



## EXECUTIVE SUMMARY

Women's reproductive health is a major determinant of a nation's health and the health of its future generations. Studies have shown that women's health is a central feature of human development, as a mother's health has intergenerational impact on the health and well-being of her children. Greater attention is needed to understand the interplay of biological and social determinants in women's health to ensure that women are provided with comprehensive, quality healthcare tailored to their needs. This is especially true for women's reproductive health, as women suffer from diseases that lead to lifelong pain, infertility, abnormal menstrual bleeding, and a lower quality of life. Enhancing and reframing the narrative around reproductive health should be an urgent priority to not only lead to effective preventative strategies and care, but also to empower women to lead their healthiest life possible. This policy paper identifies women's reproductive health problems in the United Arab Emirates, and offers a number of recommendations related to providing an effective reproductive health policy to increase awareness, treat reproductive symptoms, and prevent diseases that may otherwise negatively impact women's daily health activities and their chances of motherhood.

# Women's Reproductive Health Concerns in the United Arab Emirates

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## Introduction

In the Arab Gulf region, research on women's reproductive health is widely under-represented and poorly understood. Investigating the environmental and genetic factors impacting local women's reproductive health will improve the holistic healthcare of women in the Arab Gulf, broader Middle East region, and for the global Arab diaspora. Given the potential effects of these factors on the personal lives of women and their families, as well as on their country's economies and development, women's reproductive healthcare should be a strategic focus so that we can advance our understanding of the complex pathways leading to diagnosis, prevention, and early detection of chronic reproductive health diseases.

This is especially true in the United Arab Emirates (UAE), as Emirati women have among the highest prevalence rates of reproductive health issues and infertility in the world. Obesity rates, first cousin marriages, vitamin D deficiency, lack of awareness among adolescence on reproductive health, cultural traditions that inhibit health education and routine check-ups, and environmental toxins from pollution and chemical agents may all be contributing factors. Due to these factors, as well as potentially others, the fertility rate has dropped by nearly 77% in the Emirati population since 1985. By the next decade, the estimated number of infertile couples may double if no progress is made to improve women's reproductive health (Sayed, 2018; UN, 2015). The silence on young women's reproductive health and insufficient access to information on these matters, whether from parents, teachers, or health services, leads to ignorance on the symptoms of reproductive health diseases. This exacerbates the problem that is perpetuating these illnesses, making them more difficult to manage what otherwise could have been an easily-treatable issue.

This policy paper presents a component of a multi-national study that aims to establish the largest women's health cohort in the UAE, and broader Middle East region, to collect vital health data and investigate factors affecting women's health care seeking practices. In addition, recommendations

related to supporting an effective reproductive health policy environment to increase awareness, enable formal program educational and evaluation strategies, and treat reproductive symptoms and prevent diseases are discussed in order to advance the goal of improving health care outcomes for women of future generations in the UAE<sup>1</sup>. To achieve this, the study sought to measure the:

1. Prevalence of women's reproductive health diseases (Polycystic Ovary Syndrome, Endometriosis, and Uterine Fibroids) and associated symptom in the UAE.
2. Effect of women's reproductive health diseases on work productivity and quality of life.
3. Role of cultural beliefs and traditional norms on women's access and usage of gynecological services that influence the delays of diagnosis.

## Women's Reproductive Health Diseases and Symptoms

In the UAE, numerous significant risk factors lead to the increased prevalence rates of reproductive health issues and infertility, as well as their rates of morbidity and mortality. Each of the known factors are outlined below.

- The UAE has ranked among the highest in the global obesity statistics, with 70–75% of the population being obese or overweight. Women have a 50–100% higher risk of obesity than men. This could be attributed to lack of physical activity, cultural barriers for women to participate in sport teams, as well as the lack of physical education in the curriculum of most public girls' schools (GHO, n.d.; ALNohair, 2014; Datar & Nicosia, 2018).
- Marriages between first cousins account for approximately 50% of marriages in the Emirati population, leading to loss of function mutations and higher frequency of genetic disease occurrence (Shawky, Elsayed, Zaki, Nour El-Din, & Kamal, 2013; Tadmouri et al., 2009).
- Despite abundant sunshine, 90% of the UAE population suffers from vitamin D deficiency, leading to hormonal imbalance, increased risk of miscarriage, and infertility (Muhairi et al., 2013).
- A survey of 1,000 Emirati women found that 91% lacked sufficient knowledge of reproductive health and potential diseases, unaware that these diseases relate to infertility and potentially their life-threatening complications. In addition, in the UAE, a gynecology clinic culturally remains the realm of mostly married women who are able to seek regular check-ups. This

means that young women of reproductive age may suffer from chronic pain on a daily basis or have menstrual irregularities that may be symptoms of larger issues. However, the lack of sufficient knowledge, coupled with inhibitive cultural traditions and taboos surrounding women's healthcare, will prevent her from discussing the problems and visiting a specialist for care (Swan, 2016).

- Environmental toxin exposure from pollution or chemical agents, such as mercury in fish, may increase risk by changing circulating hormone levels and affecting the immune system of exposed women (Chen et al., 2017; Marca & Gava, 2017; Proctor et al., 1998).

The three most common women's reproductive health diseases are polycystic ovary syndrome (PCOS), endometriosis, and uterine fibroids. These reproductive health diseases can have varying degrees of side effects that have overarching consequences for women's health, such as infertility, chronic pelvic pain, and menstrual irregularity (Black & Fraser, 2012). In fact, due to the pathophysiology of reproductive health diseases, it may also lead to other life-threatening conditions, such as cancer, cardiovascular diseases, and diabetes. These symptoms and diseases lead to significant absenteeism in school and work, poor academic results, poor social relationships, increased risk of depression and anxiety, decreased chances of motherhood, and potentially death (Garefalakis, Hickey, & Johnson, 2016).

It is important to detect and treat symptoms at an early age to address the underlying imbalances that perpetuate the illness, which will require a shift in policy, practice, and way of thinking at the governmental level, in schools, doctor's offices, and the home. Late diagnosis of reproductive health conditions exacerbates the problem, making it more difficult to manage what otherwise could have been an easily treatable issue (Arora, Bhattacharyya, Kathpalia, Kochar, & Lele, 2005). Thus, it is critically important that young women are educated, feel comfortable discussing their body, and are supported in seeking care preventatively for their symptoms so that they can make a healthy transition into adulthood and decrease their risk of infertility and chronic, life-threatening conditions.

## Current Status of Reproductive Health and Policy in the UAE

To date, a gap exists in real-world data on women's health diseases in the region. Limited evidence from populationbased studies globally compounds the problem. Such data and evidence would provide policymakers in the

GCC, and broader Middle East, crucial information that could impact public awareness and education, direct critical funding needs, facilitate earlier detection, and allow advice on potential lifestyle interventions. Furthermore, the lack of sufficient studies on women's quality of life and fertility in the Middle East demonstrates the need to prioritize this under-investigated field and understand the relative role of environmental and genetic factors. A detailed appraisal of epidemiological determinants to gynecologic conditions is important for prevention and risk-communication strategies to protect women's reproductive health.

Since the 1970s, significant changes in legislation and policies have been enacted in many areas affecting women's reproductive health. However, these do not adequately mitigate the dearth of targeted policies, information, and systems associated with effective high-quality women's health care. The UAE is one of only a few countries in the world that has no adopted policies, nor approaches taken on educational measures for reproductive and sexual health of adolescents, effective contraceptive services and strategies, and governmental support for family planning initiatives and services. Furthermore, no measures exist to address newborn and maternal mortality in regard to coverage of obstetric care and comprehensive parental care ("Reproductive Health Policies 2017: Data Booklet (ST/ESA/SER.A/396).," n.d.). In addition, very few regulations are in place concerning the quality and ethics of care. Moreover, minimal emphasis is placed on prevention or early detection strategies that would help mitigate the extensive long-term physical, psychological, social, and professional impacts of reproductive health disorders on women and their families.

The UAE is also lagging behind other countries on major indices of health and research development, and lacks reliable, population-based data on the major causes of women's health diseases due to poor reporting regulations and the lack of national registries. Furthermore, the mechanisms and pathways or pipelines that connect the generation of knowledge and its integration into health care and education policies, practices, and programming are poorly developed. This has led in part to a widespread prevalence of high-risk behaviors, such as smoking, obesity, and hypertension (Braveman & Gottlieb, 2014), that increases the chances of contracting numerous disorders and diseases and negatively impacts their prognosis.

## Methodology

The study defines the clinical profiles of the participants by assessing the following outcome measures and associated

variables: quality of life, pain, menstrual history, infertility and reproductive history, comorbidities (the presence of an additional condition co-occurring with the primary reproductive health condition), family history, personal history, and sociodemographic history.

Women aged 18–55 who self-reported as Arab were invited to participate in the study. Those diagnosed with the most common reproductive health diseases, PCOS, endometriosis, and uterine fibroids, were added to a case group, with the control group consisting of those who have not been diagnosed with a reproductive health disease or any related disease.

Completed questionnaires<sup>2</sup> were systematically obtained from 2,750 women (1,200 cases and 1,550 controls) at hospitals, medical centers, and public education seminars across the UAE. The mean age of participants was 28.02 years, and they had an average body mass index (BMI) of 25.12. It is estimated that 36% of participants were overweight and 22% were obese. Other characteristics and personal history of participating women: married (78.2%), of Muslim faith (96.6%), employed (36.4%) or currently studying (31.1%), highschool educated (46.4%) or university-educated (43.6%), and had GCC nationality (63.6%), Levant region nationality (32.2%), or North African region nationality (5.2%).

## Key Findings and Discussion

This research provides evidence of unexpectedly high numbers in not only the prevalence of women's reproductive health diseases, but also the impact on women's lives in a myriad of ways, as most diseases remain undiagnosed, unacknowledged, or unreported for many years. Some of these conditions cause debilitating primary symptoms, especially heavy menstrual bleeding, persistent pelvic pain, and infertility that have substantial impacts on women's quality of life and ability to function on a day-to-day basis.

Women in the study have shown to be more likely to suffer in silence, leading to late diagnosis of reproductive health conditions, and possibly other chronic, lifethreatening conditions. In addition, the high rates of lack of diagnosis and treatment even after women visit a gynecologist further exacerbate the problem and highlight the importance of raising awareness among, not just the public and policy makers, but also gynecologists and related medical physicians and professionals. These points are outlined below, demonstrating discrimination and stereotyping towards women's health and the necessity of integrating policies to address these issues.

<sup>2</sup> The participant questionnaires comprised of adapted and translated versions of the following standardized and validated questionnaires: World Endometriosis Research Foundation Endometriosis Phenotyping and Biobanking Harmonization Project (WERF EPHect), the Polycystic Ovary Syndrome Health-Related Quality of Life Questionnaire (PCOSQ), the Uterine Fibroids Symptom-Quality of Life (US-QOL) and the Short Form Survey 36-Item (SF-36).

<sup>1</sup> Ethics Committee Approvals: Ministry of Health in the United Arab Emirates (Ref. MOHAP/DXB-REC-25/2018) and the Full-Committee Oxford Tropical Research Ethics Committee (Ref. (25-18)). Funding Body: Sheikh Saud Bin Saqr Al Qasimi Foundation Doctoral Research Grant (ME-8180).

## Prevalence of Women's Reproductive Health Diseases and Symptoms

Figure 1 demonstrates the prevalence of women's reproductive health diseases, which were reported to be higher than the global rates: 19.2% vs. 12.0% for PCOS, 12.5% vs. 10.0% for endometriosis, and 21.0% vs. 15.0% for uterine fibroids, respectively. Figure 2 demonstrates the prevalence of women's reproductive health symptoms in women affected with a disease (the case group) in comparison with women in the control group.

Women who were diagnosed with a reproductive health disease complained of the most debilitating menstrual cramps at age of 14.7 years, as opposed to 18.1 years of age for women in the control group. This demonstrates that adolescent girls who are suffering from reproductive health symptoms at a young age have a higher likelihood of being diagnosed with a reproductive health disease, leading to more determinate issues in the longterm, including anxiety, asthma, cardiovascular disorder, infertility, depression, diabetes mellitus, and high blood pressure. In addition to severe menstrual pain, menstrual cycle irregularities have been shown to be correlated with women's reproductive health diseases due to pathogenic mechanisms from untreated symptoms.

Participants' average age of first visit to a gynecologist was reported to be 24.8 years, and 78.2% of these participants were married. Therefore, young women may suffer from severe menstrual cramps, and irregular and heavy menstrual bleeding for 10 years until they consult with a gynecologist or doctor who specializes in women's reproductive health

care for their symptoms. This finding shows evidence of the negative impact of social stigma on women consulting with a gynecologist in regard to her reproductive health problems before she is married.

## Effect of Women's Reproductive Health Diseases in Work Productivity or Quality of Life

Another disconcerting finding is that while the prevalence of menstrual cramps is high (72.9%), only 13.4% of women visit a gynecologist for their menstrual cramps in relation to pelvic pain, abdominal pain, and lower back pain. Thus, patients are more likely to seek medical treatment during evaluation for infertility, even though they have been suffering from severe pelvic pain early in life. Of those that visited a gynecologist, only 18.3% were diagnosed with a gynecological condition for their symptoms, whilst the remaining women were told that the menstrual cramps are due to stress, or that it is "natural" for women to feel severe pain and menstrual irregularities.

This suggests a lack of awareness and knowledge among both medical physicians and the population. On average, 45.3% of women with menstrual cramps miss school or work, and 48.4% of women have a decrease in daily activities during their menstrual cycle, as demonstrated in Figure 3. This leads to late diagnosis of gynecological disorders, with estimates of diagnosis being 8-12 years after onset, which is much greater than the global rate.

Figure 1. Prevalence of PCOS, endometriosis and uterine fibroids in the UAE

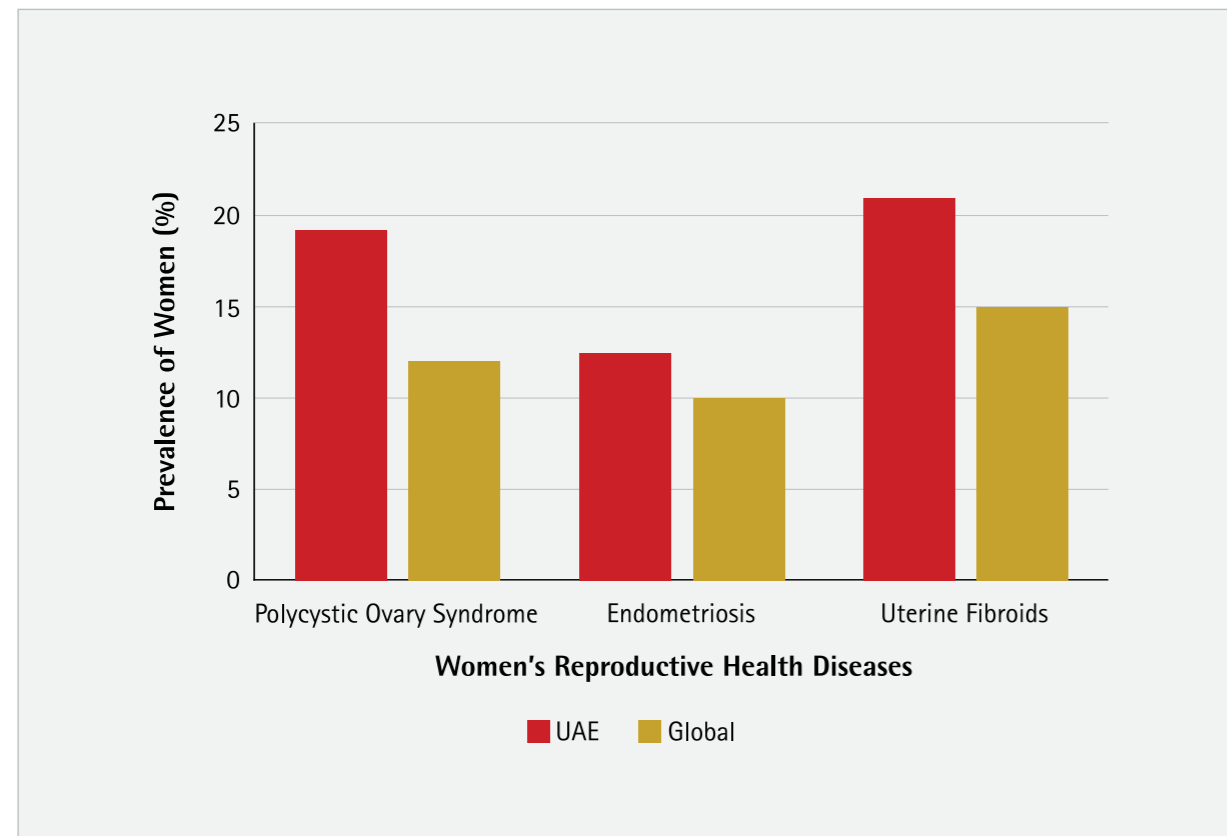


Figure 2. Prevalence of symptoms associated with women's reproductive health

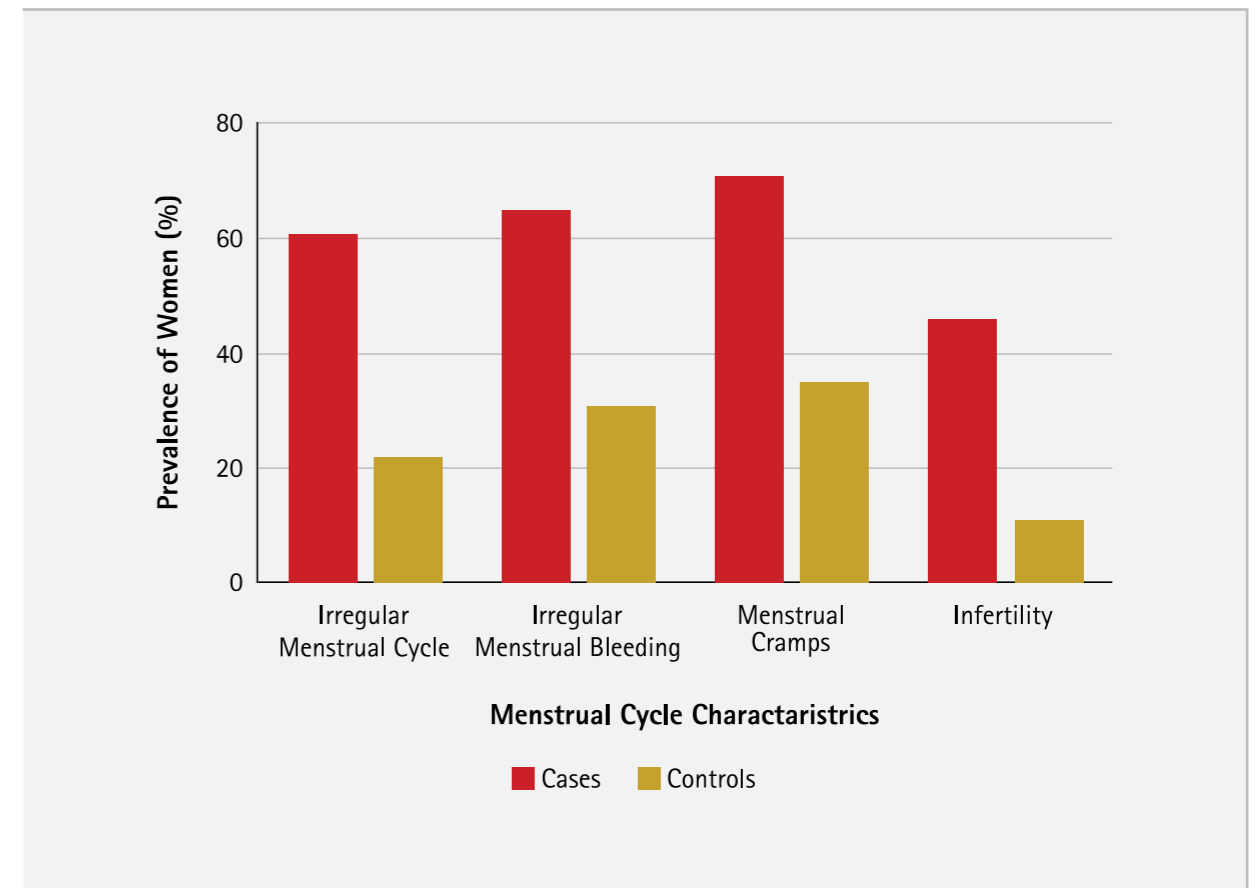


Figure 3. Effect of women's reproductive health diseases and symptoms in daily activities

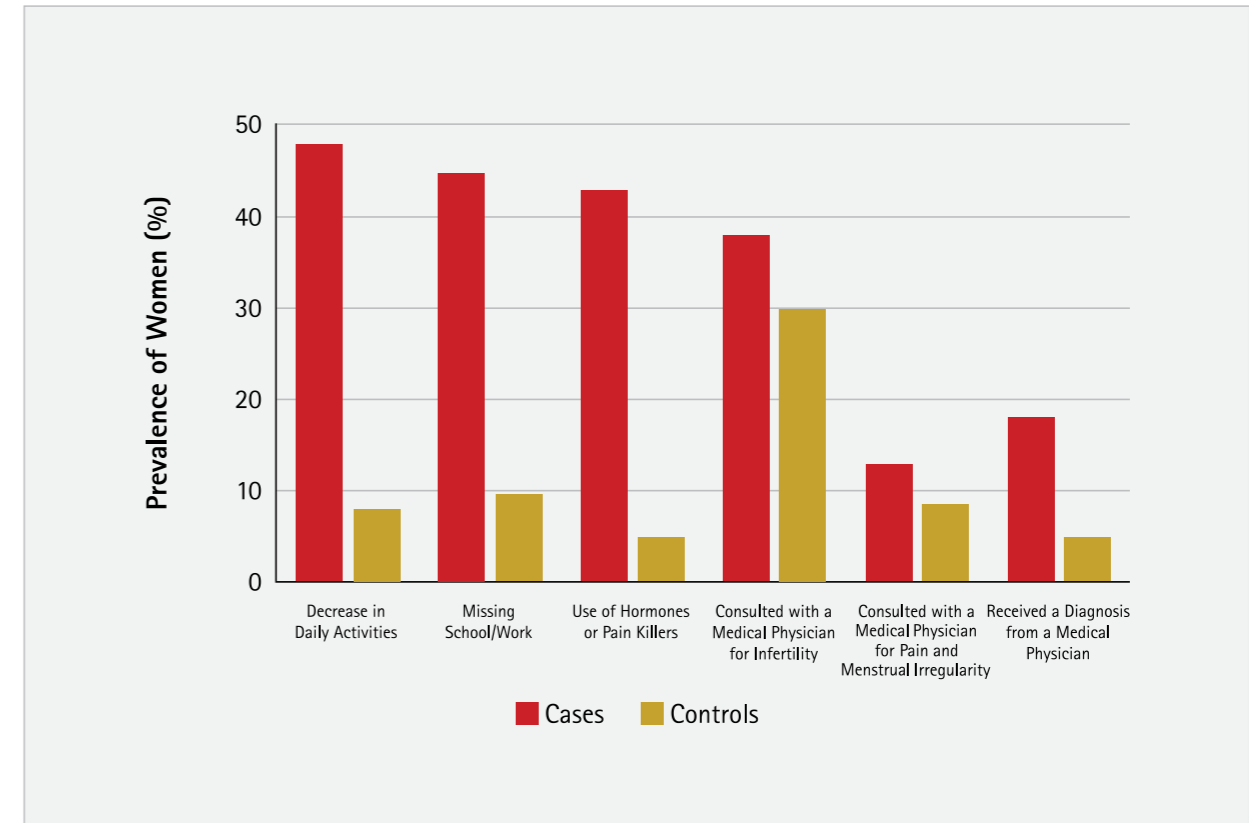
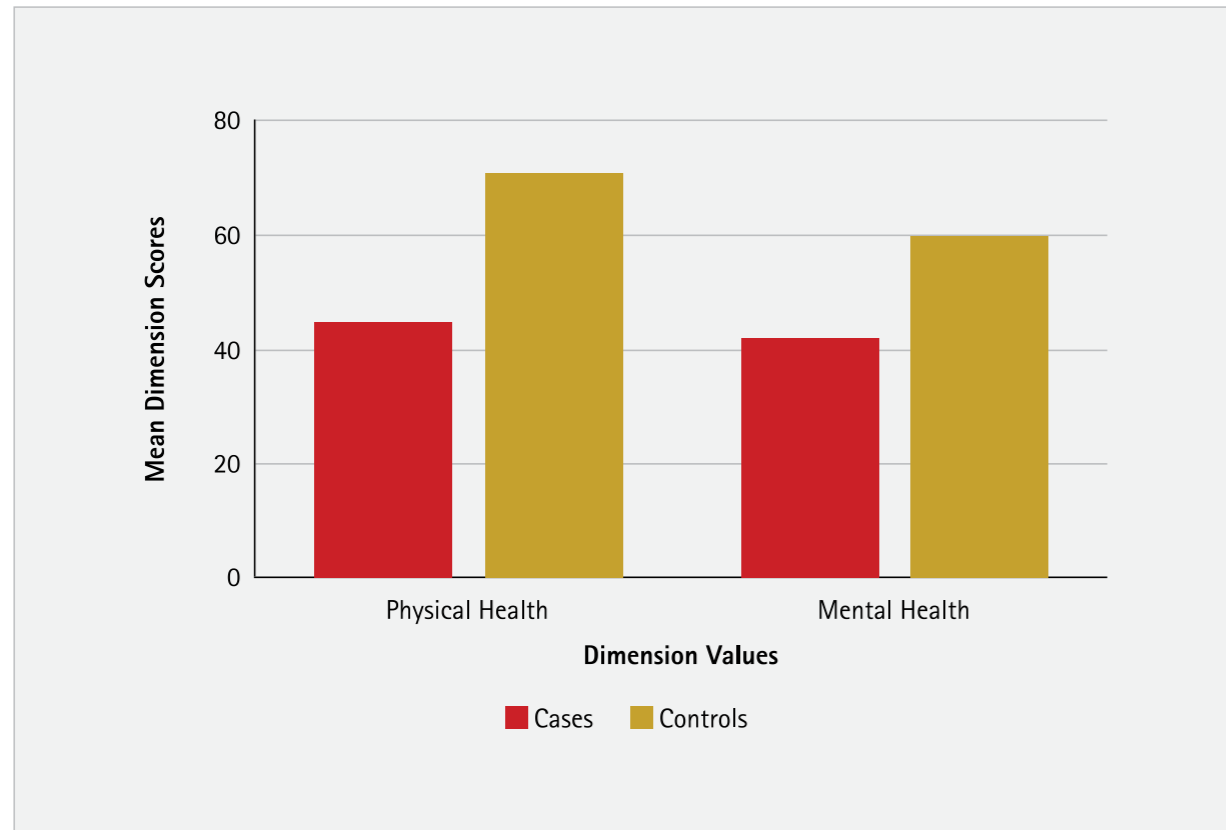


Figure 4. Effect of women's reproductive health on quality of life



The primary impact of gynecological diseases is on the occurrence of acute episodes of excessively heavy vaginal bleeding or acute pelvic pain. Women can usually tolerate and cope with these symptoms until the level of severity leads to an inability to carry out daily household tasks or even physical collapse.

The quality of life of women in both the affected and control groups were measured in two-dimension values: their physical health and mental health. As demonstrated by Figure 4, women with a reproductive health disease had a lower physical health and mental health score, as opposed to women in the control group. The noted causes of a lower quality of life in women suffering from a reproductive health disease are higher economic costs for diagnosis and treatment, poor perception of self-worth, depression, anxiety, sexual dysfunction, work productivity loss, chronic pain, negative body image, and infertility.

### Role of Cultural Beliefs and Traditional Norms on Women's Access to Gynecology Clinic

Cultural and traditional stigmas have a strong influence on worsening symptoms of women's reproductive health diseases. The "culture of silence" hinders progress about such matters when women attempt to discuss menstrual cramps and cycle irregularity. In fact, the length of delay of being diagnosed with a gynecological condition is due to the fact that it is culturally unacceptable for young adolescents and women to visit a gynecologist prior to

marriage. Ensuring access to non-discriminatory coverage with a broad range of evidence-based services, supporting public policies that positively affect women and their families, and closing knowledge gaps are essential to improving the overall health and well-being of women in the UAE.

### Recommendations for Policy, Practice, and Future Research

This paper presents a component of a multi-national study that aims to establish the largest women's health cohort in the UAE. The data obtained in this study serves as a baseline for evaluation of future research activities and benchmarking, and for comparative purposes across the country, region, and world, to ultimately bridge gaps in the field of women's health among different countries and ethnic groups.

Policymakers must consider the health needs of women and take action to strengthen the health care system and societal structures to better support them and their families. A high-quality health care system needs to ensure access to care that is affordable, non-discriminatory, and that accounts for the unique needs of women in various contexts. Additionally, such a system should be coupled with improving awareness among young adolescents on reproductive health education topics, ensuring that women's health care decisions are informed and respected.

The following points are key priority areas for policy and practice reforms as well as research agendas that are essential to providing the necessary knowledge base for developing appropriate mechanisms for improving reproductive health of women in the UAE, the Middle East, and beyond.

### Provide education and awareness on women's reproductive health and reproductive physiology to young adolescents, with access to culturally sensitive comprehensive services that are evidence-based and confidential

Comprehensive reproductive health education programs Figure 4. Effect of women's reproductive health on quality of life 7 Women Reproductive Health Concerns in the United Arab Emirates in schools and communities have been found to improve academic performance and reduce negative health consequences (Programs & Student, 2000). Access to and delivery of evidence-based care has been shown to improve adolescent health by treating symptoms early and avoiding the worsening of any diagnosed gynecological condition (Harris et al., 2017). Delivery of behavioral health interventions using mobile technology is another option and has had promising results (Bakken et al., 2019).

### Provide education and awareness on women's reproductive health to obstetrics and gynecologists to ensure high-quality women's health care provision

Medical physicians must be trained to not ignore young adolescents, or women in general, when they are suffering from exacerbating pain. They must diagnose and treat basic to complex chronic illnesses. Furthermore, they are critically important for providing preventive care as well as the treatment and management of diseases and their symptoms (Hillemeier, Weisman, Chase, Dyer, & Shaffer, 2008), which can help mitigate the negative impacts of these conditions on women and their families.

### It is essential for women to have access to affordable, comprehensive, nondiscriminatory public or private health care coverage that includes evidence-based care over the course of their lifespans

Women should have access to the health care services they may need throughout their lifetime, including reproductive health care and contraception, that is grounded in evidence-based information and reflects their own circumstances. Reproductive care is a key component of women's health. Thus, limiting access and quality can have

lasting repercussions on a woman's physical, and mental health, as well as economic well-being and social mobility (Daniel et al., 2018), directly impacting their family and community.

### Women should have sufficient access to evidence-based family planning and sexual health information to facilitate reproductive decision-making rights by respecting the principle of patient autonomy

Improving the quality of care, while respecting women's privacy, dignity, and informed choice is critical. Women have the right to make their own informed decisions, in consultation with their physician or health care professional, on matters affecting their individual health and well-being. Reproductive decision-making rights should be based on the ethical principle of respect for patient autonomy.

Access to family planning clinics that provide essential health care services, or clinics that inform women of the details of their status, continues to be a major issue for women, particularly those who are disadvantaged and at higher risk for unintended pregnancy (Butler & Clayton, 2009).

### Support efforts to improve the representation of women's health in clinical research and close knowledge gaps related to specific women's health issues

Women's health research and its applications serve a broader societal purpose, yet the research gaps continue to contribute to disparities in health care quality and the treatment of women. All women in the UAE must have access to the best available health care, tailored to their needs and supportive of their agency. To accomplish this, we need to start with a comprehensive understanding of the science and advancements in women's health and care. Supporting this is the need to better understand and utilize the necessary resources to effectively address multiple factors impacting women's health issues and take steps to reduce their negative outcomes.

Furthermore, studies have demonstrated that the exclusion of women in research agendas negatively affected the quality of knowledge and awareness related to women's health issues among the population (Vlassoff, 2007). Gaps in women's health research is not only detrimental to the health of women, but it also prevents policymakers from addressing women's health in outcome measures and from understanding the return of governmental regulations in biomedical research.

## Author's Note

The Middle Eastern Women Research Association (MAR'A) Project is the first to explore public health issues in women that will result in a better understanding of the prevalence, risk factors and symptoms of women's health patterns in the UAE. This policy paper will allow policymakers to be more educated in making thoughtful decisions to invest in health information systems to better identify risk factors, help set policy targets, increase public awareness, and enable formal program educational and evaluation strategies.

## Author's Bio

Mira Mousa is a PhD candidate in the Women's and Reproductive Health Department at the University of Oxford. She is collaborating with multiple institutions including Harvard University, United Arab Emirates University, Khalifa University and the World Endometriosis Research Foundation to be part of a worldwide study to improve the understanding of the fundamental pathogenic processes of common gynecological diseases from an epidemiological approach and genetic risk variants.

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