

# **Exploring Menstrual Health Management Among Adolescent Girls In Egypt**

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# Exploring the menstrual health management among adolescent girls in Egypt

A thesis submitted in partial fulfilment of the requirement for the degree of  
Master of Science in Public Health

by

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Egypt

## Declaration:

Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis (*Exploring the menstrual health management among adolescent girls in Egypt* is my own work)



Signature:

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## List of abbreviations

<b>CAPMAS</b>	The Central Agency for public Mobilization and
<b>CSE</b>	Comprehensive Sexuality Education
<b>CSO</b>	Civil Society Organization
<b>EDHS</b>	Egyptian Demographic and Health Survey
<b>FGM/C</b>	Female Genital Mutilation/Cutting
<b>KAP</b>	Knowledge, Attitudes and Practices
<b>LMA</b>	Love Matters Arabic
<b>LMIC</b>	Low- and Middle-Income Countries
<b>MHM</b>	Menstrual Health Management
<b>MoE</b>	Ministry of Education
<b>MoF</b>	Ministry of Finance
<b>MoH</b>	Ministry of Health
<b>PCOS</b>	Polycystic Ovarian Syndrome
<b>PMA</b>	Participatory Monitoring and Accountability
<b>SDGs</b>	The Sustainable Development Goals
<b>SSI</b>	Semi-Structured Interviews
<b>SRHR</b>	Sexual and Reproductive Health and Rights
<b>UNFPA</b>	United Nations Population Fund
<b>UNICEF</b>	The United Nations International Children's Emergency Fund
<b>WASH</b>	Water, Sanitation and Hygiene
<b>WHO</b>	World Health Organization

## **Definitions:**

- **Menstruation:** Menstruation, menses or menstrual period are synonyms is a physiological normal change that occur for both girls and women in their reproductive age. During this period, a bleeding through the vagina happens because the endometrial tissue (inner layer of the uterus) sheds from the womb. The average time of the overall menstrual cycle is 28 days while the menstruation period itself lasts from four to seven days on average. Menstruation is part of the sexual and reproductive health and it's associated with physical and psychological symptoms and signs that need special care (1).
- **Menstrual health Management (MHM):** UNICEF has defined MHM as the healthy practices by both women and girls towards their menstrual hygiene by using clean sanitary absorbents and accessing private room for changing the absorbents and clear water to clean the body. Keeping healthy vaginal and reproductive organs, gender perspective and environment conditions are also entitled under the MHM (2).
- **Menstrual Disorders/ Abnormal menstruation (period):** Any menstruation that exceeds the average of the normal menstruation or the menstrual cycle, that has changes in the blood flow from the normal is a medical issue that requires medical check-up and treatment includes medications or surgery. Examples of menstrual disorders include amenorrhea; missing the menses for three consecutive months and dysmenorrhea; menses associated with massive pain and cramps (3).
- **Dignified menstruation:** Every woman and girl shall have their menstruation and manage it with dignity free of shame or discrimination. This implies access to the right information on dignified menstruation, access to clean, affordable absorbents, access to private spaces for bathing and changing absorbents and full inclusion in the society with respect. (4,5). Radha Paudel Foundation in Nepal is one leading organization in the advocacy for dignified menstruation and it promotes this concept to different global platforms (5).
- **Adolescence:** World Health Organization (WHO) identified the age group of adolescence as 10 – 19 years old, when the main physical changes related to the puberty happen as the menarche – first time bleeding of the menstruation-. This period is associated with emotional, psychological and behavioral changes and development (6).

## **Executive Summary/Abstract:**

**Importance:** Inadequate Menstrual Health Management is a major problem that affects adolescent girl's health and development especially in poor settings. Thus, a particular effort should be exerted to evaluate the current situation in Egypt.

**Objective:** The principal aim of this thesis is to critically analyze the situation around the MHM among adolescent girls in Egypt and the key influencing factors in order to present recommendation to MoHP, CSOs, SRHR and Menstrual Health activist and advocates on effective approaches to address MHM through programs, research and policy.

**Methodology:** A literature review is conducted and supported by an analysis of the Love Matters Arabic (LMA) website content around menstruation.

**Results:** Most research to date has described menstrual hygiene knowledge, attitudes, and practices, mainly in prereferral cities and in poor regions. The school-based studies indicated more inadequate MHM among girls in rural areas than those attending public or nursing schools. The community influencers have critical role in shaping the knowledge and attitudes towards MHM. Most of the results were supported by the website, however, stigma, shame, discrimination and sanitation were slightly explored.

**Conclusion:** Adolescent girls face several challenges around MHM, particularly, they experience Menarche at schools. They need special attention to their mental health and how to approach healthcare services with dignity and respect.

**Recommendations:** Multi-sectoral approach should be established between the healthcare system, schools, civil society organizations, mass media, online platforms, SRHR advocates to ensure the best practices around MHM among the adolescent girls while prioritizing delivery of correct knowledge and respectful services.

**Key words:** menstruation, menstrual hygiene, adolescent girls, Egypt

**Word count: 12,632**

## **Author introduction**

Initially, I would like to introduce myself, Hadir Barbar, a medical doctor by training and an Egyptian lead in the field of Sexual and Reproductive Health and Rights (SRHR) and gender equality. I'm a feminist and a global advocate for SRHR and menstrual health with a significant focus on adolescents SRHR. During the past seven years, I developed diverse international academic and professional experiences at highly ranked universities and leading national and international organizations.

Academically, I hold a medical degree from Cairo University in Egypt. I also studied a short course on international community health at Oslo University in Norway and another short course on advocacy and strategic planning at Georgetown University in the United States. I advanced my academic knowledge by studying a Master of Public Health at KIT Royal Tropical Institute with a specific focus of SRHR. These educational experiences offered me supported me with applied knowledge on the different topics of SRHR and I learnt how to strategically address them in different contexts, especially in the low- and middle-income settings.

Professionally, I developed various technical skills through working in distinct organizations. For example, in my previous work at the Center of Development Services (CDS) – leading organization in the development field in Egypt-, I had a dynamic role that included different tasks like managing SRHR education program for nurses in Upper Egypt -poor conservative region- on SRHR and fighting harmful practices as Female Genital Mutilation. I also led an advocacy process for the key population living with HIV, including children and adolescents, to apply participatory monitoring and accountability mechanisms for services provided for them. Such job significantly strengthened my potentials to work closely with international stakeholders given the collaboration with the governmental officials, civil society and international donors and partners like USAID, Ford Foundation, UNICEF, UNAIDS, Sussex University, Population Council.

Given this history of work primarily with adolescents, gave me in-depth insight on their needs that are not prioritized on the national agenda or the international programs/ research. Particularly, menstruation and menstrual health management have been neglected as an essential component of SRHR programs and research, yet it was raised each time by adolescents and the caregivers of adolescents. Regardless it's direct linkage to other issues like FGM, sexual pleasure and HIV; it was not tackled unless participants bring this topic through questions or interactive discussions.

As a public health practitioner, I found that menstruation is affected by different aspects of every adolescent girls' life. The individual experiences as well the surrounding community, play a crucial role in shaping the knowledge, practices and attitudes around menstrual health management (MHM) among these adolescent girls. Above all, the Egyptian context has been influenced by the social and cultural norms, which made menstruation a taboo that is difficult to be discussed in social life, home or at school. Therefore, I find it's an urgent matter to be critically analyzed to offer evidence-based information about the current situation, to identify the gaps in the literature and to recommend the relevant stakeholders about the suitable interventions.



Equally important, I worked for two years at Hrasmap; one of the leading organizations that fight sexual harassment in Egypt using the online website and different social media platforms. I co-managed and co-designed the content of the website and the social media platforms. Such experience provided me with key tools to analyze the public's interests, develop suitable key messages and monitor the progress of the online work. This experience inspired me to utilize my competencies and critically analyze one of the websites that have enriched content about menstrual health. Thus, I'm analyzing the content of LMA website; a project led by the Dutch organization RNW media. The website is directed to youth between 19-30 years old on love, pleasure and relationships. However, adolescents are using this website as well and it contains massive information in relevance to menstruation and menstrual health.

Hence, I'm writing this presented thesis to critically analyze the situation around menstrual health management among adolescent girls in Egypt using both literature review and the analysis of LMA website. As a proactive SRHR advocate, I'll disseminate the recommendations to fellow global and national advocates to contribute to shaping a better environment for menstrual health management among adolescents.



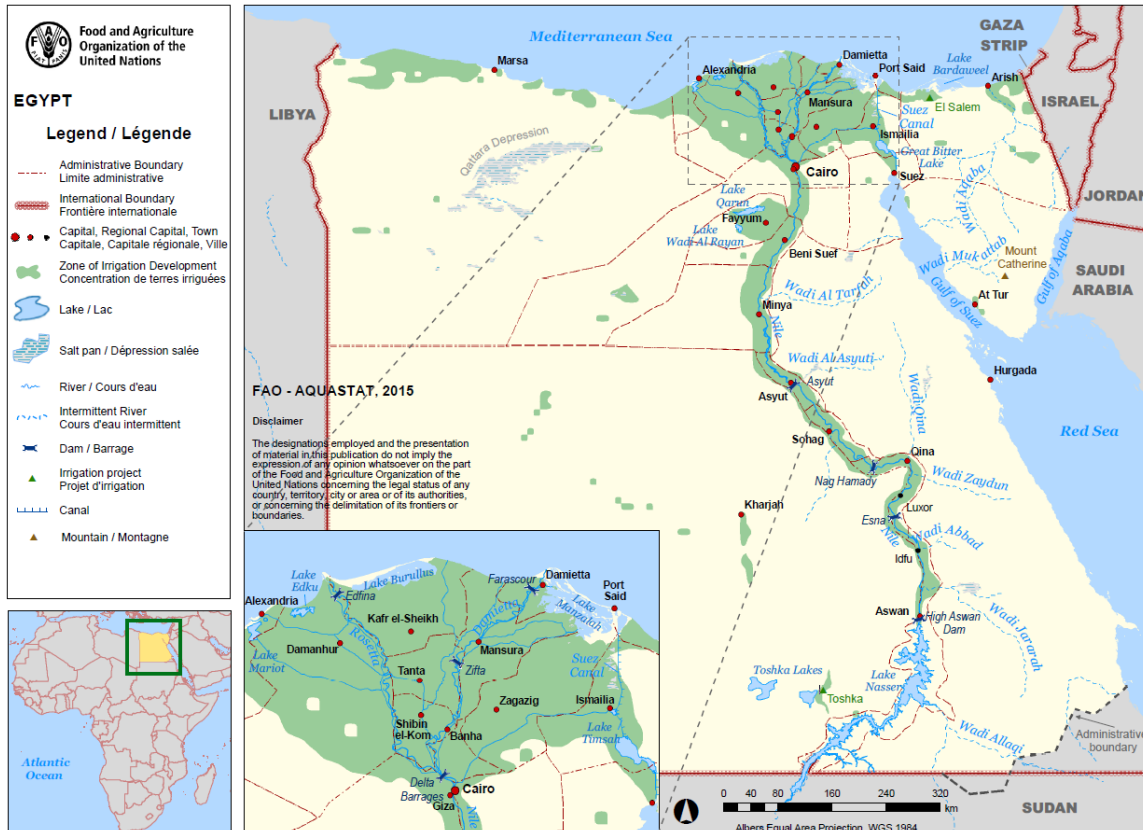


fig.2: Egypt Map from FAO

**Table 1. Egypt: Total population, rural population and population density in 2014:**

<b>Total Population</b>	83.387.000	inhabitants
<b>- Of which rural</b>	56% (,696,720 inhabitants)	%
<b>Population density</b>	83	Inhabitants/km <sup>2</sup>

The Central Agency for Public Mobilization and Statistic (CAPMAS) stated that the population reached almost 99 million in July 2019 (9). There are 27 governorates; Cairo is the capital of Egypt; where around 30 million people live (10). The population pyramid of the country shows that males and females are represented almost equally among all the categories of the population as shown in figure 2 (11). Adolescents represents nearly 20% of the overall population and stands as one of the largest categories (overall males and females (8,9,11). Almost 17 million adolescents (10-19 years) live in Egypt and half of them are females; around 9 million (8,11).

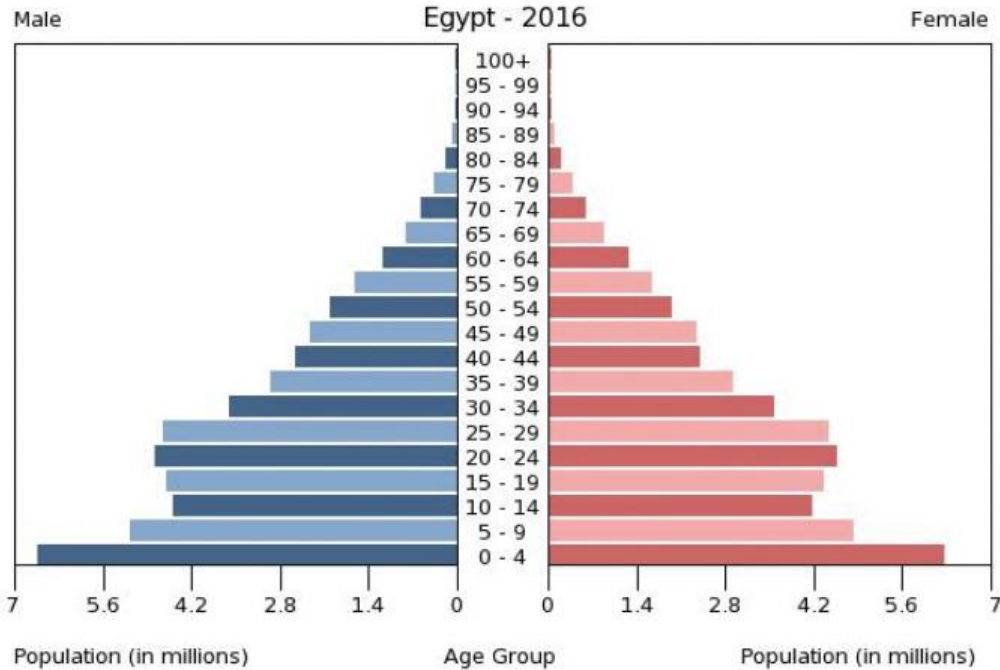


Fig3. Population Pyramid of Egypt 2018

## 1.2 Economy and Development:

The Egyptian government faces difficulties in achieving a stable economic environment because it has a rapidly growing population with a growth rate of 1.7 in 2014. Table 2 presents the total Gross Domestic Product (GDP) and per capita as well as the gender inequality index (7). At the same time, the population is centralized along the Nile river, which makes the country resources scarce and affects the overall socioeconomic status (12). In 2018, this growth rate almost doubled to reach 2.38% putting the country in danger of economic crisis (13).

Since the Egyptian revolution in 2011, the political instability had negative impact on different sectors as the tourism which left many people unemployed (13). In 2016, the poverty line reached 27.8%. One of the main reasons for this increase in that Egypt had to float the Egyptian currency, which massively influenced the prices of the national and local markets. This imposed a huge burden on the people as the prices of basic products were doubled and tripled including the sanitary pads as commercial products (13).

**Table 2. Economy and development: GDP and Gender Inequality Index in 2014**

<b>Gross Domestic Product (GDP) – US\$</b>	287,000 million US\$
<b>GDP per capita</b>	3442 US\$/year
<b>Gender Inequality Index (equality=0, inequality=1)</b>	0.573-

### **1.3 Political environment:**

2011 shapes a turning point the political history of Egypt. Millions of people stood in a strike at streets for 18 days to down the President Mubarak and they succeeded in ousting him. This was followed by several changes that ended with the current regime led by the President ElSisi (13). The revolution sensitized a collective movement for human rights including the Sexual and Reproductive Health and Rights (SRHR) (2,8,13). Nevertheless, the current governmental leadership is prioritizing the family planning on the national agenda in parallel to fighting terrorism. (13)

### **1.4 Education:**

Only 4% of the government budget is allocated to the ministry of Education (MoE) (8). In 2017 the literacy rate in Egypt was estimated as follows; around 81% of the total population aged 15 and above can write and read. The literacy rate is relatively higher in man than women; 86.5% and 75% respectively (13). The school in Egypt have either all genders mixed in classes or they have gender-based schools (females only or males only) (8,13).

### **1.5 Gender Equality:**

Women's representation in the education system, labor market and political leadership is very in comparison to men. Above this, they suffer from different forms of gender-based violence that affect their participation in decision making (13).

### **1.6 Environment:**

Egypt depends on agriculture as major source of income, yet, there are several challenges associated with managing agriculture that have negative consequences on the environment (7). Water pollution is on top of the issues that results from inadequate irrigation and the massive urbanization taking place (13). This limits the access to clean of water needed for adequate menstrual health management.

### **1.7 Social and cultural norms:**

Most of the Egyptian population (90%) follows the Islam religion specifically the Sunni cult. The rest 10% are divided into different cults of Christianity including the Orthodox Christians as majority of this group (9,13). Islam and Christianity religions have restrictive rules on the menstruating females, which contributes in shaping the lived experiences of these females (10). The social and cultural norms are significantly influenced by the religious beliefs; however, some traditions are rooted within the community and are not attached to any of the followed religions in Egypt. The Egyptian society has patriarchy structure, where woman are not the decision makers and there are different forms of gender inequalities and gender-based violence. For example, virginity is a taboo within the society and losing virginity – loss of hymen- outside the marital frame is a huge sin and brings shame to the family (14).

### **1.8 Healthcare system:**

The healthcare system in Egypt involves different parties and providers and thus different sources of finances. The three main sectors include the governmental body led by the Ministry of Health and Population (MoHP), the parastatal sector and the private providers. The Ministry of Finances (MoF) is the financial supplier for the public governmental sector,

which imposes its terms and conditions on the health sector including the national civil society organizations. The parastatal sector refers to the organizations that are managed by the MoHP and other ministries like the High Education ministry that shares in managing the teaching hospitals. Meanwhile the private sector includes both national and international individual and organizations that provides for-profit and non-profit healthcare services and products (15). Concerning the health-related services of menstrual health, sanitary products are available at public and private pharmacies, local stores as supermarkets and sometimes distributed by the civil society organizations. Individuals seeks General practitioners, Gynecologists, Obstetricians, general surgeons and other registered providers or traditional healers for menstrual health disorders (2,4,15).

## **Chapter 2: Problem Statement, Justification, Objectives, Methodology, Search Strategy and Conceptual Framework**

The second chapter acts as the skeleton of the thesis because it has various sections that are used in the following chapters. Firstly, it reviews the health problem around MHM among adolescent in Egypt and gives justifications for the thesis. This began with an overview of the global and regional context, then narrowing down to the local context of Egypt. Secondly, the general and specific of the objectives of the thesis are mentioned. Thirdly and fourthly, the methodologies used to write the dissertation with an explanation of the combination of two methods are illustrated. While the search strategy for both methods is presented and supported with a table. Lastly, the different sections of the conceptual framework are defined.

### **2.1 Problem statement and justification:**

The sustainable development goals (SDGs) 3 and 5 imply universal access to sexual and reproductive health (SRH) services for all, including women and girls. They have targets to be achieved by 2030 to combat all kind of violence, stigma and discrimination against girls and women while assuring that the national policies, strategies and programs are including the SRH services provision with dignity to all (16). The World Health Organizations (WHO) defines the reproductive health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes" (17). The Lancet-Guttmacher Commission used this definition to merely emphasize the necessity of proper MHM under hygienic and private circumstances that respect women and girls (1).

Globally, massive efforts are needed to reach the initial steps towards full access and enjoyment of SRHR. Being among the fundamental human rights, SRHR ensure a healthy lifestyle of the population and promising development progress for nations (2,6,16). However, certain constraints stand against achieving tangible investment towards SRHR like the lack of political willingness, inefficient resources mobilization, gender inequalities and the taboos associated with the open discussion around sexuality. Adolescent girls are facing more challenges in choosing what they want for their bodies, accessing respected and adequate SRHR-related services with not discrimination (18). What makes it more challenging to achieve the SDGs targets for comprehensive SRHR are the social and cultural norms that adversely affect the adolescent girls' decision-making and accessibility to the SRHR including MHM services like the MHM products. (18).

Half of the female population around the world are in their reproductive age. Among the, there are almost one billion adolescent girls who are in the puberty phase, about to experience menarche or already menstruation. In poor settings, these adolescent girls experience the double burden of accessing SRHR services and thus dealing with inadequate MHM (19). In the past few years, the menstruation has been tackled from a broader perspective by shifting from the menstrual hygiene -as part of the Water, Sanitation and Hygiene (WASH)- into the menstrual health management (MHM) that encounters the multiple dimensions around it (20). The leading international organizations in the field of SRHR and adolescence health like the WHO, UNFPA and UNICEF have emphasized the strong association between MHM and sexuality education, sanitation, gender perspective and social norms (20,21). In this sense, inadequate MHM is identified as a health problem that implies multi-sectoral collective response from the healthcare system, educational system and civil society organizations (CSOs) (20,21).

There is promising progress towards adolescence health taking place in the Middle East region. Being a region of multiple efforts towards political improvements, the Middle East countries are leading a revolution for human rights, including SRHR with prioritization of adolescence health, especially in poor and fragile settings (22). After the Egyptian revolution took place in 2011, there is a public willing to address human rights. However, SRHR are hindered by several challenges like the community and acceptability. Similarly, the menstruation is not yet a topic to be addressed through the national strategies of the MoHP and MoE, considering the contextual culture (8,22,33).

According to the WHO, adolescents are the group aged 10-19 years old (6). In the latest EDHS, the adolescent group was estimated to form fifth of the Egyptian population in 2014. Since there is an equal distribution of males and females among this group, adolescent females represent 10% of the overall population (8,11). The adolescence remarks the puberty phase for females, and it carries variable developmental changes as well as societal reaction. Egyptian adolescent girls experience menarche -the onset of menstruation- during this phase, while they lack adequate care and proper preparations like correct information and access to adolescent-friendly services (25,26). Accordingly, it is crucial to have an integrated multi-sectoral response from the surrounding community like schools, families and friends. The social and cultural norms prevent the full inclusion of menstruating girls into society as girls tend to hide their menstruation. They are not allowed to practice religious prayers or fast or enter religious complex according to Islam and Orthodox Christianity in Egypt (10,14,24,26,27).

In the Egyptian context, menstruation is a taboo, that is avoided in public discussions among families and community members. The educational curriculum at the predatory school includes one lesson about menstruation, and more than half of the female students reported an intentional absence of this class (28). Meanwhile, the absence of both formal and informal comprehensive sexuality education (CSE), MHM becomes a consistent barrier that hinders the active inclusion of adolescent girls regardless of their educational status (29). Adolescent girls' experience varies based on different factors, and one of them is the MHM sanitary products. In poor settings, some adolescent girls depend on using old clothes or other unsafe materials that make them liable to infections, bad smell and lack of comfort (30).

There is a marked gap in the available knowledge and information about the current situation in Egypt concerning MHM, particularly in poor settings, where resources are limited. Nevertheless, some literature assessed the menstrual cycle or the abnormal conditions of it, as a disorder of ovulation, as an integrated part of the SRHR but not as a standing matter (29,30). In the previous qualitative and quantitative studies, the researchers directed their focus to the abnormal medical conditions of menstruation particularly, in poor settings as slum areas leaving the overall experiences around menstrual health management and the contributing factors without in-depth analysis. (31). More studies tackled the school absenteeism and dropped out of school as a result of poor MHM (28).

Because of the previously mentioned matters, this thesis is designed with the following objectives to explore the current situation around MHM among adolescent girls in Egypt. Adolescent girls are at high risk of health problems if they do not have access to the tools and suitable circumstances that aid them to manage their menstruation adequately. As Egypt has different poor regions, this situation became more difficult for girls (7,32).



## 2.2 Objectives

**Overall Objective:** To critically analyze the situation around the Menstrual Health Management among adolescent girls in Egypt and the key influencing factors in order to present recommendations to MoHP, CSOs, SRHR and Menstrual Health activist and advocates on effective approaches to address menstrual health management through programs, research and policy.

### **Specific objectives:**

- 1) To analyze the individual experiences of MHM among adolescent girls in Egypt;
- 2) To analyze the key influencing factors to MHM among adolescent girls in Egypt; social norms and taboos, puberty, education and awareness, sanitation, MHM products solutions and existing healthcare system
- 3) To explore the best/promising (based on how strong is the evidence) practices of MHM among adolescent girls; (Egypt or similar context?)
- 4) To present recommendation to MoHP, CSOs, SRHR and Menstrual Health activist and advocates on effective approaches to address menstrual health management through programs, research and policy.

## 2.3 Methodology:

The thesis combines two different methodology in order to respond the previously mentioned overall and specific objectives. Firstly, a literature review including desk review of the available online literature is conducted. Secondly, the content of LMA Arabic Website is analyzed and compared to the findings from the literature review. The website is managed as project by RNW Media; NGO based in the Netherlands. The website was selected based on the popularity, reliability of content and feasibility to analyze. Using these methodologies, a comprehensive overview on the health problems associated with MHM among adolescent girls in Egypt, key influencing factors, promising practices and set of applicable recommendations are presented.

### **Overview of Love Matters Arabic website:**

RNW media is running the Love Matters programs across five regions and based in specific countries; Egypt, Kenya, India, China, Democratic Republic of Congo and presented in various languages; English, Arabic, French and Hindi. Love Matters program is a leading global provider of youth-friendly information on sex, pleasure and relationships for people aged between 18-30, yet it's open community for all ages, where online moderators interact with audience (33). Specifically, LMA project is based in Egypt and it's led by a team of experts in the field of SRHR, sexuality and relationships. The Arabic content is addressing Arab-speaking countries and not only Egypt. The website was officially launched in 2011 and it has Facebook page, Twitter account and Instagram account. Up till now over 13 million visits to the website are documented and there are 853,458 fans for these social media platforms (34).

### **Inclusion criteria of the literature:**

- Duration: 1990 – 2019 (19 years) to get good number of the recent literature that can be useful for the analysis;
- Literature published in the English language as the thesis is written in English;

- Studies used qualitative or qualitative and quantitative methodology;

**Inclusion criteria of the content analyzed from Love Matters Arabic website:**

- Duration: 2014 – 2019 (5 years) as 2014 is the official launching year of the website;
- Content around menstruation (written or translated articles, blogs, questions and discussions on the forum);
- Content available in the Egyptian accent (identified by the author) and the original Arabic;
- The selection does not discriminate against specific gender, age or race.

**2.4 Literature Search Strategy:**

The search strategy started with exploring the existing literature and gray literature related to menstruation in Egypt. To conduct the literature review, several key words were used including; "menstruation", "menstrual health", "menstrual hygiene", "puberty", "WASH", "SRHR", "reproductive health", Egypt", "adolescents", "girls", "healthcare system". A set of combinations was used according to the table (no.). Google Scholar and Vrije University library were searched as the online platforms for academic literature. Snow-balling method enriched the literature search with more relevant articles. In addition, a significant referral was made to the latest DHS conducted in Egypt 2014, which was combined with data from international organizations as WHO, UN agencies and Care International. Google engine was used as well to search for reports and information from different websites. The main sources for writing this thesis, include but are not limited to qualitative and quantitative studies, systematic reviews, peer reviews, reports, EDHS, international declaration and agreements.

Regarding the LMA website, Arabic words were used for the search and filtering the content. These words included "menstruation", "period" "menstrual hygiene", "bleeding", "menarche", "pelvic pain", "Pre-menstrual Syndrome", "pads", "tampons", "puberty" "adolescence" and they are mentioned in the search table (Table 3).

**Table 3: Search Strategy for literature and LMA website**

Source	Keywords	Combination of keywords
<b>Search engine and databases</b> - Google scholar - PubMed - Vrije University  <b>Google Search Engine Websites like</b> - WHO - UNICEF - UNFPA - Governmental websites - Medical websites  <b>Reports like</b> - EDHS	- menstruation - "menstrual health" - Menarche - "menstrual hygiene" - Sanitation - SRHR - "Reproductive health" - Egypt - "Adolescents girls" - "Healthcare system" - Puberty	- Menstruation AND "Adolescent girls" AND Egypt - "Menstrual Health" AND Egypt - Water AND Sanitation AND Hygiene AND Egypt - Menarche AND Egypt - Menstruation or Menstrual AND "Healthcare system" AND Egypt - Menarche or Puberty AND Egypt - "Reproductive Health" AND Egypt

<ul style="list-style-type: none"> <li>- Egypt profile by FAO</li> </ul>		
<p><b>Love Matters Arabic Website</b></p> <ul style="list-style-type: none"> <li>- Articles</li> <li>- Blogs</li> <li>- Discussion forum</li> <li>- Questions</li> <li>- Replies</li> </ul>	<p><b>Keywords:</b> Menstruation, menstrual period, adolescent girl, pain, pads, tampons, puberty, menarche</p> <p><b>Found:</b></p> <ul style="list-style-type: none"> <li>- 10 articles;</li> <li>- 4 blogs;</li> <li>- 22 pages of 146 discussion/questions on the discussion forum</li> </ul>	

## 2.5 The analytical framework:

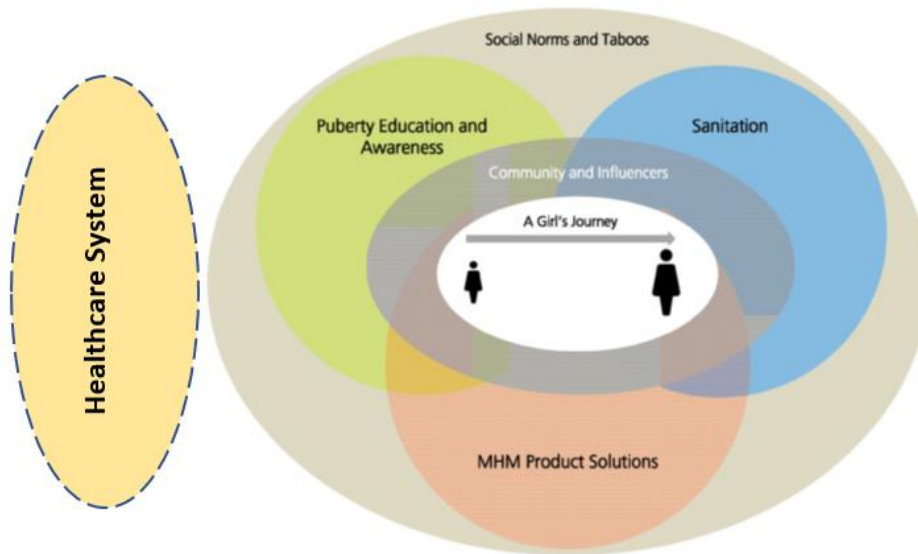


Fig. 4: Menstrual Health Framework: adopted from FSG's framework on the critical considerations related to menstrual health. <https://www.fsg.org/publications/opportunity-address-menstrual-health-and-gender-equity>

### Description of the framework:

FSG- regaining social change is a non-profit leading consulting organization that presented this Menstrual Health Framework as part of the report "An Opportunity to Address Menstrual Health and Gender Equity". The framework was used to reflect on the existing problems associated with MHM, to illustrate progress and gaps and to identify promising opportunities and recommendations to encourage best practices of MHM among adolescent girls. The framework was used to analyze the ongoing programs, research, policy and advocacy strategies that respond to menstrual health needs.

The framework explained the specific needs of girls in relevance to their menstrual health. These needs are shaped by the surrounding community and it's; knowledge, attitudes and

practices, the existing education system and sanitary products and facilities. Existing social and cultural norms frame certain taboos that cause stigma and discrimination against menstruating girls. The socio-economic status of the family influences the rest of the factors. These elements highly contribute on shaping the girls' experiences whether; physical discomfort or pain during menstruation, embarrassment and shame, accessibility to safe, clean and private facilities at home and at schools or available correct information about the adequate MHM. Notably, these contributing factors are intersecting with each other, which causes double burden of the problem.

### **Components of the framework:**

#### **Girls' journey (experiences with menstrual health):**

This is the core element in this framework where the surrounding factors intersect to give detailed explanation of how girls respond to their needs for dignified menstruation. The experience includes the physical changes happen before, during and after menstruation, the feelings associated due to hormonal changes or community pressure like embarrassment or shame and the availability and utilization of clean, safe and cost-effective products. Accessibility to quality education and formal/informal comprehensive sexuality education in addition to safe and private facilities is another factor that should be considered while analyzing the individual experiences.

#### **Community and influencers:**

The surrounding networks around the girls like parents, friends, school mates, relatives, and community peers contribute to shape the girls' experience around MHM. There are different forms of those influencers like the peer pressure and social and cultural norms. In addition, the socio-economic status has major effect on many aspects like housing, sanitation and the products used.

#### **Social norms and taboos:**

These norms and taboos are practiced by the community and influencers, so they come in line with the previous component. They are affected by the religion, habits, traditions, mass media and many others. They are very critical in MHM experience as the taboos usually have negative impacts enforcing more gender inequality.

#### **Puberty Education and Awareness:**

Receiving adequate and correct information about MHM is a crucial element that positively enhance the girls' experiences. Not only girls should receive CSE but also boys must be supported with the same knowledge. This contributes to creating a healthy inclusive environment for girls where gender is not a hindering factor.

#### **MHM products solutions:**

This framework was designed based on the data combined from the Low- and Middle-Income (LMIC) countries, where girls face serious challenges to access clean and affordable MHM products. The poor knowledge about hygiene methods of MHM make the girls' experiences more difficult. The MHM products should be critically analyzed in terms of the price,

#### **Sanitation:**

The framework affirmed the necessity of the presence of adequate sanitation facilities at home, school and public spaces. Adolescent girls are usually frustrated about getting blood on their clothes, being bullied by other classmates and breaching their privacy. In such

cases, girls prefer to miss out school days to avoid embarrassment or not changing their absorbents for over than eight hours.

**Healthcare system (Adopted section):**

The healthcare system was not included in the Menstrual Health framework, but its role was clearly noticed in different components. For instance, the MHM products accessibility and availability are regulated through the market, which is part of the healthcare system. Community Health workers especially at the rural areas are key influencers on the family and the surrounding networks. Therefore, it was critical it add it to the framework to highlight and analyze its contribution to the overall MHM experience. Reflecting on its role is necessary to provide feasible and concrete recommendations for the targeted stakeholders. Poor MHM is a public health problem and it has negative consequences the physical and mental health of adolescent girls. Thus, healthcare system should be explored to understand it's influence on the MHM among adolescents.

## **Chapter 3: Findings:**

In the findings chapter, the results of the literature review and Love Matters Arabic website (LMA) analysis are organized and combined to give a critical overview of the current situation around MHM among adolescent girls in Egypt. The conceptual framework is used to arrange the findings and to put them in a logical order to capture a comprehensive understanding of the current situation. Chronological order is followed in accordance with the adopted conceptual framework about menstrual health. The findings profoundly reflect on the health problems and other associated challenges as the gender perspective and the influence of social and cultural norms. Comparisons are made between the two sources of the data found when a significant difference is noticed.

### **3.1 Individual experience of adolescent girls**

Menstruation, menses or menstrual period are synonyms of a healthy physiological change that occurs for both girls and women in their reproductive age. During this period, bleeding through the vagina happens because the endometrial tissue (inner layer of the uterus) sheds from the womb. The average time of the overall menstrual cycle is 28 days, while the menstruation period itself lasts from four to seven days on average. Menstruation is part of the sexual and reproductive health, and it's associated with physical and psychological symptoms and signs that need special care (1). In Egypt, the average age for the menstruation onset -Menarche- varies from ten to sixteen years (35). LMA website presents evidence-based general information about the menstruation and the menarche instead of giving contextual information about them in Egypt (36,37). The website merely defines the menstruation as a monthly cycle when girls and women lose a small amount of the blood through the vagina. This amount varies between two to four food spoons among girls and two to six among women (36). It mentions that menarche determines the start of the late stages of puberty to become physically and sexually mature. It recommends using tampons or sanitary pads to absorb the blood and smell while on menstruation (36,37). It added that the flow frequency of the menstrual blood and the causes that may delay the menarche (37).

As an illustration, it is mentioned that the irregularities of the timing and the blood flow are ordinary matters to experience during the first menstrual periods. Despite that, the average length of the full cycle is 28 days. It may take up to three for the menstruate cycles to become normal. It was advised to write down or document the first and the last days of menstruation to be aware of any changes appearing (36,37). The delay of the menarche until the age of sixteen was mentioned further to this. It happens due to several reasons like the dietary lifestyle, exhaustion or physical exercise. It's advised to contact a medical specialist for a routine checkup (36).

As a reply to the articles about menstruation, menarche and menstrual pains, several adolescent girls asked for more detailed information about the menstruation like the onset, the cause of the brownish secretions, causes and treatment of pain and other precautions. (36-38). The moderators used different styles in replying to the questions, but they followed specific methodology like not providing medical advice through the website and referring to other articles within the website. Thus, the moderators replied to these questions with different links to navigate in the website. The links cover topics like the menstruation, menarche, myths, absorbent products and frequently asked questions (36-38).

With reference to associated critical phenomena, data collected from 81 studies through a peer review in LMIC, including Egypt, discussed the physical symptoms and signs reported by the adolescent girls before and during menstruation, which is called Premenstrual Syndrome (PMS). More than half of the participating girls in the selected studies admitted experiencing (PMS) symptoms and signs like pain, discomfort and mood changes (39). Similarly, the peer review denoted that the menstruation period prevented 25% of girls from being engaged in daily activities. Having PMS symptoms imposed an extra burden on the social inclusion of the girls within the community (39). In order to cope with these physical and psychological challenges during the PMS and the menstruation period, girls reported taking painkillers or other medications based on their personal choices or after seeking the pharmacies for consultation. In Egypt, painkillers can be purchased without a prescription (40). Two studies that took place in Upper Egypt validated the results of the peer review in the matter of affecting school performance and attendance (40,41).

LMA website responded to these challenges by giving pieces of advice on how to cope with PMS feelings and thoughts. It claimed that the awareness about the timing of the PMS and the menstrual period might help females to manage the stress. They can do this by repeating some sentences like "I'm fine, these negative feelings are temporary, and nightmares do not mean anything". Regular physical exercise like walking, running, or swimming can be useful as it stimulates the secretion of endorphin hormone that balances the effect of unbalanced hormones (42).

A number of adolescent girls raised a concern about experiencing severe pain in the breasts, legs or back during the menstruation period. They either post their questions or concerns on the discussion forum or reply to a post on the LMA website (36,37,43). Notably, the concerns about the pain or the fatigue associated with the menstruation were raised by different users, including adolescent girls. Meanwhile, the aggravating factors vary from one girl to another (37,43) For example; a girl wrote that climbing the stairs or carrying heavy weights increases the pain and affects the blood flow (44). While, on the discussion forum, most of the girls were worried if the experienced pain will negatively impact the uterus. They are afraid of not getting pregnant if these symptoms and signs are underlying severe medical condition irrespective the regularity of their menstrual cycle (36,37,42,43). The moderators responded in friendly manners to all cases starting by welcoming the girls. In case the questions are related to a normal condition like the regular PMS signs, the moderators calm the girls by explaining the commonality of such claims. On the other hand, the moderators consistently inform the girls if they need medical consultation if the case seems to have abnormal complaints than the regular ones (36,37,42,43).

An adolescent girl aged 19 years old wrote that she experiences severe pain with menstrual flow on the first day and sometimes it lasts for two days. Also, she was taking certain analgesic pills and asked if it is harmful especially for a girl in the marriage age and pregnancy. The moderator highlighted that it's not preferable to use any medications without a doctor's consultation and advised the girl to check with a doctor to know more about the side effects of this specific medications especially on the uterus and other body's organ and the liver and the kidneys (43).

Another 17-year old adolescent girl asked if it's normal to experience menstruation for only two or three days. The moderator explained that the menstruation period varies from one girl to another and usually stays from two to eight days (45).

then writing that the pain in the breast or pelvic area are common during menstruation, however, some girls suffer from massive pain, which interrupt the daily life of the girls. This case is called dysmenorrhea and it may prevent girls from attending school or going to work and it requires checking with a doctor for diagnosis and prescription of medications if needed (37).

It's noticed that some of the questions on the website are not addressed by the moderators. These questions included fear about not menstruation at all, the femininity signs and the average age of menarche (42). Generally, several female users of the website showed concern about the irregularities of the menstruation cycle and about its effect on the future pregnancy whether they were married or not (43,44).

Through the discussion forum, several girls asked the possibility of having menstrual disorder as she experienced changes in her mensuration for two months in the form of brownish secretions before the period then it comes with the menstrual blood considering that her menstrual cycle is regular and lasts for six days. The moderator advised her to visit a medical doctor to know the cause of these brown secretions (38).

Although it was observed that many users on the discussion forum of the website asked about consultation for medical conditions that requires checkup with a doctor, other users mentioned that they had medical follow up on their cases. For instance, concerns about experiencing polycystic ovarian syndrome (PCOs) for longer duration and about possible treatment to avoid it is complications (45). PCOS is a disorder that affects the ovaries and its function in realizing the hormones. The main symptoms include changes in the menstrual cycle frequency, increased the androgen hormone leading to excess body hair and enlarged ovaries due to many follicles (46). The moderators clarified that the irregularities of the menstruation is common in the case of PCOS and there is no natural treatment for it. Again, the moderator advised the user to follow the doctor's instructions besides following a healthy diet and regular physical exercise (45).

### **3.2 Community and influencers**

Adolescent girls depend on their siblings, relatives and peers to get information about menstruation in the first place, while teachers at school and/or healthcare providers were found to have the least influence over these girls. However, the information they receive from their peers are usually not adequate or timely (35). A cross-sectional study in Mansoura confirmed the broad influence of peers and friend are the main providers of relevant information about menstruation. It added to them the mass media and mothers (37). An older study conducted in Alexandria -second biggest city after the capital Cairo-, identified mothers as the main providers of information about menarche, menstruation and reproductive health in general while mass media and the school curricula are of limited influence (47).

On the discussion forum of LMA website, a girl talked about her relationship with her mother saying that her mother was circumcised; Female Genital Mutilation/Cutting (FGM/C) and she hates sex and men as well aggressive on simple matters. Her mom feels jealous from her being more beautiful and did not undergo FGM/C unlike the daughter that loves sex and close to addiction to men as the user described. When the daughter has her menstrual period, the mother gets angry, starts cursing and using bad words and questions the benefit of the menstruation. The daughter does not pay attention or care about what the mother says as she does not want to be like her mother. She wants to be independent in her look



and attitudes, therefore, she asked if it's normal to be different from her mother as their experiences are different. The mother might face psychological harm or was treated badly by her mother at the same time the daughter did not face FGM/C and is well-educated. The moderator replied to the user (the daughter) that to be independent, she has to let go thinking about negative feelings and she has to set boundaries so that nobody can hurt her (48).

Sexual partners mainly husbands play a key role in the MHM process. Husbands ask their wives to change the timing of their menstrual period in certain occasions like the vacations. On the discussion board, one girl, going to get married soon, asked if it's possible to take contraceptive pills to delay the period and if they have side effects if they are used once and if there are alternatives for the pills. The moderator pointed out the necessity of consulting a medical doctor before using any pills, however, it's safe to use it once with no long-term complications. The moderator added, that the girl can use tampons during menstruation if she wants to swim comfortably (49).

An opinion blog that is published on the website by anonymous user mentioned that there is no clinical or laboratory investigation to confirm the PMS, however, what women face during this phase is enough to describe the PMS and its symptoms and signs. The blog is directed to men to raise their awareness about this special phase as the writer assumed that men do not understand how the PMS completely changes the physical and psychological status. Giving some examples of PMS symptoms; 1- mood swings like quick anger, bouts of anxiety and hostility, 2- behavioral changes like increase irritability to noise and sugar craving, 3- physical changes like headache, general fatigue, breast tenderness and increase sensitivity. These symptoms and signs are variable from women to another and PMS prevent 3 – 8% of women and girls to be engaged in daily life activities (50).

### **Socio-economic status:**

The poor areas as the rural areas and slum areas suffer from the pressure on the scarce resources and the overcrowding on schools (35). Notably, poverty negatively impact the girls' experience around MHM as in poor urban and rural areas, they depend on old clothes as absorbents. Sanitary products are not affordable and sometimes not accessible for them. Poverty affects the housing conditions as well and the facilities accordingly. Girls became deprived from their right to access safe, clean and private facilities to change their absorbents or get clean water (39). In other two studies conducted in two different cities in Upper Egypt; Assiut and El-Minia, the girls living in the rural areas had lower use of sanitary pads compared to their peers attending nursing schools and schools in urban areas (40,41).

### **3.3 Puberty (Sexuality) Education and Awareness**

In a peer review conducted in LMIC between 2000-2015, some studies affirmed that around 90% of the adolescent girls listed the following as the only source of information about sexuality and puberty; mass media including television channels, radio stations, books, newspapers and magazine, the internet including social media. (28,35,39). In other cases, 7% of the adolescent girls were found not receiving any information at all about menstruation (28). Furthermore, 80% of school-attending girls showed their desire for receiving further information (39). Generally, the lack of CSE and the widespread of misconception about menstruation put the girls at risk of suffering of negative psychological consequence at Menarche (38). Specifically, a descriptive study that was conducted among single adolescent girls attending nursing schools in El-Minia – city in Upper Egypt- showed

that they are not relying on the information received at the school and sometimes there is no information provided at school at all (39).

Adolescence is a proper duration where girls carry the information they learn to their adulthood, thus CSE including MHM tools is necessary for them. One of the mandatory things that adolescent girls should receive either formal or informal education on, is the MHM sanitary products and menstrual hygiene tips (51). It's extremely important when analyzing this factor is to analyze the situation at schools. The rates of absenteeism or drop out because of menstruation, the facilities available at schools and the peers' perceptions and influence on MHM. Meanwhile, schools are not the only source of information as mass media, internet and social media are important spaces for information especially for adolescence. In the peer review, the PMS were proven to interrupt the daily activities of the menstruating girls including school attendance (39). Not only this peer review but also a descriptive study in Il-Minia -city in Upper Egypt- concluded that adolescent girls at nursing schools experience dysmenorrhea on high rate; nearly 95% of them reported it (40). This was confirmed by another study that took place in Assiut -city in Upper Egypt-, which referred the school absenteeism to this medical condition (41). These changes affected the overall school performance of the girls during this period and 40% reported missing out classes and school during the first days of menstruation (39,40,41).

It is observed that adolescent girls have multiple questions and concerns in relation to the menstruation, which they addressed through LMA website. The girls showed positive attitudes towards receiving information about MHM to develop their knowledge (36,37,38).

On the discussion forum of the website, multiple questions about the menstruation are related to the pregnancy, contraceptive and the sexual activity. One user wrote her experience about taking contraceptive pills to delay the menstruation period date to avoid overlapping with the wedding date, but she did not consult a doctor. She asked the moderator for consultation about what she can do as she complained about few blood drops per vagina and pelvic pain. The moderator advised her to avoid using the contraceptive pills without referring to a doctor for her own safety and to avoid any side effects or complications (44).

The experiences on LMA website included concerns about puberty and sexual pleasure during menstruation. Adolescent girls showed concerns if the masturbation during the menstrual period is harmful and if taking shower (bathing) is harmful too. The moderators affirmed that masturbation or the self-pleasure is not harmful during menstruation and even the sexual desire increases at the end of the menstruation period for some females. The most important thing is to keep a good hygiene of the body by bathing and keep the external reproductive organs clean. One of the website users also replied to this question by saying that neither the masturbation nor the bathing during menstruation are harmful (38).

### **3.4 Social norms and taboos:**

The Egyptian community follow conservative social and cultural norms that are influenced by the religious beliefs. Such culture considers the menstruation a taboo that cannot be discussed between family or public gatherings leading adolescent girls to look for information somewhere else (35). The cultural norms influence the image of girls within the community. For example, girls who has their menstruation regularly are respected in public spaces as it's considered as proof of absence of pregnancy and thus virginity (5). The religious beliefs influence the sexual practices during menstruation as for example the Islam prohibits sexual intercourse during menstruation and the anal sex (10,13,14). For girls, the

decision-making process about their SRH and their bodies is limited and usually made by the male caregiver or partner, however, girls perceive bearing children as their main duty showing the patriarchal structure of the society (52).

Another user expressed her concern about losing her hymn as she was sitting in uncomfortable position during the menstrual period and suddenly, she felt contraction then something going out around the hymn place. She was told that hymn is so fragile during the period and that's why she asked the moderator for honest response. One user responded that the hymn is intact, and it needs solid object to cut it while the moderator told the user that it's the menstruation blood and no need to worry (53).

LMA website identified different myths around menstruation as follows. The menstrual blood is dirty, large amount of blood lost, not having the period is a pregnancy confirmed sign, having sex during menstruation is not health and pregnancy cannot happen during menstruation (54). A male participant responded to this article with a verse from the Quran - religious book of Islam- stating that sex is prohibited during menstruation and other male respondent said he will stop following this website after reading these myths. Meanwhile, a female respondent posted an inquiry about her as she had sexual intercourse during her last menstruation, and she wondered if she is pregnant or not and what other signs that makes her confirm her pregnancy (54). The audience showed anger on the content of this content as some of the practices as having sexual intercourse during menstruation is prohibited in the Islam religion. The audience kept the inquiries, hate comments and anger but the moderators avoided most of them or directed them to the forum (54).

### **3.5 MHM products solutions**

The adolescent girls' experience in their menstrual hygiene management is affected disproportionately with the absence of adequate information delivered to them. They may experience difficulties because they do not know how to use the sanitary products, using unhygienic absorbents or avoiding bathing while on menstruation. This is a common challenge among different LMIC (39). Adequate MHM implies the accessibility and affordability of clean absorbents products that do not cause any infections. Adolescent girls should know how to use these materials, how frequent they need to change it and how to throw it in the right place (56,57,59).

The results of a community-based study in Dakhliya -governorate in Delta region- revealed that disposal sanitary pads were used by half of the girls. Twenty percent of the young girls said that they use cotton materials, which can be cleaned by hot water. However, few girls reported using old clothes but for one time only (58). A study that was conducted in Mansoura -the capital of Dakhliya- among adolescent schoolgirls found that pads are the available sanitary products for MHM unlike tampons that do not exist in the local market of this city (58). The pads are provided by different local and international producers through pharmacies and local supermarkets. They present in variable shapes, sizes, materials to suit the variability of the blood flow of each girl and woman. The frequency of changing these pads is six to eight times per day despite the amount of bleeding to prevent infections and secure comfort as instructed by the providers. In comparison, tampons are purchased in urban parts of the country and by woman of higher socio-economic standards (35,59).

**Table 4: illustrating percentage of use of different types of absorbents for MHM**

	community-based study of the prevalence of female reproductive infections in Dakahlia Governorate, which was published in 1999.6	A cross-sectional survey was carried out among secondary schoolgirls enrolled in governmental general, commercial and nursing schools in both the Eastern and Western educational zones as well as the rural sector 1999
<b>Sanitary pads (Single use)</b>	25%	67%
<b>Re-usable cloth after cleaning or boiling</b>	50%	16%
<b>Old materials for single use</b>	21%	12%
<b>Others (cotton, soft tissue, gauze or nothing)</b>	3%	5%

The school-attending girls showed higher rates of using pads (nearly 70%) but unfortunately also higher rates of using old and dirty clothes (12%) in comparison to the women and girls participated in the community-based study (35). Table 3 shows the differences between the community-based study and the cross-sectional study results. Yet, the adolescent girls showed higher rates of using sanitary pads in comparison to older women (35,58). Above all, the availability of television and radio at home were found to be a contributing factor to the usage of sanitary pads (35).

Adolescent girls gave positive feedback on the sanitary pad saying it offers them comfortability and contribute to their confidence by taking away the fear of staining. Regardless this advantage, they found the prices are exceeding their financial ability and sometimes it's not available in the market (35).

LMA website started with presenting both the sanitary pads and the tampons as the most common used products and practical for absorbing the menstrual blood. Sanitary pads are placed inside the underwear while the tampons are inserted in the vagina to absorb the blood before coming outside the body. Picture for daily pads, menstrual pads and tampons are shown in annex 1, 2 and 3 (59). The website provided tips on how to use both products and how to follow safety measures for good hygiene (49).

Most of the girls who reported using the tampons asked if tampons are suitable for unmarried girls. The moderators said it depends on the shape and depth of the hymen and overall the use of tampons does not lead to losing the hymn if used according the right instructions. Tampons can cause stretching of or cracks on the hymen. The moderators provided the girls with a link that providers detailed information about the hymen within the same website. The moderators usually follow this method to direct audience to the correct place f needed information (60).

Since the tampons are newly introduced to the market, there are commonly asked questions and concerns around it. For example, girls have concern about the ability to urinate while using the tampons and the answer referred the girls' ability to urinate while being on menstruation to the body's anatomy that has two different opening for urination

(urinary tract) and menstruation (vaginal opening as part of the reproductive tract) (60). Another question was related to the virginity where girls who did not have prior sexual intercourse were worried about using tampons. The answer described the hymen position and that it may make it difficult to insert the tampon with a referring link to a full article on it. The answer emphasized on following the mentioned instruction for using the tampon to avoid any damage for the hymn and the tampon may only cause stretching or some cracks (45,49). Other girls did not know if it's possible to have sexual intercourse while using the tampons. The article indicated that it's not impossible and it could be painful and harmful as the penis can push the tampon inside to reach the vaginal tip, when it'd be difficult to remove it. Other forms of sexual activity are possible as long as nothing is inserted in the vagina (49).

From the discussion board, there was issue related to the use of MHM products. Some adolescent girls experienced itching sensation around the vaginal opening, the outer vaginal wall and the anus during menstruation and there was fear if this will lead to the loss of the hymn as she heard that the hymn is fragile. The moderators explained that the pads should be changed every five hours at a maximum especially in the Summer as sweating in this area while wearing the pads can cause inflammations that cause itching (61). Other adolescent girls showed the same concern about the use of menstrual pads and if they can affect the hymn if they are pushed towards the vulva. The fear about virginity is noted through these questions. The moderators assumed that the pads could be the reason for inflaming the vulva and thus the itching. The moderator recommended using a certain type of cotton pads that are suitable for the sensitive skin. Adding to this, the moderators stated that the hymn is safe since this itching sensation affects only the external parts and no need to insert fingers inside the vagina to make sure it's intact (61,62).

Through Lover Matters Arabic website, the users didn't express any challenges related to the affordability of the sanitary products. They had the flexibility to choose between the sanitary pads and the tampons while the influencing factors of their choice were not the socio-economic status (59).

### **3.6 Sanitation and environment**

An ultimately substantial aspect of the individual experiences around MHM is to follow hygienic measures to keep their body clean and safe. Good menstrual hygiene is a vital tool for ensuring that women and girls enjoy good reproductive health. It protects them from many infections that may attack their reproductive system (63,64). At schools, the adolescent girls experience different settings that influence their practices concerning MHM. (35) Schoolgirls reported in a cross-sectional study that they change the absorbent materials each nine to ten hours and almost 70% of them bath while on menstruation. Most of the girls of the same study viewed their school as an unsafe place that does not offer them a clean or private facility to change their absorbents. In comparison, a small number of girls kept changing their products at school unconcerned about the condition of the available toilets (35).

Adolescent girls follow different methods to get rid of the used absorbents included throwing them in the garbage, burning them or burying them in the gardens. (39). Most of the schoolgirls throw the used sanitary products in the regular trash as there is no separate option. Nevertheless, very few girls used the toilets at school to change their absorbents, and the rest did not consider these toilets private or clean (35). Among those who used school toilets, some reported flushing these absorbents in the bathrooms (39). In poor

settings, toilets usually are not suitable for regular use, and there is no maintenance available. This causes the absence of clean water, private spaces and safe, sanitary tools like paper. In other conditions, toilets don not exist at all or broken (35).

On the LMA Arabic website, the article about pads and tampons gave the right steps of using these products. For sanitary pads, it was advised to be changed every three to four hours. They shall be replaced with the excess blood flow to avoid bad smells, staining clothes or any other vaginal infections. As a safety tip, it was advised to avoid scented pads to be protected from any allergy, but it wasn't mentioned to get rid of the used pads (57). Unlike tampons, the article stated how to remove the tampons after using it then illustrated the way of its waste management by rapping the tampon with the toilet paper then throwing it in the trash (57).

### **3.7 Healthcare System**

The EDHS 2014 did not address the menstruation and menstrual health management. Instead, it focused on other adolescent SRHR issues as FGM, family planning, early pregnancies and caesarian section despite the interlinkage of menstruation with these topics (EDHS). When girls face menstrual health-related problems, they rarely seek healthcare services or providers; however, they rely on homemade treatments like hot drinks (8).

School health services have potential as the existing body of healthcare services provided within the schools. It is considered a neutral organization to provide services free of stigma and discriminations, and it shall specifically respond to adolescent needs (65). The healthcare-seeking behavior among school-attending adolescent girls experiencing PMS, menstruation period or menstrual disorders is limited. Most of them do not consult medical doctors leaving their condition untreated, or they purchase analgesic pills from pharmacies. Mostly, adolescent girls depend on homemade remedies like warm drink or herbals to alleviate the symptoms and signs. Others do physical exercise to get distracted from the negative feelings or thoughts associated (41). Less than 10% of the school-attending girls in Assiut claimed that they visited a medical doctor for the menstrual disorder. While the nurses working at school were commonly approached by most of the girls because they felt more comfortable talking to female nurses rather than a male physician (41).

On the LMA website, the adolescent girls did not report approaching the school health services. Instead, they were advised by the moderator to seek a medical doctor but not at the school (37,43,50).

## Chapter 4: Discussion

In this chapter, the findings are discussed based on the problem statement, and the background of Egypt presented earlier. The association and interlinkages between the different factors influencing the MHM among adolescent girls in Egypt are shown and critically analyzed. A reflection on the framework used will support the findings and the overlap between them as it indicates. A reflection on how the results vary between the literature review and Love Matters Arabic (LMA) website is discussed in detail. It was necessary to contextualize the findings according to the Egyptian community and healthcare system in order to provide applicable recommendations in the following chapter. The data presented from the website confirms specific results and provide new information that needs to be studied from an academic perspective. It breaks the taboos about the conservative nature of the Egyptian community and acts as a safe space and channel for exchanging information and sensitive topics as sexual activities. Additionally, it affirms that the religious rules are not strictly followed, and individuals navigate around them to explore the sexual pleasure and sexual activity that intersect with the MHM practices.

To understand the current situation around MHM among adolescent girls in Egypt, it was necessary to explore the existing data and to have another viewpoint the analysis of LMA website content around menstruation was conducted. Even though menstruation is not listed among the main thematic topics of the website, the menstruation was discussed several times. The articles, the blogs published by the website and discussions raised by the users addressed MHM. It was challenging to have a comprehensive picture of the current situation. The studies available focused on specific regions outside the capital, where more than 30 million of the population lives. Yet, certain factors were highlighted, and the interlinkage with other factors were confirmed by other studies and by the website as well.

Speaking of the individual experiences of adolescent girls, the concern about the pain associated with the PMS and during the menstruation was common among most of the girls. Due to the lack of CSE, they were not able to identify the regular pain that may accompany PMS or menstruation. On the other hand, it was difficult as well to distinguish between the typical pain and the dysmenorrhea which needs medical attention. Additionally, this concern usually provokes another concern about getting pregnant in the future. Since the Egyptian society has a patrilocal structure and assigns the first role of women as bearing children, this kind of questions about possible negative consequences on fertility was raised.

The intersections of the gender perspective, cultural norms and the level of awareness are notable among adolescent girls, yet it was difficult to compare them to their peers in private schools or of higher socioeconomic status. It is not surprising that most of the research conducted was in poor settings as it is the areas where different intersecting inequalities appear. On the other hand, if it can be assumed that the users of the LMA Website are of higher socioeconomic class as they have access to the internet and mostly through mobile phones, it can be said that adolescent girls of higher socioeconomic class face the same concerns and challenges about the menstrual pain and dysmenorrhea. The absence of CSE criteria at the school curricula can support such a theory. The CSE should include information about concerning matters for adolescents like the puberty, body anatomy, reproductive system, contraceptives, reproductive tract infections, sexual pleasure, sexually-transmitted diseases, menstruation, menarche, MHM products, healthcare services and counselling.

In response to this menstrual pain, the attitudes and practices towards seeking healthcare services vary between adolescent girls. There are distinct factors that influence their healthcare-seeking behavior. Firstly, the menstruation is not perceived as a disease within the community, and hence, it does not require medical attention. The family attitudes towards this pain usually include natural remedies as hot drinks and rest. On the other hand, adolescent girls at school do not receive information on the regular patterns of the menstruation as the average time of the cycle and the menstrual period itself. They receive information neither about the PMS symptoms and signs nor menstrual disorders. The situation for school-attending adolescent girls is different because they access to the school health services, which is an essential factor to be considered. Notably, adolescent girls preferred to approach the female nurses at school rather than the male medical doctor. The adolescent girls feel more comfortable to talk about menstruation with a person of the same gender with a lower level of knowledge or facilities rather than a professional of the opposite gender who may have advanced skills to manage their cases. At this point, the influence of the social and cultural norms imposes influence on the adolescent girls' decision of the gender of the healthcare providers. In Egypt, particularly in the conservative community, menstruation is a taboo and not discussed in public.

Moreover, there is a tendency to separate between males and females in public spaces. In such an environment, adolescent girls may not talk to other males within the community except for her father or brother. The studies presented did not present cases where the medical doctor of the school is female. This gap of knowledge can create a false bias or assumptions about these communities, especially the rural ones.

A similar attitude was observed on the LMA website, where moderators of both genders exist. Some female users preferred to call the female moderators by their and direct questions specifically for them and this situation was not observed towards the male moderators. This means that regardless, some users prefer to buy anonymous on the website while asking questions, they still tend to prefer the same gender moderators to answer their questions. This gender preference of the healthcare providers is practised intentionally despite the hidden identity, and it confirms the deep-rooted social and cultural norms within Egyptian society.

The Egyptian community follow conservative social and cultural norms that are influenced by the religious beliefs and others that are not rooted in the religion. Such a culture considers the menstruation a taboo that cannot be discussed between family or public gatherings leading adolescent girls to look for information somewhere else. The restriction on open conversations about menstruation leads adolescent girls to depend on the information received from the mass media or their peers. This shows the influence of the social and cultural norms on the sources of information about menstruation that adolescent girls build their knowledge. The religious beliefs influence the sexual practices during menstruation; for example, Islam prohibited sexual intercourse during menstruation and the anal sex. This explains the anger noticed in the comments of the audience to an article on the website talking about the hygiene aspect of the sexual intercourse during menstruation, saying it is safe.

However, the critical analysis of the website pointed out the most common questions and concerns linked to the menstruation showed that several girls have a sexual activity before marriage but without intercourse to keep the hymn intact as a sign of virginity. Surprisingly, the virginity and the intact hymn was the most frequently asked topics because it was not tackled at any of the included literature or studies. Several adolescent girls were wondering



if their daily practices like riding a bike or the intense push of the sanitary pads will cut the hymn. In the Egyptian community, sexual intercourse before marriage is prohibited by the existing religions; Islam and Christianity and are considered as a huge shame according to the traditions. Hence, adolescent girls consider their virginity as having an intact hymn. Apparently, the questions showed that the adolescent girls lack the correct information about the hymn, its position and nature. Such information is not provided at school, where most of the girls receive their education. Above all, some girls admitted having sexual activity with their partner or fiancé without sexual intercourse; insertion of the penis into the vagina, which is not addressed as well through the studies. According to the Egyptian culture, having sexual activity is a sin, and it is understandable that the adolescent girls are hesitant these activities to the data collectors of the research. The liability to be subjected to stigma and discrimination is high as well the data collectors did not have questions about the hymn or virginity in any of their questioners. Unlike the website, it is an advantage to post a question anonymously so that adolescent girls can avoid stigma and discrimination and can ensure keeping their identity hidden. The online platform in this regard has an advantage over seeking information from healthcare providers or community members as peers or family members.

Other girls raised similar questions about virginity and the intact hymn but while masturbating to have self-pleasure. Girls were afraid to cut the hymn while masturbating during the menstruation period because they will not know if the blood coming is from the hymn or the hymn. These girls expressed their ultimate fear of virginity. This shows the kind of gender equality and the oppression girls live in as a result of the social and cultural norms. These experiences about the sexual activities revealed the interlinkage between the following factors; the lack of adequate correct knowledge or CS, the social and cultural norm and the MHM products use. Since the sexual intercourse is prohibited outside the marital frame, it will be huge shame and sin to lose the hymn as it's the proof of the virginity.

Considerably, the sexual activity is considered as part of the girls' journey as per the framework, yet it should be mentioned as a separate factor to avoid the assumption that adolescent girls do not have sexual practices. However, it is ultimately critical the way of integration the sexual activity education or discussion in the Egyptian context to show respect to the community members as well ensure the privacy and confidentiality for adolescent girls

Through the website, multiple girls complained about having infections, brownish secretions or inflammation around the vulva, and they asked the moderators to help them. It was challenging to understand the reasons behind asking for medical consultation through the website because the information about the background of these girls, their education, socioeconomic status and other influencing factors were not available. The moderators did not provide medical consultation, and at any instance where medical consultation was required or needed, they asked the users to visit a physician. Most of these girls did not possess sufficient knowledge about the use of sanitary products and the frequency of the change. Therefore, the moderators consistently posted links to the use of these products in their answers. The intersecting between sexuality education, the use of MHM products and the healthcare-seeking behavior is remarkable in influencing the adolescent girls' attitude in posting these questions through the website. Most of the girls assumed the sanitary pads or tampons could lead to losing the hymn while they avoided consulting the physicians and preferred to post their concerns to the LMA website instead.

Thus, the CSE education or awareness -as other factors- cannot be used alone to understand, analyze or improve these experiences. Instead a comprehensive approach shall be considered. It is crucial to analyze the different factors like the education, socioeconomic status, healthcare services and other factors at the same time to understand the situation and design a tailored response.

The interlinkage between the MHM sanitary products and the accessibility and availability of sanitation methods as clean water and private spaces is notable. The adolescent girls have the right to enjoy comfortable and clean absorbents during their menstruation and the right to use them in a suitable environment. The MHM experience will be stressful for girls to effectively manage their menstrual health in the absence of any of these two factors or in the presence of only one of them.

Specifically, the use of sanitary pads was found to be associated with different factors as the access to mass media, at home, as a source of information, the high socioeconomic status of the family and living in the urban areas. Such a connection was found through different studies, and it confirms that informal education is as important as the formal education received at school. At some time, the surrounding community shapes the experience of adolescent girls around MHM.

With reference to the healthcare system and services, it is crucial to understand the health challenges which face the Egyptian population and specifically the adolescent girls in order to effectively plan for the proper response. The school health services at the school face the same issues about the scarce resources including the human resources. In addition, the floatation of the currency affected the prices of MHM products, which created another barrier for families living in poor settings.

## **Chapter 6: Study limitation:**

Due to time and financial limitations, it was challenging to travel back to Egypt and collect primary data for qualitative research. There were some limitations while conducting the literature review. Firstly, most of the studies included were descriptive ones, while many of the participating adolescent girls felt shy to express their feelings and thoughts about their menstrual experience. Secondly, Studies that involved students had this barrier of the absenteeism of the students when most of the participants reported missing a day or two on menstruation. This led to missing significant data that could be collected from menstruating girls. Thirdly, the academic studies did not explore the sexual activity of the adolescent girls involved in the studies, which did not reflect the frequently asked questions through LMA website about hymn, virginity and sexual activity in relation to the menstruation. Lastly, the recall bias was a remarkable limitation in academic studies. The participating adolescent girls were asked to recall incidents from their previous menstruation within the last three months, which affects the validation of the collected data.

Through the LMA website, it was difficult to understand the intersection of the influencing factors around MHM among the adolescent girls. The reasons are girls may post anonymously or do not provide sufficient information about their education, socio-economic status and other information like religion. In addition, adolescent girls may not have access to the internet, or they are not aware of the existence of such a website. The filtering options on the website were not various; even the basic filtering tools like the date or location were not there. Only filtering by topic is available.

## **Chapter 7: Conclusion: and recommendations**

In the last chapter of the thesis,

The following proposed recommendations are responding to the findings of this thesis, and it will fill in the knowledge and practices gaps. They are the most feasible recommendations to be applied to the possibility of adequate monitoring and evaluation. The recommendations target different groups of the stakeholders who are expected to have an active role in improving the current situation around MHM among adolescent girls in Egypt. There will be a focus on improving the services provided, enhancing the capacity of the providers and increase the availability of the correct information available through peers and online platforms. The role of civil society organizations, researchers and advocates is the core tool to steer the rest of the recommendations and offer evidence-based results to be taken as good examples for best practices.

### **7.1 Conclusion:**

To conclude the findings and the discussion, the MHM is a multi-dimensional issue that has health consequences if not addressed adequately. In a diverse country like Egypt where social and cultural norms vary from one region or city to another, the thesis was able to provide contextualized reviews of specific experiences rather than outstanding findings that can be generalized to the whole adolescent girls in Egypt. The data collected are not representing the different geographical parts of Egypt. Most research up to date conducted was limited to specific cities and a minimal number of schools. Although the analysis of the LMA website gave different insights into the current challenges faced by adolescent girls, there were marked gaps in relevance to other factors like the school experience. The linkage between menstruation and virginity and sexual pleasure during menstruation are examples of the experiences not addressed in the literature but the LMA website.

The conceptual framework was used to respond to the listed objectives by explaining the experiences of adolescent girls and the intersecting inequalities around MHM. It is clear the most of adolescent girls need adolescent-friendly information not only about MHM but also about their sexuality. The knowledge gaps and misconception about menstruation were clear through the literature and the website. The adolescent girls and their networks appear to lack of the correct information about MHM. This is a persisting problem that requires a prompt response. The findings revealed the consequences of the absence of correct information about MHM. Such constraint negatively impacted the psychological status of these girls as they experienced worry and fear because of the regular symptoms accompanying the menstruation and the premenstrual period.

The community and surrounding influencers like the peers or the sexual partner affected the decision-making process about different menstrual practices. The negative impact of the surrounding community members. However, the positive support that these adolescent girls receive was not tackled during the sources included except being a source for information. The guidance on healthcare-seeking behavior and emotional support need further exploration. On the other hand, the social and cultural norms limited the overall analysis as the discussions around menstruation are not openly happen. Moreover, the social and cultural norms increased the fear and worry among girls about their virginity.

Some promising practices about the MHM products may be improved and promoted. The adolescent girls on the website reported the use of either sanitary pads or tampons. These experiences shall be enhanced with correct information to provide successful examples about them. It is essential to collaborate with the government to regulate the prices of these products so that it could be used regardless of the socioeconomic status.

With access to the internet as a source of information, several adolescent girls find it as an opportunity to seek further information about their menstruation. However, it can be an excuse to avoid medical advice from specialist physicians. A promising practice by the moderators is noted while avoiding the provision of medical advice through the website. The government and the MoHP could play a potential role by monitoring the content provided through this website and encourage evidence-based online information. These platforms proved to be adolescent and youth-friendly; therefore, it is significant to make the best use of the.

At the national level, the MoHP, MoF and MoE shall collaborate to fill in the knowledge gaps about SRHR including MHM promising practices. A political willingness is demanded to adopt policies and strategies that prioritize the SRHR of adolescents, particularly MHM. While international organizations have a potential role as they recognize the value of addressing MHM among adolescent girls. Primarily, the government should collaborate with the community member, especially those who influence the girls' journey around MHM to promote community acceptability and support. The deep-rooted taboos about menstruation will need long-term plans in order to shift the behaviors, attitudes and practices towards MHM.

## **7.2 Recommendations**

### **Research:**

1. Additional quantitative and qualitative studies shall be conducted to further explore the various experiences on MHM among the different geographical regions, among public and private schools and different socio-economic status. The linkage between puberty, sexual activity and menstruation has to be further studied to get deep insights on the real situation as well as the sexual activity to validate the data presented on the website. Following, transforming the results of the research into evidence-based policies, short-term and long-term strategies and action plans of the MoHP, MoE and MoF;

### **Strengthen the healthcare system:**

2. Capacity- building training for healthcare providers and teachers, especially those working at preparatory schools on SRHR including adequate MHM practices and gender-equality perspectives using up-to-date training manuals. They will be trained on; delivering adequate sexuality and MHM education, delivering adolescent-responsive healthcare services while integration mental health services and advocating for best menstrual practices;

### **Advocacy:**

3. The SRHR activists and advocates affiliating to Women Deliver organization in Egypt shall prepare a policy brief about SRHR including MHM services for adolescent girls at schools and to and to be present to the MoHP officials;

4. The trained healthcare providers affiliated to the medical syndicates in collaboration with SRHR young advocates shall advocate for a comprehensive policy for the MHM best practices particularly and SRHR at large in order to achieve a universal health coverage of SRHR. The policy should focus on adolescent-responsive health systems. These policies shall promote the accessibility and affordability of the MHM sanitary products. The policy brief will be used as well in this stage;

#### **Schools:**

5. Public and private schools, mainly the preparatory schools, should take a leading role in the designing of a CSE curriculum. They are responsible for its provision in interactive manners that are accepted by the community and the caregivers to assure their support. Teachers can be the agents of this process and can lead the advocacy for the ministry of education. Such schools have strong potentials as the adolescence is the age of puberty when many developmental changes occur and when adolescents start to explore their sexual activities;

6. The school administration is a key agent in improving the healthcare-seeking behavior towards the school health services through the integration of the information with educational curricula

#### **Civil Society Organizations and online platforms:**

7. The CSOs shall lead the initiative to establish public-private partnerships as a key tool to strengthen and support the role of CSOs, the mass media and online platforms and under the supervision of the relevant ministries. This will allow the availability of different formal and informal sources of CSE, including correct information about MHM with focus on the rights-based approach and gender equality.

8. The SRHR young activist should seek external/international financial aid to lead the development of more MHM-focus online content through the existing platforms as Love Matters Arabic website. Additionally, create and design new online platforms that target the adolescents and their SRHR needs including MHM best practices;

#### **Community-based networks:**

9. The CSOs and youth networks shall collaborate to establish adolescent-led networks for peer education. They will link them to the existing youth networks like Y-Peer -national youth network, which works on SRHR and gender-equality topics. Adolescents have a broad influence on their peers thus such networks will strengthen the dissemination of the correct information about MHM and will support their engagement within the community;

#### **Participatory monitoring and accountability (PMA):**

10. As the PMA is a newly introduced concept in Egypt, there are few organizations as the Center for Development Services (CDS) has worked towards testing its model with the ministry of health to enhance services provided for adolescents. The trained staff can collaborate with the ministry of health to train a group of adolescents and their caregivers on how to call for their rights to take positive actions towards active citizenship by providing feedback to the providers. The trained groups should coordinate with the active networks to disseminate the learnt skills. This will assure the sustainability of the provided services and

will promote effective response among adolescent girls to any form of stigma or discrimination.

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**Annexes:**

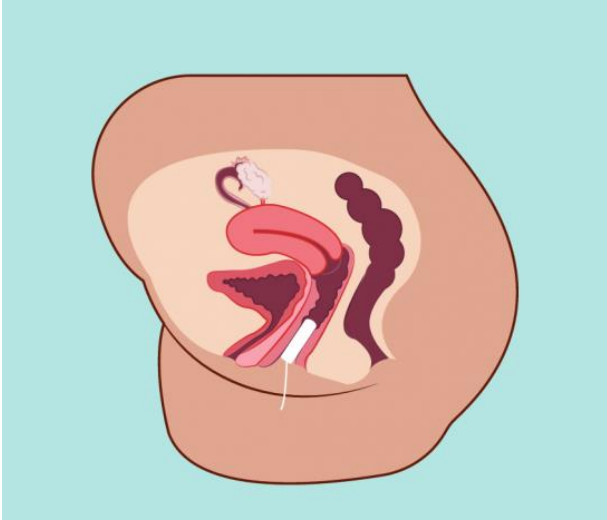
**1. Daily pads and menstrual tampons**



**2. Daily pads and menstrual pads with different sizes:**



**3. The right position for inserting the tampon:**



**4. The menstrual cycle and pregnancy:**