Communication

A Female Clinical Epidemiology Profile of Nepali Women: A Call for Targeted Health Interventions-The Nepal Family Cohort Study

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A Female Clinical Epidemiology Profile of Nepali Women: A Call for Targeted Health Interventions-The Nepal Family Cohort Study

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Abstract: Women's health is a critical determinant of gender equality, economic development, and sustainable progress. This study provides a comprehensive clinical epidemiological overview of Nepali women using baseline data from the Nepal Demographic and Health Survey (NDHS), with a focus on non-communicable diseases, reproductive health, mental health, and gender-based violence. Despite notable advancements in policy—such as the legalization of abortion, implementation of reproductive health programs, and expansion of maternal health services—persistent challenges remain. These include inadequate menstrual hygiene, unsafe abortions, child marriage, adolescent pregnancies, and insufficient mental health support. Systemic disparities are particularly evident among women from marginalized and rural communities, who face intersecting barriers related to caste, geography, and socio-economic status. The findings emphasize the need for a life cycle approach to healthcare, inclusive service delivery, intersectional strategies, and integration of second-trimester abortion care into the Basic Health Care Package. While Nepal has made commendable progress in women's health policy, implementation gaps continue to undermine equity and access, highlighting the urgent need for targeted, gender-transformative interventions.

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Background

Nepal, a region in the Himalayas situated in the heart of South Asia, has faced many challenges that have shaped its socioeconomic and healthcare landscape for decades. It is a country known for its diverse geography and ethnic makeup. According to the preliminary results of the National Population Census 2021', Nepal has a population of 29.19 million, of which the majority (51%) are women [1]. According to the World Health Organisation (WHO) regional office for South-East Asia report, gender has a significant impact on both men's and women's health in Nepal, with significant variation based on geographical regions, with the western remote areas of Nepal having very negligible access to good healthcare. Biological variables interact with gender norms, roles, and relationships to affect people's susceptibility to illness and risks for poor health [2]. Nepalese are of Mongolian, West Asian, and Indian ancestry, including Indigenous people '*Adivasi Janajatis*',. Beyond this,125 distinct ethnic, religious, caste, and regional identity groups reside within Nepal [1].

Women's health in Nepal is shaped by intersecting factors, including geographical barriers, socio-cultural norms, limited access to healthcare, and persistent gender inequalities. Nepal has a patriarchal society with a caste system like many South Asian countries and women face intersectional discrimination and mistreatment. According to the State of Social Inclusion (NSIS) 2020 report [3], more than two-thirds of the populace believe that because women are 'less' than males,

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men should be in control and bring about discipline women. In addition, women with disabilities are particularly vulnerable to gender-based violence [4], which can be a significant issue among marginalised groups such as Madhesi, Dalits-and Indigenous women in Nepal, who make up 17.9% of the population. Their access to education, healthcare services, and economic resources is limited [5].

Despite improvements in maternal health indicators, many Nepali women continue to face challenges related to reproductive health, menstrual hygiene, and access to essential services across their life course. Women's health condition is further worsened due to political unpredictability, isolated location, challenging landscapes, inadequate infrastructure, a workforce with inadequate training, and weak regulatory and administrative policies, which are poorly implemented [6]. The 2015 earthquake and COVID-19 pandemic have further adversely impacted Nepal's Economic and women's well-being [7]. As a low-to-middle-income country (LMIC), Nepal continues to endeavour a demographic shift with declining fertility rates, from 4.6 births per woman in 1990 to 1.9 in 2022, and increasing life expectancy from 54 years (1990) to 71 years (2022) [8]. By 2050, Nepal's elderly population is expected to be more than double, raising concerns about poor healthcare infrastructure, a rise in non-communicable disease burden and lack of social support systems [9]. Urbanisation trends within Nepal have increased significantly from 17% in 2000 to over 40% in 2023, further impacting public health infrastructure, air quality and access to healthcare services [10].

After the nation transitioned to a multi-party democratic government in the early 1990s, women's health, especially reproductive health received greater attention. Since the International Conference on Population and Development in 1994 and the Fourth World Women's Conference in 1995, the Nepali government, in collaboration with the United Nations (UN, WHO and non-governmental organisations (NGOs) have worked cohesively on improving women's health strategies [11] signing over 22 international human rights instruments, such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Convention on the Rights of the Child (CRC), and participated in numerous international forums centred on women's rights and population development over the years. However, the adherence to these policies and guidelines is far from satisfactory [12].

Clinical Epidemiology Profile of Nepali Women (Figure 1)

Female Child Health

Unsafe and Sex-Selective Abortion

A complete strategy for ensuring that people's sexual and reproductive rights are respected includes safe abortion care. Nepal is one of the Asian countries that legalised abortion through the Safe Motherhood and Reproductive Health Rights Act of 2018. This law has made safe and legal abortion available upon request for up to 12 weeks of pregnancy and up to 28 weeks in cases of rape, incest, or foetal damage. Additionally, abortion is allowed at any stage of pregnancy if there is a risk to the woman's life, her physical or mental health, or a foetal abnormality in Nepal [13].

Nepal legalised abortion under specific circumstances in both public and private sectors with a complete prohibition on sex-selective abortions. However, research shows that regional variability exists and broadly has a high rate of sex-selective abortions because of the desire for male children, and abortion remains the awareness regarding safe and unlawful abortion practices [14]. A cross-sectional study [15] conducted in Nepal in 2010 after 8 years of legalisation of abortion found that only 44% were aware of abortion legislation among 527 Nepali women. Of the sample, approximately 89% used unsafe, ineffective or unknown substances for abortion, including 81% having medical abortions and 30% having surgical abortions using uncertified sources. These findings highlight the need for continued improvements in the provision and awareness of abortion services in Nepal.

Child Marriage

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A legal or informal relationship before the age of eighteen is referred to as child marriage. Compared to their counterparts who marry later in life. Child marriage and polygamy are illegal and punishable under the General Code. According to the National Penal Code (2017), child marriage is automatically nullified, while dowry and polygamy are criminalised [16]. Child marriage violates children's human rights by limiting their options, altering their life path, and placing them in danger of abuse and violence [17]. Nepal has one of the highest rates of child marriage in Asia, with over a third of young women aged 20-24 married by the age of 18, and just over one in ten by 15 years old [16].

Among underprivileged communities such as the Madeshi, Dalits and those in Karnali and the Province, early marriages are very common. The "*Gauna*" custom delays marriage consummation and frequently leads to females becoming "*baikalya*" married but not yet living with their husbands because of dowry problems or early death [18]. According to a UNICEF survey, one in six married females in Nepal reported experiencing physical abuse from their husbands, and one in three had experienced sexual assault. Married guys frequently labour to support the family, while married girls are ten times more likely than their unmarried friends not to attend school [16].

Adolescent Women's Health

Reproductive and Menstrual Health

Menstrual and reproductive health remains a significant concern. Many Nepali women face challenges due to cultural taboos surrounding menstruation, such as the practice of 'Chaupadi', despite the presence of laws. *Chaupadi,* a dangerous socio-cultural practice where menstruating girls are isolated in a shed. This practice poses serious risks such as snake bites and sexual assault [19]. According to the UN Harmful Practices Working Group study in Nepal, 89% of girls and women experience restrictions during menstruation, and 60% cannot sleep in the same house during this time [20]. Additionally, maternal mortality rates, although declining, remain higher than the global average due to limited access to maternity care services, antenatal care disparities and high rates of adolescent pregnancies [21]. The intersection of reproductive health with broader systemic issues, such as child marriage and lack of family planning education, further exacerbates poor health outcomes [22].

Adolescent Pregnancy

Adolescent pregnancy remains a significant public health issue in Nepal, where economic instability, gender equity, low birth weight, premature birth, and serious neonatal complications are commonly observed. Adolescent mothers are more likely to experience obstetric fistula, eclampsia, puerperal endometritis, uterine prolapse, pelvic pain, and systemic infections [21]. While global trends indicate a decline in teenage pregnancies, Nepal continues to report relatively high rates, disproportionately. According to the 2022 Nepal Demographic and Health Survey (NDHS), the adolescent pregnancy rate has decreased from 17% in 2016 to 14% in 2022. However, concerns persist as 10% of teenage mothers have had a live birth, 2% have experienced pregnancy loss, and 4% are currently pregnant [23]. Another study conducted in 2020 across 12 hospitals in Nepal has highlighted the intersection of adolescent pregnancy with socioeconomic disparities, revealing that two-thirds of births were from underprivileged ethnic groups and one-third of teenage mothers did not have formal education [21]. The 2018 UNICEF and UNFPA forum in Bangkok also emphasized that decreased protection mechanisms, family instability, and socio-cultural pressures and norms contribute to early marriage and adolescent pregnancy, further perpetuating poor maternal health outcomes [24].

Mental Health and Gender-Based Violence (GBV)

Nepali women experience a high prevalence of GBV, including intimate partner violence, which has profound implications for both physical and mental health where 22% aged 15-49 years'

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experience physical violence, and 7% encounter sexual violence at least once in their lifetime since the age of 15. However, approximately 66% of women who experience physical or sexual abuse do not seek help or report violence due to social stigma and fear of ostracization [25]. During 2023/2024 alone, Nepal law enforcement registered 2507 cases of rape and 460 cases of attempted rape. Cultural norms and mistrust in the justice system further contribute to the concealment of GBV cases.

Mental health issues are also widespread in Nepal, impacting approximately 3.9 million (2019). The national mental health survey 2020 reported that 4.2% of the population had alcohol-related issues, 3% had anxiety, 2.9% had major depressive disorder and post-traumatic stress disorder (PTSD) are widespread, yet mental health services remain under-developed and stigmatised. Alarmingly, **77% of those experiencing mental health challenges did not seek treatment,** largely due to stigma, lack of awareness, and inadequate healthcare infrastructure [26]. Suicide has emerged as a leading cause of death among women of reproductive age, contributing to **16% of deaths in this demographic** [27]. Suicide rates among Nepali women, particularly young women, are notably high, reflecting the urgent need for integrated mental health and psychosocial support systems. The intersection between GBV and mental health is particularly concerning. Women who have experienced GBV face a significantly higher risk of developing **depression, anxiety, post-traumatic stress disorder (PTSD), sexual dysfunction, and reproductive health complications**. Studies indicate that **97% of physical violence is perpetrated by family members**, whereas **91% of sexual violence is committed by non-family members**. The psychological trauma associated with these experiences has lasting consequences, exacerbating existing mental health conditions and reducing victims' ability to seek help [4].

Several barriers hinder progress in addressing GBV and mental health issues in Nepal. The **high rates of underreporting** suggest an urgent need for **awareness campaigns** to destigmatise violence and mental health disorders. Additionally, the **lack of access to mental health services, particularly in rural areas**, contributes to a widening treatment gap [28]. Integrating mental health care into **primary healthcare settings** can improve accessibility and early intervention. Strengthening **legal frameworks** to protect victims, ensuring **law enforcement sensitivity training**, and promoting **community-based support systems** can empower survivors and encourage them to seek justice and medical care.

Older Women's Health

Post-Menopausal Health

Menopause marks the end of women's reproductive years and poses significant emotional and physical health issues [29]. Due to cultural taboos and a lack of adequate knowledge of the condition, menopause is frequently not well understood or discussed throughout South Asia, including in Nepal. A study [30] conducted in Nepal among 2000 women over 40 years revealed that the majority of the participants (59.2%) had limited awareness about menopausal health issues, and they had hot flushes (29.2%), joint pains (36.8%), and irregular bleeding (29.1%). Studies have identified that the low rate of clinical consultations for menopausal symptoms may be due to cultural stigma, lack of awareness and trained healthcare professionals, and limited access to healthcare in rural areas [31]. Osteoporosis is a growing problem in Nepal as the population ages, especially among post-menopausal women. Osteoporosis is a serious public health concern that needs more attention, particularly in Nepal, where access to care and information is lacking, as it frequently goes undetected until a fracture occurs [32].

Burden of Non-Communicable Diseases (NCDs)

While communicable diseases remain a public health concern, the rising burden of NCDs among Nepali women is alarming despite their age. Cardiovascular diseases, hypertension, diabetes and cancer —particularly cervical and breast cancer—are leading causes of morbidity and mortality [33]. Studies suggest limited screening programs, lack of awareness, and sociocultural

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stigmas prevent early detection and timely intervention. Metabolic disorders, including polycystic ovary syndrome (PCOS) and gestational diabetes mellitus (GDM), are underdiagnosed and underreported, leading to long-term complications [34].

LGBTQ+ Women's Health

Nepal has made significant strides towards LGBTQ+ rights in South Asia, with the decriminalisation of same-sex relationships since 2007. The Nepali constitution includes specific laws (Article 18(3) and Article 12) prohibiting discrimination against sexual minorities. A 2017 Supreme Court ruling allowed individuals to state their gender identities, including the third gender, in official documents. Although same-sex acts are legal, same-sex marriages are not recognised. Transgender individuals can change their names and gender markers. This makes Nepal one of the few South Asian nations to acknowledge LGBTQ+ rights [35].

LGBTQI+ individuals in Nepal face greater reproductive, physical, and mental health risks, and healthcare services are often poorer than heterosexual [35]. According to the Situation Analysis of Sexual and Reproductive Health and Rights (SRHR) in the Context of the LGBTIQ Community in Nepal indicated that discrimination and living in poverty has meant that they have becomes commercial sex workers, increasing their risk of HIV exposure and vulnerability to physical and sexual assault [36]. According to the UNDP and USAID (2014) report, "Being LGBT in Asia: Nepal Country Report" has indicated that the mental health concerns, lesbian reproductive health difficulties, and transgender hormone use need more researches to understand the areas [37].

Challenges in Healthcare Accessibility and Gender-Inclusive Policies in Nepal

Despite these positive policy changes, women in Nepal continue to struggle with their problems. According to data from the 2011 Nepal Demographic and Health Survey (NDHS), 50.1% of women received antenatal care at least four times during pregnancy [38] and only 36% of births were attended by a skilled professional, as reported by the 2014 National Center for AIDS and STD Control (NCASC) data. However, recent data from the 2022 NDHS indicate notable progress: 80.62% of women now receive ≥4 ANC visits, and 79.37% of births occur in health institutions highlighting the reach of prenatal care in the country [23].

Postnatal care (PNC) coverage within two days of birth has significantly improved in Nepal, increasing from 45% in 2011 [38](NDHS 2011) to 62.56% in 2022 (NDHS 2022) [23]. However, there are still persistent disparities in maternal and new born care coverage among wealth status, geographic regions, and accessibility. According to the article published on *"Continuum of care for maternal and new born health services in Nepal: An analysis from demographic and health survey 2022"* by Achyut Raj Pandey and co-investigators showed that only 51.01% completed the full continuum of care, which includes ANC, institutional delivery, and PNC within two days of delivery. Among those wealthy women were nearly three times more likely (AOR: 2.98; 95% CI: 1.83–4.83) to complete the continuum compared to others, while those in the richer quintile also showed higher odds (AOR: 2.04; 95% CI: 1.41–2.94). Conversely, women with a birth order of three or more had lower odds (AOR: 0.50; 95% CI: 0.36–0.69) of completing all components [39].

Challenges in Healthcare Accessibility

Geographical barriers, economical constraints, and deeply ingrained patriarchal structures limit women's access to healthcare services. Rural women face the most significant challenges, with healthcare facilities often being distant and poorly equipped [6]. A study [40] conducted in the rural district of Nepal showed that only 28% of households utilized government health facilities due to insufficient medications (61%), distance (22%), staff unavailability (19%), and economic constraints (7%).

Lack of Regulations for Gender-Based Violence

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Nepal is one of the Asian countries which have a higher prevalence of GBV. Although the Nepal government has enacted Victim's Protection Act, 2075 BS(2018) in Nepal but lacks teeth due to lack of regulatory procedures. Existing GBV laws are also less effective because of gender-specific barriers, such as women being unaware of new regulations, their lack of access to services, and their concerns of stigmatisation, retaliation, and revenge [41]. This has further increased by inadequate funding, human resources, and infrastructure. Several harmful traditional behaviours are outlawed under the National Criminal Code 2074 (2017); however, IPV and other types of gender abuse are not included, is another drawback in Nepal's gender based violence legislation [41].

Challenges Faced by Marginalised and Indigenous Populations in Nepal in Healthcare Access

Marginalised and Indigenous community faces unique gender-specific issues such as gender-based violence, menstrual and reproductive health. Discrimination in healthcare settings based on gender, caste, and ethnicity continues despite legislative improvements in Nepal [5]. This significantly affects health seeking behaviour among indigenous and marginalised community women. Dalits, Madhesis, and indigenous peoples often report being treated disrespectfully, denied services, or longer waiting times taken during the consultation [3]. Out of pocket expenditure remains a barrier, particularly for Dalits, marginalised and indigenous populations [42]. Additionally, the lack of female healthcare providers in many rural areas further discourages women from seeking care. These cultural and language barriers and geographical inaccessibility limit their health seeking behaviour [43].

Call to Action

To address these disparities, a multifaceted approach is necessary:

- **Strengthening NCD prevention and screening:** Expand cervical and breast cancer screening programs, increase awareness about metabolic disorders, and integrate NCD management into primary care.
- **Improving menstrual and reproductive health services**: Eradicating harmful menstrual practices, expanding access to contraception, and investing in maternal healthcare infrastructure.
- **Enhancing mental health services:** Implementing community-based mental health programs, integrating mental health into primary care, and addressing gender-based violence through legal and healthcare reforms.
- **Ensuring equitable healthcare access:** Improving rural healthcare infrastructure, increasing female healthcare professionals, and implementing financial support schemes for vulnerable populations.

Understanding and addressing the female clinical epidemiology profile of Nepali women is crucial to advancing gender equity in healthcare. Evidence-based policies, community-driven interventions, and international collaborations are essential in creating a sustainable, inclusive healthcare system that prioritizes women's well-being in Nepal.

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