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Understanding the gender and religious context of women and HIV in Libya:

A mixed-methods study

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"I'm interested in women's health because I'm a woman. I'd be a darn fool not to be on my own side."

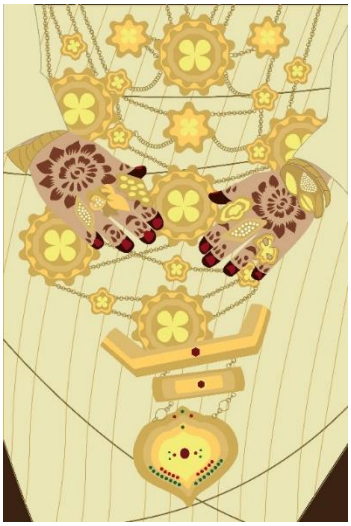
Maya Angelou

Acknowledgement

I would like to thank my supervisors Dr. Pramod Regmi and Prof. Dr. Edwin van Teijlingen. I am deeply grateful for their intuitive understanding of my work style. They allowed me the flexibility and freedom to take my research where I want while providing continuous support.

I owe a heartfelt thanks to my parents, who have been my companions on this PhD journey and a source of strength and comfort, this research is yours as much as it is mine. To my children, Loujain and Kayan, your patience and understanding have been extraordinary, especially during those moments when you graciously accepted being cooped up indoors, allowing me to focus on my work.

Throughout my PhD, I have had the fortune of crossing paths with numerous individuals, each contributing significantly to my experience- I am so grateful to each of you. Most importantly, I extend my sincerest appreciation to the Libyan women who welcomed both me and my study with open arms, and whose blessings have been invaluable.



Integrated papers

In line with BU's Research Degree Code of Practice, this thesis follows an integrated format incorporating four published research articles, one currently under review and two articles in preparation for publication, are integrated into the thesis.

Table 1 details the included research articles, publication status, and location within this thesis. For all publications, I am the lead author and can confirm that I contributed over 75% of the substantive content of each article.

Table 1-1 Research papers published or drafted during the Ph.D. research

Understanding the gender and religious context of women and HIV in Libya: A mixed-methods study

Abstract

HIV (Human Immunodeficiency Virus) first became a public concern in Libya after the 1998 El-Fatih Hospital outbreak when over 400 children acquired HIV. Since then, despite the lack of research and a functioning surveillance system, the number of cases is believed to be increasing, particularly among married women. To effectively respond to this challenge, this study presents a better understanding of the intricate interplay of culture, religion, and gender that may obstruct Libyan married women's access to HIV services, awareness and prevention programmes, and management.

A sequential mixed-method design was used to explore the levels of: (a) HIV knowledge; (b) risk perception; and (c) prejudice towards people living with HIV (PLHIV), among Libyan women. This was achieved through comprehensive literature reviews and, nationwide anonymous, self-administrated online survey, followed by qualitative interviews with five key HIV stakeholders, the latter offered deeper insights into the quantitative findings.

A total of 1,101 questionnaires were completed: 40.9% of women were between 26 to 35 years old, 91.6% were university graduates, with 64.8% in employment. Most lived in the West (66.3%) and the East (24.6%) of Libya. The survey found a mixed level of HIV knowledge, with a relatively balanced spread of low, medium and high. As for the level of HIV risk perception, there was a slight inclination towards higher risk awareness and most women had positive perceptions of PLHIV.

Closer examination revealed that across the three levels, 'getting tested for HIV' emerged as a significant factor, meaning that women who had been tested demonstrated higher levels of knowledge and HIV risk perception, while also exhibiting lower levels of prejudice. Conversely, the link between education, particularly higher levels of education attainment, and HIV knowledge were not explicit. The HIV stakeholders' interviews identified limited awareness, widespread misinformation, stigma, a weak healthcare system, and a lack of government funding and interest, as critical barriers. Furthermore, they reiterated that patriarchal social structures and the ongoing conflict exacerbate these challenges.

This mixed-methods study integrated secondary findings from reviews with primary quantitative and qualitative data, revealing key vulnerabilities in Libyan women related to HIV. A significant gap in HIV research was highlighted, particularly concerning the impact of gender, religion, and culture. The study stresses the need to address the women's cultural and social roles, incorporate Islamic perspectives, and consider the potential impact of ongoing and post-conflict conditions on HIV. Worryingly, the lack of awareness, compounded by Libya's patriarchal structure, seems to play a significant role in limiting women's ability to protect themselves or seek treatment which was supported by the finding that 60% of women lacked confidence in their ability to prevent HIV. Furthermore, social media emerged as a potential tool, providing privacy and support, enabling Libyan women to access HIV information.

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List of Abbreviations

AIDS: Acquired Immunodeficiency Syndrome

ART: Anti-Retroviral Therapy

CASP: Critical Appraisal Skills Programme

FSW: Female Sex Worker

GDPR: General Data Protection Regulation

HCPs: Healthcare Professionals

HIV: Human Immunodeficiency Virus

HRSB: High-Risk Sexual Behaviour

IBBS: Integrated Bio-Behavioural Survey

IDUs: Injecting drug users

MENA: Middle East and North Africa

MSM: Men who have Sex with Men

NAP: National AIDS Programme

NEP: Needle Exchange Programme

NCDC: National Centre of Disease Control

NGOs: Non-Governmental Organisations

PLHIV: People living with HIV

PTSD: Post-Traumatic Stress Disorder

UN: United Nations

UNAIDS: The Joint United Nations Programme on HIV/AIDS

UNAIDS MENA: The Joint United Nations Programme on HIV/AIDS in the Middle East and North Africa

VCT: Voluntary Counselling and Testing

VT: Vertical Transmission

WHO: World Health Organization

WLHIV: Women Living With HIV

Chapter 1 Thesis Introduction

This thesis explores the intersection of gender, religion, and human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) specifically in Libya. It seeks to explain the complex influences of culture and religion, alongside structural factors, that shape HIV awareness, prevention, and management for Libyan women.

By examining the sociocultural, economic, political, and religious factors and by investigating the knowledge, risk perceptions, and attitudes towards people living with HIV among Libyan married women through a mixed-methods approach, this research offers a holistic view of the subject.

In order to provide a comprehensive and nuanced understanding of Libyan women and HIV, a mixed-method study was conducted. The overarching objective is to understand how HIV prevention and management can be effectively and ethically communicated and understood, taking into account existing barriers and facilitators.

To fully understand the HIV situation in Libya, comprehensive literature reviews on Libya's HIV epidemic, the role of women in Libyan society, religious influence, and political landscape, as well as understanding its regional context are crucial (see Chapter 5 for more details). There were instances where data on specific topics such as condom use and Vertical HIV Transmission (VT) in Libya were scarce or absent, therefore the scope of research was expanded across the region, making it possible to infer potential scenarios within Libya.

Guided by the literature reviews, a nationwide survey was conducted, targeting Libyan married or previously married women to assess their levels of HIV knowledge, risk perception, and prejudice towards people living with HIV (PLHIV). Complementing the survey, semi-structured interviews were carried out with key Libyan stakeholders, including healthcare professionals, an academic, and a women living with HIV (WLHIV).

This thesis is primarily situated within Public Health, however, my background in Marketing, Communication, and Public Relations brings an interdisciplinary perspective. By integrating Public Health with Communication Strategies, this study not only examines epidemiological and healthcare aspects but also explores how culturally tailored messaging and strategic communication might help bridge the gap between knowledge, beliefs, and behaviour. This interdisciplinary approach ensures that solutions are both evidence-based and effectively communicated to drive meaningful change.

1.1 Thesis overview

This integrated thesis is divided into ten chapters, including four published research papers, three drafts.

This current chapter provides an outline of the structure of the thesis, to help the reader to understand how the different chapter relate to each other and the thesis as a whole. The Tables are numbered by chapter, for example Table 52 is the second table in Chapter 5. **Chapter 2** presents an overview of wider underlying issues: (a) the global HIV epidemic; (b) the socio-political situation in the Middle East and North Africa (MENA) region; and (c) HIV and the position of women in the region. The research aims and objectives are presented in **Chapter 3**, followed by an introduction to Feminist Pragmatism, the philosophical underpinning and methodology most appropriate for this thesis. The methods are detailed in **Chapter 4**. The chapter continues to describe the mixed methods used in this research, with a focus on how qualitative and quantitative aspects of the research were implemented through the study design, tool development, and data collection. **Chapter 5** presents the literature reviews which provide a comprehensive and nuanced understanding the gender and religious context of women and HIV in Libya. **Chapter 6** offers the empirical findings of the quantitative study and **Chapter 7**, presents qualitative findings of the interviews with HIV stakeholders and the woman living with HIV (WLHIV). The discussion in **Chapter 8** brings together the literature reviews' findings and studies' results through an interlinked narrative and conclude by reflecting on the limitations. **Chapter 9** concludes this thesis and finally, **Chapter 10** highlights the academic and practical implications of the study and suggestions for future research**.**

Chapter 2 Background

2.1 Global HIV overview

To better understand the impact of the HIV epidemic on Libya, it is important to provide an overview of the global HIV situation, and the specific challenges faced in the Middle East and North Africa region (MENA), allowing for a clearer focus on Libya's unique circumstances.

According to UNAIDS Global AIDS update (2023a), there are an estimated 39 million PLHIV in 2023 and 1.3 million new cases, globally. 30.7 million [27 million–31.9 million] PLHIV are receiving life-saving treatment, reducing the number of AIDS-related deaths by 69% (since 2004), with the biggest reductions in areas where HIV is most prevalent, such as sub-Saharan Africa (UNAIDS, 2023b).

On the other hand, the number of new HIV cases has increased sharply in Eastern Europe and Central Asia since 2010 (49%) and the MENA region (61%). Treatment access is particularly poor in these regions where only about half of the over two million PLHIV were receiving antiretroviral therapy in 2022 (UNAIDS, 2023b).

The increasing prevalence is mainly caused by a lack of prevention services for people who belong to key populations who are marginalised by obstacles created by harsh laws, violence, social stigma and discrimination (UNAIDS, 2023b).

Building on the global context, the next section introduces the MENA region and explores the key factors that influence HIV in the region with a focus on women

2.2 MENA

The MENA region is a diverse and dynamic area that consists of a group of countries that share a geographic location and have different levels of income and development (Hakawi and Mokhbat 2022). Most of the population in this region is Arab, but there are significant ethnic minorities, including Amazight, Kurds, and Tuareg. In terms of religion, Islam is the predominant faith across the region, with most Muslims identifying as Sunni. However, there are also Shia Muslim populations, particularly in countries such as Iraq, Bahrain, and Lebanon. Additionally, Christianity is practised by some groups, especially in Lebanon, Egypt and Judaism historically had a presence in countries like Tunisia, Libya and Morocco, although these communities have greatly diminished in recent years. Culturally, the region is shaped by Arab traditions and languages, with Arabic being the predominant language spoken across most countries, however, other languages are spoken, such as Tamazight in North Africa and Kurdish in parts of Iraq and Syria (Sadiqi and Ennaji, 2010; Said, 2019).

The region is defined by the UNAIDS as comprising of 19 countries/territories: Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates and Yemen (UNAIDS 2023c). It is this classification that is used in this study.

2.2.1 HIV in MENA

The region has drawn a lot of attention in the past few years due to the social and political movements known as the Arab Spring (Johansson-Nogués 2013). One of the most pressing health issues in the region is the HIV epidemic, despite having one of the lowest HIV prevalence (Dworkin et al. 2009; Bannazadeh and Soroush 2018). As has occurred in other low prevalence nations, such as Nepal and Indonesia (Jenkins and Robalino 2003), the situation has changed rapidly and currently the region faces a fast-growing HIV epidemic (Shawky et al. 2009; Alkaiyat and Weiss 2013; Gökengin et al. 2016; Karamouzian et al. 2017; Al Rawwad et al. 2020; Najafi et al. 2020; Shakiba et al. 2021; Ghina R Mumtaz 2022; Mohamed et al. 2022).

Regional Data (UNAIDS 2023a;2023b)

• 61% increase in new HIV cases since 2010

• 16% decrease in AIDS-related deaths since 2010

• People living with HIV: 210 000 [170 000– 280 000]

• New HIV cases: 23 000 [16 000–35 000]

• AIDS-related deaths: 6200 [4100–9400]

According to several studies, the HIV epidemic in the MENA region is driven by populations that are marginalised and criminalised such as People Who Inject Drugs (PWID), Men who have Sex with Men (MSM), sex workers, and prisoners (Jenkins and Robalino 2003; Shawky et al. 2009; Mumtaz et al. 2014b; Heijnen et al. 2016; Karamouzian et al. 2017; Mumtaz et al. 2018; Shakiba et al. 2021; Ghina R Mumtaz 2022; Karbasi et al. 2023; UNAIDS 2023c). There is an indication that HIV transmission through sexual contact is increasing with most women acquiring the virus from their husbands (Abu-Raddad et al. 2002; Obermeyer 2006; Akala et al. 2010; Mumtaz et al. 2014a; Gökengin et al. 2016; Mumtaz et al. 2018; Oraby 2018; Mumtaz et al. 2020; Najafi et al. 2020; Shakiba et al. 2021; Bannazadeh and Soroush 2018)

Women are disproportionately affected by HIV in the region as they face multiple barriers in accessing prevention, testing, and treatment services, and often experience stigma, discrimination, economic dependency, and violence (Doyal et al. 1994; Akala and Jenkins 2005; Cheemeh et al. 2006; Obermeyer 2006; Gökengin et al. 2016; Heijnen et al. 2016; Mumtaz et al. 2020; Ghina R Mumtaz 2022; Karbasi et al. 2023).

As noted in the 'Standing up, Speaking out': Women and HIV in the Middle East and North Africa' report by UNAIDS (2012), approximately 40% of PLHIV are women. In 2022, less than half of WLHIV are receiving treatment coverage (2023b) and HIV testing coverage among pregnant women varies, from less than 1% in Algeria and Lebanon to over 98% in the United Arab Emirates (UNICEF 2023).

A lack of political will, limited funding, inadequate data, insufficient awareness and high levels of stigma and discrimination are cited as the cause of the escalating HIV epidemic (Cheemeh et al. 2006; Obermeyer 2006; Shawky et al. 2009; Alkaiyat and Weiss 2013; Bozicevic et al. 2013; Gökengin et al. 2016; Karamouzian et al. 2017; Karamouzian et al. 2018; Daw et al. 2020; Shakiba et al. 2021; Ghina R Mumtaz 2022; Hakawi and Mokhbat 2022; Karbasi et al. 2023). Libya is one of the countries in the MENA region that has experienced a significant increase in HIV transmission (Mirzoyan et al. 2013; Mumtaz et al. 2014a; Daw et al. 2020; Ghina R Mumtaz 2022; Karbasi et al. 2023; Elamouri et al. 2024).

Following this, it is important to gain a better understanding of Libya, as this provides the necessary context to grasp the country's unique challenges and dynamics related to HIV, offering valuable insight into its history, culture, and traditions.

2.3 Libya

Located in North Africa, Libya's capital city is Tripoli with Benghazi as the second-largest city and is home to a population of approximately 7,587,000 predominately of Arab and Amazigh descent individuals (Alalou 2023; Britannica 2023). At the beginning of the 21st century, Libya was home to a significant number of foreign migrant workers, largely from sub-Saharan African countries, who had settled in the country, contributing to its labour force and economy (Bredeloup and Pliez 2011). The official language is Arabic, which is spoken by almost all Libyans.

Historically, Libya was under monarchical rule until 1969 when Colonel Muammar Gaddafi seized control from King Idris I, transforming Libya into an authoritarian state. However, the political landscape of Libya dramatically changed during the 2011 revolution when Gaddafi was overthrown and killed in the early stages of the conflict. Since then, Libya has been grappling with internal conflict and struggling to rebuild its government (Vandewalle 2012; Saidin and Storm 2024).

Economically, Libya relies heavily on the petroleum sector which, in combination with a relatively small population, has resulted in Libya having a relatively high nominal per capita GDP of $6.76 in 2023 (Capitalists 2023). Despite the wealth of the country, it's crucial to highlight that about one-third of Libyans live at or below the national poverty line (Romanet Perroux 2019). Nevertheless, the wealth derived from its abundant natural resources underscores Libya's economic potential and prospects for future growth.

Libyan culture is rich with various influences, reflecting its historical exposure to different civilisations that places a strong emphasis on family, tribal bonds, loyalty and solidarity (Spadaro and Yeaw 2020). Islam is the dominant religion in Libya, which has a profound influence on the country's social, political, and cultural life (Brahimi 2012). Complementing Islamic values is the tribal system, known as "qabīlah"(Moghadam 2013), which is a form of social organisation that allowed the grouping of nomadic people and was the foundation of social order for much of Libya's history (Hweio 2012). As with many countries in MENA, Libya is also a patriarchal society, where gender roles are traditionally defined (Moghadam 2005; Moghadam 2013; UNDP 2015; Lagdaf and Zoubir 2018).

2.4 Chapter Summary

The MENA region has a low HIV prevalence, but the number of new cases is rising rapidly, especially among populations that are marginalised and/or criminalised by the law and society. Sexual transmission of HIV is becoming more prominent, with women particularly affected as they face multiple challenges such as gender inequality, social norms, economic dependence, and violence.

Libya, a North African country shaped by Islam and tribal systems, is still considered a traditional and patriarchal country where women often experience severe challenges and obstacles. Since the overthrow of Gaddafi's regime in 2011, ongoing internal conflict and political instability have further exacerbated these difficulties.

HIV was brought to the forefront of Libya's public health concerns as a result of the 1998 El Fatih outbreak, (see section 5.2) and while HIV prevalence in Libya is reported to be low, there is a concerning trend of increasing cases.

Chapter 3 Research Aims and Objectives

3.1 Introduction

The ongoing conflict in Libya has created a critical situation for HIV and its potential impact. Mirroring conflict zones elsewhere (see section 5.8), healthcare services have been disrupted, risky behaviours such as IDU have increased, and populations displaced – all factors known to contribute to HIV transmission. Although there are studies that researched HIV knowledge and attitudes among Libyan students, HCPs, PWID, MSM, and to a lesser extent Female Sex Workers (FSW), there is a significant gap in research specifically focusing on Libyan women.

3.1.1 Aim

The aim is to explore the vulnerabilities faced by Libyan women, examining the impact of sociocultural, economic, political, and religious factors alongside their level of HIV knowledge, risk perceptions, and level of prejudice towards PLHIV.

Additionally, examining the relationship between stakeholder's accounts and women's responses can bridge communication gaps and improve services. By gaining these perspectives, policymakers and HCPs can develop effective preventative and management strategies, mitigating the potential rise in HIV prevalence and safeguard the health of Libyan women.

3.1.2 Objectives

1) To contribute to the body of knowledge on Libyan women and HIV in Libya through comprehensive literature reviews, highlighting key insights and identifying gaps in existing research.
2) To explore Libyan married women's level of HIV knowledge, level of HIV risk perceptions, level of prejudice towards PLHIV, and sources of healthcare information.
3) To examine variables that influence their level of HIV knowledge, level of HIV risk perceptions, and level of prejudice towards PLHIV.
4) To explore of the stakeholders' observations on the HIV epidemic in Libya and their responses to some of the comments received from Libyan married women.

Chapter 4 Methodology and Methods

4.1 Introduction

This chapter outlines the overarching methodological approach and assumptions underlying this study. It describes the philosophical underpinning, methodology, research design, and methods used, including research instruments, recruitment techniques, and data collection and analysis.

This chapter introduces Feminist Pragmatism as the framework that guided the research and justifies its applicability to research studies, such as this one, that seeks to contribute useful and practical insights regarding a group who are marginalised by a dominant culture. Following that is a description of the mixed-method framework and a discussion of the process of data collection and analysis used in the study.

4.1.1 Positionality

It is important to reflect on my background to better understand how it might have influenced the overall research, philosophical stance, research methods, and interpretation of the findings (Gurr et al. 2024).

The practice of self-reflexivity became crucial throughout the PhD journey especially as I was researching women from the same country who shared similar beliefs. It allowed me to critically examine my own biases, ensuring a more nuanced and impartial approach to my research. Fundamentally, I felt that I had a responsibility to consider how my research could benefit Libya and the Libyan women. And so, I was willing to accept some adjustments as long as they did not compromise the quality and validity of the findings. For instance, one of the decisions I made was to limit my survey sample to married women as I wanted to avoid any potential backlash or criticism from the Libyan authorities and society, who might view my research as inappropriate for unmarried women.

In addition, to ensure that my research questions were respectful and acceptable, I had to make some amendments and omissions in the questionnaire. I decided not to include any questions that mentioned anal intercourse, even though there is evidence that it is taking place in the MENA region. I was aware that such questions could be seen as offensive or inappropriate and could jeopardise receiving ethical approval from Libya and deter women from participating in the study.

Undertaking any research in Libya is challenging due to the decade-long internal conflict, inaccessible archives, and deep-rooted political polarisation and researchers are also likely to face participant rejection due to distrust, restrictions on topics as well as dangerous working conditions (Khalifa 2022). As a Libyan woman living in the UK, I had certain advantages.

As I was exploring a topic that is deemed inappropriate or ‘immoral’ among women living in Libya, I was able to navigate the unique position being considered an ‘insider’ enough for the women to trust that I had their best interests at heart and that my research aimed to improve their conditions and empower them. At the same time, I was an ‘outsider’ (residing in the UK) which reassured them that I wouldn’t be able to identify or expose them, even though they were aware that the survey was anonymous.

Another advantage was that, unlike most international researchers, I didn't require local support to gain ethical approval as my position within the Libyan community enabled me to directly contact the ethics board, receive the approvals, and secure interviews, without the usual delays.

A more logistical challenge was the impact of the COVID-19 pandemic and the political instability in the country, particularly on my data collection. The pandemic caused travel restrictions, lockdowns, and health risks that prevented me from conducting face-to-face interviews with the stakeholders in Libya. In addition, the volatile political situation with ongoing conflicts made communicating and coordinating with them more difficult which meant that I had to resort to WhatsApp to conduct the interviews remotely.

As a Muslim, I was conscious of the impact that Ramadan might have on the survey responses and how it could influence the authenticity of responses. The holy month emphasises virtues that include generosity, forgiveness, and tolerance, potentially skewing the responses to align with these values rather than personal beliefs (Ahmad and Goel 2012). Therefore, it was decided that the study would commence after Ramadan and Eid to ensure genuine feedback.

More broadly, given that I was dealing with the topic of HIV and people, I continuously self-evaluated my language against the principles of the People First Charter (Charter 2021), which emphasises respect, dignity, and non-discrimination. It's about being conscious of the words I chose, understanding their implications, and ensuring they reflect a people-first perspective.

My articles being peer reviewed also encouraged self- reflection through feedback. The process allowed me to identify areas for improvement and recognise biases, providing different perspectives and enhancing my ability to critically evaluate my research.

While my research process was rewarding, I am particularly proud that I was able to portray the true image of Libyan women, who are courageous, intelligent, compassionate, and resilient as well as inadvertently creating a safe space online (the study's Facebook page) for them to interact with. It was crucial that my research can be used to amplify Libyan women's voices and improve their lives through practical solutions, this is why I felt that adopting Feminist Pragmatism as my research framework was essential.

4.1.2 Philosophical underpinnings and Methodology

4.1.2.1 Paradigm

Paradigms are conceptual and practical 'tools' that are used to solve specific research problems and determine the manner in which the research will be conducted. The most common paradigms that underpin research include Positivism, Constructivism, Critical Realism, and Pragmatism (Creswell 2018).

Positivism, Constructivism, and Critical Realism were considered as potential theoretical frameworks for this PhD research. Positivism was rejected due to its assumption that objective truths can be derived from empirical observations alone, which did not align with the study's focus on exploring complex, subjective experiences. Constructivism was considered for its emphasis on understanding how individuals assign meaning to their experiences, but its focus on subjective interpretations did not align with the study's practical, outcome-oriented goals. Critical Realism was also considered due to its belief in an objective, layered reality shaped by societal, historical, and power contexts; however, similar to Constructivism, Critical Realism aims to explain the complexity of human behaviour rather than solving real-life problems directly (Rehman and Alharthi 2016).

The decision to use pragmatism was based on my theoretical perspective as well as the overall research question. Pragmatism a philosophical movement that originated in the late 19th century in America that emphasises the practical consequences of ideas and actions, rather than their abstract or metaphysical foundations (Kaushik and Walsh 2019). It is based on the ontological view (assumptions about the nature of reality) that reality is not fixed or predetermined, and that there are multiple ways for a researcher to understand this reality (Creswell et al. 2011; Creswell 2018) and claims that knowledge is provisional, fallible, and context-dependent, and that truth is what works in any given situation (Morgan 2014).

Pragmatism also embraces a more practical and action-oriented approach to knowledge production, where knowledge is evaluated based on its practical relevance and ability to drive social change. This epistemological stance (assumptions about how knowledge is acquired and how the nature of reality is understood) values both empirical evidence and subjective experiences (Kelly and Cordeiro, 2020). However, one of the limitations of pragmatism is that it doesn't explicitly address the role of gender and power in shaping knowledge and action (Seigfried 1996). This void was filled by the Feminist branch to pragmatism, which applies its insights to issues of gender, feminism, and social justice, drawing upon the principles of both Feminist and Pragmatic theories and practices.

4.1.2.2 Feminist Pragmatism

The intersection of Feminist analysis and HIV activism is an issue that has often been overlooked, and as argued by Jenny Kitzinger, labelling HIV/AIDS as a 'male disease' underscores the gendered narrative that has marginalised women's experiences in the discourse (Doyal et al. 1994: 5). This marginalisation of women's experiences requires a critical approach that centres their voices, and Feminist Pragmatism, as championed by Charlene Haddock Seigfried, offers a valuable framework for achieving this.

Charlene Haddock Seigfried is a prominent philosopher who coined the term 'Feminist Pragmatism' and argued for its relevance and importance for both feminism and pragmatism. She pointed out that although John Dewey, one of the great masters of pragmatism, was a supporter of many feminist causes, his writing is influenced by the risks of a male-only view of women, even if he is empathetic. She states that Feminist Pragmatism is a philosophical tradition that draws on the insights and methods of both movements (Feminism and Pragmatism) and that it is concerned with extending philosophical thought through activism and lived experience (Seigfried 1996; Hamington 2012).

Claudia Gillberg, who has written extensively on feminism and healthcare, is an advocate for Feminist Pragmatism within healthcare. She argues that the dominant biomedical model of healthcare is patriarchal, ableist, and oppressive, highlighting that it fails to address the needs and experiences of women and other marginalised groups. She expresses that there is a need for a more holistic, participatory, and emancipatory approach to healthcare that recognises the social, political, and cultural dimensions of health and illness (Gillberg and Jones 2019).

This approach extends the scope of pragmatism to include not only the practical consequences of ideas and actions, but also their ethical and political implications for social justice and empowerment. Feminist Pragmatists are not only interested in how ideas and actions work in a practical situation, but also in how they can be improved or changed to promote more equality, freedom, and well-being for all people, especially those who are marginalised or oppressed by the dominant culture or system (Hamington 2012).

By applying Feminist Pragmatism, I was able to centre the experiences of Libyan married women, and HIV through a gender-sensitive lens, while also focusing on real-world actionable outcomes that could improve their health and well-being. This theory allowed me to examine not just the systemic barriers to HIV awareness, prevention and management but also the range of personal lived experiences of women, integrating both qualitative and quantitative data to gain greater insights, which could result in culturally appropriate and practical interventions.

Furthermore, the fact that there is still limited research on public health awareness, HIV, and this population overall, supports the argument that this research would benefit from integrating quantitative and qualitative data to provide a better understanding of the problem. Therefore, a mixed-method approach was selected to allow such factors to be assessed and explored thoroughly.

4.2 Methods

4.2.1 Mixed-Methods

The aims of the current research required the adoption of a mixed-methods approach which includes both quantitative and qualitative arms. The mixed-method approach offers a comprehensive picture of the research problem, illustrating and enhancing the understanding of the overall results (MacKenzie Bryers et al. 2014; Wasti et al. 2022). In addition, the focus of this study is based on solving a practical problem in the real world and its complexity demands a mixed-method approach in order for it to be explored comprehensively (Morgan 2007).

This study adopted an Explanatory Sequential QUAN-qual design (Creswell 2004; Creswell 2018)

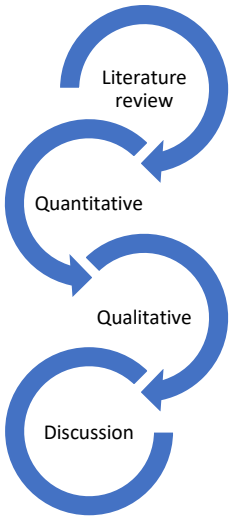

Diagram 1: Mixed Method Approach

Stage 1 Literature review: An analysis of the information gained from literature reviews identified the current state of knowledge, the gaps in the existing research and understanding of the overall context.

Stage 2 Quantitative: An online anonymous self-completion questionnaire assessed participants' HIV/AIDS knowledge, risk perception, and attitudes toward PLHIV. The questionnaire was shared with Libyan married women across Libya.

Stage 3 Qualitative: Semi-structured interviews with key stakeholders enriched the data and expanded on results given by the Libyan married women.

4.2.2 Research Methods

4.2.2.1 Literature review

Given the lack of research on Libya, particularly concerning women and the factors impacting HIV in the country, it was essential to conducted literature reviews that are carried out systematically. These reviews not only contribute to the existing knowledge but also provide a solid foundation for this research (see Chapter 5).

4.2.2.2 Quantitative: Questionnaire Survey

4.2.2.2.1 Study Design

Considering the nature of the study and participants, using an online, anonymous, self-completed questionnaire reduced the effect of the topic's sensitivity and encouraged participants to partake in the study. Since the human element is removed, the participants would not feel the psychological and social barriers of responding honestly as the fear of self-disclosure and being seen in a negative light is reduced (Tourangeau and Smith 1996; Lucas et al. 2014).

Moreover, online surveys provide access to a demographic that might otherwise be unreachable due to social and cultural constraints (see Section 5.4). Despite challenges such as internet connectivity and cost, the growing smartphone market in Libya facilitates internet use, making online surveys a viable option for reaching a significant portion of the population (Hamidi 2023).

The quantitative data was collected through an online self-completed questionnaire (Appendix IV) which was launched May 4th, 2022, and shared using Snowball sampling. Facebook targeted ads were active from 4th June until 4th October 2022, and the survey was closed on the 4th of November 2022.

The quantitative strand study sample consisted of Libyan married or previously married women, living in Libya, aged 18 years old and over. The survey was accessed by 10,003 women, with 1,446 answering the questionnaire. The quantitative data was assembled (checked, edited, and coded) and incomplete questionnaires were excluded, resulting in a total of 1,101 questionnaires that were included in the analysis, using IBM Statistical Package for the Social Sciences Software (SPSS) (Corp. 2021).

Two eligibility questions were included at the start of the questionnaire, the first confirming that the participants are over 18 years old and are or were previously married, and the second to give consent to participate in the study. Respondents who were ineligible were politely requested to exist the survey. The questionnaire comprised of six main sections: socio-demographic information (age, level of education, employment status. and region), HIV and AIDS related knowledge, HIV risk perception and prejudice towards PLHIV, HIV testing, and access to HIV/ healthcare information. It drew inspiration from three existing tools: the HIV knowledge questionnaire (Carey et al. 1997), the 18 item HIV knowledge questionnaire (Carey and Schroder 2002), and a Scale to Measure Attitudes about HIV-Antibody Testing: Development and Psychometric validation (Boshamer and Bruce 1999). To ensure alignment with Libya's religious and social context, some questions were adapted or omitted. Additionally, insights from the literature reviews and consultations with stakeholders informed the direction.

4.2.2.2.2 Tool Development

4.2.2.2.2.1 Survey

Surveyhero.com was identified as the best option as it supports the Arabic language (written from Right to Left) and is GDPR (General Data Protection Regulation) compliant. Consideration was given to the length of the questionnaire, and it was decided that a shorter questionnaire was preferred as this was a sensitive topic, targeting hard to reach people and therefore reducing the burden and discomfort of the respondents and increasing the response rate and accuracy (Booker et al. 2021).

The questionnaire was developed in English and then translated into Arabic as it is the official language of the country. All documents were looked over by a native Arabic speaker, who is a pharmacist, as well as Libyan family members. In order to access the questionnaire, there were mandatory screening questions. The questionnaire was a combination of multiple choice (True/False/Don't know), statement selection, and branching questions.

Feminist Pragmatism's emphasis on valuing both empirical evidence and subjective experiences led to the inclusion of an open question at the end of the survey, encouraging the female participants to share their feelings, concerns, and views they may have regarding HIV (Mollard 2014, O'Cathain and Thomas 2004). This approach ensures that their voices are heard, and their lived experiences are acknowledged. This method aligns with Feminist Pragmatism's goal of capturing diverse perspectives and addressing power dynamics. This feedback could then be used to further future research, highlight certain factors that need to be addressed, or identify ones that were overlooked or couldn't be asked due to the sensitive nature of the study.

4.2.2.2.2.2 Pilot

To ensure that the wording, language, and questions are clearly understood, the questionnaire was piloted after translation (van Teijlingen and Hundley 2001). Two small-scale versions of the study were conducted to assess the quality of the instrument (the questionnaire) and its translation, as well as the quantitative study's feasibility and iron out any issues. Both were available for 1 month.

For the pilot study, the snowball sampling approach was adopted to invite potential participants:

1) Libyan married women living abroad: the questionnaire was sent to Libyan women living outside of Libya to gauge their reaction to the questions asked. There were 168 completed questionnaires.

2) Egyptian women living in Egypt: For this second pilot study, the survey was run as it would be in Libya, but with women in Egypt in order to validate the actual data collection method. The reason the pilot was conducted with Egyptian women is because (1) they are Libya's neighbours, and their involvement will not contaminate the sample for the main study, and (2) cultural and language similarities with Libya. There were 63 completed questionnaires.

Through the pilot studies, the wording, the clarity of the instructions, and the practicality of administering the questionnaire were tested. The participants were encouraged to give feedback on the questionnaire via the survey, however as none was received, no amendments were made to the questionnaire as a result. The results of the pilot studies were not included in the main study.

4.2.2.2.3 Study Participants

4.2.2.2.3.1 Inclusion and Exclusion Criteria

The target sample group was Libyan married or previously married women, aged 18 years old and over, living in Libya. Anyone below the age of 18 is categorised as a child in the UK, therefore due to concerns with safeguarding, Libyan participants were required to be over 18 and those younger were not eligible and excluded (UK 2024). The decision to focus on 'married' women was due to Libya being a predominantly Muslim country, where conservative interpretations of Islamic law and patriarchal traditions are seen as the foundation of the country. This means that the generally accepted stance is that Libyan women do not engage in sexual intercourse out of wedlock and even though this may not reflect the diversity and complexity of the population, it was important to respect the boundaries.

This decision was also determined by:

1- The data that was available only included married women.
2- There were questions in the questionnaire that discussed condom use and confidence in the husband.

4.2.2.2.3.2 The sample size

Due to the lack of published data on the percentage of married women in Libya, the sample size was derived from an estimation based on age demographics (Britannica 2018) and used the following Sample Size Formula (Charan and Biswas 2013). This study used a confidence level of 95%; therefore, the confidence interval (margin of error) = 5.

Current population of women: 3,389,103
Estimate number between ages 15-70 years (67.6%) 2,291,033
Percentage of women married or once married 70% *

Sample Size (SS) = 1.96^2 x 0.70 (1-0.70) / 0.05^2= 323

*Referencing various cross-sectional studies, it was found that around 67-79% of the participants in the studies were married (Ermiah et al. 2012; Sana Taher et al. 2015; Lemamsha et al. 2019), therefore an average of 70% was selected.

A sample size of 323 is justified for a hard-to-reach population, as highlighted by Lakens (2022). According to Lakens, the smallest effect size of interest (SESOI) should guide sample size determination, particularly when accounting for practical constraints and the necessity of obtaining meaningful findings from underserved populations.

Although initially the target sample size was 323 completed questionnaires, the study received over 1,446 questionnaires, of which 1,101 were included in the final analyses.

4.2.2.2.4 Data Collection

A web-based link to the questionnaire was distributed through various media and was left open for six months.

- Link sent to family and friends to be shared
- Link distributed via Twitter and Facebook women's groups/ Non-Governmental Organisations (NGOs)
- Targeted Facebook boosted posts

4.2.2.2.4.1 Snowball and Social Media recruitment

Sampling is the method of selecting a subset of individuals from a population to represent the entire group, enabling a more thorough analysis and there are two primary approaches to sampling: probability and non-probability. Probability sampling involves using the principles of chance, ensuring every potential sample has an opportunity to be chosen and includes techniques such as simple random sampling, systematic sampling, stratified sampling, and cluster sampling. Conversely, non-probability sampling involves choosing samples that are selected based on non-random criteria; examples of non-probability sampling are snowball sampling and purposive sampling (Berndt 2020).

Initially, snowball sampling was selected as it is especially useful when studying populations that are difficult to identify or reach (Sadler et al. 2010). It starts with a small group of known individuals and expands the sample based on referrals from initial participants.

For this particular study, a link to the survey was included in the recruitment poster that was shared with female friends and family members based in Libya and they were requested to share it with their network of family and friends. This approach was preferred as it benefitted from the Arabic social norm of 'Wasta', which is defined as a personal exchange system between members of society that requires members to call on personal connections for assistance (Al-Ramahi 2008; Barnett et al. 2013). Although this method did recruit some participants, it became a challenge to increase participation.

In order to improve recruitment chances, targeted Facebook posts were developed and boosted which meant snowball sampling was no longer appropriate. The sampling design used for the Facebook targeted ads would be best described as purposive sampling (Shaver et al. 2019).

Social media has become widely used as a data collection approach in research (Arigo et al. 2018) and given that 72% of Libyan Social Media users used Facebook, making it the most popular social media platform in the country (International 2018-2019), it was selected as the preferred platform. Facebook offers a suite of targeting options to reach specific groups, including demographic details such as age and gender, user interests based on their activity, behavioural patterns such as device usage. This comprehensive range of information enables posts to reach the target audience (Facebook).

A study's Facebook page (Figure 2) was created, and a recruitment poster was uploaded (Figure 3). Initially, the target was 'Women, 18+, in Libya, Married, Separated, Widow', however, since many women's profiles lacked marital status, this criterion was omitted. It was felt that because the poster and questionnaire clearly stated that participants must be married or formerly married, it was acceptable to remove it.

After six months, the number of completed questionnaires was 1,446

Figure 1 Facebook page

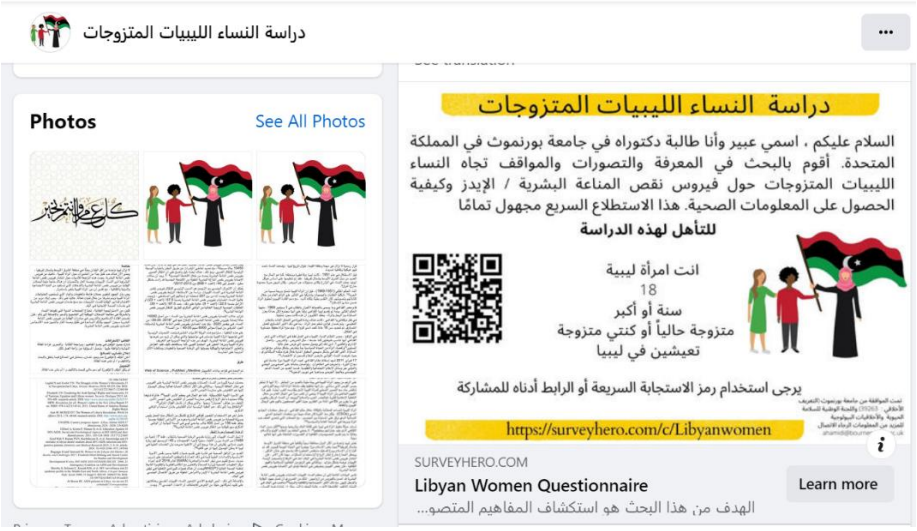

Figure 2 Facebook page and recruitment poster

4.2.2.3 Data Management and Analysis

The initial dataset was collected via the online platform surveyhero.com and subsequently transferred into Microsoft Excel for preliminary processing. During this stage, the dataset underwent a translation process to ensure all responses were in English.

Out of the 1,446 questionnaires, 1,101 were included in the analysis, and 345 questionnaires were excluded because:

1) Participants didn't respond to any of the questions.
2) Missing data for a participant accounted for over 20%.

In quantitative research, the presence of missing data is expected. Enders (2003, as cited by Dong and Peng 2013), noted that it is not uncommon to find a missing data rate of 15% to 20% in studies. The paper also referred to the study conducted by Peng and colleagues (2006), which encompassed quantitative studies published between 1998 and 2004 in 11 journals and revealed that 48% did have missing data. The authors continue to state that literature does not provide a universally accepted threshold for the permissible proportion of missing data in a dataset to ensure valid statistical deductions.

Addressing missing data in a dataset can be managed by either opting for (Kang 2013):

- Listwise or Complete Case Deletion: This method involves excluding all cases (i.e., rows in a dataset) that have at least one missing value.
- Pairwise Deletion: This method excludes cases where a particular variable is missing but uses available data from other variables.
- Mean Imputation: This method involves replacing missing values with the mean of the observed values of that variable.

While excluding missing data from calculations is a practical approach, it was important to identify them and discern if there is a pattern. This is because the nature of the missing data can have profound implications on the conclusions drawn from them (Mirzaei et al. 2022).

Once the data cleansing was complete, the refined dataset was imported into the SPSS and a Little's Missing Completely At Random (MCAR) test was run to identify the missingness of the data.

Chi-Square = 114.365, DF = 95, Sig. = .086

Based on the results of Little's MCAR test, the data can be accepted as MCAR, as the p-value is greater than 0.05. This means that the missingness of data is not related to any other observed or unobserved variables.

Subsequently, the Pairwise Deletion method was deemed the ideal treatment for handling this missing data especially given the sensitive nature of the topic and the low percentage of missing data of less than 5% (Mirzaei et al. 2022). This approach capitalises on all available data by separately analysing each variable whilst preserving the sample size, which is critical in studies on sensitive topics (De Leeuw et al. 2003).

The data was then systematically analysed to identify overarching trends and patterns through descriptive statistical analysis which provided a foundational understanding of the data's characteristics and distribution. Exploring further into the relationships among the various variables, inferential statistical analysis was employed, allowing potential correlations and interactions between different data points to be identified. Chi-square tests were used to determine whether there were significant associations between categorical variables (McHugh 2013), however, while chi-square indicates whether a relationship exists, it does not measure the strength or direction of that relationship. To address this, Spearman's correlation was used (Shi and Conrad 2009). Additionally, ordinal regression was conducted to examine the impact of multiple independent variables on an ordinal dependent variable, as it helps present a clearer analysis by accounting for other influencing factors and understanding the impact of each predictor on the outcome (Norton et al. 2018)

The criteria to report the statistical findings with confidence was: *, **, *** Significant at 5%, 1%, 0.1%.

4.2.2.4 Qualitative: Semi-structured interviews

4.2.2.4.1 Study Design

Interviews are a fundamental tool in qualitative research, providing a way to collect detailed insights from participants. There are several types of interview techniques used in qualitative research, each with its own structure and purpose (van Teijlingen and Forrest 2004):

- Unstructured Interviews: These are open-ended and free-flowing conversations without a predetermined set of questions. They are often exploratory and allow the interviewee to guide the conversation.

- Structured Interviews: These have a set of predetermined questions that are asked in a specific order, ensuring consistency across interviews. They are more rigid and less open to exploration.

- Semi-Structured Interviews: These are a balance between structured and unstructured interviews. They have a framework of topics or questions to guide the interview but allow for flexibility.

Semi-structured interviews were conducted with key stakeholders in the field of HIV and AIDS, and healthcare as they allow for an open and flexible dialogue. The main purpose of these interviews was to explore the research problem from the perspectives of the stakeholders and build on the findings from the questionnaire, providing a holistic understanding of the situation.

There were predetermined topics and clarifications that were required from the stakeholders (Albaret and Deas 2023) however, it was also important to leave room for the participants to share their experiences and perspectives in their own words, offering a nuanced understanding of HIV and healthcare (DeJonckheere and Vaughn 2019). In this way, semi-structured interviews support the Feminist Pragmatist goal of producing knowledge that is grounded in real-world experiences and value the insights and experiences of stakeholders.

4.2.2.4.2 Tool Development

4.2.2.4.2.1 Semi- Structured interviews

The semi-structured interviews included four key topics: HIV Knowledge, Perception, Barriers, and Communication. The interview consisted of nine main questions, each with follow-up questions. Additional questions were asked based on the interviewees' responses and the findings from the quantitative strand (Appendix VI).

4.2.2.4.3 Study Participants

4.2.2.4.3.1 The sample characteristics and approach

Semi-structured interviews included five key stakeholders: Female Dentist, Female Gynaecologist, Female manager at the National Centre of Disease Control (NCDC), Male HIV academic, and a Woman living with HIV (WLHIV).

It was important to include participants from different occupations and gender in order to capture a diverse range of perspectives, experiences, and opinions, which can enhance the quality of the findings.

The manager at the NCDC and the Academic were identified through an internet search and published papers. As they both work in the field, they were easier to contact, whereas the dentist and gynaecologist were identified through acquaintances. Taking into consideration the sensitivity of the topic, being introduced by a trusted person increased their willingness to participate and speak openly.

The WLHIV was approached via the Facebook page where she identified herself and expressed her eagerness to contribute to the study. Her participation gave her a chance to share her views and concerns as a woman living with HIV in Libya.

Ideally, the interviews would have taken place face to face however because of the security concerns in the country due to the on-going conflict, virtual interviews were preferred over telephone interviews. However, the participants preferred audio WhatsApp call interviews.

4.2.2.4.3.2 The sample size

Purposive sampling was selected in order to target specific individuals with relevant expertise and experience, ensuring that the data collected was rich and relevant to the research objectives (Ahmad and Wilkins, 2024). Purposive sampling works particularly well in a mixed-methods study, especially one that leans more heavily towards quantitative methods, as it allows for a targeted approach in selecting participants who can provide specific, valuable insights that complement the quantitative data. By choosing participants based on specific criteria related to the research objectives, it ensures that the qualitative data collected is directly relevant and meaningful, helping to explain the responses from the quantitative arm.

4.2.2.4.4 Data Management and Analysis

The study information sheet, consent form, and a topic list that guided the interview were provided to the potential participants when they were recruited. The interviews were conducted over the phone and were digitally recorded, and consent was received over the phone prior to beginning the interview. All interviews were conducted by the researcher and lasted between 45 to 60 minutes.

The Arabic language was mainly used during the interviews; however, some participants occasionally used some English words and expressions.

Straight after each call, the interviews were transcribed into English. This was to ensure the (a) quality and accuracy of the transcription while it was still fresh and (b) to enable the researcher to focus on any emerging topics for the next interviews. The transcription was then checked again against the original audio to ensure accuracy.

The software for the qualitative data was NVivo Pro 20 (2020), which was used to organise and code the data. Using NVivo allows for transparency in the analysis process whilst providing a clear audit trail and addressing researcher bias through rigour.

Once the transcriptions of the interviews were organised, thematic analysis was performed to identify themes by exploring similarities and relationships. Developed by Braun and Clarke (2006), thematic analysis followed the six steps:

Familiarisation: Reading and re-reading the data, to become familiar with its content.

Generating initial codes: Systematic highlighting the data to correspond to different codes.

Generating themes: Identify patterns among the codes and identifying potential themes.

Reviewing themes: Checking if the themes work in relation to the coded extracts and the entire data set.

Defining and naming themes: Ongoing analysis to refine the specifics of each theme and the overall analysis.

Writing up: Answering the research question, using literature and the analysis, to produce a report.

These steps provide a structured approach to working with data and allow researchers to handle large amounts of information in a way that is transparent and replicable, enabling researchers to extract and present complex analyses of the insights.

4.2.2.5 Qualitative analysis of the open-ended question in the online survey

4.2.2.5.1 Introduction

At the end of the survey, there was an open question inviting participants to add any comments or feedback. The aim of this open question was to encourage the participants to share their feelings, concerns, and thoughts regarding HIV (O'Cathain and Thomas 2004). This feedback could then be used for future research, highlighting certain factors that might need to be addressed or identify ones that were overlooked or couldn't be asked due to cultural sensitivities.

4.2.2.5.2 Data collection

93 Libyan women left comments which were collated and analysed.

4.2.2.5.3 Data Analysis

Excluding messages of support and gratitude, 86 were deemed eligible for analysis. As the survey was in Arabic, the comments were translated into English and then analysed using thematic analysis (Braun and Clarke 2006).

There was one respondent who is a woman living with HIV, one whose brother-in-law passed away from AIDS related illnesses, and one who has family members living with HIV.

4.3 Reliability, Validity and Credibility

In order to present a viable conclusion of a study's findings, the instruments used to obtain the results should be assessed for their reliability, validity, and credibility. Explanatory Sequential designs in mixed-methods research can help to preserve the distinctiveness of each method and enhance quality by using criteria that are specific to each method (Bishop 2015).

4.3.1 Quantitative method

Online questionnaires are consistent with other more traditional data collection methods, and if designed and executed rigorously, results from online questionnaires can be methodologically reliable (van Gelder et al. 2010; Regmi et al. 2016).

Content validity refers to how well a research instrument measures the specific skills or knowledge it is intended to measure (Yaghmaie 2003). For this study, the questionnaire content was informed by the literature review as well as previous studies and was shared with academics in the field to check for any errors or irregularities. Furthermore, two pilot studies were conducted and the pilot participants were asked to explicitly comment on the questionnaire design and wording, further supporting the content validity.

4.3.2 Qualitative method

According to Sandelowski and Barroso (2002), the value of qualitative research is harder to evaluate because there is no consensus on how to measure its reliability. However, the current study followed Lincoln and Guba (1985) who applied certain criteria to qualitative research: credibility, transferability, consistency, and confirmability.

Credibility in qualitative research hinges on whether the outcomes are recognisable to individuals who share the same experience. To establish this, this study showcases the methods and documentation of the research (Cope 2014). The use of NVivo for data analysis supports the criteria for consistency and confirmability, as there is a clear audit trail (Bergin 2011), whereas the detailed description of the study provides transferability (Korstjens and Moser 2018). Furthermore, according to Korstjens and Moser (2018), qualitative research requires reflexivity to achieve clarity and rigor. This was achieved through regular conversations with supervisors as well as the positionality statements in this thesis (see Section 4.1.1).

4.3.3 Data Management

The management of data, its storage and sharing were guided by the Bournemouth University guidelines (BU Data Management) and was in line with the ethical approval awarded (see Appendix VII)

The data from the questionnaire and the recordings were uploaded to the Bournemouth University secure OneDrive on a BU password protected secure network. The interviews were transcribed within 48 hours and after the revalidation of the recordings, were deleted off the system. As per the BU policy, data will be retained for ten years after final completion of the research.

4.3.4 Ethical Considerations

Prior to commencing the research, ethical approval was sought from The Libyan National Committee for Biosafety and Bioethics and Bournemouth University (Appendix VII). It was very important to receive ethical approval from the country in which the research takes place, here Libya, complying with the legal and ethical standards of the host country and avoiding any potential conflicts or risks. It also enhances the quality and validity of the research as it demonstrates that the research was conducted in a responsible and respectful manner. All documentation was provided in Arabic, the official language of Libya, ensuring clarity and understanding for participants. As a PhD student it was also important to obtain Bournemouth University ethical approval for this academic work.

Quantitative:

Informed consent: The study required participants to provide voluntary consent therefore informed consent was mandatory in order to proceed with the questionnaire. Before starting the questionnaire, participants were obliged to review the study details and answer preliminary questions, which included confirming that they had read the information and are providing consent.

Survey software: Surveyhero.com software was used which is fully compliant with all UK data protection laws and accessibility requirements and the interviews were recorded using a digital recorder.

Qualitative:

Informed consent: In the case of semi-structured interviews with stakeholders, the consent form was part of the information pack which was emailed prior to the interviews, giving them enough time to facilitate informed decision-making. Verbal consent was obtained from the stakeholders before starting the interviews.

Data collection and confidentiality: Confidentiality during the audio calls was maintained by ensuring that no personal identifiers or names were captured in any transcripts and conducting the interviews in a private room with no one else present.

4.4 Chapter Summary

To explore Libyan married women's HIV knowledge, risk perception, and prejudice towards PLHIV, this study used a rigorous mixed method approach that was informed by Feminist Pragmatism. It combined qualitative and quantitative studies that were tailored to Libyan culture and limitations. Ethical approval was received from Bournemouth University as well as from Libya, as it is a crucial element in conducting responsible and respectful research.

Chapter 5 Papers in Literature Review

5.1 Introduction

One of the aims of this research is to contribute to the limited body of knowledge surrounding Libyan women and HIV in Libya, an under-researched area. This objective was pursued through drafting and publishing comprehensive literature reviews, which aim to highlight key insights while identifying significant gaps in existing research.

When the forthcoming articles are collectively examined, they provide a comprehensive and nuanced understanding the gender and religious context of women and HIV in Libya. Each review addresses an influential factor such as the current and potential HIV burden in the country, the health beliefs and perceptions of the Libyan people, and the specific challenges women face in obtaining HIV-related education and healthcare.

Each type of review has a distinct approach and serves to address different aspects of the research topic. The scoping reviews (*HIV epidemic in Libya: Identifying gaps, Healthcare attitudes in Libya: Implications for HIV prevention and treatment, Islamic perspective on HIV: a scoping review, Prevalence of Vertical Transmission and its associated factors in MENA: a scoping review, and The impact of conflict on the HIV epidemic in Libya: a scoping review*), provide a broad mapping of the existing literature and identify knowledge gaps. Given the relatively limited research on Libya especially on the topic of HIV, scoping reviews are ideal for exploring and providing a comprehensive overview of the landscape, setting the stage for more focused investigations. A systematic review was chosen to synthesise the evidence on the facilitators and barriers to condom use in the MENA region (*Facilitators and barriers to condom use in the Middle East and North Africa: a systematic review*), as this topic involved a significant body of research. A narrative review, on the other hand, allows for a more flexible, interpretive exploration of the topic, which in this case is the challenges in reaching Libyan women (*HIV prevention- challenges in reaching Libyan women: A narrative review*). Together, these different reviews give a comprehensive understanding from different angles (Grant and Booth, 2009).

Collectively, the reviews provide insights into condom usage, the repercussions of armed conflict, the influence of Islam on the perceptions of HIV and PLHIV, as well as Vertical Transmission of HIV, touching on the cause of the Libyan HIV outbreak in the late 90s.

5.2 HIV Epidemic in Libya: Identifying gaps

5.2.1 Introduction

This review (Hamidi et al. 2021) assesses the available literature on HIV in Libya and includes various sources such as primary research studies, government reports, and online databases to provide missing information. The review reveals a lack of research on HIV in Libya, especially concerning the increasing HIV cases among women, particularly married women. It questions whether the significant influence of religion and culture in Libya is affecting the research efforts and calls for more research.

Hamidi A, Regmi PR, van Teijlingen E. (2021) HIV Epidemic in Libya: Identifying Gaps. *Journal of the International Association of Providers of AIDS Care*.

HIV Epidemic in Libya: Identifying Gaps - PMC (nih.gov)

Review

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SAGE

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Abstract

Background: HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome) became a public issue in Libya after the infection of 400 children in El-Fatih Hospital in 1988. Due to the civil war, social and religious barriers, HIV prevalence is hard to establish, but it is generally believed to be increasing.

Objective: This review (a) assesses the size and scope of the available literature on the HIV epidemic in Libya; and, (b) identifies the nature and extent of research conducted to date.

Methods: A comprehensive search was performed using PubMed, Medline, Web of Science, ScienceDirect, Scopus, Academic Search Ultimate, Cochrane Library and Google Scholar. Primary research studies and official reports that are exclusively on Libya published during 1988–2021 were considered.

Results: In total 25 studies were included: Ten primary research studies, four online news articles, six Government reports, one letter to the editor, one manuscript, three online databases

Conclusion: Despite the low-quality data, the literature suggests there is an increase in HIV infection rates in Libya. Culturally sensitive research on sexual activities, women, HIV preventative methods and attitudes of the Libyan public will assist in developing an effective National AIDS Programme, reducing HIV stigma, supporting People Living with HIV (PLHIV) and decreasing infection rates.

Keywords

HIV, libya, women, stigma

Date received: 4 June 2021; revised: 6 September 2021; accepted: 30 September 2021.

Background

According to the United Nations, the Middle East and North Africa (MENA) region has the lowest prevalence of HIV (human immunodeficiency virus) and AIDS (acquired immunodeficiency syndrome) in the world, less than 0.1%[1] yet, the number of new infections is increasing steadily[2] and it is estimated that there were 20 000 new HIV infections in 2019, a 25% increase from 2010.[3] The region also has high AIDS-related mortality rates, with 9800 people dying of AIDS-related illnesses in 2018.[4]

It is believed that the reason for the low HIV prevalence is due to the MENA region being predominately made up by countries that are religiously and culturally conservative.[2] One of these countries is Libya, which is considered as one of the more conservative Arab countries.[5]

A letter to the editor of *The Journal of Infection* in 1988 reported on a study which screened 2064 Libyans (female and male) in 1986 to 1987, in which all samples were negative for HIV antibodies.[6] The same author continued this study in 1991, testing 10 000 specimens and still found no HIV cases.[7] This was the first time that HIV was brought to Libyan researchers' attention.

Daw et al.[8] conducted a study that assessed HIV infection clustering and trends in Libya over a twenty-five-year period: 1993 to 2017, there were already 975 known cases of HIV in Libya between 1993 and 1997.[8] However, it was only in 1998 that HIV and AIDS became a public issue in Libya when the government arrested five Bulgarian nurses and a Palestinian doctor accused of deliberately infecting over 400 children with HIV-infected blood, causing an epidemic at El-Fatih Children's Hospital in Benghazi. In response to the outbreak and with the

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support of the European Union (EU), the Libyan Government established a National AIDS Programme (NAP) in 2002.

Over the span of ten years, despite several attempts to develop a national strategy with the aid of eight million Euro grant[9] as well as extensive research on the epidemiology of HIV infection in the country and consultancy services from the Liverpool School of Tropical Medicine (LSTM), a strategy is yet to be developed.[10]

The primary reason for the delay is due to the 2011 Libyan Civil War, which led to the HIV response budget as well as the projects planned in cooperation with international partners being postponed.[11] There was a glimpse of peace and security when the transitional government was installed in December of that year. Under the then Minister of Health, Dr Fatima Elhamroush, HIV became one of its three highest priorities and a comprehensive programme to respond to the growing HIV epidemic resumed.[12]

The National Transitional Council was dissolved in 2012 and to this day, Libya remains in political turmoil which has affected its HIV response planning. This stagnation was acknowledged in the 2015 Country Progress Report, commenting that very little progress was achieved regarding the status of the epidemic and gathering up-to-date data.

Unfortunately, even though there was a genuine attempt to respond to the HIV epidemic, the on-going unrest in the country has impeded the development of a comprehensive NAP and detrimentally, any further research. Our review of the literature on HIV in Libya is timely with the new unified Government in 2021.

The aim of this study is to review published evidence on HIV prevalence, risk factors and social stigma associated with the virus in Libya. Past literature has discussed specific aspects of HIV; however, no study has compiled the results of studies that focused solely on Libya, giving an overarching perspective of the epidemic in the country. Such information should help identify gaps in the literature and provide insight for further research which is essential in developing an effective and comprehensive NAP. Without developing new epidemiological studies, it would be very difficult to develop effective future care plans and measure the HIV and AIDS burden on the country.

Method

A comprehensive search was performed using PubMed, Medline, Web of Science, ScienceDirect, Scopus, Academic Search Ultimate, and Cochrane Library. An initial search using key terms and medical subject headings (MeSH) was conducted. Search terms included "Libya", "HIV", "AIDS", "HIV-1" and related terms.

Further searches using Google scholar and the reference lists of key articles identified in the primary search were also conducted to determine additional literature.[13] Primary research studies and official reports that are exclusively on Libya published during 1988–2021 were considered.

Seventeen articles dating from 1988 to 2020 were read and assessed for this review, out of which 10 primary research studies were included and seven were excluded as they focused on physical manifestations of the HIV virus, best practices by health care workers and the benefits of health education intervention for premedical students. As the El-Fatih HIV outbreak of 1988 was an isolated case, material that is related to it as well as the legal proceeding against the nurses and doctor have been excluded as they do not provide a broad representation of the overall epidemic. Online newspapers and magazine articles were included to enhance and provide further details of events and experiences. English and Arabic language material were reviewed.

In total 25 studies were included: 18 publications provided HIV prevalence, 17 showed infections associated with injecting drugs and sexual transmission, one listed marriage as a potential risk factor, five provided limited data regarding women, three research papers explored stigma and attitudes. Three included research on condom use, one researched HIV prevalence in Men who have Sex with Men (MSM) and Female Sex Workers (FSM).

Ethical approval or informed consent was not required for this scoping review which does not involve human participants.

Results

HIV Prevalence

Studies and reports dating from 2001 to 2020 identified the HIV prevalence and the number of registered PLHIV (People Living with HIV) in Libya as relatively low. It is assumed that these figures are for Libyan nationals, unless explicitly stated otherwise.

Much of the research on HIV in Libya was conducted between 2004 to 2020 and most studies published similar HIV prevalence rates and number of cases. They show an increase of HIV prevalence from 0.13% in 2004[14] to 0.2% in 2019.[15]

The number of reported HIV cases: 10 557 in 2000,[10] 7000 in 2002.[16] In 2005, 8654 cases were registered,[11] this increased again to 10 000 in 2006[17] and 10 450 in 2007.[18] Daw et al.[8] reported a total of 8486 registered PLHIV between 1993 to 2017.

As for Women Living with HIV (WLWH), the available data show a steady increase in new infections. It was found that during 1993 to 1997, out of the 975 cases, 22.3% (n = 217) were female and in 2013 to 2017 out of 2147 again 22.3% (n = 497) were female.[8]

It is apparent that there are challenges with gathering national statistical data. Availability and accessibility of any reports on HIV and AIDS in Libya is limited and the handful of reports that are available include outdated and missing data.[10,11] Referring to newspaper articles for further clarification, it was found that there are inconsistencies with the number of cases disclosed.

The director of the AIDS and STD (Sexually Transmitted Disease) Department stated in 2013, that the number of HIV cases was 12 000 (1990 –2013). This is the same statistics that were announced in June 2012 and officially published in September 2012.[19]

It was reported that HIV cases increased from 6000 in 2017 to 10 000 in 2018,[20] of whom 25 to 30% were women. In November 2020, the number of people with HIV (excluding the eastern part) was around 6,000, of whom 35 to 40% were women.[21]

Epidemiological data on AIDS related deaths are also scarce, however the recent Libya Country Report-2020[22] disclosed that the number of people who died of AIDS-related illnesses in 2019 has nearly doubled since 2016 (n = 121). This increase is a consequence of the on-going conflict which has led to the collapse of a historically incapacitated health system, limiting the supply of antiretroviral medicines.[23]

Risk Factors

The mode of HIV transmission in Libya has shifted throughout the years. It was initially found that most PLHIV were infected via blood or blood products during 1993 to 1997. By 2007, there were no further cases linked with blood.[8]

In 2003, as cited in *HIV/AIDS in Libya*,[18] the Ministry of Health stated that more than 90% of HIV infections are the result of contaminated needles. It identified Sub-Saharan African lorry drivers and immigrants as the original carriers and transmitters of the virus, although there is no conclusive data on the epidemic among African immigrants in Libya and its impact on Libyan nationals.[24]

The HIV prevalence among injecting drug users (IDUs) in Libya is significantly increasing over time; it was 20% (n = 195) during 1993 to 1997 and reached over 50% during 2008 to 2017 (n = 963).[8] In 2012, HIV prevalence among IDUs was at a startling 87%, (out of a sample of 328), the highest rate recorded anywhere in the world.[25]

Despite the lack of data and reliable evidence on Libya's HIV epidemic, the majority of experts still speculate that injecting drugs is the predominant mode of transmission however, Government sources are indicating that there is an increasing trend towards sexual transmission.[10] This trend is supported by the Spatiotemporal Analysis and Epidemiological study[8] that demonstrated infected cases from sexual activities had increased steadily, reaching 40% (n = 858) between 2013 to 2017.

The only study that looked into HIV prevalance in MSM and FSW found that the HIV prevalence in MSM is 3.1% and 15.7% in FSW.[26] The study also touched upon the potential cross-infection of the HIV virus into the general population. Out of the sample size of 227 MSM and 69 FSW in Tripoli, only 21% of MSM used a condom during last anal intercourse. 63.4% of FSW reported regular condom use during sex with one-time clients and 56.8% with regular clients. However, only 12.1% of MSM and 49.2% of FSW knew how to use condoms correctly. 68.5% of MSM also had sexual intercourse with a female partner in the past and 53% had intercourse with a woman in the last six months.

Mirzoyan et al.[25] found that only two-thirds of the 75 IDUs in their study, who reported having had sex during the previous month, used a condom. Another study with final year university students (BSc level) reported that only 39% (156 of 400) participant believed that condoms are important for the prevention of HIV transmission.[27]

When researching HIV-related hospitalisations, out of 227 people hospitalised with HIV, most of the female HIV patients were married 57.5% (n = 23) or widowed 22.5% (n = 9) and 87.5% (n = 35) identified martial sexual relations as a route of HIV transmission.[28]

In 2012, a study researching the prevalence of HIV in prisoners in Libya raised the concern for potential for cross-infections, whether through sharing needles or sexual activity.[29]

Stigma and Attitude

Merely three studies[17,27,30] were explicit in researching stigma and attitudes towards PLHIV and they focused on Libyan students and dentists.

A total of 1082 high school students from five cities in the North-West of Libya were recruited for a self-administrated questionnaire study (2004 to 2005). The study indicated a high level of stigma towards HIV-infected individuals with 34% (n = 371) strongly agreed and 27% (n = 295) of the students agreed that an HIV infected individual is dangerous to others.[17]

This negative attitude towards PLHIV is shared with final year medical sciences university students. 66% of the 400 final year (BSc) university students agreed that an HIV or AIDS patient should be isolated.[27] However, a study in 2015 to assess 'Knowledge and attitudes of Libyan dental students about HIV/AIDS infection and HIV-positive patients',[30] concluded that Libyan dental students have a positive attitude towards HIV-positive patients. Around 90% of the 101 students thought that HIV positive patients should be helped, supported and treated but the study also found that 77.7% said that they would inform the patient's close relative about the status of HIV positive patient.

Although the 2015 study could be taken as an optimistic indication of decreased stigma towards PLHIV, it also raises the concern of patient confidentiality and reinforces the fear of 'people finding out'. A retrospective analysis of HIV-related hospitalisation at Tripoli Medical Centre in 2013 found that a significant number of patients denied any HIV risk factors and others displayed advanced stages upon admission.[28] It is not determined whether this denial is due to the lack of knowledge or stigma or perhaps both.

Discussion

Having reviewed all accessible, published materials on the HIV epidemic in Libya, its prevalence and risk factors, the key finding was the overall lack of research on the topic, especially

regarding women and sexual transmission. There is also a void when it comes to the stigma PLHIV face in the country, the views, attitudes and knowledge among the general population.

Libya does not have adequate monitoring systems and relies on data received through mandatory screening at various institutions for when certificates are required as well as cases reported by hospitals. This current system offers variable degrees of accuracy and potentially a misrepresentation of the number of PLHIV, who do not know their status as they never needed to be tested, those who choose not to disclose it, or those who are aware of their status and forge certificates of clean health in fear of the repercussions.[19]

There is a recurring theme of inaccurate and out-of-date data within the studies and reports. In HIV/AIDS in Libya,[18] the author refers to the contrast between the infection rates published by the Libyan Government and those of other independent sources.

Historically the policy of the former regime was not to disclose actual data regarding the virus as part of 'national security'. Not only was HIV not deemed a priority during Ghaddafi's regime but he went as far as refuting all medical research and evidence, declaring in 2003, that homosexuality was the only cause of HIV and rejecting the notion that HIV can be transmitted through unsafe sex and drug abuse.[19]

Today, in addition to the civil war, the prevalent association between HIV and immoral practices and the fear of the social labelling of being infected with the virus, is the biggest obstacle in Libya. Many might choose to risk their health rather than getting tested and knowing their status for the sake of their own and their family's reputation and honour.

The social stigma is worse than the illness itself, as confessed by PLHIV. Stories of being outcasted by family and community, isolated from society, unable to access healthcare, study or work, are some of the difficulties that PLHIV face in Libya. Society's ignorance and its stereotypical view of the virus is even more damaging and shameful for Women Living with HIV (WLHIV). Girls and women who are found to have contracted HIV are subjected to violence, humiliation, isolation, and invasive virginity tests.[19]

In an attempt to reduce stigma and encourage testing, a National Committee for Reduction of Stigma and Discrimination was formed, mobile VCT (Voluntary Counseling and Testing) services and an HIV & Hepatitis Hotline were introduced. Prevention efforts prior to the conflict were focused primarily on raising awareness of HIV among the general public through the media, training programs for selected professions (eg members of the judiciary, medical providers, teachers and religious leaders) and World AIDS Day celebrations.[10,22]

The body of literature available honed their focus on IDUs as the high-risk group, rather than investigating other HIV risk activities, which might have led to under-representation of some HIV risk activities previously reported in Libya. The literature dictates that the main cause of HIV infections is injected drug and building on this, the Libyan National Strategy has focused on IDUs by collaborating with international experts in training medical staff and initiating further research studies.[22] However, could it be possible that there might be a religiously or culturally enforced downplay of the significance of other HIV- risk activities.

Islam is a powerful force in society and family dynamics in Libya. It has been suggested that Islam does play an important role in promoting low–risk behaviour[31] and its greatest contribution to the epidemic is prevention. On the other hand, Islamic values depict sex outside of marriage, homosexuality and use of any intoxicants (alcohol and illegal drugs) as sinful and therefore carry a high-level stigma. Consequently, this prevents those at risk from seeking information, testing, and treatment.[32]

Religious interpretations and culture play a large part in the Government and its respective departments' approach to HIV. They are under pressure to adhere to what is deemed religiously and culturally appropriate in fear of being accused of contributing to the spread of the disease and condoning immoral behaviour.[19]

There is clear evidence that cross-infection of HIV is occurring through sexual activities and although this is mentioned in various studies and reports, a handful conducted any research in this area. Only two studies[25,26] researched high-risk groups' sexual activities. ElFituri[27] touched on condom awareness and Shalaka et al.[28] identified marital heterosexual intercourse as a route of HIV infection in women. The most obvious reason for this shortcoming is the weight of religious and cultural sensitivities and potential repercussions.

Strengths and Limitations

This is the first review to organise and summarise HIV information from published studies that are exclusively on the HIV epidemic in Libya, without any date restrictions. Nevertheless, there were some limitations; firstly, only published literature that's available online was included and it is possible that there are other studies which are not accessible online. Although there were no language restrictions placed, no study on HIV in Arabic was found. Reports, newspaper and magazine articles, which could potentially show bias, were included as it was felt that they provided further evidence and understanding on the HIV epidemic, its impact on the Libyan population and the challenges faced with surveillance and management.

Conclusion

This review of the literature on HIV prevalence, risk factors, stigma and attitude in Libya found that there is an absence of research into the virus in the country. This is particularly true regarding the increasing HIV infections among women and in particular, married women, in recent years. Religion and culture play a significant role in Libya and therefore may impact research efforts. With that in mind, more diverse research is required to gain a better understanding of the epidemic to be able to control the infection rate and provide PLHIV a dignified life.

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5.3 Healthcare Attitudes in Libya: Implications for HIV Prevention and Treatment- a Scoping review

5.3.1 Introduction

The scoping review examines Libyans' attitudes towards health and the healthcare system, and their potential impact on HIV prevention and treatment. It identifies five key themes and concludes that cultural stigma, Healthcare Providers' (HCP) lack of expertise, a fragile health system, and resource shortages are barriers to HIV services. It emphasises the need for public awareness, holistic healthcare approaches incorporating faith and improved healthcare infrastructure.

Abstract

Background: Libya, a North African Muslim country, has a low but rising Human Immunodeficiency Virus (HIV) prevalence. Numerous variables have influenced the HIV epidemic in Libya, making it a complicated and contentious topic. Consequently, it is important to understand Libyans' attitude towards health, and the healthcare system as these factors influence how likely they are to access and use HIV prevention and treatment services.

Aim: This scoping review aims to: a) explore the health-related attitudes of Libyans and, b) consider how these may affect the provision of HIV services within Libya's health system.

Method: A comprehensive search was carried out on the databases Academic Search Unlimited, MEDLINE, APA PsycInfo, SocINDEX, CINAHL complete and Google Scholar by means of MeSH terms 'Libya', 'Attitude', 'Perception' 'Health' and 'Healthcare', and related terms.

Result: This paper reviewed and analysed 35 papers published between 1999 and 2023; most (n=26) are quantitative studies, five are literature reviews and four are qualitative studies.

The analysis revealed five themes that help understand factors that shape the attitudes of Libyans toward their health, the health system, and the potential use of HIV treatment and services.

Conclusion: The review identified several factors that may hinder the provision of HIV services, such as cultural stigma, lack of awareness and education, weak health system and infrastructure, and shortage of antiretroviral therapy and trained healthcare staff. Some of the main actions would be to increase public awareness, treatment and service access, healthcare provider skills, and research.

Background

The HIV (Human Immunodeficiency Virus) epidemic in Libya is a complex and controversial issue influenced by various political, social, and economic factors. The official estimate of HIV prevalence in Libya is 0.2% (UNAIDS 2022b) however, a recent study concluded there are indications that the HIV prevalence in Libya is increasing (Hamidi et al. 2021). The authors argued that the country's HIV prevalence may be increased due to the lack of HIV awareness, prevention, and treatment services, which are influenced by cultural and religious factors.

A recent country report (WHO 2022) suggests that more than a million Libyans have acute health issues which are further exacerbated as a result of the prolonged armed conflict and political instability that are continuing to disrupt its health system (Hamidi et al. 2021). Many health facilities have been damaged or destroyed as a result of armed conflict, while others lack essential resources such as water, electricity, medicine and staff (Luke et al. 2022). It is reported that 90% of the primary health care centres are closed and 37% of these were damaged, whilst 73% of health facilities in the south and 47% in the east, have reported a shortage of medical supplies and human resources (WHO 2021).

Most Libyans do not visit healthcare providers regularly, only seeking medical help when they are very ill or in an emergency. It was found that less than 10% of both women and men have annual checkups and preventative care, this is because most Libyans are not satisfied with the quality of medical services, rating them as average or poor (Abdul-Latif 2013).

The attitude of Libyan people towards health and the health system can affect how and whether they use HIV prevention and treatment services. Therefore, this review aims to present factors that potentially shape their views, supporting policymakers to design effective and ethical campaigns.

Method

A search was carried out on the databases Academic Search Unlimited, MEDLINE, APA PsycInfo, SocINDEX, CINAHL complete and Google Scholar by means of the (MeSH) terms 'Libya', 'Attitude', 'Perception' 'Health' and 'Healthcare', and related terms. The review initially identified 129 potential records but after screening the full texts, 35 papers were included according to the following inclusion criteria: (1) focus on health, healthcare and health issues; (2) the study was exclusively on Libya; (3) the paper discussed attitudes and perceptions; and (4) availability as full text in English.

Results

Key themes

Five themes emerged namely, a) culture; b) religion; c) public awareness; d) healthcare infrastructure; and e) healthcare providers' knowledge.

Culture

Libyan culture values reputation highly and one's reputation depends on their actions, words, and behaviour which will reflect on their family and tribe as well. Hence, Libyans try to avoid anything that might bring shame, insult, or disrespect to themselves or their relatives (Yeaw 2018; Hamidi et al. 2021; Hamidi 2022). This makes them reluctant to seek medical help, as they may feel it is improper or embarrassing, especially if these are perceived as sensitive topics such as mental or sexual health (Ermiah et al. 2012; Sabei and Sammud 2015; Hweissa et al. 2016; Taher 2018).

Religion

The Islamic faith can influence health practices and the use of healthcare facilities and although Islam attaches great importance to taking care of one's health- it is considered a religious duty- many Muslims believe illness and dying as tests from God (Sachedina, A., 2005). This fatalistic acceptance of disease or death (Allah's will) not only influences their general attitude toward health, but it is also the most frequently reported cause for illnesses (Ashur et al. 2015).

The gender of the doctor affects how women seek and access health care services, especially when it involves intimate or sensitive issues. Islam teaches that men and women should maintain modesty and avoid unnecessary contact with members of the opposite sex, unless they are relatives or spouses. Therefore, most Libyan women prefer to be treated by female doctors, however, if there is no female doctor available, some may refuse to be seen by a male doctor, or delay or avoid seeking treatment altogether (Ibrahim et al. 2014; Hweissa et al. 2016).

Additionally, Complementary and Alternative Medicine (CAM) plays an important role in the healthcare system in the country. In a survey by Shaboun et al., (2023), 75.8% of the medical students stated that their family members had used CAM, with Ruguia spiritual healing topping the list as the most commonly used. Ruguia is a form of Islamic spiritual healing that involves the recitation of Qur'an, seeking of refuge, remembrance, and supplications (Makhlouf et al. 2023a).

Public Awareness

Public health awareness is often lacking or inadequate in Libya, where health literacy levels are low and access to health information is limited (Hamidi 2022). It was reported that most Libyans would turn to social media (Elhadi et al. 2020b) or family members for information (Elfituri et al. 1999).

This low level of public health awareness can often result in misinformation or negative information, adversely impacting on people's health, well-being, and behaviour (Elfituri et al. 2006; Roaeid and Kablan 2007; El Taguri et al. 2008; Arheiam et al. 2014; Hweissa et al. 2016; Jahan and Rwaiha 2021; Lagaa et al. 2022). As a result, high levels of stigma and discrimination against people with illnesses such as epilepsy were found (Alhagamhmad and Shembesh 2018). One notable study recorded that 66.8% of parents believed that people with epilepsy should not have children, 92.6% would keep their children away from people with epilepsy and 86.3% do not want a family member to marry a person with epilepsy (Taher 2018).

Other than increasing stigma, lack of awareness can delay diagnosis, which is already a problem in the country, fostering negligence (Bofarraj 2011; Valadez et al. 2013; Hweissa et al. 2016; Elzahaf et al. 2019) or inciting refusal of treatment altogether (Ermiah et al. 2012).

Healthcare Infrastructure

The historically incapacitated health system was further deteriorated by the COVID-19 outbreak and the current internal conflict, putting more pressure on an already weak public health infrastructure (Arheiam et al. 2014; Elhadi et al. 2020b; Elhadi et al. 2020c; Elhadi et al. 2020d; Atia et al. 2021a).

Consequently, Libya lacks certain healthcare equipment, medication, personal protective equipment and services that not only reduce public satisfaction and trust in the health system but also compromises patient safety and quality of care as many studies have highlighted (Bisheya et al. 2011; Ermiah et al. 2012; Hweissa et al. 2016; El-Shareif 2019; Elhadi et al. 2020b; Elhadi et al. 2020d; Elhadi et al. 2021; Jahan and Rwaiha 2021; Luke et al. 2022; Makhlouf et al. 2023b).

Healthcare providers knowledge

The quality of medical education in Libya has deteriorated due to several factors, including a shortage of qualified teachers, the overcrowding of students at university, outdated curricula, a lack of access to up-to-date health journals, and research outputs (Elfituri et al. 1999; El Taguri et al. 2008; Peeran et al. 2014; Elhadi et al. 2020b; Elhadi et al. 2020c; Atia et al. 2021b).

The educational system also does not provide adequate training on new procedures or techniques, and when it does, it is unclear and poorly organised. It also ignores the need for continuing education for specialists (El Taguri et al. 2008; Bisheya et al. 2011; Arheiam et al. 2015; Elhadi et al. 2020b).

The study on the awareness and knowledge of breast cancer among female medical students established that most of the participants were not aware of some of the early signs of breast cancer such as a change in the colour or shape of the nipple (Elzahaf Raga A 2018). Another concerning study found that only 19 out of 152 Libyan healthcare providers in the study had training in cancer pain management because palliative care doesn't exist in the Libyan healthcare system (Makhlouf et al. 2023b).

The healthcare professionals' perceived level of preparedness in managing symptoms reflects the lack of training opportunities. A study reported that 83.8% of participants had low confidence in managing suspected COVID-19 patients (Elhadi et al. 2020b). However, the study by Lagaa et al. (2022) conducted during the peak increase of COVID-19, reported a high level of knowledge of COVID-19 among healthcare workers, with doctors demonstrating a higher level of expertise.

As for HIV, Ben Saoud et al. (2013) noted that the knowledge and attitude of healthcare professionals on HIV post-exposure prophylaxis (PEP) in Benghazi, varied from satisfactory to good with some misconceptions still existing.

Discussion

The review was motivated by the low but increasing HIV prevalence in Libya, which is influenced by various political, social, and economic variables. It considered the impact of the culture and religion, ongoing conflict, the limitation of the health system and healthcare providers on Libyans' attitude towards health.

By considering the factors that influence Libyans' health views and actions, HIV prevention and management programmes can adapt their strategies to the specific needs and preferences. This can help enhance the awareness, acceptance, and use of HIV services, lower the stigma and discrimination against people living with HIV, and improve their health outcomes and human rights.

This study revealed that Libyans face a cultural barrier preventing them from seeking medical help, due to the fear of social stigma and embarrassment. This barrier is reinforced by the lack of public health awareness which creates misconceptions and stereotypes about certain health conditions. This is especially problematic for the treatment of HIV, as like many other cultures, it is largely regarded as a consequence of immoral behaviour, increasing the stigma associated with the virus (Hasnain 2005).

Therefore, it is essential to raise public awareness and education about HIV and to challenge the misunderstandings and prejudices that fuel stigma. Although mass media can be an effective way to raise awareness about HIV, in Libya, this approach may face some social and moral barriers (Ermiah et al. 2012). Using online spaces, new media, and new technology, would be more effective as it provides the privacy required and defy the social restrictions (Street and Farrell 2017).

Islam is a major influence in the lives of Libyans, as it is with other Muslims around the world, and is seen as a way of life rather than a religion (Francesca 2002; Balogun 2010; Tham and Zanuddin 2015; Barmania and Aljunid 2016). Muslims often look to the Qur'an and the narrations of the Prophet for guidance in all aspects of life (Francesca 2002; Balogun 2010). Studies found that some Muslim people living with HIV used Islam for comfort and coping with the emotional, psychological and physical pain. They voiced how listening to the Qur'an, prayer and fasting relieves physical pain, provides calmness and also gives them hope (Becker 2007; Lua et al. 2014; Tham and Zanuddin 2015). Healthcare providers can benefit from incorporating a holistic approach to their patients and emphasising the importance of both medical and spiritual healing, especially for pain relief (Bukhori et al. 2022; Zainal-Abidin et al. 2022).

The public's satisfaction and trust in the health system is low due to the poor quality and availability of health care services and facilities in Libya. The detrimental impact of conflicts on healthcare systems is well researched: interruptions to health programmes, damages to facilities, and shortage of medication and medical supplies (Elbe 2002; Iqbal and Zorn 2010a).

Apart from improving the overall healthcare infrastructure and services, the Libyan healthcare system needs to enhance the quality and availability of HIV treatment, medical experts, education, and training. As recommended by Munderi et al., (2012) the HIV treatment and care services should adopt a comprehensive and coordinated approach to HIV service delivery, that involves all stakeholders, including people living with HIV, health workers, policymakers, donors, and civil society. HIV services should be integrated with other health services, such as tuberculosis, maternal and child health, and non-communicable diseases, to improve access, quality, and outcomes for people living with HIV and the general population.

The low prevalence of HIV in Libya offers a unique opportunity to slow down the epidemic, with the post-conflict period offering the country a chance to reform the healthcare sector in many ways, including recruiting and training healthcare workers and designing effective strategies for HIV prevention and care (Lee et al. 2011; Bertone et al. 2014).

Conclusion

It is important for policymakers and healthcare providers to recognise the factors that affect Libyans' attitude to health as well as the opportunities for improvement. Some of the key areas to focus on are raising public awareness, expanding treatment and service coverage, enhancing the skills of healthcare professionals, and encouraging more research. However, these actions require strong political commitment and adequate funding to be successful.

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5.4 HIV prevention – Challenges in reaching Libyan women: A narrative review

5.4.1 Introduction

This article (Hamidi 2022a) suggests that HIV prevention efforts in Libya may be ineffective in reaching women due to a lack of consideration regarding the social and cultural norms that affect them. It presents a historical overview of Libyan women's societal roles and identifies the barriers to HIV prevention efforts, such as limited sexual health education, inadequate healthcare services, social and cultural restrictions, stigma, and the women's limited agency. The review concludes by advocating for prevention and intervention programmes that are better adjusted to gender, social, and structural factors in Libya.

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HIV prevention – Challenges in reaching Libyan women: A narrative review

Abier Hamidi

Abstract

Introduction: The need to effectively communicate HIV/AIDS prevention messages in Libya, where HIV prevalence is relatively low yet increasing, cannot be overstressed. A review of the literature on HIV prevalence, risk factors, stigma and awareness found that there is a lack of HIV research, information and support in the country. This is particularly true regarding women, who account for 25%–30% of people living with HIV in Libya.

Aim: Drawing on the various literature, this narrative review will (1) present a historical trajectory of Libyan women and their role in society and (2) identify some challenges that HIV prevention programmes face in reaching Libyan women.

Methods: Medline, PubMed, Web of Science, ScienceDirect, Scopus and Cochrane Library were searched for English and Arabic language articles. Primary research studies and official reports indicating a discussion or research on HIV in Libya and Libyan women were considered. Reference lists of articles were reviewed to identify additional studies. Thirty-seven articles dating from 1987 to 2021 were selected and critically appraised.

Results: There is a lack of sufficient information within the existing literature, but the gathered literature did reveal some significant insights. Factors such as limited sexual health education, inadequate medical services, social and cultural restrictions and stigma, as well as limited agency, were identified as potential barriers to women accessing crucial information on HIV.

Conclusion: The article found that the HIV prevention efforts that have been carried out in Libya may be compromised as they were not designed to recognize and adhere to sociocultural norms that impact on Libyan women's scope for choice and agency. By understanding the interplay between gender, social and structural factors in Libya, a model of better adjusted prevention and early intervention activities could be developed; a toolkit that conceptualizes the culture and that appreciates the role of a Libyan woman is changing.

Keywords

HIV, Libya, MENA, prevention, women

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Introduction

A recent scoping review[1] documents that although there is a lack of reliable data, HIV prevalence is increasing in Libya and growing rapidly among married women. The authors suggest that religion and culture may impact research efforts, which, in turn, increases a Libyan woman's vulnerability to the virus.

The latest reported HIV prevalence in Libya is estimated at 0.2% (UNGASS)[2] and that there are 10,450 registered cases,[3] with injecting drug use identified as the principal mode of transmission. However, there is also clear evidence that cross-infection of HIV is occurring through sexual activities.[4,5] It was found that HIV cases transmitted from sexual activities had increased steadily, reaching 40% (n = 858) between 2013 and 2017.[4]

It is speculated that marital heterosexual intercourse is the main cause of HIV transmission in Libyan women. A study on HIV-related hospitalizations found that out of the 227 people hospitalized, a majority of women living

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with HIV were married 57.5% (n=23) or widowed 22.5% (n=9). Further to this, 87.5% (n=35) identified condom-less marital sexual relations as the route of HIV transmission.[6]

HIV cases in women are increasing; out of the 10,000 HIV cases reported in 2018,[7] 25%–30% were women. In November 2020, the number of people with HIV (excluding the eastern part of Libya) was around 6000 of whom 35%–40% were women.[8]

Against this backdrop, this article will review published literature and identify the major challenges that Libyan women have and continue to face that could potentially increase their vulnerability to the HIV virus. The aim of this narrative review is to introduce the Libyan woman and her evolving role in Libyan society. It also explores how social and structural factors and norms constrict her access to healthcare, information and discuss implications for practice.

Methods

Computer databases Medline, PubMed, Web of Science, ScienceDirect, Scopus and Cochrane Library were searched. This was followed by examining the reference list of key articles identified in the primary search to determine additional literature as well as performing a Google search.

Due to the limited available research on HIV prevalence in Libyan women, separate searches were performed for Libyan women and HIV in Libya. The inclusion criteria were all types of articles with title or abstract indicating a discussion or research on HIV in Libya, Libyan women and related terms, in English or Arabic. Newspaper articles were used to support and provide further details.

The exclusion criteria were articles for which full text was not available, papers that were irrelevant to the research topic and those with duplicated information.

Thirty-seven articles dating from 1987 to 2021 were selected and evaluated for this review, of which 16 were on HIV in Libya. In total, 20 papers were on Libyan women: 5 official reports, 12 journal articles, 1 newspaper article and 2 books.

Libyan women past and present

Women constitute more than half of the Libyan population and are celebrated for playing the roles of mothers, teachers, doctors and so on. Yet, their ability to participate in any formal decision making remains insignificant and undervalued. Throughout the history of Libya, women have been placed under severe structural and cultural constraints.

Prior to independence in 1951, Libya was a poor and underdeveloped country. As with many Middle Eastern and North African (MENA) countries, it was organized along a patriarchal structure: the women worked on farms and were responsible for their families, having limited freedom outside of the home.[9]

During the Monarchy (1951–1969), it was said that Libyan women did enjoy a relative degree of freedom.[10] They formed unions and associations and participated in influencing public opinion through their writings and votes. The progress was slow but steady, with Libyan leaders supporting women's rights within the principles of Islam.[11]

Muammer Gaddafi and his so-called Free Officers staged a coup d'état on 1 September 1969, ending the Monarchy rule. While Gaddafi's Libya was presented internationally as a more modern society that promoted equality between men and women, many believe that this was merely a charade.

Under Gaddafi's dictatorship, there was a significant increase in female enrolments in the educational system, and laws were passed regulating women's employment, including equal pay for equal work. A minimum age of 18 years old was set for marriage, and women were given equal rights for divorce.

In reality, the regime restricted Libyan women to work only in fields that Gaddafi felt suited their nature as defined by him, such as nursing, teaching, administrative and clerical work.[9] This led to limited access to high-level employment,[12] and the exclusion of women from the political sphere which is in direct contradiction to the equality laws. Gaddafi systematically eliminated civil rights during his dictatorship, with women who opposed the regime imprisoned or raped.[16]

17 February 2011 saw the Gaddafi regime overthrown. Libyan women played a crucial role in the success of the revolution, joining in demonstrations, actively reaching out nationally and internationally via social and traditional media. Many women provided logistical support, treated the injured and even assisted in smuggling ammunition.[13]

Libyan women were empowered in new ways. The 2011 Revolution thrusted them into roles that traditional Libyan society could not anticipate. Gender stereotypes and entrenched social taboos seemed to have faded, forcing the men to accept the women as equals but only temporarily. After the successful ousting of the regime, the women were contemptuously dismissed and were expected to return to their roles as mothers and housewives.[14] This led to a strong women's rights movement, with some Libyan women determined not to lose the freedom they had gained during the revolution.

Challenging the social fabric of the traditional Libyan society has resulted and continues to subject women to severe backlash; from push-back from families (as going against the cultural structure could only mean that these women are 'improper' and will not only tinge their reputation, but also their families), sexual harassment to threats of physical harm.[15,16]

HIV prevention and intervention challenges

As a response to the HIV epidemic in Libya, the National Centre for Disease Control has implemented various initiatives, including training of medical staff, a mobile (Voluntary Counselling and Testing (VCT)) service, an HIV and Hepatitis Hotline as well as awareness-raising media campaigns, health education in schools and World AIDS Day celebrations.[5,17]

While the effort is apparent, Libyan women are mainly invisible in the response to HIV, as the daily structural and social challenges they face restrict their access to the interventions that are in place.

Limited information and school-based health education

Prevention efforts around the world advocate providing accurate information on HIV/AIDS through the school-based health education system, which will, in turn, provide the knowledge and tools to prevent, treat and manage HIV and other sexually transmitted diseases (STDs).

In Libya, HIV education is limited[17] and even then, only about half of the Libyans considered school health education as an effective medium in raising public health knowledge and influencing healthy behaviour.[18] A recent study on HIV knowledge and perception conducted in 2015 on Libyan dental student found that their overall awareness of HIV is low. It identified that less than one-third of the students recognized injectable drug use and sexual intercourse as modes of HIV transmission.[19]

Despite the rate of female enrolment in secondary and higher education exceeding that among males,[20] culturally women and girls are often encouraged to remain uninformed about sexual matters because of a misguided fear that it will encourage sexual activity.[21]

Social stigma and reputation

The substantial misconceptions of HIV transmission and the perceptions of immoral practices related to HIV are the catalysts for social stigma and discriminatory behaviour. With a population of around 6.8 million, Libya is predominantly made up of well-known large families and tribes,[15] the actions of an individual can bring collective shame to the family and to the tribe. The consequence of this is that many may avoid getting tested or seeking treatment due to the fear of bringing shame to their families as well as the social repercussions of even being suspected of acquiring HIV.[22] Many people living with HIV in Libya have been outcasted by family and community and are unable to access healthcare, study or work.[23]

The consequences are even fiercer for girls and women as they are held to double standards related to their behaviour in public and sexual activities.[24,25] Under Gaddafi's rule, women and girls suspected of violating or transgressing from moral codes were detained into 'social rehabilitation'.[14] It is unknown whether these facilities still exist today but what is certain is that girls and women who are found to have acquired HIV are subjected to harsher stigma-related discrimination such as violence, humiliation as well as invasive virginity tests.[8]

Safe sex negotiation and condoms

A large proportion of women living with HIV acquired the virus within a marital relationship and therefore the most effective and accessible form of protection would be to negotiate safe sex.

In a classic patriarchal household, as most Libyan households are,[26] the woman has limited agency within the marriage to refuse sex or negotiate safe sex. The fear of the consequences of 'disobeying' her husband, which could include domestic violence,[24,27] divorce and so on, is the main obstacle to negotiating the use of condoms.

Another factor is the perceived use of condoms as a form of contraception rather than a means of protection against HIV and other sexually transmitted infections. Only 156 out of 400 final year Libyan university students believed that condoms are important for the prevention of HIV transmission.[18]

Healthcare and freedom of movement

Libyan women don't tend to visit healthcare providers regularly, only 7% (sample of 1489) of women visit doctors annually for check-ups and 40% have never visited a gynaecologist. This is presumably due to a majority stating that the medical services in Libya are inaccessible or inadequate.[28]

Many health facilities are unable to provide adequate services due to shortage of essential medicines, medical supplies (including equipment) and staff with up-to-date training. The 2016 Service Availability and Readiness Assessment (SARA) survey by the Health Information Centre (Ministry of Health) in collaboration with the World Health Organization (WHO)[29] country and regional offices found that significant coverage gaps exist in the provision of HIV/AIDS and sexually transmitted infections (STIs) in the country.

Additionally, the deteriorating security situation has forced Libyan women themselves and their families to restrict their movements due to the fear of being kidnapped or sexually assaulted.[30] A survey in 2013 found that 57% of women say that they feel completely (37%) or somewhat (20%) prohibited from leaving their home without permission. 52% of men

and 41% of women condone abusive behaviour against a wife should she leave the home without informing her husband.[28]

Discussion

Having presented an overview of the social and structural factors that impact the daily lives of Libyan women, it is apparent that reaching them is a challenge. What is also indisputable is that they are defying the role that has been imposed on them.

Although Libyan women exist in an environment that is laden with many risks, they are not waiting patiently for opportunities to come but rather they are creating them. The women's activism during and post revolution stands in sharp contrast to the stereotypical perception of Libyan women that is also shared with the West. This misconception that Libyan women should not play a role in the public sphere was evident through the media coverage of the revolution. In Gendering War and Peace,[31] it was found that women were not visible in nearly 60% of the reports with the reporters blaming Libyan men and the culture.

Libyan women are rising to claim agency. During Gaddafi's rule, Civil Society Organizations (CSOs) were banned; however, since the revolution, there has been a surge of women CSOs focusing on gender equality, with campaigns that challenge violence against women and their role in the public and political arena.[32]

The women's rights movement in Libya is based on the country's culture, history and religion,[33] but without the cultural construct that restricts their choices and rights.[34] Patriarchy should not be conflated with Islam and often cultural idiosyncrasies or misinterpretations are presented as religious teachings.

Libya is considered to be one of the most religiously and culturally conservative countries in the MENA region[35] with Islam playing a substantial role in the daily lives of Libyans. It has been suggested that Islam promotes low-risk behaviour as it encourages male circumcision, prohibits sexual intercourse outside of marriage[3] and the use of intoxicants. Be that as it may, the HIV prevalence in the country is on the rise and Libyan women are becoming increasingly vulnerable; therefore, despite Islamic teachings and cultural restrictions, some Libyans do engage in activities that lead to acquiring HIV.

The available data dictates that most Libyan women who are living with HIV have acquired the virus from their husbands, so it is essential that preventive and intervention efforts are reaching them. Nonetheless, the social, cultural and religious frameworks[36] in the country have contributed to the under-representation of other high-risk activities that Libyan women could be engaging in, such as injection drug use,[37] sex work or sex out of marriage.

Accordingly, any effort directed at HIV prevention needs to consider the rapidly evolving role, status and agency of Libyan women within the religious and societal restrictions of the country.

Conclusion

Libya remains one of the least researched countries in MENA and to date there are very few publications on Libyan women, let alone in respect to HIV. This review of the literature on Libyan women's HIV prevalence, stigma and challenges found that there is an urgent need for HIV prevention campaigns and interventions that capitalize on the social, religious and cultural structure, while appreciating that the role of a Libyan woman is continually shifting.

Efforts should be made to develop targeted campaigns with information and material that are responsive to the needs of Libyan women and disseminated through effective channels. Moreover, more attention must be paid to prevention measures for married women with the integration of HIV services into the reproductive health services in the country.

As part of the preventive strategy, women-led civil societies engaged in addressing structural interventions need to be encouraged and supported. Additionally, including Islamic leaders and teaching in HIV prevention initiatives will strengthen the efforts as well as help reduce stigma and discrimination against people living with HIV.

Author contribution(s)

Abier Hamidi: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Validation; Visualization; Writing – original draft; Writing – review & editing.

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5.5 Facilitators and barriers to condom use in Middle East and North Africa: a systematic review.

5.5.1 Introduction

According to UNAIDS (2023c) condoms are a critical component in a comprehensive and sustainable approach to the prevention of HIV and other Sexually Transmitted Infections (STI). Condoms are affordable and available in Libya, although research on the topic is very limited. Therefore, it was decided to include other countries across the region to not only understand condom use in the region but also the facilitators and barriers. The systematic review (Hamidi et al. 2023) found that condom use is generally low among different population groups, influenced by policies, structures, beliefs, practices, and norms of their communities and regions. This paper also observed that many people in the region saw condoms as a form contraceptive therefore not using them when engaging in oral or anal sex. Prospero registration is available in Appendix I.

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REVIEW ARTICLE

Facilitators and barriers to condom use in Middle East and North Africa: a systematic review

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Abstract

Background The Middle East and North Africa (MENA) region continues to have the lowest prevalence of HIV (human immunodeficiency virus) in the world, less than 0.1%, yet new transmissions are increasing. Consistent condom use can reduce the probability of transmission by 90–95%, and its use remains as the staple prevention method; however, this isn't the case for the MENA region, where condom use, knowledge of proper use, and accessibility are limited.

Aims To conduct a systematic review on condom use, its use across different population groups, and its barriers and facilitators in countries that fall under the UNAIDS regional classification of MENA.

Methods This systematic review was performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. The search included electronic databases: PubMed/MEDLINE, Academic Search Ultimate, COCHRANE, APA PsycINFO, ScienceDirect, CINAHL Complete, Scopus. There was no date restriction.

Results Of the 471 records retrieved, 45 articles were appraised and included in the analysis. The reported barriers and facilitators are sub-divided into personal, social, and structural factors. Condom accessibility, partner objection, and their perceived ineffectiveness were key barriers, whereas availability, cost, and lack of awareness were rarely mentioned. Concerns of personal health and future financial security, as well as positive peer influence and delayed sexual experience, were identified as motivators.

Conclusion Condom promotion in the region needs to incorporate gender-based power in relationships and the influence of religion, as well as the legal and structural factors. More investment and research are needed for women-initiated contraceptive and digital healthcare initiatives.

Keywords MENA · HIV · Condoms · Prevention

Introduction

Sexually transmitted infections (STIs) are one of the heaviest burdens on public health systems in low and high-income countries. The MENA (Middle East and North Africa) region continues to have a low prevalence of HIV, less than 0.1% yet, the number of new transmissions has increased by 33% from 2010 to 2021. It unfortunately also has the lowest HIV treatment coverage in the world (50% of PLHIV in 2021) and the lowest proportion of PLHIV who are virally suppressed (44% in 2021) (UNAIDS 2022).

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Research has shown that correct and consistent condom use is an effective form of STI prevention, reducing the probability of transmission by 90–95% (Pinkerton and Abramson 1997). Increasing condom use remains as a key public health prevention method, since condoms have no major medical side-effects, are relatively easy to obtain and carry, and are cost-effective (Evans et al. 2020).

However, gaps and inequities in condom access, knowledge, and use are still prevalent in MENA. In Libya, for example, 40% (of 227) of men who have sex with men (MSM) (Valadez et al. 2013) have had unprotected sex with both men and women, and only 20%–54% of people who inject drugs in the region have ever used condoms (Mumtaz et al. 2014).

This present study is, to our knowledge, the first systematic review to capture and examine the condom-use landscape in MENA, presenting an overview of condom use

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across all groups, the reasons for condom use/non-use, as well as the barriers that interfere and facilitators that encourage condom use.

The current systematic review on the MENA region has two overarching aims:

a) review the state of evidence for condom use, and;
b) analyse individual, interpersonal and structural-level barriers/facilitators to condom use.

Search strategy

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. The search was limited to the 19 countries included in the UNAIDS classification of MENA: Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates (UAE), and Yemen. At the start of this review, Iran was still included in MENA before its transfer to the Asia and the Pacific Region as reported in the UNAIDS Global report 2022 (UNAIDS 2022). As a result, it was decided to remove the studies from Iran during the study assessment stage.

The following electronic databases were searched: PubMed/MEDLINE, Academic Search Ultimate, COCHRANE, APA PsycINFO, ScienceDirect, CINAHL Complete, and Scopus.

The search strategy included terms specific to condom use, access and barriers, using free-text terms and medical subject headings (MeSH) terms that included 'condom', 'barriers', 'Middle-East', 'North Africa' and each of the countries. Reference lists of the reviewed articles were handsearched. Studies were limited to English language and there were no date restrictions.

The number of records retrieved was 471, and 215 titles and abstracts were screened. To be included in this review, papers needed to meet the following criteria: (1) be research studies, (2) have abstracts which mentioned condom use, (3) be studies that sampled men and women regardless of their sexual orientation and marital status, and (4) relate to MENA countries. A total of 203 papers were examined in full-text for eligibility, and 90 articles were appraised. As a result of Iran's exclusion, 45 papers were excluded, and 45 papers were included in the review.

All articles retrieved from initial searches were imported into Endnote and duplicates removed. AH screened titles and abstracts against the eligibility criteria for inclusion. PR and EvT independently screened a random selection of 20% of all abstracts for consistency. Any disagreements were resolved with a discussion within the team.

The process was recorded on a Microsoft Excel spreadsheet, and the risk of bias/quality of the studies was assessed individually. Quality was assessed using the appropriate checklist from CASP and the Mixed Methods Appraisal Tool (MMAT) for mixed-methods studies. No study was found to have a high risk of bias, although religious and cultural restrictions resulted in certain groups and questions, i.e., single women and anal sex, being omitted.

Data extraction and analysis

A standardised data extraction form was developed in Excel. AH extracted data from the final 45 included articles, which was checked by PR and EvT. The quantitative and qualitative findings were analysed separately. Thematic analysis was used for the qualitative data (Fig. 1).

Findings

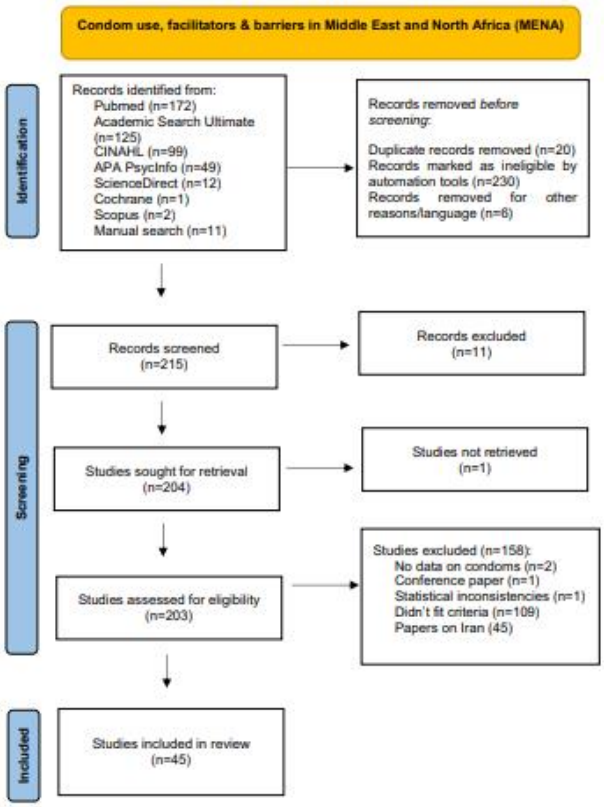
A summary of the findings for each sample group for the different study types is presented in Tables 1, 2, and 3 (placed in Appendix below due to its size, which would interrupt the main narrative). A synthesis of all barriers and facilitators is presented in a conceptual model (Fig. 2). The 45 studies included: 37 quantitative, six qualitative, and two mixed-methods studies; 14 were from Lebanon, seven Egypt, seven Sudan, six Jordan, four Saudi Arabia, two Morocco, two Yemen, one each from Iraq, Somalia, and UAE.

One study on drug-users, five on female sex workers (FSWs), nine on MSMs, eight on men, six on women, eight on general population, five on youths, two on prisoners, two on refugees, one on male sex workers, and one on PLHIV.

Quantitative results

Thirty-seven quantitative studies: 1996 to 2021, 11 Lebanon (Adib et al. 2002; Barbour and Salameh 2009; Kahhaleh et al. 2009; Mahfoud et al. 2010; Wagner et al. 2014; Salameh et al. 2016; Tohme et al. 2016; Heimer et al. 2017; Assi et al. 2019; Storholm et al. 2021; Zaki et al. 2021), seven Egypt (Kabbash et al. 2007; El-Sayyed et al. 2008; Nada and Suliman 2010; Soliman et al. 2010; Wahdan et al. 2013; Saleh et al. 2014; Farghaly et al. 2020), five Sudan (Ibnouf et al. 2007; Abdelrahim 2010; Zeidan et al. 2011; Mohamed and Mahfouz 2013; Mohamed 2014), four Saudi Arabia (Fageeh 2014; Wafa et al. 2014; Alhusain et al. 2018; Aladham et al. 2020), four Jordan (Alkaiyat et al. 2014; Al Rifai et al. 2015; Al-Maharma et al. 2019; Alyahya et al. 2019), two in Morocco (Laraqui et al. 2017; Bozicevic et al. 2018), and one each in Iraq (Ismael and Sabir Zangana 2012), Yemen (Mirzazadeh et al. 2014),

Fig. 1 PRISMA flow chart



Somalia (Kriitmaa et al. 2010) and UAE (Ghazal-Aswad et al. 2002).

Qualitative and mixed-methods results

Six qualitative studies: 2002 to 2020, two each in Lebanon (Wagner et al. 2012; Aunon et al. 2015), Sudan (Elshiekh et al. 2020; Elshiekh et al. 2021) and Jordan (Petro-Nustas and Al-Qutob 2002; Khalaf et al. 2008). Two mixed-method studies from 2004 and 2006 from Lebanon and Yemen (Kulczycki 2004; Busulwa et al. 2006).

Themes

Personal

In a region shaped by a patriarchal society whereby males dominate in decision-making (Petro-Nustas and Al-Qutob 2002; Khalaf et al. 2008), reduced male personal pleasure and societal masculine beliefs were barriers to condom use:

> *"It is not the wife's right to force any authority — in decision making — over her husband, this is not*

Table 1 Summary quantitative studies

Drug users (Soliman et al. 2010)	Overall, condom use was low regardless of partner type; however, drug users mostly used condoms when engaging in sex with FSW or paying clients. Partner barrier, history of early sexual intercourse, and drug use were reasons for non-use. No information reported for reasons of use.
Female sex workers (Abdelrahim 2010; Kriitmaa et al. 2010; Mahfoud et al. 2010; Zeidan et al. 2011; Farghaly et al. 2020)	Using non-barrier contraceptive methods as main reason for not using condoms. Refusal of paying partners was main reason for non-use; when condoms were used, a significant number reported it was suggested by client. FSW who started sex work young (< 18) and used substances were more likely use condoms inconsistently and have condomless sexual contacts.
General population (El-Sayyed et al. 2008; Kahhaleh et al. 2009; Mohamed and Mahfouz 2013; Saleh et al. 2014; Aladham et al. 2020)	Very low condom use; when used, primarily as contraceptive method and even then pill was preferred.Being married to more than one wife; extramarital sexual relations were motives for use. Perceived lack of condom efficiency and safety as well as reduced pleasure were the explanations for non-use.
Men (Adib et al. 2002; Ghazal-Aswad et al. 2002; Kabbash et al. 2007; Ismael and Sabir Zangana 2012; Mohamed 2014; Al Rifai et al. 2015; Laraqui et al. 2017)	Higher condom use in younger men and within extramarital sex (including sex workers). Condom use often suggested by man. Condom use low in married men who felt it unnecessary. Not liking condoms/reducing pleasure and confidence in partners linked to inconsistent use. Inconsistent condom use was associated with lack of knowledge of proper condom use and not partner rejection.
Women (Ibnouf et al. 2007; Alhusain et al. 2018; Bozicevic et al. 2018; Alyahya et al. 2019; Zaki et al. 2021)	Most women considered condoms as contraceptive. Reports of condomless anal sex, but incomplete data. Most women didn't consider themselves at risk of STI/HIV as they trusted partners.
Youth (Barbour and Salameh 2009; Nada and Suliman 2010; Salameh et al. 2016)	Condom use is largest in youths, although inconsistent. For women trusting partner was common reason for not using, whereas lack of accessibility was key for men. Realising danger of risky behaviours & liberal attitudes to sex associated with regular use. Men had significantly higher condom use than women.
People living with HIV (Wahdan et al. 2013)	Condom use was low in this group, although condom used more with regular than with casual partners. Frequently used for contraception and prevention.
Prisoners (Fageeh 2014; Wafa et al. 2014)	Very low use of condoms in prisoners (in and outside prison), most using condoms for contraception.
Men who have sex with men (Mahfoud et al. 2010; Alkaiyat et al. 2014; Mirzazadeh et al. 2014; Wagner et al. 2014; Tohme et al. 2016; Heimer et al. 2017; Assi et al. 2019; Storholm et al. 2021)	Consistent condom use in MSM is low and even less when engaging in group sex and with women. More unprotected insertive anal sex than receptive. Serostatus partner does not influence condom use. Availability wasn't main reason for non-use, but reduced pleasure, stigma/embarrassment were.
Refugees (Tohme et al. 2016; Al-Maharma et al. 2019)	Condom use was low and partner refusal main reason for non-use. Legal and language barriers listed.

allowed by any social norm or endorsed by any law in any society in the world" (Petro-Nustas and Al-Qutob 2002)

The most stated reasons given for not using condoms by men were 'I don't like condoms' and 'reduced sexual pleasure' (Adib et al. 2002; Petro-Nustas and Al-Qutob 2002; Kulczycki 2004; Busulwa et al. 2006; Kabbash et al. 2007; Ismael and Sabir Zangana 2012; Alkaiyat et al. 2014; Mirzazadeh et al. 2014; Mohamed 2014; Aunon et al. 2015; Laraqui et al. 2017). Some men voiced feelings of embarrassment and contempt toward the idea of using or even buying a contraceptive method (Petro-Nustas and Al-Qutob 2002; Kabbash et al. 2007; Alkaiyat et al. 2014; Mirzazadeh et al. 2014; Mohamed 2014).

This resistance is undoubtedly a result of condom efficacy (Kulczycki 2004; Busulwa et al. 2006; Alkaiyat et al. 2014; Mohamed 2014; Al Rifai et al. 2015; Elshiekh et al. 2020), harmful effects (Ghazal-Aswad et al. 2002; Kabbash et al. 2007; Elshiekh et al. 2020), lack of knowledge of proper use (Busulwa et al. 2006; Kabbash et al. 2007; Assi et al. 2019; Elshiekh et al. 2020; Zaki et al. 2021), and fear that suggesting to use a condom may lead the female partner to suspect that they may have been unfaithful (Petro-Nustas and Al-Qutob 2002; Kulczycki 2004) or are having sex with men

Table 2 Summary qualitative and mixed-methods studies

Men (Petro-Nustas and Al-Qutob 2002)	Use of condoms was not pleasurable and used only in sexual relations outside marriage.
Women (Khalaf et al. 2008)	Partner's pleasure and refusal were reasons for not using a condom, followed by misconceptions and lack of support from healthcare professionals.
Youth (Elshiekh et al. 2020; Elshiekh et al. 2021)	For most young people, preventing pregnancy was main reason for condom use. Perceived reduction of sexual pleasure, misconceptions of condoms, accessibility were reasons for non-use.
Men who have sex with men (Wagner et al. 2012)	Condoms were likely to be used with casual partners. Not using condom is a sign of trusting partner. Fear of HIV motivates condom use although it is associated with being 'gay'. When condoms are used with women, at the insistence of the woman to prevent pregnancy.
Male sex worker (Aunon et al. 2015)	Future health and financial stability were main motivators for condom use. Assess risk based on appearance and gender as well as reduced sexual pleasure were reasons for non-use.
Refugees (Aunon et al. 2015)	Fear of deportation/ job security forces them to accept condomless sex.
General population (Kulczycki 2004; Busulwa et al. 2006)	Low condom use, predominately for family planning. Concern for personal health and absence of physiological side-effects of condom main drivers for use. Misconception of condom efficacy and fragility noted in both studies. Condoms seen as ineffective contraceptives and equally in STI prevention. Men's desire to preserve their own pleasure/comfort, whether directly or indirectly.

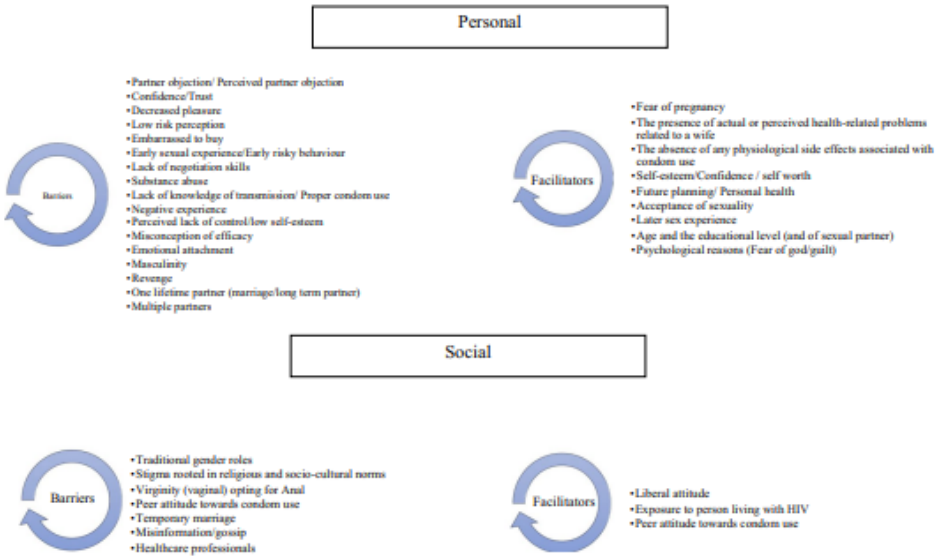


Fig. 2 Model of barriers and facilitators of condom use in MENA region

(Wagner et al. 2012; Wagner et al. 2014). Partner objection was the main reason given for non-condom use for women, demonstrating that women often dismiss their sexual and health needs in order to keep their partners sexually content and stay in the relationship (Kulczycki 2004; Khalaf et al. 2008; Abdelrahim 2010; Kriitmaa et al. 2010; Zeidan et al. 2011; Al-Maharma et al. 2019; Zaki et al. 2021).

Notions of fear, violence, abandonment, and stigmatisation (Kulczycki 2004; Busulwa et al. 2006; Elshiekh et al. 2020; Zaki et al. 2021) among women is emulated throughout the studies, whether it is requesting condom use or purchasing condoms. Fear was also found to be a conduit of condom use regardless of the gender; fear of transmission (Wagner et al. 2012; Wahdan et al. 2013; Elshiekh et al.

2020), and the social and legal repercussions of pregnancy outside of marriage (Wagner et al. 2012; Elshiekh et al. 2020).

One of the main obstacles to condom use by sex workers was the financial implication, losing the client, or being paid more for condomless sex (Zeidan et al. 2011; Aunon et al. 2015). When a condom was used by a FSW, it was often suggested by the client (Kriitmaa et al. 2010; Mahfoud et al. 2010). This supports the findings that men use condoms more when having extramarital sexual relations due to the misconception that the probability of acquiring HIV is greater (Petro-Nustas and Al-Qutob 2002; Kulczycki 2004).

It is apparent that the concept of self-esteem is significant in the increase of condom use, and transpires when an individual places importance on their health (Kulczycki 2004; Busulwa et al. 2006; Wagner et al. 2012; Aunon et al. 2015; Elshiekh et al. 2020) as well as their financial future. Early sexual debut plays a major role in inconsistent condom use (Kahhaleh et al. 2009; Abdelrahim 2010; Nada and Suliman 2010; Al Rifai et al. 2015), which could be due to the confidence to negotiate safe sex or the knowledge of STI preventative methods not having been acquired yet.

Six studies indicated the co-occurrence of low condom use with other high-risk behaviours such as substance use (Assi et al. 2019; Farghaly et al. 2020; Zaki et al. 2021) and alcohol use (Mohamed 2014; Al Rifai et al. 2015; Laraqui et al. 2017; Assi et al. 2019; Farghaly et al. 2020; Zaki et al. 2021).

Four found that the educational level of participants (Ismael and Sabir Zangana 2012; Alkaiyat et al. 2014; Mohamed 2014; Farghaly et al. 2020) as well as their sexual partners (Ismael and Sabir Zangana 2012) had a positive effect on condom use.

Low risk perception was present in all groups studied. Responses that included 'Condom was not necessary' (Kabbash et al. 2007; Kriitmaa et al. 2010; Mirzazadeh et al. 2014; Laraqui et al. 2017; Abdelrahim 2010) and 'I didn't think of it' (Abdelrahim 2010; Mirzazadeh et al. 2014; Laraqui et al. 2017) were supported by appearance-based judgements (Aunon et al. 2015) and claims of HIV being a 'gay thing' (Wagner et al. 2012).

Being in a long-term partnership or a marriage promotes a sense of trust and confidence that the partner is monogamous and there is no risk of STI transmission, therefore it is concluded that condoms are not needed (Adib et al. 2002; Petro-Nustas and Al-Qutob 2002; Wagner et al. 2012; Alkaiyat et al. 2014; Mirzazadeh et al. 2014; Wagner et al. 2014; Laraqui et al. 2017; Assi et al. 2019; Zaki et al. 2021) and their use can be seen as a sign of distrust and 'anti-love' (Aunon et al. 2015; Elshiekh et al. 2020). If condoms are used, it would be for contraception (Busulwa et al. 2006; Ismael and Sabir Zangana 2012; Mohamed and Mahfouz 2013; Wafa et al. 2014; Alhusain et al. 2018), although they are not the preferred method (Kulczycki 2004; Abdelrahim 2010; Aladham et al. 2020).

Social

Women are culturally required to be sexually inexperienced or passive (Kulczycki 2004; Elshiekh et al. 2020) and to dismiss their own sexual pleasure and health (Petro-Nustas and Al-Qutob 2002).

Misconceptions (Busulwa et al. 2006; Kabbash et al. 2007; Khalaf et al. 2008; Ismael and Sabir Zangana 2012; Mohamed and Mahfouz 2013; Wagner et al. 2014; Al Rifai et al. 2015; Aunon et al. 2015; Laraqui et al. 2017; Elshiekh et al. 2020; Elshiekh et al. 2021), hearsay (Kulczycki 2004) and gossip are significant obstacles in condom promotion and acceptance.

Those who perceived their peers and network as having positive attitudes towards safe sex and condom use reported more condom use (Elshiekh et al. 2020; Elshiekh et al. 2021) than those who didn't.

Condom use is regularly associated with illicit (extramarital and premarital) sex (Petro-Nustas and Al-Qutob 2002; Kulczycki 2004; Busulwa et al. 2006; Elshiekh et al. 2021) which in turn, increases the socio-cultural stigma of purchasing and using condoms (Alkaiyat et al. 2014; Mirzazadeh et al. 2014; Mohamed 2014).

A study of university students in Lebanon found that condom use is higher in more liberal climates that allow open discussion (Salameh et al. 2016). This is particularly relevant to young people, as many are practising premarital sex without proper understanding of STI transmission and prevention (Kriitmaa et al. 2010; Elshiekh et al. 2021). Two studies highlighted that heterosexual sexually active people(Wagner et al. 2012; Elshiekh et al. 2020) are more concerned about pregnancy than HIV/STIs:

> *"In Beirut, most girls require the use of condoms because they are scared of getting pregnant, and they are scared of scandal."* (*Wagner et al.* 2012)

The stigmatisation of women's sexuality increases their vulnerability to STIs as it prevents them from being prepared by carrying condoms (Zaki et al. 2021) and/or relying on their partner to have one with them (Kriitmaa et al. 2010; Mahfoud et al. 2010; Elshiekh et al. 2021).

The opposition to condom promotion by healthcare providers stems from socio-religious beliefs that condom promotion encourages illegal sex (Busulwa et al. 2006; Elshiekh et al. 2020; Elshiekh et al. 2021) and that natural family planning methods are better (Khalaf et al. 2008).

The stigma associated with premarital sex is linked with the importance of the woman's virginity (Elshiekh et al. 2020), ensuring that the hymen remains intact and avoiding pregnancy. This fear of social disgrace encourages

non-vaginal sex which is mostly unprotected, as there is a misconception that HIV transmission is more likely through vaginal sexual contact than through anal or oral (Abdelrahim 2010; Wagner et al. 2014). The prevalence of heterosexual anal sex is undetermined; however, it does occur among young adults (Zaki et al. 2021).

There is a myriad of problems associated with another under-researched topic: unendorsed marriages. *Zawaj mut'ah* or informal marriages (Saleh et al. 2014) are controversial in the region, as they are not religiously sanctioned in most countries. These marriages allow men to marry a woman, often privately and verbally, sometimes for a predetermined period of time and a specific price, have sexual relations, and divorce without consequences. As they are socially invisible, it is perceived that women in particular lack any health protection.

Structural

The query into condom availability is unclear. In some studies, it relates to the ability to purchase condoms, in others it is implied as being to do with accessibility. Inaccessibility is defined as 'not available' (Adib et al. 2002; Abdelrahim 2010; Wahdan et al. 2013; Mirzazadeh et al. 2014; Laraqui et al. 2017; Assi et al. 2019) or 'obtaining/ purchasing condoms' in one study (Alkaiyat et al. 2014), and it was a suggestion of 'unplanned sexual encounter/heat of the moment' in other studies (Adib et al. 2002; Kriitmaa et al. 2010; Elshiekh et al. 2021).

Condoms are readily available in the region (Abdelrahim 2010; Ismael and Sabir Zangana 2012; Wahdan et al. 2013) as an accepted form of contraception and are usually purchased in pharmacies (Laraqui et al. 2017; Soliman et al. 2010). Nonetheless, there are barriers, as some countries require verification of marriage (Busulwa et al. 2006), there is a lack of privacy at point of sale (Kabbash et al. 2007; Mohamed and Mahfouz 2013), and sometimes the cost of condoms is an issue (Busulwa et al. 2006; Mohamed and Mahfouz 2013; Alkaiyat et al. 2014; Laraqui et al. 2017).

Refugees, MSM, drug users, and sex workers have limited access to health services (Kriitmaa et al. 2010; Mahfoud et al. 2010; Alkaiyat et al. 2014; Al-Maharma et al. 2019; Storholm et al. 2021), have language barriers (Mahfoud et al. 2010; Wafa et al. 2014), and are subjected to status or legal discrimination (Kriitmaa et al. 2010; Zeidan et al. 2011; Aunon et al. 2015; Tohme et al. 2016; Farghaly et al. 2020).

Financial needs and the lack of self-esteem (Farghaly et al. 2020) are also motivators for accepting condomless sex for more money (Zeidan et al. 2011; Aunon et al. 2015). Condom use has also been significantly associated with participants who are more financially stable and had a place to live (Ismael and Sabir Zangana 2012; Aunon et al. 2015) .

Sexual health education is limited in schools across the region ,and many of the sexually active participants only gain knowledge about condom use several years after practising sex. Some wouldn't have seen a condom before (Elshiekh et al. 2020; Elshiekh et al. 2021).

> *"The first time I heard about the condom was 3 years ago. I started practising sex many years before that, but I did not have enough knowledge about using condoms"*(Elshiekh et al. 2020).

Eight studies concluded that training on proper condom use was necessary (Busulwa et al. 2006; Kabbash et al. 2007; Ismael and Sabir Zangana 2012; Wahdan et al. 2013; Mohamed 2014; Assi et al. 2019), and that those who attend are more likely to know how to use condoms and use them consistently (Wahdan et al. 2013; Elshiekh et al. 2020).

The Internet has opened new avenues for people to access sexual health information, providing enough privacy and freedom to research (Saleh et al. 2014; Elshiekh et al. 2021) and discuss issues otherwise considered a taboo in the region. Not only is access to Internet associated with increased condom use but the relative anonymity makes it easier to initiate the discussion of HIV status and condom use (Wagner et al. 2012). This also means that people in the region have access to online pornography which influence sexual behaviours (Assi et al. 2019; Elshiekh et al. 2021; Zaki et al. 2021).

One study found a significant association between condom use and HIV testing (Zeidan et al. 2011). HIV testing can also be a reason to discontinue condom use; in this context, it is a milestone in the relationship and one that signifies commitment and trust.

> *"My boyfriend and I got tested together, because if it is serious and we want to have sex without a condom obviously we have to get tested."*(Wagner et al. 2012)

Discussion

This systematic review has accentuated often hidden personal, social, and structural barriers that affect STI/HIV transmissions as well as identified potential facilitators for effective interventions.

It is essential that the promotion of condoms reinforces positive messages that condoms promote personal health and future financial security rather than using fear as a motivator. To address the concept of masculine superiority, the interventions should appeal to the existing values. Men should be encouraged to consider consistent condom use is a healthy attribute of masculinity, namely taking care of their own and their partner's health and quality of life.

Women need to be empowered to consider their own health by providing them with a viable tool for HIV prevention that they can initiate and control. Female condoms enable women to take the initiative in protecting their own reproductive health as well as countering the barriers and misconceptions men have against using male condoms.

The influence of religion in the region (Ghazal-Aswad et al. 2002; Petro-Nustas and Al-Qutob 2002; Kulczycki 2004; Busulwa et al. 2006; Ibnouf et al. 2007; El-Sayyed et al. 2008; Khalaf et al. 2008; Barbour and Salameh 2009; Zeidan et al. 2011; Ismael and Sabir Zangana 2012; Wagner et al. 2012; Wahdan et al. 2013; Alkaiyat et al. 2014; Fageeh 2014; Mirzazadeh et al. 2014; Mohamed 2014; Wafa et al. 2014; Al Rifai et al. 2015; Aunon et al. 2015; Alhusain et al. 2018; Al-Maharma et al. 2019; Aladham et al. 2020; Elshiekh et al. 2020; Elshiekh et al. 2021; Zaki et al. 2021) is strong, and interventions should be developed within these frameworks. Leverage on religious teachings to promote the use of condoms as a means of safeguarding of one's health and that of others is necessary.

To counter the negative effects of misinformation, open discussions of sexual health and the socio-cultural stigma to purchasing and using condoms need to be addressed. This should begin with the healthcare professionals, as they are critical in raising awareness and confidence in condom use and its efficacy.

The Internet is a powerful platform whereby people can access explicit information on safe sex privately, avoiding any social or legal repercussions. Digital healthcare initiatives can decrease the burden on the health systems, and reduce the stigma/embarrassment associated with condom training as well as correcting any misconceptions.

A key limitation of this review is the exclusion of potential studies that are in French, as it is the main European language in several countries in MENA. As with any systematic review, some studies may have been missed due to the concise search terms or as a result of publication bias and thus excluded from this review. It does need to be acknowledged that as all the included studies are primary research papers, they carry their own risks of bias such as selection bias, due to the nature of the research and geographical locations.

Conclusion

This review found that condom use among different groups of population is generally low and is associated with the governing policies, structure, beliefs, practices, and norms of not only of the region but the community they belong to. Recognising both the barriers and facilitators may help health promotors across the MENA region to improve their targeted condom-use messages to the appropriate populations.

Table 3 Characteristics of included studies

Paper name	Country	Date	Study type	Study group	Group data
Knowledge, Attitudes And Practices Of Syrian Refugee Mothers Towards Sexually Transmitted Infections	Jordan	2019	Quantitative	Refugees	523 Syrian refugee mothers in Jordan
The assessment of seafarers' knowledge, attitudes and practices related to STI/HIV/AIDS in northern Morocco	Morocco	2017	Quantitative	Men	1447 male sailors older than 18 years with length of employment above one year
Attitudes towards and practice of Sexuality among University students in Lebanon	Lebanon	2016	Quantitative	Youth	Non-married individuals, 2750 (83.4%) answered the questions on sexuality: 1116 males (40.6%) and 1634 females (59.4%)
Chlamydia trachomatis infection among female inmates at Briman prison in Saudi Arabia	KSA	2014	Quantitative	Prisoners	205. 7.8% of the inmates were of Saudi Arabian nationality. The majority of them, i.e. 90.7%, were expatriates; 32.2% were Indonesian; 2.9%, Yamani; 42.9% Africans (Ethiopia, Somalia, Chad, Sudan, Nigeria, Eretria and Egypt) and 14.2% other nationalities.

5.6 Islamic perspectives on HIV: a scoping review

5.6.1 Introduction

This paper (Hamidi et al. 2024) presents the various perspectives and beliefs that are held regarding HIV within the Muslim community. The study emphasises the need for the involvement of religious leaders in prevention efforts, however, it also warns against oversimplifying HIV prevention to simply adhering to Islamic rules and ignoring structural issues such as inequality and violence.

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Review

Islamic perspectives on HIV: a scoping review

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Abstract
Background There is some evidence to suggest that the human immunodeficiency virus (HIV) prevalence may be lower in Muslim-majority countries and among Muslims in general. The low prevalence is usually accredited to Islam's influence on the behaviours that affect transmission of HIV. Reports of HIV epidemics, predominately among injection drug users (IDUs), are emerging in Muslim-majority countries, forcing the Muslim world to respond to them.
Objective This study is a scoping review of the literature that addresses (a) the messages communicated regarding HIV from an Islamic perspective, (b) the approaches Muslims adopt to comprehend and treat people living with HIV, and (c) roles of Islam and religious leaders. This review scopes the available literature and identifies the nature and extent of research conducted to date.
Methods A comprehensive search was performed using PubMed, Medline, Web of Science, ScienceDirect, Scopus, and Academic Search Ultimate. Primary research that focused on the Islamic perspective and discourse of HIV and AIDS, were considered. In total 22 studies dating from 2002 to 2017 studies were included.
Findings.
Five themes emerged (1) Western Import, (2) God's Wrath, (3) God's Test, (4) Tolerance and Mercy, and (5) Religious Silence.
Conclusion HIV has indiscriminately affected communities globally and the Muslim community has not been an exception. More diverse research is required as well as Muslim- majority countries and communities must develop effective HIV awareness and prevention campaigns that are rooted in Islamic teachings and involve religious leaders.

Keywords HIV · Islam · Prevention

1 Introduction

With an estimated 39.0 million (33.1–45.7 million) people living with the human immunodeficiency virus (HIV) at the end of 2022 [1] and an estimated 4000 people acquiring HIV every day [2], HIV remains a worldwide public health concern. Although there is a rich body of research exploring the role of religion and religiosity, especially regarding Islam and its protective factors, less is known about how HIV is being perceived and communicated from an Islamic perspective.

Islam is practiced by over 1.6 billion people in the world and is seen as a way of life rather than a religion [3–6]. Muslims often look to the Qur'an and the narrations of the Prophet as they have some of the clearest and most direct teachings and guidance for all aspects of life—individual and social, material and moral, economic and political, legal and cultural, and national and international [3, 4]. Islamic religious leaders, who are revered for their knowledge and interpretation of Islamic texts, also play an important role in the daily lives of Muslim people as they have a duty to guide Muslims and share the teachings of Islam [3, 4, 7, 8].

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In relation to HIV, there is some evidence to suggest that HIV prevalence may be lower in Muslim-majority countries and among Muslims in general [7, 9, 10]. The low prevalence is usually accredited to Islam's influence [3, 6, 11–13] on the behaviours that affect transmission of HIV which include; universal circumcision of Muslim men [10], prohibitions of intoxicants, abstaining from sex outside of marriage [14], anal sex and sex during menstruation [4].

However, adherence to Islamic values is not enough to prevent HIV transmissions [6, 15]. Reports of HIV epidemics, predominately among injection drug users (IDUs), in Indonesia, Malaysia, Bangladesh, Iran, Libya, Tajikistan, and Pakistan [16–19] are emerging and forcing the Muslim world to respond to them [10]. There also indication that HIV transmissions are increasing through sexual relations [3, 11, 20].

Islam is one of the most universal and impactful factors that significantly influences Muslim people's attitudes, values and behaviours at both the individual and societal levels. This suggests that an Islamic approach to HIV is essential, particularly as it is felt that usually perceived that HIV is a Western-based promiscuity disease [9] and that the secular approaches to HIV prevention are ineffective in targeting Muslim communities [3, 9, 21].

The aim of this review is to gather published insights on the perceptions and attitudes of Muslim people on HIV and people living with HIV as well as, the messages that are communicated.

2 Method

A comprehensive search was performed using PubMed, Medline, Web of Science, ScienceDirect, Scopus, and Academic Search Ultimate. An initial search using key terms and medical subject headings (MeSH) was conducted. Search terms included HIV or "human immunodeficiency virus", "AIDS" or "acquired human immunodeficiency syndrome", "Islam", "Muslim", and "Perceptions", and "Perspective".

The following selection criteria was utilised: (a) full-text studies, (b) published in the peer-review literature, (c) written in English, (d) focused on the Islamic perspective and discourse of HIV and AIDS

The number of records retrieved was 601, 315 titles and abstracts were screened, and 22 Primary research studies, published during 2002 – 2017, were included (Table 1).

The main author reviewed the articles, and studies that focused on the preventative nature of Islam, risk behaviours of Muslim people, HIV prevalence in Muslim majority countries, adherence to treatment and condom use, were exclude.

A scoping review was selected as scoping reviews presents the available research on a topic and are useful when the topic is complex or not well-reviewed. They also help determine the value of undertaking a full systematic review and identify research gaps [22].

Ethical approval or informed consent was not required for this scoping review which does not involve human participants. Ethical approval was not sought for the present study because the present study is based on publicly available data.

2.1 Findings

A summary of the findings is presented in Table 2.

2.1.1 Western import

AIDS was first mentioned in Muslim ethical literature in 1985 as an illness only affecting the West as God's punishment for sexual promiscuity, perverted sexual contacts and flouting moral restraints [3, 9, 21]. Homosexuality, in particular, is exemplified as a perversion of human nature and is regarded as the main cause of the spread of HIV [3, 9, 11, 15].

Influential religious scholars such Malik Badri, argue that AIDS is the direct result of the Western sexual revolution and the promiscuity that it had propagated [9, 10, 23]. With HIV prevalence increasing within the Muslim population, Western countries are being blamed for exporting their liberal views, via tourism [7] and television [20], spreading their propaganda of sexual rights [9, 23] and importing HIV to the country [10, 20].

Regardless of the increase HIV prevalence in Muslim countries, the overwhelming response from Muslim communities has been to deny the existence of HIV [10, 12, 17, 21, 24], possessing a "not-in-this-region" [10, 11, 25] and "it is still not our problem" [9, 12, 23] approach. This denial not only increases the vulnerability of acquiring HIV but also ignores the human rights of People Living with HIV (PLHIV) as the issue not even recognized [9, 17].

Table 1 Characteristics of included studies

Author(s)	Title	Date	Description
Francesca E	AIDS in contemporary Islamic ethical literature	2002	The author analyses the attitude of Muslim religious authorities towards individual sexual behaviour and AIDS. It is mainly based on contemporary legal responses and uses various sources of Islamic ethical literature
Musso S, Fanget D, Cherabi K	Religion and education for HIV/AIDS prevention: an Arab-Islamic view	2002	This is a descriptive review that uses qualitative methods to examine the perceptions and attitudes of Muslim religious leaders and educators on HIV/AIDS
Maoulidi S	Muslim women responding to HIV/AIDS in Tanzania	2003	Explores the impact of HIV/AIDS and Islam on Muslim women's lives, rights, and roles in rural Tanzania. The article is a qualitative study that uses the authors experience working with NGOs and National HIV efforts
Paruk Z, Mohamed SD, Patel C, Ramgoon S	Compassion or condemnation? South African Muslim students' attitudes to people with HIV/AIDS	2006	This study is quantitative study that surveyed undergraduate and postgraduate Muslim students in South Africa (N = 90). The objective is to understand the social, economic, and religious factors that affect the students' attitudes to people with HIV/AIDS
Becker F	The Virus and the Scriptures: Muslims and AIDS in Tanzania	2007	The author relies on informal conversation and personal views rather than of the results of a formal survey, in an attempt to have a more open conversation on the influence of Islam on the perception of AIDS within the Muslim community in Tanzania
Svensson J	HIV/AIDS and Islamic religious education in Kisumu, Kenya	2007	Based on data collected mainly through participant observation and interviews, this is a descriptive review that examine the perceptions and attitudes of Muslim religious leaders and educators on HIV/AIDS
Maulana AO, Krumeich A, Van Den Borne B	Emerging discourse: Islamic teaching in HIV prevention in Kenya	2009	This study uses qualitative methods; content analysis of The Quran and other Islamic texts as well interviews with Islamic leaders in Lamu, to examine their perceptions towards HIV
Balogun AS	Islamic perspectives on HIV/AIDS and antiretroviral treatment: The case of Nigeria	2010	This article examines some Islamic perceptions of HIV and ART in Africa, with particular emphasis on Nigeria. Method included the use of two main sources of Islamic law —the Quran and the Sunnah— as well discussions with some Islamic religious leaders
Abu-Moghli F, Nabolsi M, Khalaf I, Suliman W	Islamic religious leaders' knowledge and attitudes towards AIDS and their perception of people living with HIV/AIDS: a qualitative study	2010	This qualitative descriptive study explored Muslim religious leaders' perception, knowledge and attitudes towards AIDS. 20 Islamic religious leaders (males and females) participated in two audio-taped focus group discussions. A content analysis approach was used to analyse the data
Kanu M, Brown E, Theriot R, Briggs R	Religious and cultural perceptions about HIV/AIDS among Muslims	2010	A cross sectional study that involved adult male and female participants (N = 96) from Muslim worshipers in the United States. The objective is to explore the religious views and perceptions about HIV/AIDS among Muslims
Clarke M, Charnley S, Lumbers J	Churches, mosques, and condoms: understanding successful HIV and AIDS interventions by faith-based organisations	2011	The article conceptualises the successful characteristics of a Muslim organisation that incorporates Islamic teachings within the context of HIV in Thailand. It also discusses the challenges and opportunities for faith-based organisations
Speakman S	Comparing the Impact of Religious Discourse on HIV/AIDS in Islam and Christianity in Africa	2012	The author compares the social construction, epidemiological understanding and public responses among Muslim populations in Africa with Christian ones and the impact of religious discourse and attitudes
Cochrane L, Nawab S	Islam and development practice: HIV/AIDS in South Africa	2012	Using Islamic Careline in South Africa and its programmes, the Muslim AIDS Programme (MAP) as a case study, this paper evaluates the Islamic ethical and operational frameworks in this context

Table 1 (continued)

Author(s)	Title	Date	Description
Monshipouri M, Trapp T	HIV/AIDS, Religion, and Human Rights: A Comparative Analysis of Bangladesh, Indonesia, and Iran	2012	Relying on a thematic and comparative analysis, this study argues that the essentialist characterisation of the Islamic way of life ignores the social determinants of HIV/AIDS risks
Ghaly M	Collective Religio-scientific discussions on Islam and HIV/AIDS: I. Biomedical Scientists	2013	This paper is a descriptive review that uses qualitative methods to examine the perceptions and attitudes of Muslim biomedical scientists on HIV/AIDS. The paper also discusses the challenges and opportunities for collective legal reasoning between scientists and Islamic religious scholars
Svensson J	Islam, HIV/AIDS and activism: a critical analysis of some themes in Positive Muslims' 'theology of compassion'	2013	This is a critical analysis of the South African organisation Positive Muslims' 'Theology of compassion' by analysing various texts that are part of the organisation's project and their publications. It argues that the group's ideas are not based on a good understanding of Islam, HIV/AIDS, or human rights
Svensson J	God's Rage: Muslim Representations of HIV/AIDS as a Divine Punishment from the Perspective of the Cognitive Science of Religion	2014	The present article focuses on the Muslim views on HIV/AIDs as a divine punishment. The paper uses ideas from the cognitive science of religion, which studies how Muslims think and feel about HIV
Lua PL, Mustapha N, Abdullah R, Rahman AKA	The experiences and challenges in caring for HIV/AIDS patients: A qualitative exploration among Muslim family caregivers in Terengganu, Malaysia	2014	A qualitative study that explores the beliefs, challenges and experiences of HIV/AIDS family caregivers in Malaysia. 12 semi-structured interviews conducted and analysed
Tham JS, Zanuddin H. R	Religion and media: a case study of Utusan Malaysia's response to HIV/AIDS	2015	The purpose of this paper is to explore how the Islamic tenets and beliefs are portrayed in the Malaysian newspaper, Utusan Malaysia, in relation to the HIV/AIDS
Shaik S	HIV/AIDS and Muslims in South Africa: The 'Untouchable' Disease	2017	This paper seeks to conceptualise HIV/AIDS amongst Muslims of Indian descent in Durban, South Africa, with an aim to uncover the social and Islamic beliefs towards HIV. The research findings are based on life histories of five key respondents as well as 10 semi-structured interviews with volunteers and caregivers of Muslims living with HIV/AIDS
Shaw SA, Saifi R, Lim SH, Saifuddeen SM, Kamarulzaman A	Islam and HIV related social services in Malaysia	2017	A review of the HIV prevention and treatment efforts involving Islam in Malaysia. The article also discusses the religious impacts the way in which communities understand and respond to HIV
Tocco JU	The Islamification of antiretroviral therapy: Reconciling HIV treatment and religion in northern Nigeria	2017	An ethnographic study explores how HIV treatment is reconciled with Islamic beliefs in northern Nigeria. The author conducted mixed method, multi-site research, including interviews with 30 Muslim men living with HIV

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2.1.2 God's wrath

An overwhelming number of Muslims believe that HIV/AIDS is a punishment from God, a disease for those who flout religious and moral values, such as adultery, homosexuality and drug use [3, 4, 7–9, 11, 17, 20, 21, 23, 26, 27].

Various texts from the Qur'an that refer to a time when homosexuality had spread among people (of Lut), to which God responded by punishing them with showers of clay as well as, the Prophet's alleged warning of a plague that will spread among people who transgress morally [3, 23], have been used to support the argument that HIV is a punishment.

The opinion that people living with HIV are responsible for acquiring the virus due to their immoral and sinful behaviour [8], increases stigma, discrimination [11] and forces them to hide their status [9]. However, it is not only "the sinful ones among us"[9] who have acquired HIV.

2.1.3 God's test

Muslim people living with HIV are a neglected community, experiencing stigma and discrimination [3, 6, 12, 15, 17, 23, 28]. The combination of external stigma and internal oppression impose a heavy burden, resulting in Muslim PLHIV reporting poorer wellbeing with feelings of anxiety, depression, and guilt [4, 8, 11, 21, 27, 29, 30].

Often for Muslim PLHIV their Muslim identity stays intact, resulting in an inner struggle between their religious faith and their HIV status, consequently internalising the stigma [15, 17]. As Islam unquestionably forbids homosexuality, drug use and sexual relation out of wedlock, PLHIV who might have acquired HIV through these means may express a sense shame, a fear that their status is tainting the Muslim religion or that this is their punishment for their transgression [15]. Others choose to believe that HIV was God's will or a test for them and therefore perhaps easing their situation by removing the transgressor label [8, 20].

Studies found that some Muslim PLHIV used Islam for comfort and coping with the emotional, psychological and physical pain. PLHIV voiced how listening to the Qur'an, prayer and fasting helps relieve the physical pain, provides calmness and also gives them hope. [6, 20, 28].

Those who acquired HIV through blood transfusion or through religiously sanctioned sexual activities are considered 'innocent victims'; whereas if a person acquired it by illegal sexual relation, homosexuality or drugs then they are 'transgressors' who deserve to be punished [3, 7, 11, 21].

Muslims are trying to make sense of why there are any innocent victims if the virus is perceived to be transmitted through immoral and transgressive behaviour. One belief, which is generally rejected by the majority of Muslims, is that HIV is God's collective punishment to humanity for allowing sexual deviation and moral transgression and the innocent victims are collateral damage [4, 8, 27].

However, a more accepted school of thought is that HIV is sent from God to test people's faith and patience [3, 4]. This belief disconnects HIV from the label and the stigma that it carries as a divine punishment for moral deviance and explains why children and those with low-risk behaviours can also acquire HIV [8].

Regardless of the whether HIV was acquired through blood transfusion or by illegal sexual relation, the majority of Muslim people believe that PLHIV should not be judged need to be cared for as dictated by Islam [7, 9, 11].

2.1.4 Tolerance and mercy

Tolerance is a basic principle in Islam and is a religious and moral duty for every Muslim [3, 6, 9, 11, 12, 16, 23, 26, 29].

Several Qur'anic verses and Prophetic sayings have been referenced to re-enforce the need for tolerance and compassion towards PLHIV as well as God's love to all his creatures [3].

The first which refers to the privacy and caution against judging people- "He who relieved his (Muslim) brother from a distress in this world Allah would relieve from a distress on the Day of Resurrection, and he who veils [the faults] of a Muslim Allah will veil (the faults of) on the Day of Resurrection." [3, 7, 9].

The second on taking care of the sick- "The Muslim is the brother of (his fellow) Muslim. He does not do him injustice and he does not forsake him." [4, 9].

Muslims are expected to be merciful to all of God's creatures with The Prophet stating: 'He who does not show mercy to people, God will not show mercy to him'[4, 14, 16], noting that Prophet Muhammad himself treated and assisted those who had engaged in activities that go against his teachings [14].

Table 2 Summary of findings

Theme	Studies
Western import	[3, 7, 9–12, 15, 17, 20, 21, 23, 25]
God's wrath	[3–5, 7–9, 11, 17, 20, 21, 23, 26, 27]
God's test	[3, 4, 6–9, 11, 12, 15, 17, 20, 21, 23, 27–30]
Tolerance and mercy	[3, 4, 6, 7, 9, 11, 12, 14, 16, 23, 26, 27]
Religious silence	[3, 6, 7, 10, 15, 16, 21, 26]

2.1.5 Religious silence

Islamic religious leaders or Imams are primarily responsible for leading congregational prayers in mosques. However, they also play a vital role in the Muslim community as they are revered for the knowledge of the Qur'an, the Hadiths as well as Islamic traditions. And as such, they are figures that many people seek out for guidance and counselling on both personal and religious matters [6, 10, 15, 20, 21].

In general, religious leaders have not engaged in the HIV discourse and some have denied that it is affecting their community, mainly due to the means of HIV transmission, particularly those that touch on activities that are deemed 'deviant' or forbidden [3, 7, 21]. Most leaders are reluctant to approach the topic of HIV and especially prevention; condom use, needle exchange programmes, due to the fear of being perceived as condoning immoral behaviour [3, 10, 26].

The increase in HIV prevalence within the Muslim community has compelled some religious leaders to provide considerable Islamic engagement both in terms of increasing awareness and reducing stigma [3, 7, 15, 16, 21].

3 Discussion

HIV has indiscriminately affected communities globally and the Muslim community has not been an exception. Merely being Muslim is no longer a sufficient preventative method and therefore Muslim- majority countries and communities must develop effective HIV awareness and prevention campaigns.

This scoping review identifies the different perspectives on HIV from an Islamic perspective and found that views ranged from HIV being a Western import to God's wrath for immoral behaviour. It also presents the different experiences and beliefs of Muslim people living with HIV, who face stigma and discrimination from their community and themselves, with some viewing it as a punishment, a test, or a result of their own actions, and how they cope with it through their faith.

This highlights the challenges and implications of stigma, denial, and discrimination in most Muslim communities, suggesting that there is a need for more awareness and education on HIV, as well as a more compassionate and inclusive approach to people living with HIV [24].

The Islamic faith is not a monolithic religion regardless of how mainstream academia and media present it. It has diverse and varied interpretations, with Muslims practicing their faith differently depending on their ideology, sect, ethnicity and gender [31]. However, regardless of the different Islamic practices, there are core beliefs and key aspects of the religion that the majority of Muslim accept and therefore in order for any campaign to be successful it needs to be rooted in the Qur'anic teachings and supported by religious leaders [3, 6, 19, 23].

Religious leaders' involvement in HIV awareness and prevention can be significant as they can play a critical role in reducing stigma against people living with HIV, promoting HIV testing and treatment. In addition, they can promote the Islamic behaviours that can reduce risk of HIV transmission [7, 15].

In the short term, prevention strategies must be able to operate within the current social and cultural dynamic, implementing educational campaigns that that are supported by religious leaders, who refer to Islamic teachings encouraging compassion and tolerance. With that said, the idea that simply adhering to Islamic rules as the only form of prevention ignores the fact that Muslims do engage in risky behaviours and therefore increases the risk of transmission [32].

It should be acknowledged that by reducing the HIV epidemic to simply the consequence of illicit behaviour or a test from God and preaching that the solution is to adhere to Islamic way of life, and of tolerance, ignores the role of structural violence, inequality, and the lack of resource that fuel the HIV epidemic.

4 Conclusion

This review of literature on the Islamic perspective of HIV found that more diverse research is needed to explore the social and cultural factors that influence the perception of HIV in Muslim countries and communities. Such research can help inform evidence-based policies and practices that are sensitive, inclusive, and effective for addressing the HIV epidemic in Muslim countries.

Moreover, Muslim- majority countries and communities must involve the collaboration and support of Islamic scholars and leaders. Islamic scholars and leaders can use their religious resources and influence to reduce the HIV epidemic and create a more caring and supportive atmosphere for people living with or affected by HIV.

Strengths and Limitations.

The strength of this review is that it organised and summarised information from published studies that are exclusively on the Islamic perspective of HIV, without any date restrictions. Nevertheless, there were some limitations; firstly, only published literature that's available online and in English was included and it is possible that there are other studies which are not accessible online and in a different language. Secondly, it should be acknowledged that scoping reviews typically do not assess the quality of included studies and that there is a possibility of publication bias.

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Data availability These are available as they are published papers.

Declarations

Ethics approval and consent to participate Wasn't required for this review. Not required as these are already published papers.

Consent for publication Not required as these are already published papers.

Competing interests The authors have no competing interests to declare that are relevant to the content of this article.

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5.7 Prevalence of Vertical transmission and its associated factors in MENA: A scoping review

5.7.1 Introduction

This review focuses on the significant rise vertical HIV transmission in the MENA region and found that there was a lack of specific country data on the subject. It highlights the critical need for interventions that promote adherence to ART, introduces Child to a Breastfeeding Woman Transmission as well as questions the ethics of 'Opt out' HIV testing.

Abstract

Background: Vertical transmission (VT) of the Human Immunodeficiency Virus (HIV), also called Mother-to-Child-Transmission (MTCT), remains a critical concern in global health. The MENA (Middle East and North Africa) region has experienced its most significant surge in new HIV infections since 2010, with an increase of 22%, reporting the highest rate of vertical transmission. This scoping review aims to synthesise existing knowledge, identify gaps, and provide actionable insights for policymakers and healthcare practitioners.

Method: Published articles were retrieved using relevant search terms across databases such as MEDLINE, Academic Search Ultimate, and Google Scholar. The search strategy employed specific Medical Subject Headings (MeSH) terms related to vertical transmission, including 'Mother to child HIV transmission (MTCT)' and similar terms. The focus was limited to the 39 countries/territories falling under the United Nation's classification of the MENA region. The inclusion criteria were: peer-reviewed studies had to examine and identify factors influencing vertical HIV transmission, report specific results exclusively from MENA countries, mention the search terms in the title or abstract and published in English.

Results: 77 articles, covering retrospective reviews, cohort studies, and qualitative research, concerning the MENA region were found and 14 were included. Factors associated with vertical transmission included access to antenatal care, adherence to ART and cultural practices. Additionally, the review highlighted insufficient country-specific data across the MENA region, emphasising the need for more comprehensive research and surveillance.

Conclusion: The challenges identified emphasise the need for comprehensive strategies that tackle both structural, individual and socio-cultural level factors in vertical HIV transmission prevention and management. In the MENA region, intensified efforts and context-specific strategies, including integrating prevention of vertical transmission services with broader sexual healthcare and, the availability and developing initiatives for ART adherence, are critical.

Background

Vertical transmission (VT) is the transmission of HIV (Human Immunodeficiency Virus) from a mother living with HIV to her child during pregnancy, labour, delivery or breastfeeding and is also referred to as Mother-to-Child Transmission (MTCT) or Perinatally Acquired HIV. Vertical transmission is the main mode of HIV acquisition among children, and it is estimated that in 2022, there were 130 000 [90 000–210 000] new HIV cases globally among children aged < 15 years, which was a 58% reduction from 310 000 [210 000–490 000] new cases in 2010 (UNAIDS 2023a). This was achieved through various strategies put into place to minimise vertical transmission, which include the use of Antiretroviral Therapy (ART), elective caesarean sections and recommending feeding with formula or banked pasteurised donor milk (Yang et al. 2023).

While the annual rate of new vertical HIV cases has seen a significant decrease since its peak in the early 2000s, this decline has nearly plateaued in recent years (UNAIDS 2023b). This stagnation could be due to an estimated 1.3 million pregnant women living with HIV per year who still do not having access to ART, leaving tens of thousands of infants at risk (Yang et al. 2023). According to the World Health Organization (WHO), in the absence of intervention, the rate of transmission of the virus from a mother living with HIV to the child during perinatal period, ranges from 15% to 45% (WHO 2024).

Although comprehensive information on HIV and epidemiological pattern is scarce, published studies from the region show a low HIV prevalence, but it is one of only two areas globally where its incidence is increasing (Hamidi et al. 2021; Karbasi et al. 2023). The MENA region has experienced a 22% increase in new HIV cases since 2010 and reporting its highest vertical transmission rate at 30% (Maatouk and Assi 2022). This is primarily due to inadequate HIV prevention, testing and counselling services, low availability and poor acceptance of ART, prevalent stigma and discrimination, fragile health infrastructures, discriminatory laws, gender inequality and a scarcity of data and surveillance (Karbasi et al. 2023).

In 2022, UNAIDS noted that only 67% of people living with HIV in the region were aware of their status, and fewer, 50%, had access to treatment. The treatment coverage was even lower among women, at 49% and alarmingly, only 34% of children living with HIV received treatment (UNAIDS 2023b). Approximately 15–25% of infants acquired HIV during pregnancy or during delivery, and around 5–20% during breastfeeding (Al-Jabri et al. 2014)

Despite the myriad challenges faced in the MENA region, there have been significant strides in preventing vertical transmission. Djibouti and Somalia have made commendable progress; for example, Djibouti has reduced new HIV cases among newborns and children by 70%, and Somalia by 22% during 2005–2013 (Gökengin et al. 2016). Morocco lowered its vertical transmission rate by nearly 10%, while Egypt has reduced the rate by 5.2% from 2015 to 2022 (UNAIDS 2023c).

Similar interventions have been adopted by Algeria and Tunisia. Tunisia saw almost 80% of pregnant women living with HIV receiving ART. Kuwait and Saudi Arabia have both introduced routine antenatal HIV screening for pregnant women (Gökengin et al. 2016), whilst Oman was recognised in 2022 as the first country in the region to successfully eradicate vertical transmission (WHO 2022).

This review examines available studies with the objective of providing an overall understanding of vertical transmission in the region, identifying the obstacles and opportunities for its prevention and management. With this information, the aim is to inform the development of targeted health policies and identify best practices for the future of vertical transmission services in the MENA region and similar contexts.

Method

This review adhered to the framework proposed by Arksey and O'Malley (2005), which outlines a standardised approach for conducting scoping reviews, encompassing five key stages: defining the research question, searching for and selecting relevant research articles, selecting the studies based on predefined criteria, extracting the relevant information from the selected studies and collating, summarising, and reporting the results.

First, a search was conducted on PROSPERO to explore whether a similar review has been registered. The search terms were determined using Medical Subject Headings (MeSH) terms specific to vertical transmission: Mother to child HIV transmission (MTCT) or prevention of mothers to child (PMTCT) or elimination of mothers to children transmission (EMTCT), Perinatal transmission, Prevention of Parent to Child Transmission (PPTCT) or Paediatric HIV. Searchers were conducted on the following databases: MEDLINE, Academic Search Ultimate, CINAHL, APA PsycInfo, Environment Complete and Google Scholar. Additionally, grey literature search was conducted to locate UNAID country reports on the relevant websites.

Inclusion and exclusion criteria

To be included, studies had to (i) examine and identify factors affecting the vertical transmission of HIV (ii) report specific results only in MENA countries, (iii) had the search term in the title or abstract (iv) published in the English language, and (v) were peer-reviewed and of any study design (qualitative, quantitative, or mixed methods). Articles that did not meet the inclusion criteria were excluded. The UNAIDS classification of MENA includes 19 countries/territories: Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, and Yemen.

In order to ensure a systematic approach in selecting the articles, the Preferred Reporting Items for Systematic Reviews (PRISMA) guideline was implemented (Appendix II).

Quality appraisal of studies

The quality of 14 relevant studies were assessed using an auto-adapted checklist inspired by the one used in the systematic review titled “The Unmet Needs for Modern Family Planning Methods Among Postpartum Women in Sub-Saharan Africa” (Gahungu et al. 2021). Each criterion was scored on a binary scale: 1 (met) or 0 (not met). A study was classified as high-quality if it achieved a total score of six or higher, and low-quality if the score was five or lower (Appendix II). Due to the small number of eligible studies, no study was excluded based on quality.

Results

In total 77 articles concerning the MENA region were found but after reading the abstracts only 14 remained, which were appraised included in the review. Most (n=6) are from Oman and Sudan (n=4).

Table 5-1 Studies included in review

Authors	Country	Type of Study	Sample size n=
(Ahmed et al. 2021)	Saudi Arabia	Retrospective Review	18 mothers living with HIV and their 26 infants
(Al Awaidy and Sharanya 2019)	Oman	Retrospective Review	Of the total pregnant woman screened, 90 pregnant women living with HIV
(Al Hasani et al. 2021)	Oman	Retrospective descriptive cross-sectional	13,688 women. The prevalence of pregnant women with HIV was 0.1%
(Al Sawai et al. 2020)	Oman	Retrospective review	91 children living with HIV
(Al-Jabri et al. 2010)	Oman	Retrospective review	11,553 pregnant women
(Al-Jabri et al. 2014)	Oman	Quantitative/ cross-section survey	1,000 pregnant women
(Edathodu et al. 2010)	Saudi Arabia	Cohort study	31 pregnant women living with HIV
(Elgalib et al. 2021)	Oman	Medical record review	94 pregnant women living with HIV
(Elsheikh et al. 2015)	Sudan	Qualitative study/ Focus group discussions	121 women of reproductive age, 72 (61%) were pregnant

(Elsheikh et al. 2022)	Sudan	Quantitative/cross-sectional survey	770 pregnant women attending Antenatal care (ANC)
(Elsheikh et al. 2023)	Sudan	Intervention development study	770 pregnant women
(Kordy et al. 2006)	Saudi Arabia	Review of medical records	63 children living with HIV
(Mahmoud et al. 2007)	Sudan	Quantitative/cross-sectional study	1,005 pregnant women
(Nezha et al. 2023)	Morocco	Quantitative/cross-sectional study	384 pregnant women

Table 5-2 Vertical transmission rate including breastfeeding MENA country

Country	UNAIDS	Papers
Algeria	27.18 [25.52 - 28.53]	
Bahrain	…	
Djibouti	…	
Egypt	28.78 [27.26 - 30.24]	
Iraq	…	
Jordan	…	
Kuwait	…	
Lebanon	…	
Libya	…	
Morocco	15.13 [12.20 - 17.96]	
Oman	…	Vertical transmission rate was 1%., it was calculated as the number of HIV-positive infants divided by the number of infants born to HIV-infected pregnant women (Al Hasani et al. 2021; Elgalib et al. 2021).
Qatar	…	
Saudi Arabia	…	Prevalence in children < 15 was 9%. The mother-to-child transmission rate was 5%. (Kordy et al. 2006) 1285 citizens: 26.5% of them were women, mostly in the reproductive age group; 12.1% were children younger than 14 years old, and more than 53% of infected children had acquired the virus from their mothers. Perinatal

		transmission accounted for 63% of all HIV infections in children (Edathodu et al. 2010).
Somalia	…	
Sudan	38.78 [36.75 - 41.27]	
Syria	…	
Tunisia	…	
UAE	…	
Yemen	34.04 [32.57 - 35.29]	

Factors associated with vertical transmission in MENA

Structural-Level Factors:

Healthcare Access and Health System Capacity

A well-functioning healthcare system relies on the availability, accessibility, acceptability, and affordability of medical services provided. This consist of not only having adequate infrastructure and ample supply of medications, but also well-trained healthcare professionals.

A review of medical records of 94 HIV-positive pregnant women in Oman found that the main obstacle for pregnant women was the continuum of care. The study found that there were considerable delays in transferring new cases to HIV treatment centres as well as an absence of a comprehensive approach and proper procedures for addressing inadequate maternal adherence to interventions, such as missed appointments and refusal of ART during pregnancy (Elgalib et al. 2021).

In the literature reviewed, vertical transmission prevention services have been hindered by factors which include the reluctancy of healthcare providers to offer HIV testing to pregnant women, a lack of accountability, and poor integration of HIV testing into routine prenatal check-ups (Elsheikh et al. 2022). Additionally, gaps within healthcare professionals' understanding of vertical transmission and the necessary preventive measures were found, these included the timing for initiating antiretroviral treatment in children (Ahmed et al. 2021).

Health system barriers that impact preventative efforts include long waiting times, high transport costs, concerns about confidentiality, poor staff knowledge and attitudes, and inconsistent service (Elsheikh et al. 2015). Moreover, the incomplete implementation of the opt-out strategy for HIV testing, insufficient training for healthcare providers, and delays in transferring from vertical to integrated programmes have been identified as key issues (Elsheikh et al. 2022).

Individual-Level Factors:

Awareness

The prevention of vertical transmission of HIV is largely influenced by the level of knowledge of the expectant mother. Unfortunately, studies from various MENA countries found a disparity in knowledge about HIV transmission and prevention among pregnant women, reporting that there is a lack of understanding about vertical transmission overall. It was also found that more than half of the pregnant women surveyed in Sudan (Elsheikh et al. 2022) and over 75% in Morrocco, had insufficient knowledge about vertical transmission (Nezha et al. 2023). Many of the Moroccan women who participated in the study were not only unaware of how to prevent HIV but also displayed negative attitudes toward prevention measures.

The lack of awareness and negative attitudes aren't necessarily rooted in the absence of information but instead stem from more complex barriers. As discussed by Nezha et. al (2023), Moroccan pregnant women face barriers in gaining information on the prevention of vertical transmission due to illiteracy, low family income, and distance from healthcare facilities.

In Oman however, researchers found that despite a high awareness of vertical HIV transmission, only a minority of women understood that it is preventable and recognised the role of ART. Less than half were aware that it can also be transmitted through breastfeeding (Al-Jabri et al. 2014), which was found to be associated with a 10% to 17% risk of perinatal transmission of HIV (Kordy et al. 2006).

Adherence

Adherence to ART throughout the pregnancy is necessary as it significantly reduces the risk of HIV transmission to the unborn baby and supports the mother's health. Unfortunately, non-adherence has proven to be a major obstacle to preventative and management efforts in the region.

In the study by Elgalib et al. (2021) the self-reported adherence to ART during pregnancy in Oman varied significantly among participants. A majority, 74.2% (49 out of 66), reported excellent adherence, while 13.6% (9 out of 66) and 12.1% (8 out of 66) reported good and poor adherence, respectively. Notably, there were cases where women were aware of their HIV-positive status before becoming pregnant but had not engaged regularly with HIV care services. Furthermore, Ahmed et al. (2021) reported that out of eighteen mothers, three did not adhere to their treatment plans due to factors such as depression or expired identification documents.

Socio-cultural Factors:

Stigma and Discrimination

The fear of significant personal losses, including partners and employment, and the potential of being forced to leave their homes, leads to denial and a preference to remain uninformed about their HIV status (Elsheikh et al. 2022; Elsheikh et al. 2023).

Despite the availability, it was reported that the majority of women choose not to take an HIV test (Mahmoud et al. 2007; Elsheikh et al. 2023) due to factors that include financial constraints and the fear of stigma (Elsheikh et al. 2015). A study on Sudanese women reiterates this through the findings that nearly a quarter of respondents (23.5%) were afraid and suspicious towards testing, often feeling stigmatised, which results in many avoiding the test altogether (Elsheikh et al. 2022).

Recognising these challenges, many preventative programmes are hampered by social barriers, stigmatisation, and discrimination which deter individuals from seeking voluntary HIV testing and counselling (Elsheikh et al. 2015; Ahmed et al. 2021; Elgalib et al. 2021; Elsheikh et al. 2023).

One of the determining factors in Oman's vertical transmission prevention initiative was its approach to HIV testing. As of 2009, all women visiting antenatal clinics were required to undergo HIV testing. This initiative aimed at early detection and management of HIV, as well as preventing its transmission to the unborn child (Al-Jabri et al. 2010; Al Awaidy and Sharanya 2019; Al Hasani et al. 2021).

The implementation of compulsory HIV testing for all expectant mothers in Oman was initiated without an initial assessment of the women's views on testing or their potential reactions to receiving a positive result (Al-Jabri et al. 2010). When Omani pregnant women were surveyed (N= 1000), 62.5% preferred voluntary testing while 25.8% stated they preferred routine testing (Al-Jabri et al. 2014).

In 2019, the Saudi Ministry of Health also mandated HIV screening for all pregnant women as part of routine prenatal care. Nevertheless, the policy struggled due to the societal rejection of screening services among Saudis, arising from the lack of HIV knowledge and conservative cultural views (Ahmed et al. 2021).

Role of doctors and family members

In a cross-sectional study examining the determinants of HIV testing during pregnancy among Sudanese women (N=770), it was found that healthcare professionals, particularly doctors, played a central role in influencing the decision to taking an HIV test.

The study also found that most of the women (78.8%) reported that doctors had the most influence on their decisions, while husbands also had some influence (19.4%) and other family members, such as the woman's mother, had minimal influence (1.3%). Interestingly, a small percentage of women (0.07%) stated that their husbands' disapproval and the lack of family support towards testing was a barrier (Elsheikh et al. 2022).

Another study by Elsheikh et al. (2015) observed that although advice from doctors and husbands during the decision-making process had an impact, ultimately many women asserted their right to make their own healthcare decisions, establishing their preferences regarding care and treatments.

Discussion

This review paper presented the structural, individual and socio-cultural factors that are associated with vertical transmission, which are characteristic of the region.

Vertical transmission prevention and management in the MENA region presents intricate challenges as highlighted by the literature reviewed. The efficiency of the preventative and management of vertical transmission is based on multiple factors, such as service availability, cost, quality of care, and the overall readiness of health systems, which depend on robust infrastructure, consistent medication supply, and a competent healthcare workforce (Sardashti et al. 2015).

In the literature reviewed, significant structural barriers within the region's health systems were identified. Long wait times, high transport costs, confidentiality concerns, and poor staff HIV knowledge and training were highlighted. It is unfortunate that healthcare providers have been recognised as a key barrier toward HIV prevention with several studies reporting the discriminatory behaviours of healthcare providers. These include neglecting patients, providing poor treatment based on HIV status and disregarding patient confidentiality (Aziz et al. 2023; Karbasi et al. 2023; Saad et al. 2024).

At the individual level, the health and awareness of mothers play a critical role in the prevention of the vertical transmission of HIV. It was found that there was a significant lack of knowledge among pregnant women regarding vertical transmission even in countries with higher awareness levels, with a substantial number of women not being aware of HIV transmission through breastfeeding.

The findings by Mumtaz et al. (2020) show that knowledge about transmission during breastfeeding range from 42.3% in Jordan to 71% in Sudan, suggesting a significant variation in awareness levels across different countries. Furthermore, without any treatment, 15 to 30% of HIV exposed infants acquire HIV during pregnancy, labour, or delivery with an additional 5–15% during breastfeeding (Moland et al. 2010; Tuthill et al. 2024).

With regular adherence to ART and safe feeding practices, mothers can safely breastfeed with almost no risk of transmitting the virus to their newborns. However, the uptake of ART in the region remains low, with the least treatment coverage among women (49%) and children (34%) living with HIV in 2022 (UNAIDS 2023a, 2023b).

An often overlooked mode of nosocomial transmission is HIV from a Child to a Breastfeeding Woman Transmission (CBWT). CBWT may occur when an infant living with HIV passes the virus to an HIV-negative mother during breastfeeding. This transmission is thought to occur through contact with breast milk at a time when there is a break in the skin's protective barrier (Little et al. 2012). Despite its rarity, there have been cases of this mode of transmission, for example the El-Fatih outbreak in Libya which led to 19 mothers acquiring HIV through breastfeeding (Little et al. 2012; Mohamoud et al. 2014).

Sociocultural dynamics play a crucial role in HIV prevention and management with cultural practices, gender roles, and public perceptions significantly influencing prevention efforts and individuals' willingness to disclose their HIV status (Alkaiyat and Weiss 2013). Given this, it was unsurprising that extensive research confirms that stigma and discrimination are the most significant barriers to ART (Katz et al. 2013; Tran et al. 2019; Ballouz et al. 2020).

Social and cultural taboos coupled with the limited access to sexual health service in the region (Zaki et al. 2021) often fuel misinformation. A study which was conducted in Lebanon revealed that Obstetrician-Gynaecologists rarely discuss sexual health with their patients, contributing to the reluctancy in openly addressing HIV testing and prevention (DeJong and Battistin 2015).

Stigma and misinformation surrounding HIV can lead to fear and avoidance of testing due to the perceived personal and social repercussions of not only a positive diagnosis but to taking the test altogether (Hamidi 2022). The implementation of an 'opt-out' antenatal HIV screening is regarded as less stigmatising and more acceptable, leading to a higher detection rate of HIV-positive pregnant women than the voluntary 'opt-in' method. Although this may be seen to reduce the stigma barrier, this approach has sparked ethical debates about the breach of women's autonomy to decline the test (Al-Jabri et al. 2014).

By presuming consent unless explicitly refused, the 'opt-out' or mandatory testing undermines women's right to make informed decisions about their health. Additionally, using these methods may inadvertently put the women in a situation where they will be stigmatised based on their HIV status with consequences affecting their social interactions, employment prospects, and mental well-being (Bain et al. 2015).

Conclusion

The challenges identified emphasise the need for comprehensive strategies that tackle both structural, individual and socio-cultural factors in HIV prevention and care. This study also highlights the vulnerability of women living with HIV during pregnancy and the need to focus on ART adherence interventions in this population. Although there is a successful reduction of vertical transmission in some of the countries in the region, many more are still falling short.

Generally, there's a need to improve maternity and sexual health services, increase awareness of HIV transmission and not only ensure the availability of ART but to also develop interventions that help women maintain adherence to treatment and healthcare in the long term.

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5.8 The impact of conflict on the HIV epidemic in Libya: A Scoping review

5.8.1 Introduction

Libya's ongoing conflict is likely to impact the HIV prevalence. Addressing this, this article gathered insights on the link between HIV and conflict from other countries and combined with non-academic reports, provides a crucial understanding of the probable outcomes. It underscores the need for precise HIV prevalence data and tackling the unique risks posed by armed groups. Additionally, the country must prepare for the potential surge in HIV transmission after the conflict due to potential changes in social behaviour.

Abstract

Background: The association between armed conflict and HIV epidemic is complex, and a rudimentary understanding of the determinants of HIV would suggest that HIV prevalence should increase during conflict. Other studies support a negative association with a 'protective' effect of war and conflict due to reduced mobility and accessibility of the population.

Most of the available research studies are focused on Sub-Sahara Africa as it carries a disproportionate burden of HIV and where the link between conflict and increase of HIV prevalence appeared especially strong. Little attention has been paid to the Middle East and North Africa, where steep increases in the number of new HIV cases have continued along with the increasing number of armed conflicts. This paper focuses particularly on Libya which is still mired in the chaotic consequences of the 2011 revolution and international intervention.

Objectives: This study reviews existing evidence on the link between HIV/AIDS and conflict, applying them to the Libyan context, to present a balanced interpretation of the impact of conflict on HIV in the country as well as to providing an overview of the possible outcomes.

Method: Due to the lack of research on Libya as a whole, an integrative approach was chosen as it allows the synthesis of evidence from diverse data sources. A comprehensive search on HIV and conflict in other countries was performed using CINAHL Complete, Medline, SocINDEX, Academic Search Ultimate, and APA PsycInfo. An initial search using key terms and medical subject headings (MeSH) was conducted. Search terms included 'Armed- conflict', 'Civil war', 'HIV', 'AIDS', and related terms within the title or abstract.

The peer-reviewed literature provided a foundation for the impact of conflict on HIV, and the grey literature was incorporated to contextualise it for Libya. Grey literature, including, research and committee reports, government reports, and newspaper articles were included as they provided data that is not available due to the lack of research on Libya overall.

Results: 22 studies 1991 to 2024 were included in the review and nine themes were formed. Studies that were on attitudes and perceptions, HIV treatment and care, models, and framework and approaches were excluded.

Conclusion: The ongoing conflict in Libya is likely to affect HIV prevalence as indicated by research from similar conflict zones and various sources on Libya. Addressing this issue requires a comprehensive approach, including thorough data collection on HIV prevalence, tailored interventions for armed groups, rebuilding the healthcare system and recognising potential new risks of HIV transmission in the post-conflict period.

Background

The association between armed conflict and HIV epidemic is complex and a rudimentary understanding of the determinants of HIV would suggest that HIV prevalence should increase during conflict. The main increasing factors proposed in the literature include the presence of armed forces (Tripodi and Patel 2004), displacement of population (Hankins et al. 2002), increase in sexual violence (Mills et al. 2006), as well as the collapse of health systems (Elbe 2002).

On the other hand, some studies support a negative association with a 'protective' effect of war and conflict. The argument for this counter-intuitive view is that prolonged conflict could act as a braking mechanism such as reduced mobility and accessibility of the population, that may work to decrease HIV transmission (Spiegel 2004; Strand et al. 2007; McInnes 2009; de Waal 2010; McInnes 2011; Rieger 2013; Paxton 2016; Daw et al. 2022).

Most of the available research studies are focused on Sub-Sahara Africa as it carries a disproportionate burden of HIV and where the link between conflict and increase of HIV prevalence appeared especially strong (Strand et al. 2007; McInnes 2011). Little attention has been paid to the Middle East and North Africa, where steep increases in numbers of new HIV infections have continued (UNAIDS 2023b) along with the increasing number of armed conflicts (Fehling et al. 2015; El-Kebbi et al. 2021).

This paper focuses particularly on Libya which is still mired in the chaotic consequences of the 2011 revolution and international intervention and reviews existing evidence on the link between HIV and conflict which has been analysed and grouped into nine main theories. These theories were explored, integrating grey material that is exclusively on Libya to present a balanced interpretation of the impact of conflict on HIV in the country, as well as to provide an overview of the possible outcomes.

This paper makes therefore two main contributions: first, it provides country- level analysis of the potential consequence of conflict on the HIV epidemic in Libya, and more generally, it contributes to the limited research available on the impact of prolonged internal armed conflict within a Muslim-majority country in the Middle East and North Africa.

Libya conflict (since 2011)

In 2011, a wave of mass protests swept across North Africa, labelled 'The Arab Spring', with each country's movement unfolding in its own unique way (Johansson-Nogués 2013). In Libya, the city of Benghazi became a focal point of unrest on February 15th, with a protest ignited by the arrest of a lawyer who was a vocal advocate for the victims of the Abu Salim prison, which saw thousands of political prisoners and dissidents being detained for decades and executed without proper legal proceedings (Amnesty 2014). The protests in Benghazi, particularly those led by women, were not only outrage over the Abu Salim massacre but also a broader demonstration of resistance against years of oppression (HRW 2013; Time 2019).

As tensions escalated, the peaceful demonstrations turned into violent confrontations with law enforcement, leading to a brutal crackdown. The events in Benghazi marked the beginning of a significant chapter in Libya's history, setting the stage for a broader uprising that would challenge Gaddafi's decades-long rule (Hilsum 2012).

As the protests intensified, various actors and armed groups emerged in Libya, each with their own interests and goals (St John 2017). Citizens and defects from Gaddafi's regime formed an opposition front in Benghazi and established the National Transitional Council (NTC) on February 27th, 2011. The main goal of the council was to coordinate efforts of resistance against Gaddafi and to form a political front (Serafimov 2012). The NTC called on the international community to establish a no-fly zone and air-strikes and in March 2011, the United Nations Security Council issued resolutions 1970-1973, under the articles of the resolution NATO began its airstrikes against Gaddafi's regime (Ulfstein et al. 2013). The opposition relied on NATO's airstrikes as well as armed rebel forces which were composed of various factions, primarily of civilians and soldiers that defected from Gaddafi's forces (Barfi 2011).

During the armed mobilisation, nearly every city had its military council and allied armed forces. Armed forces from Misrata, Zintan and other cities moved to attack towns and individuals who were labelled as Gaddafi loyalists (Chivvis 2014).

In October 2011, Gaddafi was found near Sirte and executed, the NTC announced the liberation of Libya and legitimatised the armed groups (Fahim et al. 2011). In the months that followed, Libya prepared for its first elections in sixty years, and in June 2012, the General National Congress (GNC) was voted in (St John 2012). This was seen as the beginning of a new Libya, however, in May 2014, General Khalifa Haftar, a former member of the free officer of Gaddafi's military who defected in the seventies, launched operation 'Libya Dignity' which claimed to be a war on terrorism and designed to eliminate the Islamist factions in Benghazi (Action 2023). The operation quickly escalated, leading to an assault on the GNC in Tripoli, as some members of the congress and political parties were aligned with Islamist factions, namely the Muslim brotherhood, and the move was perceived to be a direct threat (Gartenstein and Barr 2015).

In response, Tripoli's factions launched 'Libya Dawn' to oppose Haftar (Al-Warfalli 2015). The situation was complex with shifting alliances and military support based on fluctuating interests, resulting in institutional divide as well as reignited armed conflicts that persisted for years. In April 2019, Haftar, leading the Libyan Arab Armed Forces (LAAF) launched an attack on Tripoli to liberate it from its radical militias, throwing the country into further unrest (Daragahi 2019). The campaign was unsuccessful and in 2020 a ceasefire agreement was reached (UNSMIL 2021).

To date, Tripoli has a transitional government and a myriad of armed group who are continuously fighting for their own interests. Whereas in the east, the House of Representative continues to exist, with an inter-government enforced by the LAAF and led by Haftar (Badi and Eaton 2020).

HIV in Libya

According to the UNAIDS country fact sheet the HIV prevalence is estimated to be at 0.2% (UNAIDS 2022c). It was found that due to religious, cultural, and political reasons, the surveillance and management of HIV in the country is under-developed and limited by poor data sets (Hamidi et al. 2021). It also suggests that HIV related stigma and discrimination are the biggest obstacles to people getting tested and seeking treatment therefore affecting the measurement of the HIV prevalence of the country.

Regardless of this constraint, Daw et al. (2022) sought to investigate how the internal conflict in Libya could have impacted the HIV prevalence in the country. The study analysed the data of People Living with HIV from the Libyan National HIV database during the conflict and found that there was no statistically significant increase in the national prevalence of HIV. It did, however, find that the conflict had impacted the prevalence of HIV within the Libyan regions due to population displacement and re-iterated the previous findings that the highest HIV prevalence was reported among PWID, followed by sexual activities.

As experienced in other countries, the on-going unrest in the country is impeding the development of a comprehensive surveillance and response programme, making it difficult to collect any up- to-date data (Spiegel 2004; Alzate Angel et al. 2018). Without this data it would be difficult to ascertain the impact of conflict on HIV prevalence however, by assessing the various factors that are found to influence the burden of HIV, post conflict preventative and management strategies could be developed.

Methods

Given the lack of research on the impact of conflict on HIV in Libya, this study relied on existing research from other countries. By examining factors influencing HIV during conflicts in these studies, grey literature was then incorporated to contextualise these factors to Libya.

Peer-reviewed publications that presented primary data from 1991 to 2024 were included in this review if they met the following inclusion criteria: 1) HIV serostatus or factors related to HIV acquisition and progression was a primary focus of the article, 2) the study reported that participants were in conflict-affected, and 3) the impact of conflict on HIV is the emphasis of the study. All age groups were included in this review. Articles were excluded if they were about HIV care, sexual violence in a non- conflict setting, attitudes and perceptions, models and frameworks, and post conflict HIV legacy and trauma.

22 out of 99 articles predominately from sub-Sahara Africa were included in the review. Studies that were on attitudes and perceptions, HIV treatment and care, models, and framework and approaches were excluded. (Appendix II). Due to the lack of research on Libya as a whole, grey literature, including, research and committee reports, government reports, newspaper articles were included as they provided data. By including grey literature, this review is able to present a balanced depiction of available evidence in order to support or negate the various arguments as well as to provide a holistic understanding of how conflict impacts HIV prevalence in Libya (Paez 2017).

Limitations: The nature of integrating grey material may lead to problems with accuracy, bias, or rigor.

Results

22 studies were included in the review.

Table 5-3 Characteristics of the Studies

Reference	Title
(Ahmed et al. 2010)	Burden of HIV/AIDS infection before and during the civil war in Somalia
(Alzate Angel et al. 2018)	Systemic Factors and Barriers That Hamper Adequate Data Collection on the HIV Epidemic and Its Associated Inequalities in Countries with Long- Term Armed Conflicts: Lessons from Colombia
(Bergenström 2003)	Afghanistan: HIV/AIDS vulnerability and prevention
(Berhe et al. 2005)	War and Prevalence
(Daw et al. 2022)	The Impact of Armed Conflict on the Prevalence and Transmission Dynamics of HIV Infection in Libya
(de Waal 2010)	Reframing governance, security and conflict in the light of HIV/AIDS: a synthesis of findings from the AIDS, security and conflict initiative
(Elamouri et al. 2024)	HIV/AIDS knowledge and attitudes towards HIV and condom use among internally displaced Libyan males. Is there a need to implement sex education?
(Elbe 2002)	HIV/AIDS and the Changing Landscape of War in Africa
(Gruber 2006)	Does conflict increase vulnerability to HIV infection? Issues for a research agenda
(Hankins et al. 2002)	Transmission and prevention of HIV and sexually transmitted infections in war settings: implications for current and future armed conflicts
(Iqbal and Zorn 2010)	Violent Conflict and the Spread of HIV/AIDS in Africa
(McInnes 2009)	Conflict, HIV and AIDS: a new dynamic in warfare?
(McInnes 2011)	HIV, AIDS and conflict in Africa: why isn't it (even) worse?

(Mills et al. 2006)	The impact of conflict on HIV/AIDS in sub-Saharan Africa
(Paxton 2016)	Plague and war: political breakdown and the spread of HIV
(Rieger 2013)	AIDS and Conflict: Micro Evidence from Burundi
(Singer 2002)	AIDS and International Security
(Smallman-Raynor and Cliff 1991)	Civil war and the spread of AIDS in Central Africa
(Strand et al. 2007)	Unexpected low prevalence of HIV among fertile women in Luanda, Angola. Does war prevent the spread of HIV?
(Tornqvist 2009)	Linking HIV/AIDS, National Security and Conflict: A Colombian Case Study
(Tripodi and Patel 2004)	HIV/AIDS, peacekeeping and conflict crises in Africa
(Weledegebriel et al. 2023)	The impact of war on HIV/AIDS service provision: In rural health facilities of Tigray, northern Ethiopia, a cross-sectional study

Nine themes were identified:

Armed forces

Studies consistently found that HIV prevalence within the armed forces is significantly higher comparable to civilian populations (Smallman-Raynor and Cliff 1991; Elbe 2002; Hankins et al. 2002; Singer 2002; Bergenström 2003; Spiegel 2004; Tripodi and Patel 2004; Gruber 2006; McInnes 2009; Tornqvist 2009; Iqbal and Zorn 2010b; McInnes 2011; Rieger 2013) and one of the key factors in the increase of HIV prevalence is the deployment of military abroad (Tripodi and Patel 2004). It is suggested that, due to the nature of the profession, the military creates an environment where risk-taking is prevalent which is then reflected in attitudes towards sex and, along with feelings of loneliness, the chances of high-risk sexual practices increase (Elbe 2002; Singer 2002; McInnes 2009; Alzate Angel et al. 2018).

On the other hand, other studies found that there is no evidence that the army had higher prevalence than the general population nor that they acquire significantly higher seroprevalence as a consequence (McInnes 2009; Rieger 2013). It should also be noted that national militaries have been acting to provide HIV awareness programmes and promote testing (Mills et al. 2006; McInnes 2011).

It is important to emphasise that armed conflicts are not only fought by national armies but also by militias and unorganised armed civilians and due to their concealed and unregulated nature, it is almost impossible to measure HIV prevalence amongst this group. However, it is believed that HIV prevalence within this group is as high or even higher than that of militaries (Tripodi and Patel 2004; Mills et al. 2006; Tornqvist 2009; McInnes 2011; Rieger 2013). Libya's recent history has been significantly shaped by the emergence and actions of various militias and the national army, which have both played crucial roles in the country's ongoing conflict and political instability.

During the 2011 conflict, Libyan communities mobilised militarily, some in support of Gaddafi and others in opposition, leading to the formation of armed social structures amid the intensifying conflict and interactions with foreign entities. This resulted in various factions gaining control over localised areas, even down to individual streets, with frequent violent clashes over territorial dominance. A spectrum of groups emerged, from those integrated into Gaddafi’s formal military and security forces, to those aligned with specific ideological, geographical, or tribal affiliations (Eaton 2021).

Foreign fighters, predominantly reported to have originated from Sub-Saharan Africa, have held considerable influence in ongoing conflicts (Smith 2011). However, it is not only the Gaddafi regime that was aided by foreign fighters, throughout the years they have played a role on all sides of the conflict, providing support to various factions. Reports have indicated that the Libyan Arab Armed Forces led by Haftar received support from foreign fighters, specifically, the Sudanese Liberation Army (SLA) and Justice and Equality Movement (JEM), two key rebel groups in Sudan's volatile Darfur region as well as

Russian Wagner Group (Howes-Ward 2018; Uniacke 2022). Even countries such as Turkey have sent Syrian fighters (Allahoum 2020)

Displaced population

Conflicts and war usually result in mass human displacement and migration, therefore potentially increasing the risk of HIV and other healthcare concerns (Hankins et al. 2002; Bergenström 2003; Spiegel 2004; Mills et al. 2006; McInnes 2009; Tornqvist 2009; Iqbal and Zorn 2010b; Daw et al. 2022).

It is quite possible that displacement itself doesn't increase HIV prevalence (Rieger 2013), rather the behaviour of the internally displaced persons (IDPs) becomes riskier, including activities such as injecting drug use (IDU) and engaging in unsafe sex (Mills et al. 2006; McInnes 2009; Ahmed et al. 2010). Refugee camps and temporary shelters are also highlighted as key concerns for HIV transmission due to the lack of treatment, health education and condoms (McInnes 2009, 2011).

Since the conflict, Libya has seen a significant number of IDPs. As of 2020, the International Organisation for Migration (IOM) estimated there were 392,241 internally displaced people in Libya, including 229,295 people displaced since the beginning of the April 2019 conflict in Tripoli and surrounding areas (HRW 2020). Additionally, since its initiation in 2016, IOM's Displacement Tracking Matrix (DTM) in Libya has tracked over 830,000 persons displaced due to armed conflict, of which over 705,000 individuals (85% of the IDPs tracked) have returned to their places of origin following de-escalation and subsequent improvements in the security situation (IOM 2023).

The study by Daw et al. (2022) noted that the displaced population experienced fluctuating HIV transmission rates, with an increase during the war and a decrease when peace was restored. Elamouri et al. (2024) added to this discussion by reporting that the majority of the IDP in their study have a low level of HIV and prevention knowledge and almost three quarter had a negative attitude level toward HIV and AIDS, and condom use.

Sexual violence

Sexual violence and gender-based violence during conflicts have been associated with concerns about heightened HIV vulnerability among women (Hankins et al. 2002; Singer 2002; Bergenström 2003; Singh et al. 2005; Gruber 2006; Mills et al. 2006; McInnes 2009; Tornqvist 2009; Iqbal and Zorn 2010b; McInnes 2011; Alzate Angel et al. 2018). Women and girls in refugee camps are particularly vulnerable to sexual violence, rape, sex trafficking, and prostitution (Elbe 2002; Mills et al. 2006; McInnes 2009; Iqbal and Zorn 2010b; McInnes 2011).

Rape by soldiers and other actors in conflict situations is frequent, in which the use of condoms is unlikely (Elbe 2002; McInnes 2009; Alzate Angel et al. 2018). The most heavily referred case is the 1994 Rwanda genocide, where HIV prevalence increased from 1% in 1994 to 11% within three years and

suggestions that the HIV prevalence rate among rape survivors was high (Elbe 2002; Singer 2002; Mills et al. 2006; McInnes 2009). However, other studies found that when rape did appear to have increased seroprevalence, it was not of magnitude implied (McInnes 2009; de Waal 2010).

There are various accounts that highlight how the rape of Libyan men is systematic in prisons or during capture. The article from The Guardian, titled "Revealed: male rape used systematically in Libya as an instrument of war" (Allegra 2017), details how male rape is being used as an instrument of war and political domination by rival factions. The report includes multiple testimonies and video footage showing men being sodomised by various objects. These claims included accounts of troops being issued impotency drugs to facilitate the sexual violence, however, subsequent investigations by international organisations such as Amnesty International and Human Rights Watch did not find conclusive evidence to substantiate these allegations (Harding 2011; McBain 2013).

The backlash from these unverified allegations has had a detrimental impact on the handling of actual rape cases, as in Libyan culture rape is heavily associated with shame that affects the entire family. Libyan women, in particular, face significant barriers when it comes to reporting incidents of rape, with the stigma and fear of retribution forcing many survivors to stay silent and go into hiding. These challenges stem from cultural norms, distrust in authorities, and the fear of social stigma, making reporting on the issue extremely unattainable (Hamidi et al. 2021; Hamidi 2022). Furthermore, traditional gender norms and the control exerted by men over women's decision-making continue to be deeply ingrained in Libyan society (Khalifa 2017). Other factors include the fact that rape is not recognised as a crime in the Libyan penal code (Cordaid 2020) and that there is an acute lack of infrastructure for reporting, receiving health care services, and mental health support (Gebril 2009). This also applies to a certain extent to domestic violence and other forms of intimate partner violence (OHCHR 2022).

Domestic violence has been prevalent in Libya even before 2011, but it has been exasperated by the consequences of conflict (HRW 2013), yet, it remains an understudied issue. Libyan women face a myriad of challenges in post Gaddafi Libya that include limited access to information, restricted mobility, increased vulnerability to sexual harassment, and discrimination in employment and the workplace (St John 2017; Hamidi 2022).

Sexual assaults of migrant women and men in numerous detention and security establishments in Libya are well documented and reported on not only by media outlets but through the members of armed groups, who often film their crimes (Amnesty 2021; Reques et al. 2020). These assaults occur within a context of widespread human rights abuses and are often facilitated by the lack of accountability and oversight in these facilities (UNHCR 2017).

Drug use

While most studies examining the impact of conflict on HIV prevalence have primarily focused on sexual transmission, a limited number have recognised the significant issue of IDU within militaries, often complicated by disruptions in the supply of sterile equipment (Hankins et al. 2002; Mills et al. 2006; McInnes 2009).

Others have found that substance abuse within the general public has increased in conflict situations (Hankins et al. 2002; Tornqvist 2009; McInnes 2011; Alzate Angel et al. 2018), due to the influx of drug supply in areas of drug transit routes which increases their availability in the country (Hankins et al. 2002).

Despite the lack of data and reliable evidence on Libya's HIV epidemic, most experts speculate that injecting drugs is the predominant mode of transmission, accounting for as many as 90% of HIV cases (Mirzoyan et al. 2013; Valadez et al. 2013b; NCDC 2015). According to the results from bio-behavioural surveys conducted by the Liverpool School of Tropical Medicine with the support of the EU in 2012, the HIV prevalence among people who inject drugs (PWID) in the Libyan capital Tripoli is at a startling 87% (Mirzoyan et al. 2013).

The deep political divide, the increasing presence of non-state armed groups, and porous borders are contributing to the surge in the trafficking and smuggling of illicit drugs and an increase in the country's domestic consumption, in particular; Tramadol and Heroin (Humanitarian 2013; Mangan 2020; Elamouri et al. 2018).

Collapse of healthcare system

Armed conflicts put a strain on the healthcare system, resulting in a lack of vital resources and basic equipment, from clean water, sterilised equipment to medication and blood supplies, due to looting, destruction of infrastructure, and sanctions (Elbe 2002; Hankins et al. 2002; Tornqvist 2009; Iqbal and Zorn 2010; Alzate Angel et al. 2018; Weledegebriel et al. 2023).

The rise in violence, conflict related injuries, and the lack of equipment increase the exposure to HIV (Tornqvist 2009). This risk is further increased as healthcare professional might not be able to access adequate protective covering or safety devices (Hankins et al. 2002). Furthermore, attempts to provide continuity of HIV services such as treatment, education, and prevention, are limited resulting in people living with HIV not having access to their medication nor any preventive tools (Bergenström 2003; Singh et al. 2005; Gruber 2006; Mills et al. 2006; McInnes 2009; Tornqvist 2009; McInnes 2011; Weledegebriel et al. 2023).

A joint report by the United Nations Support Mission in Libya (UNSMIL) and the UN Human Rights Office documented a year of the conflict from May 2017 to May 2018, revealing that hospitals were not only caught in the crossfire but were also directly targeted, resulting in deaths, structural damage, and temporary closures. Medical personnel were subjected to threats, intimidation, and even abduction, leading to a significant exodus of healthcare professionals. (OHCHR 2018).

It was reported that pro-Gaddafi forces were deliberately attacking hospitals, ambulances, patients, and doctors (Arie 2011). The persistent attacks have further deteriorated Libya's already fragile healthcare system, depriving many of their right to health and exacerbating the suffering of civilians (Bisheya et al. 2011; Arheiam et al. 2015; Elhadi et al. 2020a).

Women

Studies found that HIV disproportionately affects women, especially in conflicts. Apart from the risk of sexual violence, women find themselves being financially responsible for their families, with either the male members leaving the country, fighting, or having died in the conflict. Further exacerbating the situation, women are more likely to be unemployed because they are more vulnerable than men to economic hindrances (Mills et al. 2006). With the lack of job opportunities, some women are forced into sex work in order to support their families and community (Elbe 2002; Hankins et al. 2002; Bergenström 2003; Singh et al. 2005; Mills et al. 2006; Tornqvist 2009; Ahmed et al. 2010; Iqbal and Zorn 2010; McInnes 2011; Alzate Angel et al. 2018).

The chaotic nature of war and the collapse of societal norms often lead to an increase in human trafficking and sexual exploitation, including forced prostitution. However, there is no evidence to support this case in Libya.

The conflict has resulted in, among other things, restricted movement and healthcare access for Libyan women (Weledegebriel et al. 2023). As outlined in the paper 'HIV prevention – Challenges in reaching Libyan women: A narrative review' (Hamidi 2022), the critical security situation has forced Libyan women to restrict their movements due to the fear of being kidnapped or sexually assaulted which impacts their access to not only job opportunities but also healthcare facilities.

Sexual practices

Sexual relations during conflicts tend to be short and involve various partners potentially increasing the rate of HIV transmission (Hankins et al. 2002). There is also the under-researched topic of homosexual sexual practices of men who identify as heterosexual, especially during conflicts. Small, enclosed quarters such as prisons and army camps can encourage either consensual or non-consensual male-male sex, often unprotected (Hankins et al. 2002).

Data on sexual practices in Libya is scarce and can be attributed to the deeply ingrained cultural and religious norms that govern personal and societal behaviours (Hamidi et al. 2024). This lack of research is compounded by the absence of comprehensive sex education and the stigmatisation of sexual health issues, leading to an environment where information on sexual practices is not readily available or accurately reported (Hamidi 2022).

Migration

It is often found that conflicts increase the number of males migrating to other countries, whether for economic or safety reasons. As reported in Nepal, migrations within the country and internationally, paired with a lack of HIV awareness, are likely to have contributed to an HIV epidemic (Singh et al. 2005). It is also reported that migrants are more likely to engage in high-risk sexual activities and bring HIV back to their home country (Singh et al. 2005).

In recent years, there has been a marked escalation in the migration of Libyans, data from the UN High Commissioner for Refugees indicates that there was a 52% rise in the number of Libyan nationals reaching Europe in the year 2020 alone. This trend underscores the growing movement of individuals from Libya seeking new beginnings amidst ongoing unrest (Kimball 2021).

Infrastructure

McInnes (2011) highlights that human contact is the main vector of HIV therefore if the transportation infrastructure of the country is poor, then mobility is hindered, reducing the susceptibility of transmission.

Libya's transport infrastructure is in a state of disrepair due to prolonged conflict and political instability and public transportation is scarce and unreliable (Elmansouri et al. 2020). The lack of efficient public transport systems forces many Libyans to rely on personal vehicles, exacerbating traffic congestion and pollution. For those who cannot afford a car, everyday tasks become a struggle, with limited options for mobility (Tribune 2020). The situation is worsened by the absence of pavements, especially outside city centres, making walking an uncomfortable and often unsafe option (Elmansouri et al. 2020).

Discussion

The statement that military personnel have a higher prevalence of HIV compared to the general population is multifaceted, with studies both affirming and refuting this claim. One argument states that the pre-existing seroprevalence of the country plays a key role, if the HIV virus isn't sufficiently prevalent, it cannot be widely disseminated (McInnes 2009).

In the case of Libya, the HIV prevalence is said to be low, although the surveillance and management of HIV in the country are underdeveloped and constrained by inadequate data sets, so it is difficult to determine the actual level. The presence of various militias, unregulated armed civilians, and foreign combatants add to the complexity of measuring HIV prevalence due to their concealed and unregulated nature. Without coordinated efforts to improve data collection, it is very difficult to determine the pre-existing seroprevalence of Libya.

Tragically, consequences of the conflict include gross human rights violations such as sexual violence, gender-based violence, and torture which predisposes men and women to HIV. There were reports of rape against Libyan and migrant women, and men by armed groups, and as suggested in the literature, condom use was unlikely (Tewabe et al. 2024). Additionally, considering that some of the combatants come from other countries with higher HIV prevalence, this could potentially contribute to an increase in Libya's overall HIV prevalence.

The conflict also increased the trafficking and consumption of illicit drugs in Libya. Any type of drug use is illegal in Libya, and it lacks any harm reduction programmes including a needle exchange programme (NEP), which means that PWID are criminalised and do not have access to sterile needles and syringes. Considering that the HIV prevalence of PWID in Libya was found to be at the highest rate recorded anywhere in the world, not having a NEP is detrimental (Mirzoyan et al. 2013). Additionally, the scarcity of rehabilitation centres and the devastation of the healthcare system has surely exacerbated the situation (Elamouri et al. 2018).

Whether expelled or impelled to flee, the conflict in Libya has resulted in many being internally displaced or migrating to neighbouring countries and Europe. As people move, they lose their network and support systems which may increase high-risk behaviour and vulnerability. If they have acquired HIV or other sexually transmitted diseases, they risk introducing them to their community when they return, especially as awareness and healthcare services are limited.

Some literature reported that conflict could decrease HIV prevalence or reduce its transmission as a result of the lack of mobility (Spiegel 2004; Strand et al. 2007; McInnes 2009; de Waal 2010; McInnes 2011; Rieger 2013; Paxton 2016; Daw et al. 2022). In the case of Libya, there was severe damage to the transport infrastructure therefore movement is restricted, meaning that sexual encounters would be reduced. However, there are no studies nor articles that have investigated sexual practices in Libya.

The prevailing notion is that when the conflict stops, it will also reduce the number of new HIV cases (Berhe et al. 2005; McInnes 2009, 2011). However, post conflict could also present new HIV risks due to freedom of movement and changes in the social structure and sexual practices of the country (Strand et al. 2007; Tornqvist 2009; de Waal 2010; McInnes 2011).

It is apparent that social structures and traditional gender roles in Libya are quickly changing as a result of the conflict (Hamidi 2022). The ongoing conflict in Libya has led to significant shifts in social dynamics, particularly in the interactions between men and women, which could have implications for HIV transmission. This change in roles can lead to new forms of social interaction and potentially alter sexual behaviours as demonstrated in the paper by Muhwezi et al. (2011). High-risk sexual behaviour includes extra marital sexual encounters, multiple partners and early marriage. Early marriage is particularly relevant to Libya as amidst the ongoing conflict and economic decline, families are increasingly resorting to early marriage as a means of safeguarding their children, in particular, their daughters (Al- Ashepy 2022).

Conclusion

Despite the lack of research specifically examining the impact of conflict on HIV in Libya, insights from studies in other conflict-affected regions coupled with non-academic on Libya provided an understanding and context of the probable outcomes of conflict and HIV. This review found that the ongoing conflict will inevitably influence HIV prevalence in the country and identified several influencing factors that require attention, in particular gathering detailed data on HIV seroprevalence and addressing the unique risks shaped by armed groups in Libya. Furthermore, it is essential for the Libyan government to recognise that post-conflict periods may bring further opportunities for HIV transmission due to increased freedom of movement and shifts in social structures and sexual practices.

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5.9 Chapter Summary

The literature reviews established the foundation for the research, with the papers collectively addressing the cultural, political, structural and religious factors that impact women and HIV in Libya. The synthesis of these papers offers insight into how these factors are interconnected and influence the women's vulnerabilities to HIV.

Paper 1: *HIV Epidemic in Libya*, highlighted the lack of research on HIV in the country, particularly in relation to the increasing HIV cases among women and raised questions about the role of religion and culture in influencing research efforts. This was followed by the second paper which tackled the broader attitudes towards healthcare in Libya and their implications for HIV prevention and treatment, presenting several structural and cultural factors that could impede the provision of HIV services. With an understanding of the overall epidemic and attitudes in the country, the focus then needed to shift to Libyan women which was the topic of paper 3. *HIV prevention- Challenges in reaching Libyan women* provided an overview of Libyan women and the cultural and social roles that influence their lives, particularly in the context of HIV prevention efforts.

Since HIV prevention has traditionally been linked to condom use, it was crucial to gain a better understanding of its use in Libya. However, due to the lack of available studies specific to Libya, the scope was expanded to include countries in the MENA region and one of the most significant findings was the practice of anal intercourse and how condoms were used as contraception rather than HIV prevention. Given the prominence of Islam throughout the reviews, the fifth paper addressed the Islamic perspectives on HIV, emphasising the need to involve religious leaders and utilise religious texts that promote tolerance.

Another critical issue for Libya is vertical transmission which was explored in the paper *Prevalence of Vertical Transmission and its associated factors in MENA*. This scoping review identified the challenges of mandatory HIV testing and the transmission of HIV from child to mother, a significant factor in how many Libyan women acquired HIV following the El Fatih outbreak. Finally, considering the ongoing political instability and conflict in Libya, the impact of conflict on the HIV epidemic was explored. The study (paper 7) found that while conflict may increase HIV prevalence, it also underscored the potential for a surge in HIV transmission due to changes in social behaviour.

In conclusion, this literature review highlights the significant gaps in HIV research in Libya, particularly regarding women, and the cultural, political, and structural factors that influence their vulnerability to the virus. The findings emphasise the need for a more comprehensive approach to HIV prevention and treatment, incorporating religious perspectives, addressing mandatory HIV testing, and considering the impact of ongoing conflict on the epidemic.

Chapter 6 Quantitative Findings

6.1 Introduction

This chapter presents the quantitative data collected and offers a comprehensive analysis of the findings that emerged from the statistical examination of the data set. Firstly, by outlining the demographic characteristics of the sample: age range, level of education attained, employment status, and region, a thorough understanding of the participants is presented.

The subsequent sections introduce the relevant statistical outputs, including tables and figures, responding to the key research questions that guided the study: HIV knowledge; risk perception; and prejudice towards PLHIV. Statistical implication of the findings is also discussed, utilising appropriate tests to determine the significance and strengths of the results.

This quantitative exploration is crucial for drawing meaningful inferences from the data, which will later be discussed alongside the literature reviews and the qualitative findings, in the Discussion Chapter (8).

6.2 Characteristics

Table 6-1 Socio-Demographic characteristics

Socio-demographic characteristics	Category	Frequency (N)	Valid Percent (%)
Age (n= 1098)	18-25	97	8.8
	26-35	449	40.9
	36-45	364	33.2
	46-55	131	11.9
	≥ 56	57	5.2
Level of education (n= 1101)	Primary	3	3
	Secondary	89	8.1
	University Degree	1009	91.6
Employment status (n=1101)	Unemployed	57	5.2
	Employed	713	64.8
	Housewife	253	23
	Student	78	7.1
Region (n= 1049)	Central	12	1.1
	East	258	24.6
	West	695	66.3
	South	84	8

Table 6-1 depicts the socio-demographic characteristics of the respondents, suggesting that almost four out of ten of the participants (40.9%) were between of 26 to 35 years old and the least were 56 years old and above (5.2%). 91.6% were university graduates, with 64.8% employed, 23.0% were housewives, and the remaining were unemployed (5.2%) or students (7.1%). Most of the women who responded to the survey were based in the West region (66.3%) and the East region (24.6%) of Libya, this was an expected outcome as the two main cities, Tripoli and Benghazi, are located there.

Table 6-2 HIV and AIDS Related Knowledge

Questions	False (N, %)	Do not know (N, %)	True (N, %)
A person can acquire HIV by being in contact with someone who has HIV	456(41.5)	39(3.5)	605(55)
All pregnant women living with HIV will pass the virus to their baby	712(64.8)	129(11.7)	258(23.5)
People who have acquired HIV quickly show physical signs of the virus	768(69.9)	186(16.9)	144(13.1)
A person can acquire HIV by having unprotected sexual intercourse	55(5.0)	31(2.8)	1011(92.2)
There is no treatment for HIV	242(22.1)	207(18.9)	648(59.1)
People living with HIV can live and, lead a normal and healthy life by taking medication	62(6.2)	98(9.8)	839(84)
HIV and AIDS are the same thing	149(13.6)	83(7.6)	867(78.9)

Table 6-2 represents the knowledge related response of the respondent. Among 1101 women, 41.5% of the respondents correctly answered the question 'A person can get HIV by being in contact with someone who has HIV'. Likewise in the statement 'All pregnant women living with HIV will pass the virus to their baby', 64.8% of the respondents correctly answered the question. In the statement 'People who have acquired HIV quickly show physical signs of the virus', the majority answered this correctly. Likewise, more than 90% of the respondents correctly answered the statement 'A person can acquire HIV by having unprotected sexual intercourse'.

In the statement that 'There is no treatment for HIV' only 22.1% answered this correctly however, 84% agreed that 'People living with HIV can live and lead a normal and healthy life by taking medication'. Not surprisingly, 78.9% of the women agreed that 'HIV and AIDS' are the same thing.

Table 6-3 Access to HIV and Healthcare Information

Questions	Yes (N, %)	No (N, %)
I can talk with friends about HIV	496(45)	605(55)
I can talk to my friends about sexual health	287(26)	814(74)
I am comfortable asking my doctor about HIV	310(28.2)	791(71.8)
I can discuss HIV with my husband	480(43.6)	621(56.4)
I can discuss HIV with family	369(33.5)	732(66.5)
I know where I can get information for HIV	613(55.7)	488(44.3)
I know where I can get tested for HIV	424(38.5)	677(61.5)
I use social media to get information on health issues	514(46.7)	587(53.3)
I have read about HIV in local newspapers and magazines	390(35.4)	711(64.6)
I am confident I know how to protect myself from acquiring HIV	412(37.4)	689(62.6)
I am confident I am able to protect myself from acquiring HIV	385(35.0)	716(65.0)

Table 6-3 addresses women's access to HIV/Healthcare information. More than seven out of ten of the respondents (74%) did not feel comfortable discussing sexual health with their friends and nearly 72% were not comfortable asking their doctors about HIV. Worryingly more than half (56.4%) of the women did not feel comfortable discussing HIV with their husbands and nearly 63% are not confident that they know how to protect themselves from acquiring HIV. 65% stated that they are not confident they are able to protect themselves from HIV. However, 55.7% of the women have stated that they know where they could get information if they needed to, with 46.7% of women stating that they use social media to access information on health issues, although only 38.5% knew where they can get an HIV test.

Table 6-4 HIV Risk Perception

Questions	Agree (N, %)	Neutral (N, %)	Disagree (N, %)
I am married so I am not at risk of HIV (n=1100)	97(8.8)	233(21.2)	770(70)
I am healthy so my body can fight off an HIV virus (n=1099)	143(13)	245(22.1)	713(64.9)
I can ask my husband to take an HIV test (n=1098)	634(57.7)	263(24)	201(18.3)
I trust my husband not to transmit the virus to me (n=1099)	491(44.7)	242(22)	366(33.3)
It is acceptable for a woman to ask her husband to wear a condom (n=1098)	844 (76.7)	176 (16)	76 (6.9)

Table 6-4 illustrates that 70% of the women disagree with the statement that married women are not at risk of HIV. Similarly, 64.9% disagree that a healthy body can fight off the virus. It was also encouraging that 57.7% of the participants were confident in their ability to ask their husband to take an HIV test and an overwhelming 76.7% believe that it is within a women's right to request her husband to wear a condom. Finally, less than 50% of the respondents agreed with the statement 'I trust my husband not to transmit the virus to me'.

In response to the questions that focused on their HIV testing history 67.2% (N= 738) responded that they have taken an HIV test, while 32.8% (N=361) stated that they have never taken one (Figure 3)

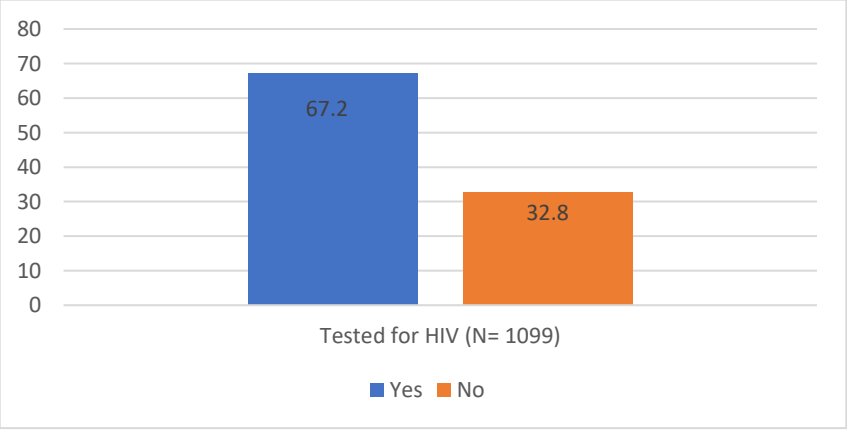

Figure 3 Tested for HIV

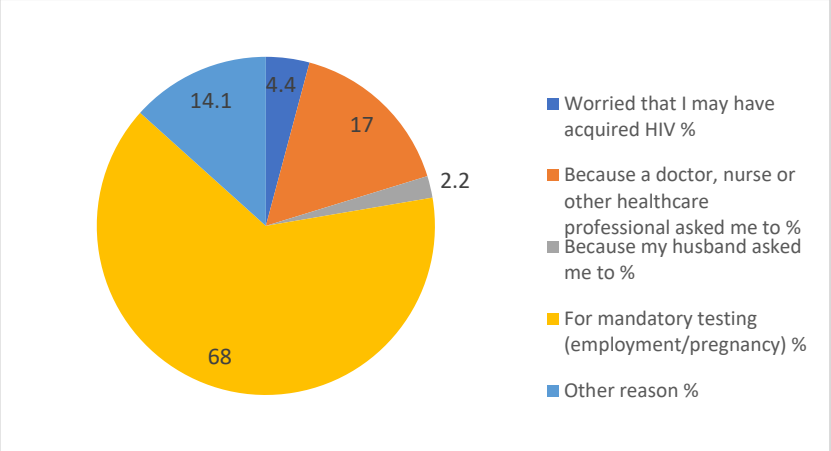

Figure 4 Reasons for taking an HIV test (n=738)

Figure 4 shows the reasons the respondents gave for taking an HIV test. This illustrates that 68% of the women took an HIV test as it was mandatory, whether as part of pregnancy or employment requirements. 17% were instructed to do so by their doctor and nurse, with the least number taking the test because they were worried, they might have acquired HIV (2.2%) or because their husbands had asked them to (2.2%). 14.1% took the test for other reasons.

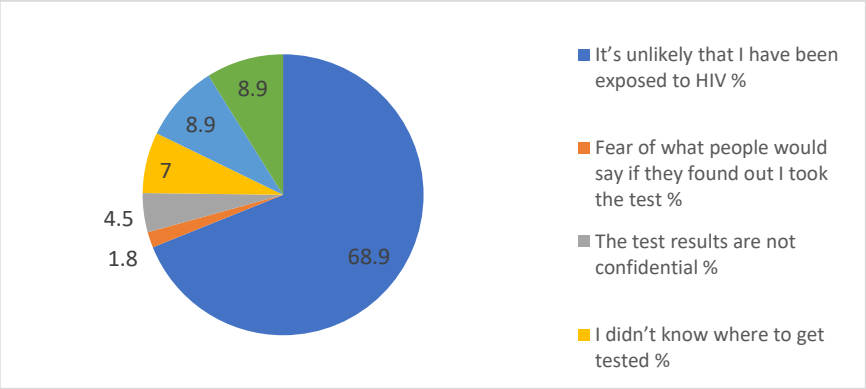

Figure 5 Reason of the respondent not taking an HIV test (n=361)

Figure 5 presents the reasons why respondents have not taken an HIV test. 68.9% of the women said that the reason for never having taken an HIV test was because 'It is unlikely that I have been exposed to HIV'. Only 8.9% identified that the main reason was the misguided assumption of people about HIV testing and 1.8% was because of the fear of what people may say. 4.5% was due to the belief that the test results are not confidential and 7%, did not know where to get an HIV test.

6.3 Level of Knowledge Analysis

Table 6-5 Level of HIV Knowledge

Level of knowledge n=1001	Frequency (N)	Valid Percentage (%)
Low	442	40.1
Medium	323	29.3
High	336	31.6

There were seven questions that tested the women's level of knowledge of HIV which were used to provide an overall indicator of the level of knowledge within this sample. Each question was weighted as one and a single score produced as the sum of them. False and I don't know= 0, True= 1. Then terciles were used to produce a three-level categorical variable (Low, Medium, High). The presence of missing data (101 cases) did not drastically alter the overall picture given that the missing data accounts for a relatively small percentage of the total sample size, its influence on the overall distribution was limited.

Table 6-6 Association between various factors and Level of Knowledge of respondents

Characteristics	Chi-Square	P-Value
Age	16.477	0.087
Level of Education	12.866	0.012*
Employment Status	14.066	0.029*
Region	12.029	0.061
Tested HIV	39.138	<0.001***
I can talk to my friends about HIV	6.010	0.049*
I can talk to my friends about sexual health	7.459	0.024*

I am comfortable asking my doctor about HIV	7.847	0.020*
I can discuss HIV with my husband	5.867	0.053*
I can discuss HIV with my family	13.765	0.001**
I know where I can get information on HIV	25.142	<0.001***
I know where I can get tested for HIV	27.616	<0.001***
I use social media to get information on health issues	0.400	0.819
I have read about HIV in local newspapers and magazines	0.547	0.761
I am confident I know how to protect myself from acquiring HIV	22.800	<0.001***
I am confident I am able to protect myself from acquiring HIV	1.628	0.443

*, **, *** Significant at 5%, 1%, 0.1%

Table 6-6 illustrates the association between the level of knowledge and various sociodemographic variables with different knowledge-related factors. Statistically significant relationships were observed with education level ($p = 0.012$*), and employment status at 5%. Furthermore, the ability to discuss HIV with family, doctor and knowing where to get information show highly significant associations with the level of knowledge. Equally significant is not only knowing where to get tested but also being tested for HIV and the confidence in being able to protect oneself ($p < 0.001$***).

6.4 Level of HIV Risk Perception Analysis

Table 6-7 Level of Risk Perception

Level of risk perception (n=1095)	Frequency (N)	Percentage (%)
Low risk perception (<10)	526	48
High risk perception (≥10)	569	52

Table 6-7 represents the level of HIV risk perception of the respondents. There were five questions included in this section: I am married so I am not at risk of HIV, I am healthy so my body can fight off the HIV virus, I trust my husband not to transmit it to me, I can ask my husband to take an HIV test, and it is acceptable for a woman to ask her husband to wear a condom. All of them point to high-risk perception, but the last two one. To obtain a score that indicates the level of risk perception, the last two were reversed. Each question ranged from 1 to 3: Agree=1, Neutral =2 and Disagree =3. The median of the total questions was found to be 10. To calculate the level of risk perception, scores that are < median were categorised as 'low risk perception' and ≥ median as 'high risk perception'.

Table 6-8 Association between various factors and Level of Risk Perception

Characteristics	Chi-Square	P-Value
Age Category	3.376	0.642
Level of Education	0.329	0.848
Employment Status	4.122	0.248
Region	1.627	0.653
Tested HIV	16.569	<0.001***
I can talk to my friends about HIV	2.131	0.144
I can talk to my friends about sexual health	6.127	0.013*
I am comfortable asking my doctor about HIV	11.813	<0.001***

I can discuss HIV with my husband	1.291	0.255
I can discuss HIV with my family	11.432	<0.001***
I know where I can get information on HIV	5.506	0.018*
I know where I can get tested for HIV	16.185	<0.001**
I use social media to get information on health issues	0.000	0.985
I have read about HIV in local newspapers and magazines	1.034	0.309
I am confident I know how to protect myself from acquiring HIV	0.451	0.502
I am confident I am able to protect myself from acquiring HIV	0.752	0.385

*, **, *** Significant at 5%, 1%, 0.1%

Table 6-8 depicts the association between various factors linked with the level of risk perception. The analysis reveals significant associations specifically, tested HIV status ($p < 0.001$***) indicating that the women who have undergone HIV testing may perceive their risk differently compared to those who have not been tested. Additionally, comfort in discussing HIV with a doctor, knowing where to get tested, and the ability to discuss HIV with family members ($p < 0.001$***) all show significant associations with risk perception.

6.5 Level of Prejudice towards PLHIV Analysis

Table 6-9 Prejudice towards PLHIV

Questions	True (N, %)	False (N, %)	Don't know (N, %)
People living with HIV should be isolated	151(13.7)	847(77.1)	101(9.2)
Living with HIV means that a person has engaged in immoral behaviour	71(6.4)	990(89.9)	40(3.6)
Having a relative living with HIV will tarnish the family's reputation	217(19.7)	804(73.1)	79(7.2)
People living with HIV should not have children	210(19.5)	647(60.1)	219(20.4)

Table 6-9 provides insights into prejudices towards PLHIV on four different aspects. The majority of respondents (77.1%) disagreed with the idea that PLHIV should be isolated, with a substantial 89.9% opposing the belief that living with HIV implies the person has engaged in immoral behaviour. When asked if having a relative living with HIV would tarnish the family's reputation, 73.1% disagreed, however, on the topic of whether PLHIV should not have children, responses were more varied with 60.1% disagreeing, 19.5% agreeing, and 20.4% unsure.

Table 6-10 Level of prejudice towards PLHIV

Level of prejudice towards PLHIV (n= 1073)	Frequency (N)	Valid Percentage (%)
Low	425	39.6
Medium	390	36.3
High	258	24

The level of prejudice towards PLHIV encompasses four questions, each assigned a score from 1 to 3: True=3, Don't know=2, and False=1. The composite scale variable was divided into terciles (Low, Medium, and High level of prejudice) for data simplification and to facilitate a clear comprehension of the prejudice level. A significant segment of respondents, constituting 39.6% of the sample, fell into the Low prejudice category, conversely, a substantial number of respondents, representing 36.3% of the sample, fell into the medium prejudice category, and a smaller but significant group of respondents, making up 24% of the sample, fell into the High prejudice category. The data imply a fairly uniform distribution of prejudice levels towards PLHIV across the sample.

Table 6-11 Association between various factors and Level of Prejudice towards PLHIV

Characteristics	Chi-Square	P-value
Age Category	6.822	0.742
Level of Education	8.044	0.089
Employment Status	2.818	0.831
Region	3.075	0.799
Tested HIV	11.540	0.021*
I can talk to my friends about HIV	9.172	0.010*
I can talk to my friends about sexual heath	13.232	0.001**
I am comfortable asking my doctor about HIV	16.307	<0.001***
I can discuss HIV with my husband	5.860	0.053
I can discuss HIV with my family	13.753	0.001**
I know where I get information on HIV	20.650	<0.001***
I know where I can get tested for HIV	12.313	0.002**
I use social media to get information on health issues	0.069	0.966
I have read about HIV from local newspaper and magazines	0.279	0.870
I am confident I know how to protect myself from acquiring HIV	21.989	<0.001***
I am confident I am able to protect myself from acquiring HIV	6.832	0.033*

*, **, *** Significant at 5%, 1%, 0.1%

Table 6-11 outlines the relationship between various factors and the level of prejudice towards PLHIV. Factors related to HIV discussions such as the ability to discuss HIV with friends (p = 5%) and sexual health (p= 0.1%), show significant associations. Comfort in discussing HIV with a doctor (p < 0.001***), family (p = 0.001**), and knowledge of where to access HIV information (p < 0.001***) and testing (p = 0.002**), are also significantly linked with the level of prejudice towards PLHIV. Furthermore, confidence in one's knowledge of how to protect against HIV acquisition also exhibits a significant association (p < 0.001***).

6.6 Correlation

An investigation into the correlation between the different levels found that level of knowledge and level of prejudice exhibited a moderate negative correlation, which means that as the level of knowledge increases, the level of prejudice towards PLHIV tends to decrease. This relationship is moderate, suggesting an inverse association ($r = -.46$, $n = 1101$, $p < .0001$).

In contrast, level of knowledge and level of risk perception show a weak positive correlation, suggesting that higher levels of knowledge are marginally associated with higher levels of risk perception, although the relationship is not strong. The positive direction implies that these variables tend to increase together ($r = .17$, $n = 1101$, $p < .001$).

Lastly, level of prejudice and level of risk perception have a negative correlation, confirming a negative but weak relationship. This suggests that as the level of prejudice increases, the level of risk tends to decrease ($r = -.17$, $n = 1101$, $p < .001$).

6.6.1 Spearman's analysis

To directly answer the research questions of whether there is an interaction between the women's level of HIV related knowledge, level of risk perception, and level of prejudice towards PLHIV across the age groups, employment status and region, Spearman's test was selected as it is a nonparametric test and is suitable for non-normally distributed data such as the current data.

As most of the women (n=1009) had university educated attainment meaning that further analysis wasn't necessary.

The analysis found that the only statistically significant, positive correlation was between the level of knowledge and employment status ($r = .68$, $n = 1101$, $p < .025$). In other words, women who are employed are more likely to have a higher level of knowledge.

6.7 Ordinal logistic regression

After conducting chi-square tests, strength of association, and correlation analyses, it was important to include a regression analysis in order to provide an understanding of how each independent variable influences the dependent variable when other variables are held constant. As the required outcomes are level of knowledge, level of risk perception, and level of prejudice towards PLHIV which are ordinal variables, an ordinal logistic regression was deemed as the most suitable test. There are also nominal variables that this method can accommodate, making it versatile for the current dataset.

6.7.1.1 Level of Knowledge

Table 6-12 Level of knowledge and selected variables

Characteristics	Category	AOR (95% CI)	P-Value
Age Range	18-25	0.404 (0.206- 0.793)	.008**
	26-35	0.664 (0.386 - 1.142)	.139
	36-45	0.623 (0.362 - 1.078)	.091
	46-55	0.862 (0.471 - 1.576)	.629
	56>	-	-
Employment Status	Unemployed	1.561 (0.911- 2.671)	.105
	Student	0.766 (0.452- 1.294)	.319
	Housewife	0.857 (0.646- 1.142)	.292
	Employed	-	-
Region	East	0.293 (0.090- 0.951)	.041*
	West	0.280 (0.089 - 0.896)	.032*
	South	0.253 (0.082 - 0.862)	.028*
	Central	-	-
Tested for HIV		1.954 (1.493- 2.555)	<.001***
I can talk to my friends about HIV		0.690 (0.495 - 0.975)	.029*
I can talk to friends about sexual health		1.170 (0.838- 1.634)	.357
I am comfortable asking my doctor about HIV		1.146 (0.850- 1.547)	.372
I can discuss HIV with my husband		0.854 (0.613 - 1.191)	.351
I can discuss HIV with my family		1.328 (0.964 - 1.840)	.087

I know where I can get information on HIV		1.399 (1.068 - 1.831)	.015*
I know where I can get tested for HIV		1.165 (0.847- 1.601)	.347
I use social media to get information on health issues		0.861 (0.674 - 1.099)	.230
I have read about HIV in the local newspapers and magazines		0.957 (0.738 - 1.240)	.738
I am confident that I know how to protect myself from acquiring HIV		1.632 (1.215 - 2.195)	.001**
I am confident that I am able to protect myself from acquiring HIV		0.808 (0.613- 1.065)	.130

The table above demonstrates that age, geographical location, HIV testing history, communication about HIV, access to HIV information, and confidence in HIV prevention methods are significant determinants of the level of HIV knowledge. Specifically, women aged 18-25 (AOR =0.404, p=0.008), are more likely to have lower levels of HIV knowledge compared to other age groups. Geographical disparities are evident, with the East, West, and South regions showing lower levels compared to the Central region, as reflected by their respective AORs of 0.293 (p=0.041), 0.280 (p=0.032), and 0.253 (p=0.028). Those who have been tested for HIV show a higher level of knowledge (AOR= 1.954 p=<0.001). The ability to talk to friends about HIV (AOR=0.690, p=0.029), knowing how to access HIV information (AOR=1.399, p=0.015), and confidence in knowing how to protect oneself from acquiring HIV, are associated with a higher level of HIV knowledge (AOR=1.632, p=0.001).

6.7.1.2 Level of Risk Perception

Table 6-13 Level of Risk Perception and selected variables

Characteristics	Category	AOR (95% CI)	P-Value
Age Range	18-25	0.771 (0.369 - 1.608)	.487
	26-35	0.708 (0.386 - 1.294)	.261
	36-45	0.619 (0.337 - 1.078)	.123
	46-55	0.795 (0.407 - 1.552)	.499
	56>	-	-
Employment Status	Unemployed	1.512 (0.823 - 2.764)	.182
	Student	1.074 (0.611 - 1.885)	.805
	Housewife	0.839 (0.615 - 1.149)	.275
	Employed	-	-
Region	East	0.698 (0.207- 2.357)	.563
	West	0.767 (0.232 - 2.547)	.665
	South	0.838 (0.235 - 2.986)	.785
	Central	-	-
Tested for HIV		1.595 (1.192 - 2.130)	.002**
I can talk to my friends about HIV		0.858 (0.598 - 1.230)	.406
I can talk to friends about sexual health		1.253 (0.865 - 1.807)	.230
I am comfortable asking my doctor about HIV		1.418 (1.020 - 1.972)	.038*
I can discuss HIV with my husband		0.713 (0.496 - 1.026)	.069

I can discuss HIV with my family		1.500 (1.050 - 2.144)	.026*
I know where I can get information on HIV		1.124 (1.050 - 2.144)	.440
I know where I can get tested for HIV		1.342 (0.946 - 1.913)	.099
I use social media to get information on health issues		0.967 (0.740 - 1.262)	.803
I have read about HIV in the local newspapers and magazines		1.133 (0.857 - 1.508)	.386
I am confident that I know how to protect myself from acquiring HIV		AOR = 0.725, 95% CI = (0.523, 1.004)	.053
I am confident that I am able to protect myself from acquiring HIV		0.844 (0.624 - 1.139)	.266

Table 6-13 presents the various variables in relation to the level of risk perception. Having tested for HIV, being comfortable asking a doctor about HIV, and the ability to discuss HIV with family are significant determinants of the level of HIV risk perception. Specifically, women who have been tested demonstrate a higher level of risk perception, (AOR= 1.595, p=0.002), indicating a statistically significant association at the 1% level. Comfort in asking a doctor and the ability to discuss HIV with family are also linked to a higher level of risk perception AOR=1.418, p=0.038 and AOR 1.500, p=0.026, respectively.

6.7.1.3 Level of Prejudice towards PLHIV

Table 6-14 Level of Prejudice towards PLHIV and selected variables

Characteristics	Category	AOR (95% CI)	P-Value
Age Range	18-25	1.413 (0.726 - 2.754)	.309
	26-35	1.166 (0.673 - 2.022)	.583
	36-45	1.237 (0.710 - 2.076)	.453
	46-55	1.355 (0.734 - 2.492)	.330
	56>	-	.
Employment Status	Unemployed	0.988 (0.578 - 1.691)	.965
	Student	0.886 (0.530 - 1.477)	.644
	Housewife	1.041 (0.780 - 1.392)	.785
	Employed	-	.
Region	East	0.780 (0.261- 2.317)	.654
	West	0.968 (0.331 - 2.832)	.952
	South	1.200 (0.384- 3.739)	.755
	Central	-	.
Tested for HIV		0.728 (0.556 - 0.951)	.020*
I can talk to my friends about HIV		1.048 (0.753 - 1.462)	.779
I can talk to friends about sexual health		0.787 (0.563 - 1.104)	.163
I am comfortable asking my doctor about HIV		0.683 (0.507- 0.928)	.014*
I can discuss HIV with my husband		1.334 (0.956 - 1.860)	.090

I can discuss HIV with my family		0.844 (0.608- 1.174)	.313
I know where I can get information on HIV		0.703 (0.529 - 0.920)	.011*
I know where I can get tested for HIV		1.094 (0.793 - 1.514)	.584
I use social media to get information on health issues		1.043 (0.816 - 1.334)	.736
I have read about HIV in the local newspapers and magazines		1.184 (0.874 - 1.614)	.206
I am confident that I know how to protect myself from acquiring HIV		0.641 (0.640 - 0.866)	.004**
I am confident that I am able to protect myself from acquiring HIV		1.077 (0.819 - 1.418)	.597

Table 6-14 demonstrates that women who have been tested for HIV, (AOR=0.728, p=0.020), are comfortable in asking a doctor about HIV, (AOR=-0.683, p=0.014) and knowing where to get information on HIV (AOR= 0.703, p=0.011) are associated with lower levels of prejudice towards PLHIV. Lastly, confidence in knowing how to protect oneself from acquiring HIV is also associated with a lower level of prejudice (AOR=0.641, p=0.004).

6.8 Qualitative analysis of the open-ended question in the online survey.

6.8.1 Results

Analysis of the comments identified five underlying themes related to the women's perceptions of HIV, structural and social barriers as well as the influence of Islam.

Interestingly, not one had denied that there are cases of HIV in Libya, rather they have reaffirmed that HIV is a concern that has been overlooked and needs to be addressed.

> *"The illness has spread widely among adults and children." 35 years old, Al Zawia.*

6.8.1.1 Medical Incompetence

Although the women accepted and mentioned HIV transmission through sexual relations, they also followed it up with an emphasis on the lack of safety and hygiene associated with medical procedures and equipment, in particular, in dental clinics. They perceive transmission through medical procedures such as blood transfusions and surgery as higher risk than other routes. This raises the question of whether this is reflective of the society's conservative outlook- denying activities that are deemed immoral are taking place in the country- or that the information they have remnants of the El-Fatih outbreak.

> *"From my point of view, the virus is not transmitted only through intimate relationships. It may be transmitted through tests or through a wound" 34 years old, Shahat.*

6.8.1.2 The Influence of Islam

The influence and impact of Islam is evident throughout the comments, with 13 supporting that Islam's moral guidance is the definitive preventative method.

> *"Anyone who follows the commands of Islam and stays away from its prohibitions, adultery and taboos will not be affected by this illness. Praise be to God, we live in peace under Islam and this illness does not exist in our family" 28 years old, Tripoli.*

Although Islam does provide moral instructions that are preventative, one participant highlighted the need for increased awareness and knowledge of modern preventative methods. Only one respondent mentioned the use of condoms within a marriage.

There was a level of fatalistic inclination with the suggestion that people have acquired HIV as a form of trial or that nothing happens without God's will.

6.8.1.3 Women's fault

Although Libya is a patriarchal society and there are bound to be some women who uphold its ideals as it is embedded into the culture. Three of respondents were putting the blame on women.

> *"An important topic and I am interested in the results in light of the widespread loss and moral degeneration among married women" 36 years old, Tripoli.*

> *"Adhering to the teachings of the Islamic religion, fortifying the vagina, and preserving Islamic behaviour and the chastity of women" 54 years old, Benghazi.*

> *"…If a girl, for example, has acquired this virus, she will work hard so that most young men will also contract it…" 20 years old, Sabha.*

6.8.1.4 Stigma and ignorance

The stigma is evident and consistently being referred to as an obstacle within the Libyan society.

> *"Yes, I think that in our country there is, unfortunately, a high level of ignorance. They see everyone who has immunodeficiency disease as a person who has done an immoral act." 47 years old, Gharyan.*

Many have noted the level of ignorance on the subject in Libya and have expressed their sympathy to people living with HIV, recognising that it affects their quality of life in the country.

> *"I wish them to have a decent life... because everyone who has acquired it has lost (the sense of) safety in this life." 48 years old, Tripoli.*

This concern for the lack of quality of life for people living with HIV in Libya is supported by comments from a woman living with HIV, those whose family members had acquired HIV, and who work in the field. The discrimination they are subjected to is not only on a social level but also structural and legal.

> *"...the obstacles facing us in Libya is the lack of treatment and the society that is ignorant of this illness. We suffer from discrimination... We demand our right to marriage, treatment, work, and a happy life." 46 years old, Tripoli.*

Although a greater number of comments exhibited compassion and empathy for people living with HIV, there were three that repeated misconceptions that HIV only affects homosexuals and those engaging in illicit sexual relations and that being 'clean' is a method of prevention.

6.8.1.5 Lack of information

The consensus is that there is not only a lack of knowledge but more encouragingly, that Libyan women are calling out for more information.

> *"The warnings about this illness have clearly decreased. Media and other means of communication should be intensified." 38 years old, Nalut*.

They are requesting seminars, lectures, reading materials, and health education for them and their children. Five of the women emphasised the need to educate the younger generation on HIV and its prevention.

> *"I hope that there will be seminars and lectures in primary, middle, and high schools about this illness…" 35 years old, Tripoli.*

They do not only want awareness campaigns on HIV, its prevention and treatment but also how to reduce the stigma facing people living with HIV.

> *"Why not hold campaigns to educate the general public? Why is the illness mysterious and everyone is afraid, as if it were a subject of shame." 36 years old. Al Zintan*.

It is quite apparent that there are gaps in knowledge with some asking questions such as 'Can a person acquire HIV and yet have a negative result?' and 'Did they find a cure for it?' and confusion regarding vertical transmission.

6.9 Chapter Summary

The findings of the quantitative survey shed light on the level of knowledge, risk perception and attitudes towards PLHIV among the Libyan women who completed the questionnaire, particularly focusing on factors such as education, employment, and social influence.

The study participants were primarily university-educated women between the ages of 26 and 35, with a majority (64%) in full employment and residing in Tripoli. Despite their educational background and professional status, their level of HIV knowledge was varied, with no single category (low, medium, or high) overwhelmingly dominant. This indicates that even among educated and employed women, there remain significant gaps in knowledge. Additionally, the study found that women who underwent HIV testing showed increased levels of knowledge, risk perception and lower levels of prejudice towards PLHIV.

One of the most noteworthy findings is the relationship between level of knowledge and level of prejudice towards PLHIV. Women with higher levels of HIV knowledge were more likely to have reduced prejudice towards PLHIV and a slightly increased perception of their own risk. However, it was also found that over 60% of participants lacked confidence in their ability to prevent HIV. This suggests that simply providing information might not be enough and that there is a need for interventions that increase women's confidence in accessing and utilising prevention methods.

The study also found that women who had open discussions about HIV with their family and friends demonstrated higher levels of knowledge and risk perception. This highlights the impact of social factors and the importance of interpersonal communication in shaping health awareness. In societies where formal education and public health campaigns may be lacking or not trusted, informal discussions within family and social networks can serve as vital channels for the prevention and management of HIV. However, the comment describing Libyan society as ‘primitive people who care about gossip’ illustrates the cultural barriers that deter open discussions about HIV due to the fear of social judgment and reputation damage.

It is important to note that while none of the women denied the presence of HIV in Libya, many acknowledged that it remains a neglected issue, with little public awareness. However, despite these challenges, many women demonstrated empathy toward PLHIV. A concerning finding was that some women blamed other women for HIV transmission, citing moral degeneration as a cause, reflecting the intersection of gendered stigma and cultural norms, where women are often burdened with blame for public health issues, particularly those related to sexuality.

Chapter 7 Qualitative Findings

7.1 Introduction

The qualitative strand of the study gathered insights from five stakeholders through semi-structured interviews. The stakeholders, which included a dentist, a Gynaecologist, a NCDC manager, a WLHIV, and a Male academic, were asked specific questions related to HIV and women in Libya, as well for their responses to some of the results from the questionnaire. Additionally, they were encouraged to share their experiences and thoughts.

Through thematic analysis, three overarching themes were identified: Awareness and communication, Culture and religion, Transmission and HIV testing, Healthcare System and PLHIV.

Table 7-1 Characteristics of stakeholder interviewees

Stakeholder	Gender	Type of stakeholder
1	Female	Dentist
2	Female	Gynaecologist
3	Female	NCDC manager
4	Female	WLHIV
5	Male	Academic

7.2 Awareness and communication

All the interviewees suggested that HIV awareness among the Libyan general public is inadequate, especially among women.

> *"Communication is the missing concept especially for women. This is an alien concept in the whole of the Middle East"- Academic*

The Gynaecologists identified the level of education as the root of the cause.

> *"Libyan women's awareness is lacking because these issues are usually discussed at certain level of education and our society's educational level isn't that high. Those who are not affected with the HIV, it rare that they have any information as there are no initiatives or programmes dedicated to HIV (to the general public)."- Gynaecologist.*

The manager at the NCDC acknowledges the public's lack of awareness, attributing it to the taboo surrounding HIV.

> *"I don't believe the general public has awareness as HIV is still taboo…."- NCDC.*

However, the dentist questions whether the information is even being understood by the public.

> *"They sometimes hold awareness lecture...but whether they actually understand or not, that's a different topic"- Dentist*

This was supported by the WLHIV:

> *"At the beginning, it was all new and I didn't understand it at all."- WLHIV*

a) Awareness campaigns

Although there was mention of HIV prevention activities being implemented by the Libyan government, most of the effort seems to come from civil societies focusing on schools rather than the general public.

> *"There are awareness campaigns for example in schools, whether on HIV or other illnesses. There are quite a few civil societies that create awareness in schools such as the scouts. They will discuss drugs and that drugs can cause this and that. These awareness campaigns are mostly in the schools, and not for the public." - Dentist*

"This (awareness) existed before 2011 due to the families of the Libyan children from Benghazi campaigning. But this has stopped due to the conflict."- Academic.

When this question was posed to the NCDC personnel, she responded:

"There were some awareness efforts, for example TV programmes. But it is lacking because the heads (government and NCDC) are not concerned with HIV or infectious diseases. No personal interest, you don't get any support. It is not a matter of fear, but they don't think it is a problem even though there is no data to support this decision. HIV is not a priority. They feel that HIV is finishing, although I see the prevalence of HIV increasing."

The quality and reliability of the information provided should be questioned, especially as the NCDC, the organisation that concentrates on research, information, and treatment of HIV, does not prioritise it due to the perception that Libya has a low prevalence of HIV.

"There is an issue with data. We are desperate to carry out a Biobehavioural survey however we can't get the funds. Without it, we are working blind. We also don't receive any funds or support from international organisations because of the low prevalence."- NCDC.

b) Understanding HIV

The effectiveness and relevance of the awareness campaigns were also challenged. There seems to be a gap between receiving the information and comprehending it. The public might be exposed to the facts and figures, but this information might not be clear. To understand HIV is not only to know how it is transmitted, prevented, diagnosed, and treated, but also that it is a reality that can affect Libyans, regardless of their age, gender, ethnicity, sexuality, or social status.

"I think the major issue is the concept of HIV, they know what HIV is but don't understand it."- Academic.

Elaborating on this, the dentist suggests that it is the public's association with HIV, and 'shameful acts' is the barrier.

> *"No, the lack of understanding is based on the fact that they (Libyan public) don't want to accept the topic (HIV) because it is considered 'shameful'. It is a 'shameful' illness that is tied to shameful acts. Even if they are aware of it, they can't accept it. They reject the fact that it is an illness. Because how do you transmit it? Drugs, sinful sexual acts…"-Dentist*

This lack of understanding was echoed by the Gynaecologist:

> *"Most women don't understand how it is transmitted or how to prevent it. Most of the public don't understand it."- Gynaecologist.*

The WLHIV suggests that a lack of understanding contributes to the fear surrounding HIV:

> *"Most of the people don't understand it (HIV), they are scared of it."- WLHIV.*

The interviewees mentioned words such as 'shame', 'fear', and 'denial' as barriers that hinder the understanding of HIV.

c) Communication

Considering the social and cultural barriers that Libyan women face, it is important to identify the most effective medium of communication.

> *"The best way to communicate to women about HIV would be social media. Even if there is a mix of traditional media there needs to be a focus on social media." NCDC.*

This aligns with observations from the WLHIV, Gynaecologist and dentist.

> *"Without the internet, we have nothing."- WLHIV.*

> *"Women rely on the internet, Facebook and Instagram." Gynaecologist.*

> *"The net."- Dentist.*

Messages that need to be communicated should be centred on the treatment and services that are available as well as re-affirming that PLHIV can live a healthy life with treatment.

> *"People have to know. The society has to know, even other countries need to know. This is an illness. Medicine is always improving." -WLHIV.*

The need to generate awareness of the medication available was echoed by the manager at the NCDC.

"We also need to reach people living with HIV on the treatments and services available as they might not know."- NCDC.

The Academic highlighted the need for efforts to be at a national scale.

"I think we need to do our best on a national level. Even though the prevalence is low in Libya, people should realise that HIV is universal and that PLHIV should have a good quality of life. We should put a lot of effort to put reduce the stigmatisation"- Academic.

7.3 Culture and religion

Libyan culture can be defined largely as patriarchal and conservative, which means that political, social, and economic relations and institutions are structured around the gender inequality of men and women.

As a conservative society, Libyans value the preservation of cultural norms and values, this could potentially mask HIV vulnerabilities.

"Libyan society is very conservative and therefore not at a high risk of HIV."

"You may not like what is going on in our society, but Libyan Female Sex Workers is a concept that has never existed, and even young ladies can't say this word at all… Homosexuality isn't even the cause, that shouldn't be the focus."- Academic.

As in most patriarchal societies, women tend to carry the burden of blame,

"She (a woman) can't even ask how she can protect herself or get treatment. There will be a big question mark- why are you asking these questions? What are you hiding? Our society will judge you and shame you before anything else. They treat us (women) as the ones to blame- nothing more than that." Dentist

The dentist continued to elaborate on how societal pressures limit women's agency to protect themselves.

"Even if the woman knows that her husband is the cause, she can't tell anyone. She can't talk, the only thing she can do is ask for a divorce, but she is already in the situation, it is too late. No one is going to believe her. We have a saying that 'he (the man) marries to calm down'. It could be that she married someone who already has HIV, and his parents know, and they married him off anyways without saying anything."- Dentist.

Societal pressures also silence the women:

> *"Most of the women I have come across have acquired HIV from their husbands. Rarely do they let anyone know that they have it because they fear rejection from their family." NCDC*

a) Shame

Shame is a powerful barrier to HIV prevention, and treatment as well as detrimental to the quality of life for PLHIV.

It is important to distinguish between stigma and shame. Shame, as defined by Hutchinson and Dhairyawan (2018), is an emotional response to stigma. It is a feeling of embarrassment or humiliation that arises from the perception of having done something dishonourable, immoral, or improper. The result of this shame is the reluctancy to disclosing their HIV history even to healthcare providers.

> *"No one will come and tell you; I have HIV. Even if you know they do, they will say they don't have it."-Dentist.*

The manager at the NCDC observed that most patients wait until trust is established.

> *"We are not allowed to ask how they have acquired HIV; they normally tell you once they have trust you and have confidence in you."-NCDC.*

In addition to the need for trust to be established, the Gynaecologist explained how some don't disclose their status at all.

> *"Most of them don't tell you until they feel that they can trust you. And rarely do they tell you if there are other people around. Most of them will be very selective with what they tell you even if they are on medication. And there are those who have HIV and come to you, and they don't tell you they have it at all." – Gynaecologist.*

b) Stigma

HIV stigma is a term that describes the negative attitudes and beliefs that some people have towards PLHIV or at risk of HIV. It is a form of prejudice that labels and judges people based on their HIV status, which often leads to discrimination.

> *"Some private clinics accept HIV birth but in public facilities, even if they do accept them, after the woman has delivered, she will be placed in a room that is known for HIV patients. Which still contributes to the stigma." – NCDC.*

Social isolation emerged as a major consequence of the stigma surrounding HIV.

"The only women who have come out a spoken about HIV were from the Benghazi children, but other women won't. It is difficult for them because of the stigma. If the family or neighbour knew that this person has HIV, they won't want to talk to them"

The academic continues:

"Anyone who talks about HIV, (they think that) he or she may have HIV and then they will be ignored in the society." – Academic.

This was echoed by the woman living with HIV,

"They don't accept us."

"Honestly, I struggled with them. You can't image what they did to us. The closest people to me were scared, even when they shake hands (greet) they don't greet us."

WHLIV further elaborated on her experience,

"They are scared of it. You would sit down next to someone and as soon as they hear you have HIV, they think it is something bad and they move away. To tell you, the closest people to me all left me. The closest people to me left me."

When asked about her daughter who acquired HIV during the El Fatih outbreak, she responded,

"When she was younger, we struggled. They kept telling her that she was sick and so on, so it was difficult with the schools, and not all schools will accept people with HIV. She stopped going to school in secondary because she grew up and the way people saw her changed."

"There's nothing." (In reference to her daughter having a future)

The repercussions of stigma surrounding HIV extends beyond social isolation and emotional distress. As the Academic points out:

"We are lacking a national policy in Libya and other Arabic countries because of the stigmatisation."- Academic.

c) Islam

For Libyans, Islam is a major source of security and comfort, as well as a way of making sense of things that are beyond their control.

> *"They said this is from Allah and you are a believer (Muslim), and this is what's written."*
>
> *"What are we meant to do? This is Allah's will."- WLHIV.*

The dentist offered a similar perspective.

> *"If someone living with HIV comes to me, I will still treat him and leave it to Allah"- Dentist.*

Islamic religious leaders play a vital role in the Libyan community and as such, they are figures that many people seek out for guidance and counselling on both personal and religious matters.

> *"A lot of religious leaders don't want to get involved and talk about sexuality. But this is a false concept, they should speak clearly and highlight the risk. Anyone is at risk."- Academic.*

7.4 Transmission and HIV testing

IDU was found to be the main mode of HIV transmission in several studies, however, there is also evidence of a rising trend of sexual transmission.

> *"First of all, the drugs. A lot of people are abusing drugs." Dentist.*

The manager at the NCDC suggests a change in the dominant mode of transmission, citing observations from doctors in the field.

> *"Before HIV was transmitted through drug use but now it is sexual relations. There is evidence to demonstrate, although these are not published however this is what the doctors who are in the field are finding. They are seeing more MSM who are no longer hiding."*

She continues to highlight this shift,

> *"We found that the mode of transmission has increased sexually which includes Female Sex Workers, Men who have Sex with Men or Husband to Wife and Wife to Husband."- NCDC.*

The gynaecologist's observation aligns with the manager's insight, emphasising that sexual transmission is now the primary concern.

> *"Most of the transmission is sexual. Most women don't understand how it is transmitted or how to prevent it. Most of the public don't understand it"- Gynaecologist.*

Several women from the survey blamed dentists for the increase of HIV transmission, citing the lack of sterilised equipment. One explanation that was given was that is more acceptable to blame dentists and other services.

> *"Because how do you transmit it? Drugs, sinful sexual acts- only now they started dressing up as 'you get it from the dentists as if they are covering up the other reasons that it can be transmitted. We get the blame."- Dentist.*

The lack of research and training on HIV in the country is reflected in the unsubstantiated beliefs that HIV prevalence has increased due to sub-Saharan immigrants.

> *"There is an influx of black (sub-Sahara) maids and labourers who enter without health checks and after a few months you read on Facebook 'I had a housekeeper and we found out that she had AIDS'. There's a problem with forging medical certificates in general, you can pay to get a clean health certificate and there's no one who can say whether it is genuine or not. They can cover the illness, and no one will ever know. The main reason is the influx of black workers that are overtaking the number of locals." - Dentist.*

This was refuted by the Academic who stated,

> *"This is a new Libyan concept: immigrants are bringing in disease and they need to go back. The immigrants in Libya are conservative people. Of course, Hepatitis is different from HIV, but I don't think immigrants are the cause of HIV. I have experience treating HIV and people will blame each other. But again, the hypothetical concept does exist, immigrants are the main cause of HIV but not in reality"- Academic.*

According to the NCDC personnel, HIV is the result of other problems,

> *"HIV is the final point of the problems- drugs, late marriage, poverty, and conflict." - NCDC.*

Further complicating the issue is the ongoing conflict.

"This conflict in Libya caused a lot of tragedy- I call it hidden tragedies. The main factor of HIV and sexually transmitted disease in Libya is the conflict and the impact of the conflict."

"The ongoing conflict and the displacement of the people affect the risk of HIV" - Academic.

One of the most harmful consequences of the conflict is the devastation of an already fragile healthcare system.

b) HIV Testing

It is well researched that HIV testing allows one to know their status which can help them access treatment and prevent transmission to others. When asked why nearly 33% of the women responded that they had not taken an HIV test before, the stakeholders clarified that the women probably weren't aware that they had it.

As the Academic and Dentist pointed out, HIV testing for marriage is mandatory in Libya.

"Regarding Libyan women in particular, screening for HIV and Hepatitis is obligatory for any engaged women. If she is going to be married, then she has to be screened for HIV." – Academic.

"You are required to get tested for marriage or as a doctor or work in a company, so you can get a health card."- Dentist.

It was highlighted that there might exist a crucial gap in communication.

"They were not aware that this blood test is for HIV. They know that it is a blood test for marriage but not necessarily screening for HIV." – Academic.

"Most women don't know that HIV is part of the screening for marriage and pregnancy. "- NCDC.

Not being informed that they are in fact being tested for HIV (as part of the blood test) could be due to the indifference of the healthcare provider or for cultural reasons; fear of disrespecting the women.

7.5 Healthcare system and PLHIV

The healthcare system in Libya consists of both public and private sectors, but it is mainly state-run. The conflict strained an already insufficient system by causing extensive damage to health facilities, creating a shortage and disruption of medical supplies and equipment, and displacing and migrating health workers, within and outside the country, resulting in a loss of human resources and expertise.

> *"The level of services differs whether you are working at a private or public clinic. Private clinics tend to have the proper protection equipment, but that's not the case in public clinics. You have to work with the little you have so you would wear 2 gloves, 2 masks, etc".*

> *"Not all clinics have sterilising equipment, especially in the areas outside of Tripoli, in the mountains. Even in Tripoli, in the public clinics we lack these, let alone in the more rural areas." – Dentist.*

It was acknowledged that there is a broader issue within the healthcare system.

> *"Healthcare in general is weak."*

> *"The trust issue with doctors is across the healthcare system across Libya and not just limited to HIV. Doctors here are not attentive to the patients regardless of whether it is a public vs private facility. They look for quantity vs quality. For the infectious diseases, it is a little different, as there are a few specialised facilities."- NCDC.*

One of the main criticisms of the healthcare system in Libya is its lack of training and research.

> *"Before the revolution I was involved in the HIV training programme that the European Commission had organised. However, afterwards there was no interest or consideration."*

> *"…even the information they had was incorrect and not detailed nor up to date."- Gynaecologist*

The dentist continues to emphasise the lack of investment in training,

> *"No no no no. Not for dentists. I have been working for over 15 years and never received anything. It hasn't happened and will not happen in the future. Our healthcare is terrible." – Dentist.*

b) People Living with HIV

PLHIV in Libya face many barriers and challenges, such as stigma, discrimination, fear, lack of knowledge, and limited availability and accessibility of HIV testing and treatment services. They also face legal and ethical issues.

> *"It is difficult for a PLHIV to marry in Libya. They removed the law that stops this but there are conditions, for example, they need permission from the judge, need to demonstrate that they went to counselling, have regular checkups, and take medications." -NCDC.*

> *"As soon as I acquired HIV, people knew they didn't want to be around me. I had a nervous breakdown, I had to stay in hospital for nearly a year just to rest. Even when my daughter (living with HIV) would simply touch something, people got scared. Imagine, my daughter had a piece of bread, a piece of bread, what's that going to do? My husband's relative's daughter wanted to take that piece of bread off my daughter and her mother's reaction embarrassed me in front of everyone in a social gathering. I wish she had taken me aside and spoke to me instead of causing a scene. That's the way people view us. I stopped going out. My mental health declined; I started taking medication for my depression."- WLHIV.*

a) Innocent victims

Those who acquired HIV through blood transfusion or religiously sanctioned sexual activities are considered 'innocent victims'.

> *"….. what helped me is that they said you acquired it through blood transfusion don't be scared (don't fear people talking/reputation)." -WLHIV.*

> *"We need to refer to them as separate 'innocent victims'." -NCDC.*

Unfortunately, stigma is enhanced when PLHIV are categorised and identified according to the way they acquired the virus HIV.

> *"The issue with the people who acquired HIV from the outbreak is that they want to be treated differently. They are refusing the treatment that we have from India and are saying that it is killing people. They want the medication from Europe or America, they want to deliver their babies abroad. They want special treatment; they don't even follow the NCDC. They don't even acknowledge other people living with HIV. They are creating the stigma against the others- we are innocent, and the others are sinners.*

What about the other children? Regardless of how people acquire HIV, all need the same treatment." -NCDC.

"Honestly, if you saw the clinic, you would be shocked, it can't even be considered a clinic. Us who are living with HIV should have the best clinic and there's the availability of the medication. Sometimes they are available sometimes they aren't. How can a rich country like Libya not have money? Why is only us that don't have access to medication, us in particular?" – WLHIV.

7.6 Chapter Summary

The qualitative strand of the study reveals that the challenges of HIV in Libya go beyond medical concerns, reflecting a nuanced influence of cultural stigma, gender inequality, religious conservatism, and the failures of the healthcare system.

One of the most significant findings is the widespread lack of HIV awareness among the general public and the suggestion that this gap is likely due to cultural taboos as much as inadequate HIV awareness. The stakeholders noted that most HIV awareness efforts are from civil society organisations rather than the government, mainly from schools or the Scouts. This is supported by the NCDC manager's acknowledgment that HIV is not a government priority, which is rooted in the assumption of a low HIV prevalence in the country. It was also emphasised that when information is available, it may not be up to date or clear.

Libya's patriarchal structure seems to play a significant role in limiting women's ability to protect themselves or seek treatment as those who ask questions about HIV may face social scrutiny and assumed to be hiding something shameful. This is further exemplified by the academic's comment that communication about HIV to women is an 'alien concept,' highlighting the systemic avoidance of discussing sexual health issues, particularly among women.

Interestingly, religion plays a dual role, on the one hand, Islam offers comfort and acceptance, with the WLHIV stating that it was 'Allah's will', providing a coping mechanism. On the other hand, it was disclosed that there was a reluctance of religious leaders to address sexuality and HIV. This hesitation may be due to the belief that openly addressing such topics may encourage behaviours deemed immoral or inappropriate.

A significant barrier to addressing HIV in Libya is its fragile healthcare system, which has been severely damaged by years of conflict. This has led to shortages of medical supplies and a lack of trust in doctors, resulting in misconceptions such as the belief that HIV is transmitted through unsterilised dental equipment. The stigma surrounding HIV extends into the healthcare system itself, where PLHIVs face discriminatory practices, such as being placed in separate rooms after childbirth. There is also a practice of categorising PLHIV based on how they have acquired the virus, revealing a hierarchy that determines the level of compassion and care. The 'innocent victims', for example, those who acquired HIV through blood transfusion, expect to receive better medical services and more sympathy. This practice, as highlighted by the NCDC manager, creates divisions within the PLHIV community.

The stakeholders identified social media as a key communication channel for Libyan women as it offers a more private and reliable way to access information on HIV. The WLHIV's assertion that 'without the internet, we have nothing' emphasises the potential of digital platforms to establish connection, support, and awareness in a society where open discussion of HIV remains a taboo.

Chapter 8 Discussion

8.1 Introduction

This research revealed many interesting outcomes, nevertheless, this chapter will address the research questions and spotlight findings that are particularly pertinent to the HIV epidemic in Libya. In doing so, it presents a focused approach, providing a clear and concise examination of the most noteworthy findings raised by the study.

Re-engaging with Feminist Pragmatism has been instrumental in the interpretation of the data, reminding me to prioritise the lived experiences and voices of women, and to ensure that their perspectives were central to my analysis. This perspective also guided my recommendations, which are designed to be actionable and responsive to the needs of the Libyan women, that are still within the current restraints yet highlighting the inequalities. Through this lens, my research not only contributes to academic discourse but also aims to present tangible improvements in the lives of the Libyan women.

8.2 Addressing the Research Aims

8.2.1.1 An examination of the impact of sociocultural, economic, political, and religious factors

Consistent with previous research (Walker et al. 2012; Stangl et al. 2022), stigma and discrimination attached to the virus, punitive laws and policies, and limited Government interest and financial support, are the biggest barriers to HIV prevention and management in Libya.

The general response to the HIV epidemic in Libya is marred by denial and ineffectiveness, partly because it is still seen as affecting only PWID and to a lesser extent, MSM (see Sections 5.2 and 7.4). This perception not only fails to understand they are not isolated entities, but it also neglects the potential for HIV transmission beyond these identified groups. This underscores a critical oversight: the neglect of the Libyan women in the response to the epidemic which is resulting in an increasing number of married women acquiring HIV (see Section 5.2).

As noted by several UNAIDS publications (UNAIDS 2012, 2016, 2018, 2020, 2022a, 2023c), women and girls are particularly vulnerable to HIV due to gender disparities, which include gender-based violence, limiting norms and stereotypes, societal and infrastructural obstacles, as well as factors related to education and poverty. One of the action points that UNAIDS recommends in order to reduce HIV cases is comprehensive sex education, both in and out of school (UNAIDS 2021).

School based sex and HIV education have been shown to reduce risky sexual behaviours in Low- and Middle-Income countries (Fonner et al. 2014; Kirby et al. 2006). According to official reports, HIV and sexual health education is available in schools in Libya (see sections 5.2 and 5.4). This was further supported by the statement from the dentist who was interviewed, citing civil societies and scouts as the ones spearheading the awareness campaigns in the schools (see section 7.2).

Additionally, evidence suggests that higher education levels increase the likelihood of encountering prevention information through media exposure, leading to a more comprehension understanding of HIV. Moreover, education is associated with increased self-efficacy, with more educated people believing they have control over their own behaviour, rather than another individual or fate (Jukes et al. 2008; Mwamwenda 2014).

Despite that over 91% of the survey participants held university degrees, reflecting the high literacy rate among Libyan women (Zua 2021) and their generally higher levels of educational attainment (see Section 5.4), it was surprising to find that their overall level of knowledge skewed towards the lower end (see Section 6.3). The findings of this study indicate that the link between education, particularly higher levels of education attainment, and HIV knowledge is not unequivocal.

HCPs are generally regarded as essential sources of medical information and support. The literature reviews that addressed HCPs in MENA and Libya, reported that they themselves hold misconceptions about HIV and preventative methods, they lack training and are bound by cultural limitations (see Sections 5.3, 5.5, 5.7, 7.4 and 7.6). Trust and confidence in the healthcare system among Libyans are low (see Sections 5.3 and 7.6), in fact, more than 71% of the women in the survey expressed that they were uncomfortable discussing HIV with a doctor (see Section 6.2). Cultural norms and biases frequently stigmatise discussions about sex and sexual health in many other societies and cultures worldwide (Kingsberg et al. 2019).

Improving the quality and accuracy of the information provided by the schools, Government and HCPs is crucial, but it is only one portion. There appears to be a disconnect between receiving information and understanding its impact. Understanding HIV goes beyond knowing its transmission, prevention, diagnosis, and treatment methods, it also involves recognising that HIV is a reality that can affect anyone, irrespective of age, gender, ethnicity, sexual orientation, or social standing (Kitzinger 1991). There's a sense of denial that as Libya is considered a conservative and Islamic country, it is perceived to have a lower risk of HIV among its general population and is limited to mainly those who morally or religiously transgress (see Sections 5.2, 5.6, 6.8.1.2, 7.3 and 7.4). This lack of understanding among Libyan women was echoed by the interviewees and to a certain extent, indicated by the low-risk perception of the participants (see Section 6.4).

There's also a lack of clarity about HIV treatment, as noted in the survey findings, aligning with the broader misperception of HIV risk in the country. The survey revealed that while many women understood the potential for HIV-positive individuals to live healthy lives on medication, there was still confusion about the existence and specifics of treatment, as evidenced by the 22.3% who disagreed with the notion that "There is no treatment for HIV." This could be explained by the fact that women might be aware that some treatment exists but lack details, not understanding its effectiveness, duration, or potential effects. Another reason could be that the term 'treatment', which in Arabic could also be used interchangeably for 'cure'. Investigating how women understand the term 'treatment' can help in producing clear and accurate messaging in future educational campaigns. The same logic can be applied to HIV and AIDS- 78.9% of the women agreed that 'HIV and AIDS are same thing'. This misunderstanding aligns with the issue of audience interpretation as highlighted in Kitzinger's paper (1990), which emphasises the need for further research into how people understand and process health-related information.

While knowledge is essential, HIV prevention programmes that focus solely on awareness may have limited impact, especially in countries with complex structural and cultural factors (Woodward et al. 2014). Culture plays a significant role in Libya which is not only evident in the literature (see Sections 5.2 to 5.4) but also in the interviewee's responses (see Section 7.3). Culturally, women are expected to be sexually inexperienced and remain virgins until marriage (see Sections 5.4 and 5.5). As in many other cultures, a woman's virginity is signified by an intact hymen and the social repercussion of premarital intercourse is harsher for women as they are held to double standards related to their behaviour in public and sexual activities (see Sections 5.2 and 5.4). This cultural norm, coupled with the fear of societal shame, can lead to practices such as unprotected anal sex, which is an under-researched topic (see Sections 5.4 and 5.5). Seen as a way of experiencing sexual pleasure while maintaining the notion of virginity, with the intention of preserving the hymen (Koh 2009; Moghadam 2013; Lema 2024), anal sex also increases the risk of acquiring HIV (Baggaley et al. 2010).

Stigma a well-researched global barrier that negatively impacts HIV transmission, testing, treatment, and people living with HIV also plays a significant role in Libya. The impact of stigma is weaved throughout the literature, interviews, and the comments left by the women in the questionnaires, one choosing to describe the Libyan society as 'primitive people who care about gossip' (see Sections 5.2, 5.5, 6.8.1.4 and 7.3). Intensifying the stigma is the role of the patriarchy which fuels inequalities, resulting in women being blamed for the virus (see Section 6.8.1.3). Similar patterns of stigma and blame have been observed among women living with HIV in India, as noted by de Souza (2010).

As evidenced in this study (see Sections 5.4 and 5.5), socially ingrained expectations and a culture of gender inequality often restrict women's access to essential HIV information and services (Aranda 2018). Libyan cultural norms and expectations, compounded by gender-based inequalities, often restrict women's agency and increase their vulnerability to HIV. In a sexual context, this can be exhibited in the

inability to negotiate safe sex (see Section 5.4, 5.5). However, this wasn't reflected in the survey as a significant number of women believe they have the agency to ask their husbands to take an HIV test (57.7%) and to wear a condom (76.7%) (see Section 6.2). This suggests that these women feel they have some degree of influence over their sexual health. However, it could be that they may feel empowered to ask for the use of preventive methods but in reality, cultural and financial constraints may limit their ability to reinforce their desire (Bugaigis and Tantoush 2017). As stated by the Dentist: *"She (a woman) can't even ask how she can protect herself or get treatment. There will be a big question mark- why are you asking these questions? What are you hiding?"* (see Section 7.3)

In patriarchal societies, women face harsher consequences for perceived sexual transgressions, leading to stigmatisation, discrimination, and even violence (Moghadam 2013). The circumstances encountered by WLHIV in Libya are profoundly distressing, with stories of being subjected to violence, humiliation, and isolation (see Section 5.2). These were echoed by the statements from the interviewees who used phrases such as "…(women) *have acquired HIV from their husbands. Rarely do they let anyone know… because they fear rejection from their family…"* and "*Even if the woman knows that her husband is the cause, she can't tell anyone. …. No one is going to believe her*…" (see Section 7.3).

Considering the potential repercussions should it be discovered that a woman has acquired HIV (de Souza 2010; Kaplan et al. 2016; Oraby 2018; Mulrenan, Colombini and Howard et al. 2015), the merits of a mandatory (Lambert 2006; DeJong and Battistin 2015) or even 'opt-out' HIV testing strategy (WHO 2007) should be subject to scrutiny, as they both remove a woman's agency without concern of the impact (Catherine 2007; Bain et al. 2015).

As affirmed by the HIV stakeholders, testing for HIV is mandatory especially for marriage, so it was surprising that only 67% confirmed that they had been tested for HIV whereas around 33% stated that they hadn't. This was explained as merely a case of the women not being told and not knowing HIV screening is part of the blood tests required for employment, marriage, and childbirth (see Section 7.7).

Oman was able to eliminate Vertical Transmission through mandatory HIV testing (Elgalib et al. 2021), however, the successful outcome was largely dependent on the HIV care provided by the country, ranging from ART, face-to-face, multisession adherence support to psychological care, all of which are not adequately available in Libya (see Sections 5.2 and 5.3). Even when considering the 'opt-out' strategy, WHO guidelines assert that to execute this strategy, pre-test information and post-test counselling are essential components of the HIV testing process (WHO 2007).

Similar to the findings of Saffi and Howard (2015) scoping review on the effectiveness of mandatory premarital screening and genetic counselling programmes for β-Thalassaemia in the Middle East, a holistic life-cycle approach is more successful than screening alone. Patients should be given support to manage potential adverse repercussions of knowing and disclosing their HIV status, treatment, care, and support services should be available. Given Libya's constraints, this strategy is not appropriate.

It should be noted that despite Oman's success, it appears that the women's autonomy was disregarded as researchers found that most of the pregnant women who were surveyed preferred voluntary testing (Al-Jabri et al. 2014).

Moreover, it was revealed that women don't tend to visit healthcare providers regularly due to the belief that the medical services in Libya are inaccessible or inadequate (see Sections 5.3, 5.4 and 7.4). This distrust in the quality of healthcare system and providers can have a multifaceted impact on HIV prevalence and prevention efforts (Armstrong et al. 2006; Thom 2000; Whetten et al. 2008).

Firstly, distrust can lead to an unwillingness to undergo voluntary HIV testing as the women may be concerned that the test results will not be confidential or that the healthcare system is not equipped to provide adequate care if they test positive. Secondly, it can also cause delays in seeking treatment (refer to Sections 5.3, 5.4 and 5.7).

Conservative social and religious attitudes towards 'illicit sex' (premarital, extramarital, or homosexual) are seen as major barriers to HIV prevention and management efforts (see Section 5.6). These beliefs could partly explain why most of the women blamed medical incompetence (see Sections 6.8.1.1 and 7.4) for the increase in HIV prevalence as it overlooks the role of sexual transmission (Heterosexual or Homosexual) as a potential route and therefore rejecting that 'sexually immoral acts' are taking place in the country.

Similarly, HIV transmission through IDU is also somehow deemed more acceptable and is currently identified as the main mode of transmission (see Section 5.2). This could be due to drug use being seen as a symptom of addiction which in turn means the individual's autonomy is compromised, potentially leading to a perception that the PLHIV through IDU are victims of circumstance (Caplan 2008; Koopmans and Sremac 2011).

As observed in other conflict-affected countries, conflicts contribute to an increase in; drug use (Amirkafi, et al. 2023), displacement of people (Lichtenheld and Schon 2021), and violence against women and girls (La Mattina 2017) as well as the devastation of healthcare infrastructures (Fardousi, Douedari, and Howard 2019). These factors are likely to collectively increase HIV prevalence, making it difficult to effectively address and manage the epidemic (Barsukova, et al. 2024; Mathers, et al. 2008; Onsomu, et al. 2014). Although there is a lack of research on the impact of the ongoing conflict in Libya overall, it is probable that these outcomes are occurring in the country (see Section 5.8).

Within a patriarchal society, the onset of a conflict can exacerbate the challenges Libyan women face which ultimately affect their health (see Section 5.4). While the impact of conflict on HIV prevalence has been explored (see Section 5.8), a critical gap remains in understanding the vulnerabilities that Libyan women might potentially face in the post-conflict period.

Armed conflicts reshape family dynamics, alter gender roles, and impact the overall social fabric of a country (El-Bushra and Cécile 1995; Bakken and Buhaug 2021) and one outcome of the transformation of social structure is the increase of High-Risk Sexual Behaviour (HRSB). As highlighted by Muhwezi et al. (2011), many widows and girls adopted HRSB such as sex work during the Ugandan conflict in order to support their families and continued with the HRSB post conflict. When the notion of Libyan FSW was brought to the male Academic, he emphatically stated that there aren't, and have never been, any Libyan FSW (see Section 7.3). Setting aside the subject of sex work among Libyans due to a lack of research, it would be simplistic to assume that the conflict has not brought about any changes in the sexual behaviours of Libyans. This was touched upon by one of the women who commented in the questionnaire "*….in light of the widespread loss and moral degeneration among married women*", implying that the conflict is negatively impacting the sexual behaviours of women.

The academic used the phrase '*hidden tragedies'* when discussing the conflict which likely refers to events or experiences that cause significant emotional distress but are not widely known or discussed, including trauma.

Trauma exposure including post-traumatic stress disorder (PTSD) has been linked to HRSB (Bjarnegård et al. 2015; Werner et al. 2018; Mota et al. 2019; Flores et al. 2022). The research states that individuals who have experienced or witnessed violent episodes are at risk of developing a number of impulsive and risky sexual behaviours which are mostly linked to alcohol consumption, inconsistent condom use, multiple sexual partners, casual sex engagement, and sexual coercion (Callands et al. 2021). Considering the escalating trend of drug and alcohol usage among Libyan men and women (Elamouri et al. 2018; Mangan 2020b), it is crucial to consider how this would affect HIV prevalence.

Overall, research on how modern conflicts impact women's sexual behaviour is lacking (Neal et al. 2016), however, conflict leads to the breakdown of families, trauma and PTSD, rising substance abuse, and the expansion of women's responsibilities beyond the home. These factors all greatly influence shifts in sexual behaviour and social norms, including a HRSB (Nakachi 2011; McEuen 2016).

It should be acknowledged that these sociocultural, economic, political, and religious factors in Libya also limit the recognition of potential high-risk behaviours among women, such as injection drug use, sex work, or extramarital sex (see Section 5.4). Further compounding these challenges is another under-recognised social norm: the association of condoms as only a form of contraceptive or with illicit sex and anal intercourse (see Section 5.5)

8.2.1.2 An exploration of Libyan married women's level of HIV knowledge, HIV risk perceptions, and level of prejudice towards PLHIV.

The results show that the women in this study had a mixed level of HIV knowledge and the difference in levels, while noticeable, does not exhibit a substantial disparity. The distribution across knowledge categories—Low, Medium, and High—reveals a relatively balanced spread, with no single category overwhelmingly dominant.

It is possible that their current knowledge stems from past public health efforts surrounding the El-Fatih outbreak, which would be outdated. The need for current information was voiced by the stakeholders interviewed and supported by the women in the study who are requesting more awareness efforts (see Sections 5.2, 6.8.1.5 and 7.5).

Ideally, with limited Government action, women could rely on their family, friends, and HCPs for information and guidance on HIV. However, this study found the women exhibited discomfort in discussing sexual health with their friends, their families, and even HCPs. Even more worrying is the fact that a little less than half do not know where they could get tested for HIV and are not confident of their ability to protect themselves (see Section 6.2).

As for the women's level of HIV risk perception (see Section 6.5), the data reflects a diverse range of attitudes towards risk, with a slight inclination towards higher risk awareness. Contradicting the findings of the paper 'Facilitators and barriers to condom use in the Middle East and North Africa' (see Section 5.5), most women disagreed with the common misconceptions that married women are not at risk of HIV. Interestingly, less than half of the women expressed trust in their husbands' ability not to transmit HIV to them, underscoring the importance of communicating that the prevention of HIV is a shared responsibility (Ruark et al. 2024).

Encouraging, the study showed that most of the women had a positive perception of PLHIV, suggesting they were empathetic and supportive, and did not hold negative or judgmental attitudes towards them (see Sections 6.5 and 6.8.1.4). This stands in contrast to the experience of the WLHIV who reported being isolated by the closest people to her (see Section 7.3) as well as other studies that reported PLHIV being rejected by family and friends (Henry et al. 2015; Senyurek et al. 2021). This suggests there might be a disconnect between self-reported perception and the reality faced by PLHIV. It is possible that the negative social stigmas around HIV influence peoples' feelings and behaviours towards PLHIV even if they are consciously trying to reject them (De Houwer 2019).

The results also revealed a significant area of concern regarding the perception of PLHIV having children. Although around 60% of the women disagreed with the statement that 'People living with HIV should not have children', it's worth noting that nearly one-fifth of the respondents agreed with the statement. Furthermore, 20.4% of the women responded with 'I don't know' and 25 participants chose not to answer the question at all, underscoring the misunderstandings and misinformation that may still exist among Libyan women concerning HIV and parenthood.

8.2.1.3 An exploration of variables that influence their level of HIV knowledge, HIV risk perceptions, and level of prejudice towards PLHIV.

Reflecting on how the level of knowledge, risk perception, and prejudice towards PLHIV influence each other, the study identified that knowledge could help reduce prejudice and may lead to a slightly higher perception of risk. However, although there is a weak correlation, there is a suggestion that as prejudice increases, risk perception tends to decrease (see Section 6.6).

The study also investigated potential interactions between women's HIV knowledge, risk perception, and prejudice towards PLHIV across different age groups, employment statuses, and regions. While no significant connections were found between age, region, and the three variables, there was a link between employment status and knowledge levels. In other words, employed women are more likely to have a higher level of HIV knowledge (see Section 6.6.1), yet, unfortunately, the Libyan labour market doesn't offer many opportunities to women (Pourmehdi and El Abani 2023)

A deeper examination revealed additional influential factors. In line with previous research, women who underwent HIV testing are associated with higher levels of HIV knowledge and risk perception, and lower levels of prejudice (Evangeli, et al. 2016; James and Ryan 2018). The study also reveals that the women's ability to discuss HIV, particularly with friends and family, increases HIV knowledge and risk perception and that having access to information not only enhances HIV knowledge but also reduces prejudice levels.

Confidence in prevention methods is another key factor that impacts HIV knowledge and lowers prejudice. While being able to discuss HIV with HCPs is linked to an increased level of risk perception and reduction of prejudice towards PLHIV (see Section 6.7), the survey found that the women were uncomfortable discussing HIV with their doctors (see Section 6.2). This isn't unique to Libya as women in Western cultures also frequently avoid discussing sexual health with HCPs (Kingsberg et al. 2019). It is worth noting that HCPs may feel uncomfortable discussing sexual health, due to the lack of training as well as social restrictions, especially if they are male (Verhoeven et al. 2003).

8.2.1.4 An exploration of stakeholders' observations on the HIV epidemic in Libya and their responses to some of the responses received from Libyan married women.

The interviews, found in Chapter Seven, revealed that doubt was cast over the quality and reliability of the information that is provided by the government and the National Centre of Disease Control. This criticism stems from the perception that they are not prioritising HIV, primarily based on the belief that Libya has a low HIV prevalence.

According to the literature and discussions with the stakeholders, IDU could still be the main mode of HIV transmission, but that sexual transmission is also increasing, especially among MSM, FSW, and married couples (discussed in Section 5.2). Many women in the survey blamed medical incompetence, and in particular dentists, for the increase in HIV cases (see Section 6.8.1.1). When the Dentist was asked to respond to this misconception, she referred to high levels of stigma and discrimination that are prevalent in the culture and how dentists are often seen as scapegoats. This blame on HCPs and clinics is made easier due to the public's lack of trust in the healthcare system which is further intensified by the ongoing conflict (see Section 7.6).

Culture is frequently seen as responsible for the denial of HIV as well as the challenges faced by WLHIV, who are often blamed, shamed, and face rejection and stigmatisation from family and society (Moghadam 2013). The notion of shame, which is related to stigma, is understood to prevent people from disclosing their HIV status, even to health care providers, and from accessing HIV services and support (Hutchinson and Dhairyawan 2018). Shame is deeply rooted in the Libyan culture and was prominent throughout the study (refer to Sections 5.3,5.8,6.8.1.5,7.2 and 7.3). Libyan women fear bringing shame to their families, even more so than the health consequences they might face (Yeaw 2018).

Some of the most distressing revelations were the experiences and challenges of PLHIV, which are not limited to stigma, discrimination, fear, limited availability and accessibility of HIV treatments (see Section 5.3), but also legal and ethical issues (see Section 5.2). Regardless of whether they are accepted as 'innocent victims' (see Section 5.6), PLHIV in Libya have a low quality of life and a high need for support and care. This is consistent with the literature that found that PLHIV are often negatively impacted by socio-demographic and psychological factors (Ballesty et al. 2024; Nuño et al. 2024).

When asked which method would be the best way to communicate to Libyan women, all of the interviewees stated that the internet and social media are the best media, as women rely on the internet for information and support (see Section 5.5). This is particularly beneficial for women with mobility restrictions and those who are concerned with maintaining confidentiality, allowing them to conveniently and anonymously search for health information (Kumari, 2020; Pandey et al., 2003; Taggart et al., 2015; Taubenheim et al., 2008). This study's successful recruitment of participants through Facebook highlights the potential of the Internet to reach Libyan women (see Section 7.5 and Appendix IX).

The impact of Islam as a powerful source of security, comfort, and meaning for many Muslims and Libyans has been discussed in the literature reviews (see Sections 5.2,5.3 and 5.6) and supported by the participants and interviewees (see Sections 6.8.1.2 and 7.9). The overarching finding is that religious leaders should play a more active role in creating awareness of HIV and encouraging acceptance and tolerance of people living with HIV.

8.3 Limitations and Strengths

This section presents the limitations of the study.

8.3.1 Feminist Pragmatism

Feminist Pragmatism guided this thesis; however, focusing solely on women's perspectives could be considered a limitation, especially considering that many women in Libya acquire HIV from their husbands, overlooking the role of men in sexual relationships. Therefore, while the Feminist Pragmatism framework offers valuable insights, it could be complemented by a broader gender-inclusive approach to fully address the complexities of HIV transmission in the region.

One key strength of applying Feminist Pragmatism was that it offered a holistic understanding of the challenges faced by Libyan women, guiding the formulation of research aims, and ensuring that the outcomes were relevant and sensitive to their needs, culture and religion.

8.3.2 Study Design

Opting for a Mixed- Methods approach introduces its own limitations, such as not allowing for extensive quantitative data collection or in-depth qualitative exploration of interviewees' views or experiences (MacKenzie Bryers et al. 2014). However, for this particular study, given that the topic is considered to be relatively sensitive, adopting a mixed-method approach was deemed appropriate. The anonymous self-administrated questionnaire increases the participant's willingness to communicate about sensitive issues as they are not being asked face to face about them (Tourangeau and Smith 1996) and this may also increase the honesty of their responses. Knowledge and reality can only be understood by those who experience it (Elam and Fenton 2003), which is why it was necessary to include the qualitative arm as well as to further support the quantitative findings.

8.3.3 Sampling

One limitation of the quantitative strand is the recruitment strategy. Recruiting women through Facebook could be regarded as selection bias- women who have access to the Internet possess a certain level of education, which could explain the high percentage of university degree holders in the sample (Benedict et al. 2019). However, considering sensitivity of the study topic and other logistical issues, the study was able to collect a large sample of 1,101 completed surveys. This is particularly significant given that Libyan women are often considered a hard-to-reach demographic.

Since this mixed-methods study was predominantly quantitative, one limitation could be including only five stakeholders, however as debated by Ahmed and Wilkins (2024), there is consensus that there are not, and there should not be, statistical or numerical rules for sample size in qualitative inquiry. Citing Morse (2015), the authors continued to state that the adequacy of qualitative samples should be determined based on the appropriateness of the collected data and not by the number of participants. With that said, the number could have been larger if time had permitted, also, by the nature of the stakeholders there was limited geographical representation (interviewees were mostly based in Tripoli),

hence the findings from the interviews may not capture the views of the participants from other areas of country.

The strength of utilising purposive sampling is that the stakeholders were specifically chosen for their relevant expertise and insights, and their diverse backgrounds in terms of sex and professions, providing a multifaceted understanding of HIV, Libya and of Libyan women.

8.3.4 Online questionnaire

Further limitations could be that this study utilised an anonymous, self-administrated questionnaire, and therefore there was a reliance on the integrity of the participant, opening possibilities for false data and social desirability bias. However as established by Jones et al. (2016), online surveys on highly sensitive health topics such as HIV may actually reduce social desirability bias, however, may also lead to higher item nonresponse for specific questions.

8.3.5 Interviews

Audio-only interviews are more challenging, as unlike video calls, non-verbal cues cannot be considered and may have led to the researcher missing certain nuances between body language and spoken word. However, audio only was the preferred method for the participants.

8.3.6 Language

There are limitations when collecting and analysing data in multiple languages, particularly when translating from Arabic to English, as there is a risk of meaning being lost or misinterpreted during the process. Initially, the questionnaire was drafted in English and then translated into Arabic. However, having a female healthcare professional perform the translation adds strength to the process as well as conducting a pilot test to check the clarity and accuracy of the language used helped mitigate potential issues. Another limitation arises from translating the interviews from Arabic to English, but this was alleviated by my understanding of both the Arabic language and Libyan dialect, as well as my Libyan background (see Section 4.1.1).

Chapter 9 Conclusion

The purpose of this PhD study is to explore and present the factors that impact Libyan women's vulnerability to acquiring HIV. It also attempts for the first time to assess their levels of knowledge, level of risk perception, and level of prejudice towards PLHIV as well as examine relationships between the different variables. While the study did not set out to examine any particular preventative or communication initiatives, it unveiled some challenges that could hinder such efforts.

Prompted by ongoing conflict, gender inequalities, and limited research on HIV in Libya, this study investigated the interplay of factors that could potentially increase women's vulnerability to HIV. A review of Libya and MENA region literature revealed how cultural, religious, socio-economic, and political factors significantly impact HIV prevalence, prevention efforts, and management services. These factors are further compounded by the intricacies of traditional gender roles that are rooted in patriarchal values and the ongoing conflict, further aggravating Libyan women's risk of HIV.

In order to gain a more complete understanding of Libyan women's vulnerability to HIV, a mixed-method approach was applied to provide stronger inferences, and an Explanatory Sequential QUAN-qual design was selected. The quantitative arm was an online self-administrated survey targeting Libyan married or previously married women, living in Libya with the questionnaire designed to measure their level of HIV knowledge, level of HIV risk perception, and level of prejudice towards PLHIV. The qualitative component of the study focused on understanding HIV from the perspective of HIV stakeholders and a WLHIV, enriching the quantitative findings with their insights.

The study offered a mixture of expected and unexpected results. As anticipated, women who underwent HIV testing have higher levels of HIV knowledge and risk perception and lower levels of prejudice towards PLHIV. However, many women were unaware that they were being screened for HIV, raising ethical concerns and potentially undermining the effectiveness of HIV testing. Another interesting result was that contrary to previous research findings, the women surveyed didn't associate marriage with an increase of trust and confidence and therefore their level of HIV risk perception had a slight inclination towards higher risk awareness.

This study has successfully achieved its research aims, within the constraints of the data, by identifying key socio-cultural, religious, and political factors that shape HIV vulnerability among Libyan women. Additionally, it provided an original contribution to knowledge by addressing the significant gaps in research on both HIV and women's health in Libya, a largely understudied area.

A key strength of this research is its inclusion of Libyan women's lived experiences and insights, offering a rare perspective on the challenges they face in navigating not only HIV-related risks but broader health concerns. By amplifying their voice, this study addresses their perspectives, that are often overlooked in public health discourse and advocating for their inclusion in future research and policymaking. Moreover, it provides a nuanced understanding of PLHIV in Libya, their struggles and the societal challenges they endure. However, it is important to note that this study might have missed the perspectives of Libyan women in rural areas who may not have access to the internet or the same level of resources. Despite this limitation, the study lays the groundwork for future research and interventions that can better support Libyan women and improve health-related outcomes in the country.

Chapter 10 Recommendations

The intention of the research is to present empirically supported insights on HIV and women in Libya. In doing so, HCPs and policymakers will be equipped with practical guidelines, based on evidence, on how to communicate HIV prevention and management information and initiatives effectively and respectfully. In their textbook on A*cademic Writing and Publishing in Health and Social Sciences,* Regmi and colleagues (2022: 121) observed that: "Traditionally, academic outputs such as a thesis, book chapter, conference paper, or journal papers follow a certain structure from an Introduction/Background (see Chapter Eight) to the Methods section, a section on Findings (also referred to as Results), a Discussion section, and followed by Conclusion (with or without Recommendations)." They added "Your Conclusion should be a logical extension of the information contained in the thesis or research paper/report, and Recommendations are a logical extension of the Conclusion" (Regmi et al. 2022: 123). For this reason, the Recommendations in the thesis are provided after the Conclusion chapter. The recommendations are presented in the following areas: practice, policy, and research.

10.1.1 Practice

The lack of trust and confidence in doctors in Libya is a concern and might not be entirely due to HCPs themselves; it could also stem from factors such as lack of training, limited access to research, and insufficient time per patient, among others (see sections 5.3, 7.5). Yet, there are various adjustments that HCPs can implement to improve patient interactions. Below are the two main initiatives that should be incorporated:

- HCPs should be aware of their attitudes and behaviour, focusing on making women feel comfortable by listening to them and not rushing them (Howarth et al. 2017).
- Women should be informed when their blood tests are going to be screened for HIV as this will allow the HCP to share accurate HIV information and counselling and provide them with an opportunity to ask questions.

10.1.2 Policy

Efforts to combat HIV and AIDS in Libya must begin at a macro level, strengthening healthcare infrastructure, enhancing access to HIV testing and treatment, and developing initiatives to reduce stigma are essential components of a comprehensive response. Moreover, community-based interventions that prioritise the needs and experiences of PLHIV, especially women, are fundamental for fostering inclusive and supportive environments (Cook 2020; Speakman, Shafi, Sondorp, et al. 2014).

Despite past HIV awareness and management efforts (refer to Sections 5.2 to 5.4), the Libyan Government's current response lacks prioritisation within the national development agenda. There needs to be more commitment and effort that is guided by evidence generated from empirical research that has evaluated the situation within the country, and which reflects the real needs of the population. A functioning surveillance system (Section 5.2) as well as an IBBS, are imperative to assess the actual HIV prevalence in the country and inform interventions (Section 7.2).

The study's findings suggest that HIV awareness campaigns and sexual health education are substandard, therefore there should be an increase in HIV awareness campaigns targeting Libyan men and women with different key messages and media.

10.1.2.1 Communication strategy

Mass media such as TV, radio, print, and digital media should be used to create a holistic communication campaign, to increase awareness of HIV and the services available (Asiri et al. 2017; Daher 2017). Complementing this, gender specific initiatives on-ground activations should be developed (Dworkin et al. 2009).

For Libyan men, the overall objective should be focused on prevention and promoting the use of condoms, with the support of religious leaders, appealing to existing values associated with masculinity (Mulrenan, Colombini, Howard et al. 2015), namely taking care of their own and their wives' health and quality of life (5.5). Whereas management and treatment should be the focus of the campaign targeting Libyan women. Considering their socio-economic restrictions, knowing that there is effective treatment available, even if they can't control other aspects of their situation (Section 7.3), can empower them to seek treatment and continue living full lives.

Communication efforts should emphasise The Undetectable = Untransmittable message (U=U), which is a powerful message that not only empowers PLHIV but is also a tool to reduce stigma (Okoli et al. 2021). Above all, it is important to ensure that the messages are clear and informative, given that the existing ones might be lacking in both clarity and transparency.

10.1.3 Research

This study is among the very few to explore HIV in Libya, offering a unique perspective by focusing on women. It is contributing valuable new knowledge to the limited research available on HIV in Libya and highlighting a range of under-researched areas.

There is an urgent need for research on HIV among Libyan men within heterosexual relationships, as most women acquire HIV from unprotected sexual activities with their partners. Moreover, a comprehensive understanding of young people's beliefs and attitudes towards sex and their sexual behaviours (El Feki 2014; El Ansari et al. 2023), in particular looking at how conflict impacts these aspects, will allow for early interventions (Walker et al. 2012; Lamb 2020).

In order to assist the country in mitigating some of the impact of conflict, it would be useful to undertake detailed research on the militia in the country (see Section 5.8). While extensive research exploring the link between military presence and HIV prevalence exists, investigating militias presents a unique challenge. Despite the challenges, it would be possible to conduct a qualitative study, such as interviews with former militia members or HCPs who can provide a nuanced understanding of militia members' attitudes and behaviours related to HIV.

Even though the literature and the interviews dictate that social media is one of the most effective methods in reaching Libyan women, the questionnaire results state otherwise with only 46.7% of the women stating that they used social media for health-related information (section 6.2).

Social media could be a very effective and powerful tool for health communication, providing support and advice, however, further investigation exploring how social media platforms can be harnessed to deliver reliable health information is required (AlMuammar et al. 2021; Regmi et al. 2022). Research on how people understand, and process health-related information is also recommended.

Any researcher who is interested in examining unfamiliar cultures or minority groups is urged to approach their study with a Culture-Centered Approach (CCA) (Dutta 2008). The CCA approach revolves around the three concepts of structure, culture, and agency and their interaction, questioning the taken-for granted value of Western knowledge as the only way of looking at health and treatment.

The researcher needs to shift their role from planning and executing campaigns to actively listening and engaging with communities through dialogue. This requires challenging their own biases and having an authentic interest in local experiences, challenges, and strengths. There needs to be a focus on collaboration particularly when tackling complex issues like HIV, as Western approaches often miss the intricate interplay of religion, culture, and gender that shape people from minority or marginalised groups (González-Alcaide et al. 2020).

Chapter 11 References

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Chapter 12 Appendices

Appendix I Prospero

NIHR | National Institute for Health Research

PROSPERO
International prospective register of systematic reviews

Citation

Abier Hamidi, Edwin van Teijlingen, Pramod Regmi. Facilitators and barriers to condom use in Middle East and North Africa: a systematic review. PROSPERO 2021 CRD42021297160 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021297160

Review question

What are the reasons (contraception or HIV/STDs/STIs prevention) for using condoms in MENA?

What are the individual, interpersonal and structural-level barriers/facilitators to condom use in Middle East and North Africa?

Searches [1 change]

We will search the following electronic databases; PubMed/MEDLINE, Academic Search Ultimate, COCHRANE, APA PsycINFO, EMBASE, ScienceDirect, CINAHL Complete, Scopus.

The search strategy will include terms specific to HIV use, access and barriers, STIs/STDs interventions. The search will be conducted using free-text terms and Medical Subject Headings (MeSH) terms. Hand searching for the reference lists of the reviewed articles from the above databases would also be included. Our search strategy will be limited to countries that fall under the UNAIDS regional classification of the Middle East and North Africa region, includes 20 countries/territories: Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates and Yemen.

English and Arabic language articles are eligible for inclusion. No date restrictions

Types of study to be included

Primary studies: cross-sectional studies or surveys; qualitative, quantitative or mixed method studies. Only English papers will be included.

Condition or domain being studied

Condom use

Participants/population

Inclusion criteria: Arabic Men and women regardless of their sexual orientation and marital status, Female sex workers, people who inject drugs, migrants

Exclusion criteria: Sub-Sahara Africans

Intervention(s), exposure(s)

Condom use, facilitators and barriers

Comparator(s)/control

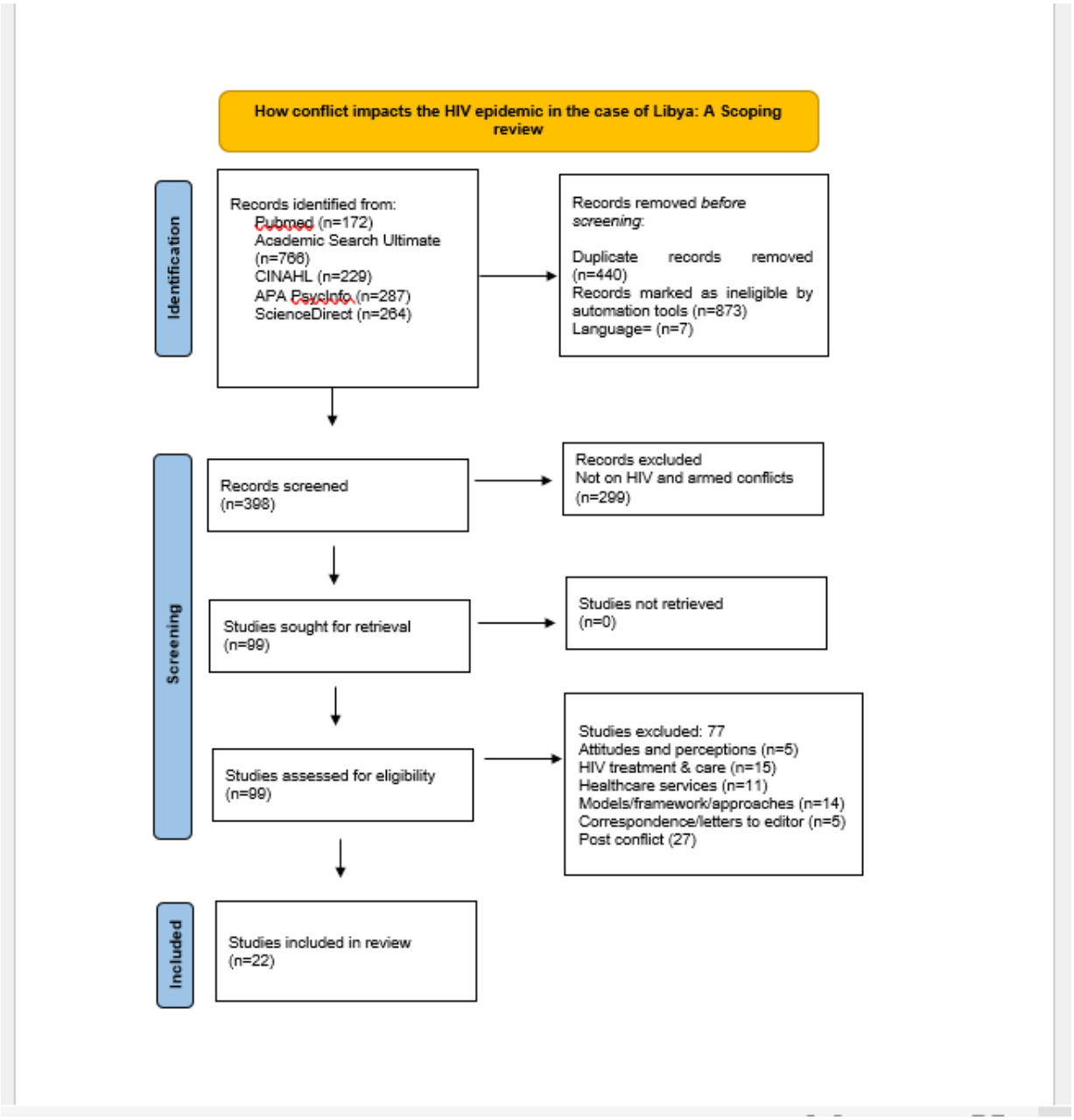
Not applicable

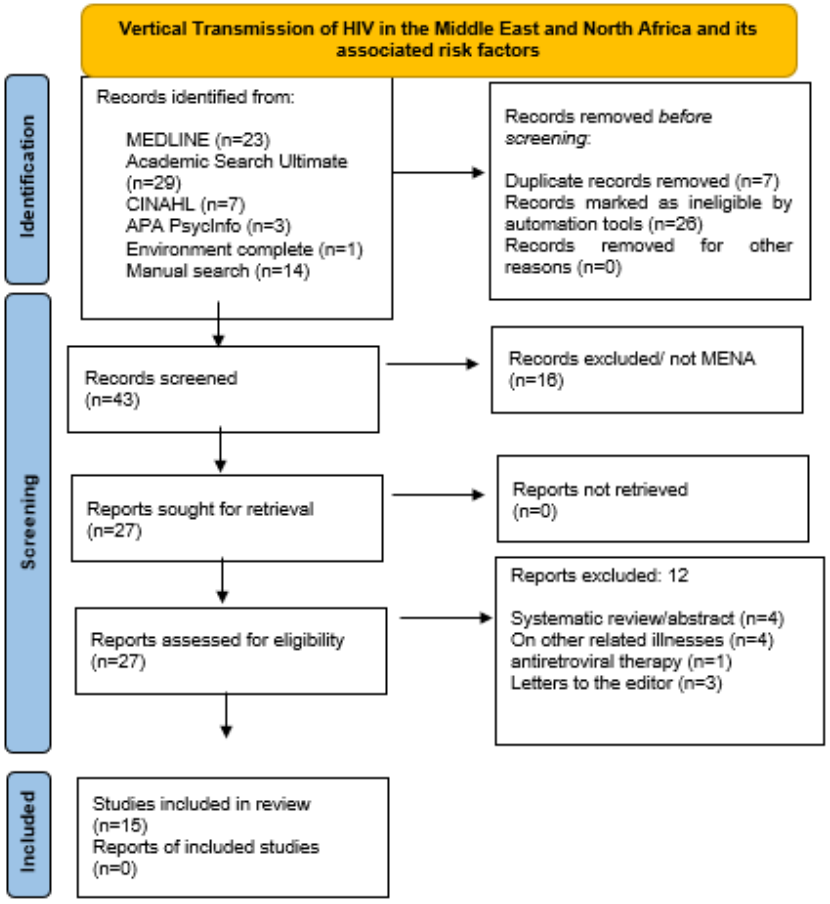
Context

According to the United Nations, the Middle East and North Africa (MENA) region has the lowest prevalence of HIV (human immunodeficiency virus) in the world, less than 0.1% yet, the number of new infections is increasing steadily. It is estimated that there were 20 000 new HIV infections in 2019, a 25% increase from 2010.

Time and time again, research has shown that consistent condom use is an effective form of HIV prevention,

Appendix II PRISMA flow diagrams





Matthew J Page, M.J., Moher, D., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., Shamseer, L.,Tetzlaff, J.M., Akl, E.A., Brennan, S.E., Chou, R., Glanville, J., Grimshaw, J.M., Hróbjartsson, A., Lalu, M.M., Li, T., Loder, E.W., Mayo-Wilson, E., McDonald, S., McGuinness, L.A., Stewart, L.A., Thomas, J., Tricco, A.C., Welch, V.A., Whiting, P. and McKenzie, J.E., 2021. The PRISMA 2020 statement: an updated guideline for reporting systematics reviews. *BMJ*, 372, 71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Appendix III Critical appraisal of 15 included studies

Author	Aim	Defined Demand	Research Design	Sample	Data Collection	Methods	Data Analysis	Ethics	Reliability	Total score
(Ahmed et al. 2021)	✓	✓	✓	✓	✗	✓	✓	✓	✗	7
(Al Awaidy and Sharanya 2019)	✓	✓	✓	✓	✗	✓	✓	✗	✓	7
(Al Hasani et al. 2021)	✓	✓	✓	✓	✗	✓	✓	✓	✗	7
(Al Sawai et al. 2020)	✓	✓	✓	✓	✗	✓	✓	✓	✓	8
(Al-Jabri et al. 2010)	✓	✓	✓	✓	✗	✓	✓	✓	✓	8
(Al-Jabri et al. 2014)	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
(Edathodu et al. 2010)	✓	✓	✓	✓	✓	✓	✓	✗	✗	7
(Elgalib et al. 2021)	✓	✓	✓	✓	✗	✓	✓	✗	✗	6
(Elsheikh et al. 2015)	✓	✓	✓	✓	✗	✓	✓	✓	✓	8
(Elsheikh et al. 2022)	✓	✓	✓	✓	✗	✓	✓	✓	✓	8
(Elsheikh et al. 2023)	✓	✓	✓	✗	✗	✓	✓	✓	✓	8
(Kordy et al. 2006)	✓	✓	✓	✓	✗	✓	✓	✗	✓	7
(Mahmoud et al. 2007)7	✓	✓	✓	✓	✓	✓	✓	✓	✓	9
(Nezha et al. 2023)	✓	✓	✓	✓	✓	✓	✓	✓	✓	9

Appendix IV Questionnaire

Eligibility questions

Are you over the age of 18 and are/previously married? If yes: continue

if not: Thank you but this questionnaire is developed for married women, over the age of 18 years old and therefore you will not be able to continue.

A. General

Age: 18-25 /26-35/ 36-45 /46 and over

Highest Education achieved: Primary / Secondary / University degree or equivalent

Employment: Student/Employed/Unemployed/ Housewife

Location: Please specify

B. HIV/AIDS related knowledge

False, True, I Don't Know

1. A person can acquire HIV by being in contact with someone who has HIV
2. All pregnant women living with HIV will pass the virus to their baby
3. People who have acquired HIV quickly show physical signs of the virus
4. A person can acquire HIV by having unprotected sexual intercourse
5. There is no treatment for HIV
6. People living with HIV can live and lead a normal and healthy life by taking medication
7. HIV and AIDS are the same thing

C. Risk perception

Agree, Neutral, Disagree

1. I am married so I am not at risk of HIV
2. I am healthy so my body can fight off the HIV virus
3. I can ask my husband to take an HIV test
4. I trust my husband not to transmit the virus to me
5. It is acceptable or a woman to ask her husband to wear a condom

D. Perception towards PLHIV

False, True, I Don't Know

1. People with HIV should be isolated
2. Living with HIV means that a person has engaged in immoral behaviour
3. Having a relative living HIV will tarnish the family's reputation
4. It is acceptable for a woman to ask her husband to wear a condom
5. People living HIV should not have children

E. HIV Testing

1. Have you ever had an HIV test?
   if **Yes**, go to Q.2, if **No** go to Q.3

2. Which of these would you say are the reason for getting an HIV test? (Tick all that apply)

A. Worried that I may have acquired HIV
B. Because a doctor, nurse or other healthcare professional asked me to
C. Because my husband asked me to
D. For mandatory testing (employment/pregnancy)
E. Other reason. Please specify .....

3. If you have **not** been tested for HIV, which ones of these would you say is/are the reason(s) why you have not been tested?

A. It's unlikely that I have been exposed to HIV
B. Fear of what people would say if they found out I took the test
C. The test results are not confidential
D. I didn't know where to get tested
E. People might assume that everyone who is tested has contracted HIV
F. Other reason. Please specify.....

F. Access to HIV/Healthcare information

Tick statements you agree with

1. I can talk to my friends about HIV
2. I can talk to my friends about sexual health
3. I am comfortable asking my doctor about HIV
4. I can discuss HIV with my husband
5. I can discuss HIV with my family

6. I know where I can get information on HIV
7. I know where I can get tested for HIV
8. I use social media to get information on health issues
9. I have read about HIV in the local newspapers and magazines
10. I am confident that I know **how** to protect myself from acquiring HIV
11. I am confident that I **am able to** protect myself from acquiring HIV

Appendix V Survey Cover

SurveyHero

Libyan Women Questionnaire

استكشاف المفاهيم المتصورة لفعالية استراتيجيات التثقيف الصحي في الحد من الضرر الناجم عن فيروس نقص المناعة البشرية لدى النساء الليبيات المتزوجات (سابقًا أو حاليًا)

Appendix VI Qualitative Schedule

Guides for key informant (stakeholder) interview

Background information

City:

Occupation:

Sex:

Date of interview:

Below are some questions which will be included during the interview, however responses from the questionnaires will also be discussed.

Knowledge/Perceptions	• How informed are Libyan married women about the HIV virus?
	  ○ What are some issues or questions that women have discussed with/asked you? Please give examples.
	• What are the difficulties for women to access information or treatment?
	  ○ Are women willing to discuss HIV? Have they requested an HIV test?
	• What are the main misconceptions that Libyan married women have regarding HIV?
	• Do you think that Libyan women are well informed about HIV transmission risks and the preventative measures that are available?
	  ○ Can you give a few examples to support your answer?

Barriers	• What stops women from asking about HIV or asking for information? • Have you found it difficult to discuss HIV with your patients? ○ Please elaborate on why

Communication	• What has the effectiveness been of HIV awareness campaigns?
	  ○ Can you name a few initiatives that you remember coming across?
	  ○ In your opinion, what should be emphasised on?
	• What is the most effective channels in generating HIV awareness to Libyan married women?
	  ○ Social media, audio-visual, poster/pamphlet etc.
	• Did you receive (do you provide) training/ guidance?
	  ○ What kind of training did you receive (do you give) in how to discuss HIV with women?

Wrap-up	• Thank you very much for your patience and thoughtful answers. Is there anything else you would like to add? Is there any question that you thought was important, but I did not ask you? Do you have any recommendations for me?

Thank you.

Appendix VII Ethical Approval

Bournemouth University

Research Ethics Checklist

About Your Checklist	
Ethics ID	39263
Date Created	28/07/2021 11:11:33
Status	Approved
Date Approved	18/10/2021 12:25:49
Date Submitted	15/10/2021 15:20:57
Risk	High

Researcher Details	
Name	Abier Hamidi
Faculty	Faculty of Health & Social Sciences
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, EngD, EdD)
Course	Postgraduate Research - HSS
Have you received funding to support this research project?	No

Project Details	
Title	Perceptions of the Effectiveness of Health Education Strategies in Reducing Harm from HIV in Libyan Married Women
Start Date of Project	04/10/2021
End Date of Project	16/12/2022
Proposed Start Date of Data Collection	01/11/2021
Original Supervisor	Edwin van Teijlingen
Approver	Research Ethics Panel

Summary - no more than 600 words (including detail on background methodology, sample, outcomes, etc.)

The first time HIV (human immunodeficiency virus) and AIDS (acquired immune deficiency syndrome) became a public issue in Libya was in 1998 when over 400 children were infected with HIV-infected blood, causing an epidemic at El-Fatih Children's Hospital in Benghazi.

Recent data suggest that HIV prevalence in Libya is relatively low, at 0.2%. Unfortunately, these figures remain estimates due to the stigma and discrimination associated with HIV in the country, as well as the civil war, no proper surveillance system and the lack of Government transparency.

The data available on Women Living with HIV (WLWH) shows a slow but steady increase in new infections. It was found that during 1993-1997, out of the 975 cases, 22.3% were female (n=217) and in 2013-2017 out of 2,147 again 22.3% were female (n=497) (Daw et al. 2019). When researching HIV-related hospitalisations, out of 227 people hospitalilised with HIV, most of the female HIV patients were married 57.5% (n= 23) or widowed 22.5% (n= 9) and 87.5% (n=35) identified martial sexual relations as a route of HIV transmission

State of Libya
Ministry of Higher Education & Scientific Research
Libyan National Committee for Biosafety & Bioethics

دولة ليبيا
وزارة التعليم العالي والبحث العلمي
اللجنة الوطنية للسلامة الحيوية والأخلاقيات البيولوجية

الرقم الإداري: 22/ق س 13
التاريخ: 29/1/2022

To: Abier Hamidi

Reference to your application concerning ethical approval for the research entitled: *Perceptions of the Effectiveness of Health Education Strategies in Reducing Harm from HIV in Libyan Married Women;*

The Libyan National Committee for Biosafety and Bioethics in its meeting on January 27th, 2022 has approved your application and hereby granting you the requested approval.

You should comply with the bioethics tenets and biosafety rules pertaining to subject's privacy and other ethical issues as it may apply.

Wishing you all the success.

Abdulaziz Muhammad Elbuni,
Chair, LNCBB

رئيس اللجنة

0217116082 , 0217266274 , 0217290727 هاتف info@lncbb.org.ly : البريد الإلكتروني

Bournemouth University

Ethics ID: 39263
Date:

Participant Information Sheet

This will be translated into Arabic

Perceptions of the Effectiveness of Health Education Strategies in Reducing Harm from HIV in Libyan Married Women

Invitation to take part

Asalam Alykum, my name is Abier and I am a researcher at Bournemouth University in the UK. You are being invited to take part in a research project but before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the project?

The purpose is to gain a better understanding of the knowledge, perceptions and attitudes towards HIV/AIDS Libyan married women and how health information is sourced. The project is in two parts and the results of both studies will then be merged to answer the overall research question of "Perceptions of the Effectiveness of Health Education Strategies in Reducing Harm from HIV in Libyan Married Women".

Stage 1: An online anonymous self-completion questionnaire to assess the HIV/AIDS knowledge, risk perception and attitude toward HIV among married women across Libya.

Stage 2: Semi-structured interviews with key stakeholders to explore and expand on results given by the Libyan married women.

Appendix IX Article in The Conversation

THE CONVERSATION

Academic rigour, journalistic flair

Connected: Facebook is by far the most popular social media platform in Libya with more than six million users. Prostock-studio via Shutterstock

Social media now trumps traditional family networks in Libya – my Facebook survey reached 446,000 women

Published: April 24, 2023 2.32pm BST

Abier Hamidi
PhD Candidate, Faculty of Health & Social Sciences, Bournemouth University

When I told my family and friends I intended to pursue a PhD researching HIV awareness among married women in Libya, my home country, the reaction was not encouraging: "You'd be lucky to even get members of your family to respond," said one.

They weren't being unnecessarily pessimistic but rather managing my expectations, considering I was not only researching HIV awareness in a conservative country often perceived oppressive, but I was also looking to recruit women.

Historically, Libyan women have been placed under severe social and cultural constraints that rendered them difficult to reach. Libya is shaped by and works within a patriarchal society where simply approaching women on such a taboo topic as HIV/Aids – which in Libya is often associated with immoral practices such as pre or extra-marital sex, substance abuse and homosexuality – made the research even more complex.

I knew that the lack of confidentiality and the fear of being stigmatised were going to be a problem. So I needed a method that would provide a platform whereby the women can respond to the survey without prying eyes.

This is where the power of online surveys comes in. Using an anonymous, self-completed questionnaire reduces the effect of the topic's sensitivity and helps reduce people's fear of the possible social stigma attached to those self-disclosures.

But online surveys have their limitations. In Libya, these include poor telecommunication infrastructure, especially away from the large cities, as well as the high cost of internet access and the relatively poor service there. But the fast-growing smartphone market is encouraging and facilitating internet use in the country. According to the most recent available figures there were 3.14 million internet users in Libya in 2023 – approximately 45.9% of the population.

My questionnaire included five main sections. I asked for some limited demographic information (age, city, educational level, employment status). There were also sections on HIV/Aids related knowledge, responsents' perceptions of HIV risk, their attitude toward HIV and where they sourced healthcare information. I took particular care to ensure that I was gathering the maximum amount of information while remaining sensitive to Libya's religious and social contexts.

Armed with approval from the university's research ethics committee, I sent out a recruitment post with the questionnaire, mainly to family and friends in the Libyan diaspora in the UK and the US. The principle aim of this pilot study was to ensure that the wording, language and questions were understandable and that the mechanics of the survey functioned correctly. Within a month I'd received more than 168 complete questionnaires, which reassured me that sharing the survey with family and friends and asking them to forward the link to their various social and family networks would be the ideal approach for my main research on Libyan women in Libya.

What is 'wasta'?

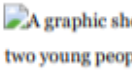
Libya has a population of around 7.1 million which is heavily skewed towards large networked tribes and well-established families, meaning the degree of separation across the whole of society is quite small. This has traditionally meant that the best way to get things done is by using these big family or tribal networks. This is known as "*wasta*".

Wasta is a common practice of calling on personal connections for assistance. It's a social norm in most Arab countries, defined by one academic as "a personal exchange system between members of society that is entrenched in the tribal structure of the country". The concept has been tied to a tribal tradition which obliges those within the group to provide assistance in the same network.

I have a large family in Libya which straddles two different tribes, as well as family friends, so I was confident that wasta was the best approach to take. I sent the link to all the members of my wasta network through WhatsApp and asked them to forward it onto their friends and extended family. I also posted on Twitter and reached out to various Facebook pages. I only needed 323 complete questionnaires and I was confident that method would yield the best response.

Days went by and I only had a handful of responses. Much of the feedback I received from family members was worrying. People said they had exhausted their networks without much success. Clearly, recruitment using wasta wasn't working. So I decided to fall back on my experiences of working in marketing and created a targeted post, aimed at "women, ages 18-65+ living in Libya, married, divorced, separated and widowed". In direct contrast to wasta, this didn't rely on who I know.

Social media has grown massively in popularity as a research tool in recent years. So, bearing in mind that Facebook is the most popular social media platform in Libya, with more than 6 million users, I created a Facebook page with the title, in Arabic: دراسة النساء الليبيات المتزوجات (Research on Libyan married women). I linked in papers I had published in the past (also in Arabic) and the recruitment poster below.


A graphic showing an Arab woman holding a Libyan flag with two young people.

The recruitment poster used by the author in her Facebook recruitment campaign. Abier Hamidi, Author provided

I launched the post and the response was immediate, with replies and completed questionnaires and supportive comments coming in fairly rapidly to start with. But within a few days the response rate slowed down and still I wasn't anywhere near my response target. Then I realised my mistake. The initial post targeting women who are married, divorced, separated or widowed hadn't taken into account that the majority of women didn't tend to include their marital status on Facebook. This meant I was only reaching a small percentage of my target audience.

I removed the status and the reach shot up. In six months, my post reached 446,906 women in Libya. The stats were impressive: 59,422 engagements, 1,549 reactions and 703 comments. I received more than 1,000 completed questionnaires.

In the end, this showed me that while for certain things, wasta can yield results, for an issue such as this, Libyan women wanted to ensure their anonymity and the confidentiality of their responses. Social media, which doesn't mandate use of real names or photographs, was able to offer this in a way that extended family and friends, naturally, never could.

Appendix X Example of the Qualitative Analysis