiguity of the menstrual situation in Sudan, and the lack of a national policy, an MHH national policy should be adopted. The policy should consider both the humanitarian and humanitarian-development nexus. It should aim to address sociocultural norms, facilitate knowledge dissemination, and ensure safe MHM.[101] The policy will work as a roadmap to ease the transition from humanitarian to humanitarian-development nexus if comprehensive enough.

6.2.2. Research and Development

Investing 1USD in MHH can yield a social return of 5USD.[102] However, due to the wide knowledge gap on the intersection of conflict and MHH, it's necessary to conduct further research. This research should focus on collecting qualitative data from menstruators residing in Darfur, Nuba Mountains, and the Blue Nile. Research should also be conducted in countries where limited evidence is available. Other areas that need more exploration include 'policy', 'menopause', and the intersection of conflict and 'mental health'.

Due to sanitation being a major challenge, I would recommend research focus on the cultural acceptability of the available disposal methods, waste generated and its effect on the environment and health. Additionally, study the impact of educational curriculum on changing attitudes and behaviours of menstruators. Moreover, investments should be made in research and development to improve the available menstrual-products, test international standards, and develop innovative products targeting menstruators' needs.[76]

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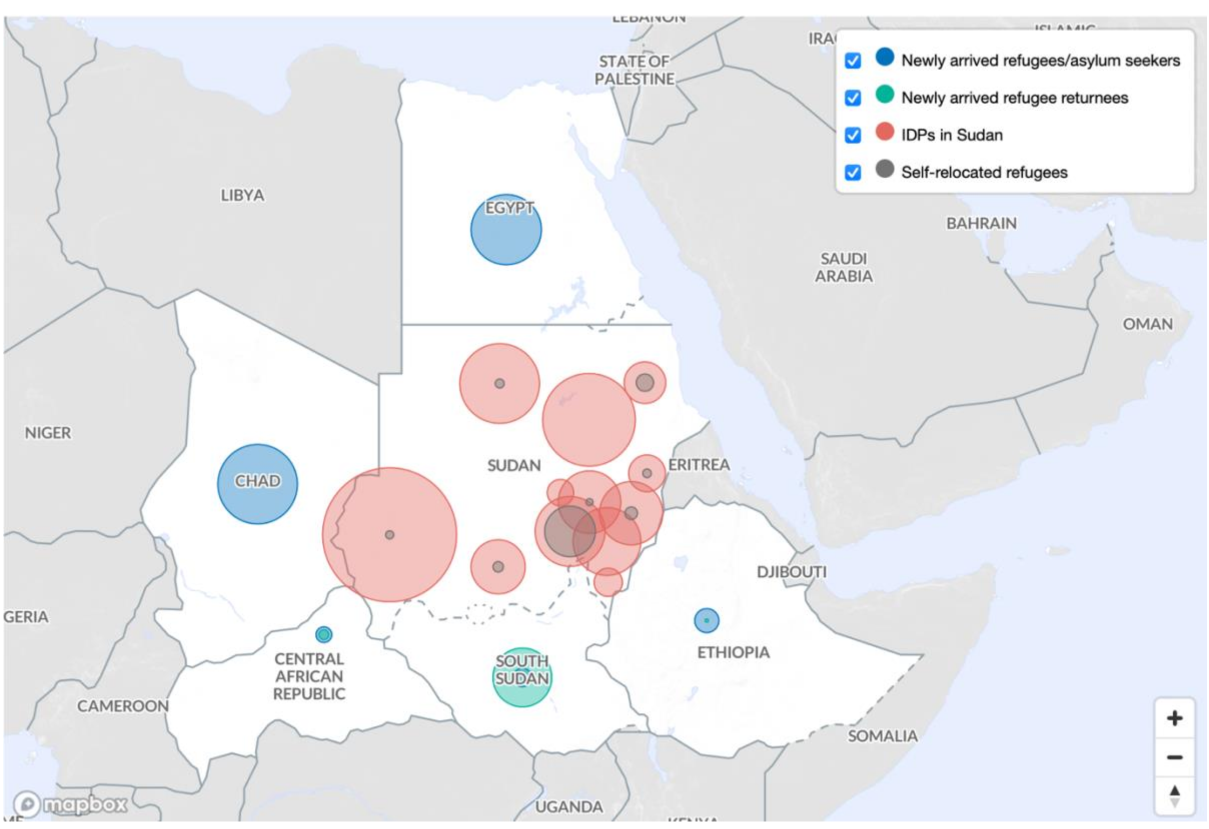
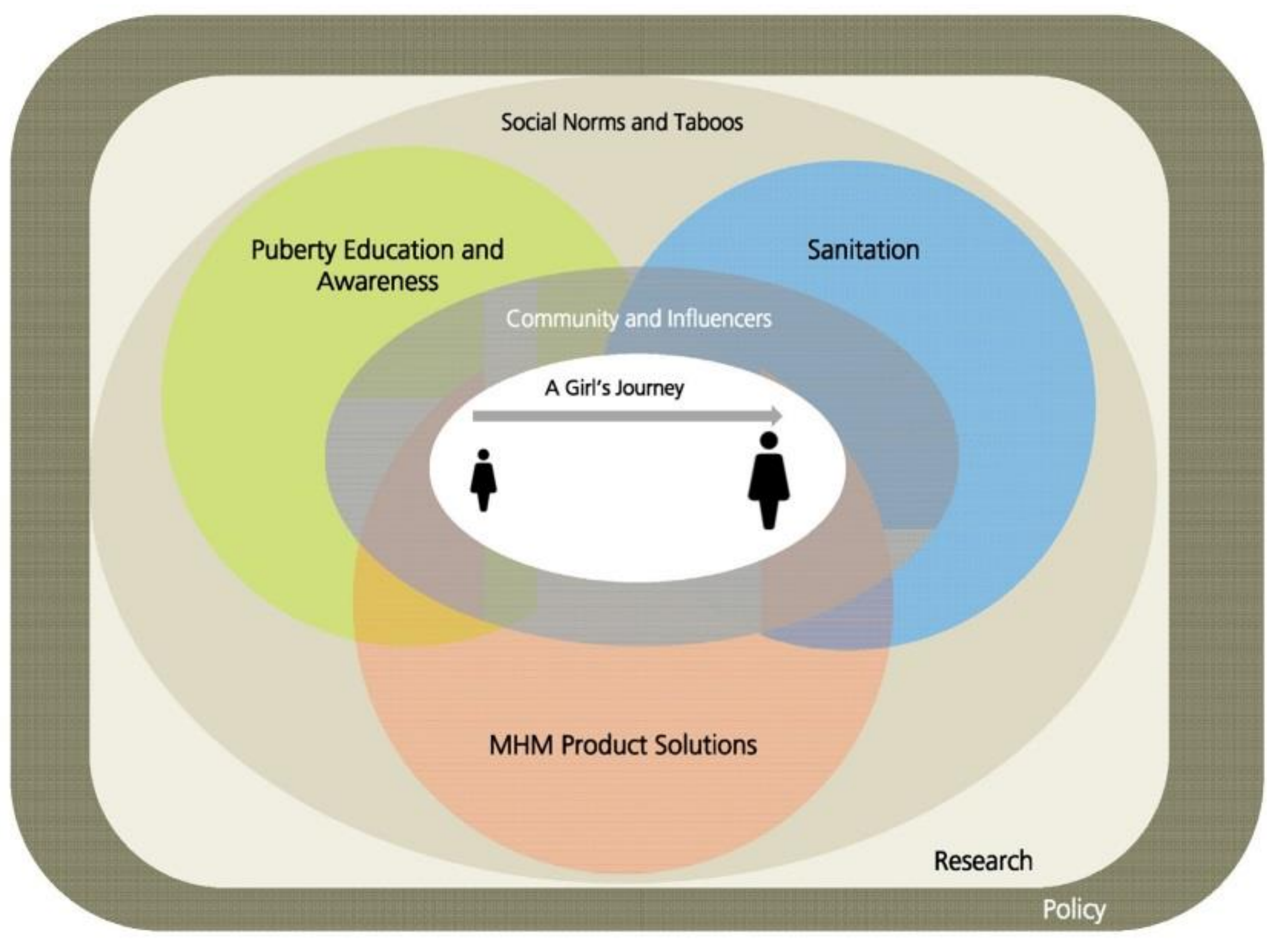
Annex

Annex 1: Map of Sudan Showing Neighbouring Countries, as well as Locations where IDPs and Refugees Flee to



Due to the eruption of the conflict in mid-April in Sudan, large numbers of civilians have been compelled to leave their homes. This includes individuals who were already displaced within the country and refugees from other nations who had sought refuge in Sudan. A significant number of people have fled to neighbouring countries or returned to their homes in unfavourable conditions. These countries include the Central African Republic, Chad, Egypt, Ethiopia, and South Sudan. Some have also relocated within Sudan.[103]

Annex 2: The Original Menstrual Health Framework Developed by the Bill and Melinda Gates Foundation and FSG (reimagining social change) in 2016.



Annex 3: A Table Showing Different Types of Menstrual Products

Type of product	**Disposable**		**Reusable**	
Internal	Tampons		Menstrual cup	
	Menstrual Disc		Menstrual Disc	
			Sea Sponge Tampon	
			Reusable Pads	
External	Pads		Period Underwear	

Annex 4: UNFPA Dignity Kit

Annex 5A: Illustrations of an Ideal Menstrual-friendly Toilet

Annex 5B: An Ideal Menstrual-friendly Toilet Criteria

- ‘Adequate numbers of safely located toilets separated (with clear signage) from male facilities.
- some units should be accessible to people with disabilities.
- Safe and private toilets with an inside door latch.
- The walls, door, and roof are made of non-transparent materials with no gaps or spaces.
- The entrance should be screened so that people can’t be seen entering and leaving the cubicle itself.
- A shelf and hook for hygienically storing belongings during usage.
- Clear signs instructing girls and women to dispose of menstrual waste in the trash bin or chute.
- A chute for discrete disposal of menstrual material or a trash bind (with lids) to dispose of used menstrual materials.
- Easily accessible water (ideally inside the cubicle) for girls and women to wash themselves and menstrual materials.
- Night-time light source for both inside and outside of the toilets.
- Grab bars to assist pregnant, elderly, or disabled persons’.[104]

Annex 6: Assessment of Menstrual Experience Considering Resource Availability: A Matrix Analysis

Lack of / effect on	knowledge	products	Soap and water	Menstrual-friendly toilets	Waste and disposal	Washing and drying	Healthcare services	Consequences
Knowledge	Misconceptions, myths	Wear pads for longer than required, throw used pads in toilets	Inadequate cleaning of self and products	underutilisation	Throw pads in toilets, burn, or bury them	Inadequate washing of pads, not sundry them	underutilisa tion	Health issues due to wearing pads for long. Stained, bad smelling, and reduced quality of pads. Leaking. Clogging of pipes and reduction in toilet capacity due to throwing pads in toilets. Complications in menstruation-related disorders
Products	-	Wear pads longer, use cloths, reuse dirty pads, use tissue paper, free bleed.	-	-	-	-	-	Health issues due to wearing pads for long and wearing dirty pads. Stained, bad smelling, and reduced quality of pads. Leaking.
Soap and water	-	Wear pads longer, Soak pads in water and salt, wash with ash, throw them prematurely and the same as lack of products.	-	underutilisation	-	Not washing them as required	-	Health issues due to wearing pads for long. Stained and bad smelling, and reduced quality of pads. Leaking.
Menstrual-friendly toilet	-	Wear pads longer, not wash them as needed or appropriately.	-	-	Throw pads in toilets, burn, or bury them	Not wash pads properly	-	Health issues due to wearing pads for Long and holding urine and faeces. Leaking.

Lack of / Effect on	Knowledge	Products	Soap and Water	Menstrua-friendly toilet	Waste and disposal	Washing and drying	Health care services	Consequences
Waste and disposal	-	Throw pads in toilets, burn, or bury them.	-	Throw pads in toilets, burn, or bury them	-		-	Clogging of pipes and reduction in toilet capacity due to throwing pads in toilets. Health issues due to the fumes of burning pads.
Washing and drying	-	Wear them dirty, wear them wet, throw them prematurely and the same as lack of products	-	Not washing reusable pads,	Throw pads prematur ely	-	-	Health issues due to wearing pads for long. Stained and bad smelling, and reduced quality of pads. Leaking.
Safety and privacy	-	Wear pads longer,	-	Avoid using them especially at night, not eat or drink at night, hold faeces and urine	Throw pads in toilets, burn, or bury them	Not wash reusable pads well or as required, not sun dry them	underutilisa tion	Health issues due to wearing pads for Long and holding urine and faeces for long. Stained and bad smelling, and reduced quality of pads. Leaking
Cultural appropriateness and female staff providing resources and products	not attending the sessions or applying the knowledge	Not using products	-	underutilisation	underutili sation	underutilis ation	underutilisa tion	Difficulties and challenges managing menstruation properly.
Availability, Accessibility, Acceptability, Affordability. Quantity, Quality	-	Use pads longer, reuse dirty pads, use tissue papers, use cloths, free-bleed and the same as lack of products	-	underutilisation	underutili sation	Not wash reusable pads well or as required	underutilisa tion	Health issues due to wearing pads for long. Stained and bad smelling, and reduced quality of pads. Leaking.

Annex 7: Discrete Chute System

Source: Innovative strategies for providing menstruation-supportive water, sanitation and hygiene (WASH) facilities: learning from refugee camps in Cox's bazar, Bangladesh[88]