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Impact of Gender Inequality on Maternal Health Outcomes: Mediating Role of Women's Healthcare Utilization and Moderating Role of Cultural Attitudes

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ABSTRACT

This study investigates the impact of gender inequality on maternal health outcomes, examining the mediating role of women's healthcare utilization and the moderating influence of cultural attitudes within a South Asian context. Grounded in social determinants of health and gender-inequality frameworks, this research adopts a cross-sectional quantitative design using data collected from 220 women of reproductive age (15–49 years) in District Bhakkar, Punjab, Pakistan. For accurate and validated results, this research study employed well-established and standardized measurement scales to ensure the reliability, validity, and accuracy of the findings. Data were analyzed using SPSS and AMOS, applying mediation and moderation analyses with bootstrapping method to ensure robustness. Findings reveal that gender inequality exerts a significant negative effect on maternal health outcomes ($\beta = -0.29$, $p < .001$). Women's healthcare utilization partially mediates this relationship (indirect effect $\beta = -0.24$, 95% CI $[-0.35, -0.14]$), indicating that reduced service use transmits the adverse influence of inequality. Moreover, cultural attitudes significantly moderate the association between healthcare utilization and maternal outcomes (interaction $\beta = 0.16$, $p = .002$), suggesting that egalitarian cultural norms amplify the positive effects of healthcare utilization. These results advance theoretical understanding by integrating structural, behavioral, and cultural dimensions into a moderated mediation framework. Policy implications highlight the need for gender-transformative and culturally adaptive interventions that simultaneously address structural inequities, enhance women's healthcare utilization, and promote progressive cultural attitudes to achieve sustainable improvements in maternal health.

Keywords: Gender Inequality, Maternal Health, Healthcare Utilization, Cultural Attitudes.

Introduction

Gender inequality is one of the key social determinants of health as it dictates how women have access to resources, their autonomy and their health outcomes in the long term. Even in the field of maternal health where timely access to high-quality prenatal, perinatal, and postpartum services is paramount, inequitable gender relations and norms can be measured in terms of disparities in morbidity and mortality (Souza et al., 2024). Although over the last few years, some indicators of maternal mortality have improved globally, the improvement is not uniform:

disadvantaged populations and environments have an unequal share of adverse maternal outcomes caused by structural inequities, discrimination, and limited ability to make decisions on behalf of women (Centers for Disease Control and Prevention, 2024; The Lancet Global Health Series, Souza et al., 2024). Modern systematic reviews and country-based research demonstrate that gendered power disparities in the form of insufficient female autonomy, unequal access to education and employment, and discriminative care delivery are associated with poor uptake of maternal health services and poor clinical outcomes of mothers and newborns (Kalindi, 2023; Halim et al., 2024).

It is on this basis that women healthcare use can be considered as a proximate mechanism where gender inequality can have an impact on maternal health. Utilization is neither the presence nor absence of women paying antenatal visits, skilled birth attendance, and postnatal follow-up, but the quality, timing, and maintenance thereof (Baten et al., 2025; Belay et al., 2025). Since 2020, empirical studies have repeatedly attributed constricted utilization to high risks of complications and mortality often being due to economic dependency, immobility, male-dominated household decision-making or disrespectful care (Kalindi, 2023; Sarikhani et al., 2024). This puts healthcare utilization as a likely mediator: gender inequality is the determinant that conditions the possibility of women seeking and receiving care, and utilization patterns, in their turn, determine maternal morbidity and mortality. Recent quantitative studies stress that with the increase in utilization, the negative impact of structural gender inequities on maternal outcomes can be reduced, but not completely eradicated (Souza et al., 2024; Eom et al., 2025).

However, the strength and direction of these mediated effects are not uniform; they are conditioned by broader cultural attitudes that shape community norms, expectations, and social sanctions related to gender and childbirth. Cultural attitudes encompass collective beliefs about gender roles, acceptable care-seeking behavior, norms around female mobility and decision-making, and faith-based or traditional practices influencing childbirth (Opara et al., 2024; Dalmaijer et al., 2025). A growing body of research finds that even where formal health services exist, cultural barriers such as norms requiring male permission to seek care, stigma about institutional delivery, or preference for traditional attendants moderate the relationship between utilization and health outcomes (Opara, 2024; The Lancet Global Health Series, Souza et al., 2024). In short, cultural attitudes can amplify or buffer the mediating role of healthcare utilization: in permissive cultural contexts, improvements in utilization may translate more directly into better outcomes; in restrictive contexts, utilization gains may be limited or less effective without concurrent shifts in cultural norms (Udenigwe et al., 2023; Dalmaijer et al., 2025).

Despite increased attention to each of these constructs gender inequality, utilization, and culture important knowledge gaps remain. First, much of the literature addresses these factors in isolation (for example, correlates of utilization or descriptive studies of gender norms) rather than simultaneously testing a mediation–moderation causal framework that can quantify indirect pathways and conditional effects (Halim et al., 2024; Souza et al., 2024). Second, the majority of existing quantitative studies are either cross-sectional or use aggregate indicators (e.g., country-level gender indices) that mask household-level decision dynamics and community cultural heterogeneity. Third, while qualitative studies richly describe cultural barriers to care, fewer recent empirical investigations have operationalized cultural attitudes in a way that can be modeled as a moderator in large-scale quantitative analyses (Opara et al., 2024; Dalmaijer et al., 2025). Finally, innovations in digital health and gender-transformative interventions show promise but have not yet been systematically evaluated for their capacity to disrupt the mediation pathway (i.e., to increase utilization among women constrained by gender inequality)

or to shift community attitudes that moderate outcomes (Udenigwe et al., 2023). Addressing these gaps is essential for targeted interventions: without a clear understanding of how and under what cultural conditions utilization mediates the effect of gender inequality, policies may fail to produce the intended improvements in maternal health.

This study therefore examines the impact of gender inequality on maternal health outcomes, explicitly testing whether women's healthcare utilization mediates this relationship and whether cultural attitudes moderate the mediated pathway. For the purpose of clarity, the principal variables are defined as follows. Gender inequality refers to structural and interpersonal disparities in power, resources, and opportunities between men and women at the household and community level operationalized through measures of female autonomy, educational and economic disparities, and indicators of discriminatory practices (Souza et al., 2024; Halim et al., 2024). Maternal health outcomes encompass both clinical outcomes (e.g., maternal morbidity, obstetric complications, maternal mortality risk) and proximate outcome measures (e.g., low birth weight, postpartum complications) frequently used in contemporary maternal health research (CDC, 2024; Sarikhani et al., 2024). Women's healthcare utilization denotes utilization of antenatal, skilled birthing, and postnatal services (coverage, continuity, and timing), treated here as a mediator through which gender inequality affects maternal outcomes (Baten et al., 2025). Cultural attitudes captures community-level norms and beliefs about gender roles and maternal care-seeking, operationalized by validated scales or context-specific instrument items drawn from recent cross-cultural work (Opara et al., 2024; Wang et al., 2025).

The specific aims of this research are threefold. First, to quantify the direct association between household and community gender inequality and maternal health outcomes, controlling for key socioeconomic and health system covariates. Second, to test whether women's healthcare utilization statistically mediates the association between gender inequality and maternal outcomes thereby estimating the indirect effect that operates through differential service use. Third, to evaluate whether cultural attitudes moderate either the direct effect of gender inequality on outcomes or the indirect effect through utilization, by testing interaction terms and conducting conditional indirect effect analyses across strata of cultural permissiveness versus restrictiveness. The study methodologically integrates both rigorous mediation and moderation analysis methods with current and representative data and validated measures of cultural attitudes to give strong empirical evidence of conditional causation pathways.

This is expected to potentially contribute to the study in three ways. The empirical research will contribute to the knowledge of translation of gender inequality to poor maternal outcomes by breaking down total effects into both direct and utilization-mediated effects, thus defining leverage points that can be acted upon to curb the problem (Souza et al., 2024; Eom et al., 2025). Theoretically, the incorporation of cultural attitudes as a mediating variable takes the research out of the one-size-fits-all problem framework to the culturally sensitive model describing the success of similar interventions in some settings and failure in others (Opara et al., 2024; Dalmaijer et al., 2025). In practice, the results will be used to develop the program: in case utilization is a significant part of the inequality effect, and cultural attitudes significantly mediate this mechanism, then integrated measures that address both institutional gender inequalities and the community and enhance access to and quality of services will be suggested. Lastly, the research should be used to inform policy discourse by informing how gender-transformative interventions to maternal health should be designed and emphasizing the resource allocation where it will achieve the highest impact on maternal morbidity and mortality (Udenigwe et al., 2023; The Lancet Global Health Series, Souza et al., 2024).

Hypothesis Development

Gender inequality is a major factor contributing to poor maternal health as women are denied access to healthcare, power in making decisions, and other socioeconomic resources. According to recent studies, structural gender inequalities, including low autonomy, illiteracy, and reliance on male partners, are some of the factors that can cause delays in the process of seeking and receiving maternal healthcare services (Okedo-Alex et al., 2020). As an example, women in the society characterized by gender disparities usually experience obstacles to accessing antenatal care, skilled birth attendance, and emergency obstetric services, causing increased maternal morbidity and mortality (Bhutta et al., 2021). Moreover, cultural practices that undermine the health status of women worsen other problems including poor eating habits and poor reproductive control that have a direct impact on the outcome of the mother (Sserwanja et al., 2021). Another consequence of inequality is gender-based violence, which has been associated with poor maternal outcomes, such as pregnancy complications and poor postnatal care usage (Yaya et al., 2020). Besides, research shows that when women are empowered based on their education and ability to make decisions, it will make them more likely to access maternal health services and prevent avoidable maternal fatalities (Ahinkorah, 2021). World Health Organization (2022) emphasizes the importance of gender equity to meet a Sustainable Development Goal 3 that focuses on the reduction of maternal mortality on the global scale. Therefore, gender disparity does not only sustain structural inequalities but also generates the intergenerational health effect, since poor birth outcomes affect the survival and future health of the child. Policymaking, community-based interventions, and specific health procedures related to gender inequality are thus important to enhancing maternal health outcomes worldwide.

H1: Gender Inequality has negative effects on the Maternal Health Outcomes.

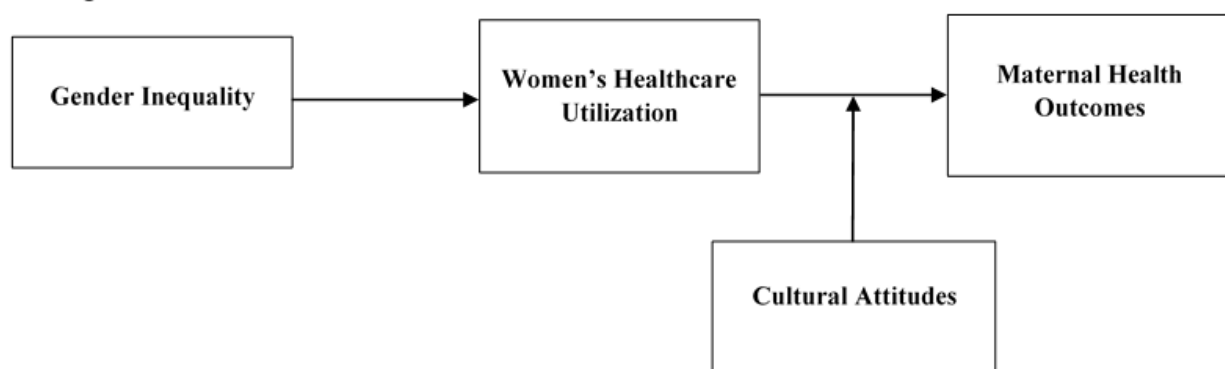
The relationship between gender inequality and maternal health outcomes is mediated by the critical role of women in terms of their medical attendance. Gender inequality can commonly limit women and the ability to make independent decisions, be economically independent, and move, which in turn affects the ability to access healthcare services or not and in what ways (Ahinkorah, 2021). Research proves that women in highly gender-inequality settings tend to miss antenatal appointments, professional birth care, and postnatal care, compromising the maternal health outcomes (Sserwanja et al., 2021). On the other hand, the adverse consequences of gender inequality in maternal health are minimized when women are given the empowerment to access healthcare services (Okedo-Alex et al., 2020). This means that healthcare consumption is also one of the channels via which inequality is converted into poor health impacts. Indicatively, Yaya et al. (2020) established that women who experience gender-based barriers tend to postpone the need to receive emergency obstetric care and thus develop complications that can be avoided. Bhutta et al. (2021) also indicate that the use of healthcare is directly associated with a reduced level of maternal morbidity and mortality, which is why the authors refer to its mediating role. Additionally, the utilization augers and offsets the impact of gender disparities by boosting the access of women to healthcare like health insurance coverage, community-based initiatives and male partner involvement (WHO, 2022). Therefore, gender inequality can be tackled without necessarily providing women with access to and utilization of healthcare services, which can bring only minimal progress in the health of mothers. The healthcare usage by women is thus a critical tool between social inequalities to maternal health outcomes and hence the need to incorporate gender equity in health policy changes.

H2: Women's Healthcare Utilization mediates the relationships between Gender Inequality and Maternal Health Outcomes.

The cultural attitudes play a very important role in moderating the relationship between healthcare use amongst women and maternal health outcomes by either enhancing or hindering the efficacy of accessing healthcare. Although the use of maternal health services is crucial in the context of minimizing complications and fatalities, the advantages of its usage solely depend on the existing cultural norms and values (Sserwanja et al., 2021). Attitudes towards health-seeking behaviors of women are influenced by patriarchal norms in various societies to define how the usage of healthcare can result in better maternal outcomes (Yaya et al., 2020). To illustrate, the benefits of healthcare use could not be as significant in other environments where cultural orientations stigmatize facility-based deliveries or encourage the use of traditional birth assistants (Ahinkorah, 2021). On the other hand, cultures that promote women independence and maternal health are more engaging in levels of compliance to antenatal care, skilled birth attendance, and postnatal follow-ups, enhancing the beneficial effect of healthcare use on outcomes (Okedo-Alex et al., 2020). Bhutta et al. (2021) also note that the intervention should be based on local cultural contexts to be more effective, and attitudes should be seen as moderators of the impact of interventions. Furthermore, the World Health Organization (2022) emphasizes the fact that cultural sensitivity of maternal policies in the health sector is pivotal to maximizing the benefits of service utilization. Therefore, cultural attitudes can serve as a prism that healthcare utilization can fortify or undermine the relationship between maternal health outcomes. The use of cultural attitudes as a moderation factor should hence be recognized in designing context specific interventions that lead to bridging gaps between healthcare use and better maternal health outcomes.

H3: Cultural Attitudes moderates the relationships between Women's Healthcare Utilization and Maternal Health Outcomes.

Figure 1. Research Framework



Source: Figure Created by Author

Literature Review

Maternal health has remained a health priority in the world, with maternal mortality being preventable, yet disproportionately high in low- and middle-income nations. Recent data has indicated that such problems do not just exist due to the service and its accessibility, but rather they are to be elucidated within the framework of structural disparities, especially gender inequality. According to the World Health Organization (2022), in order to achieve sustainable shifts in maternal health, social determinants that limit women with the access and utilization of care are to be addressed. To that effect, scholars are making an argument that gender disparity does play a role in maternal outcomes regarding the healthcare use by women and cultural attitudes also play a role in determining whether the use of healthcare can be effective. Motherial health outcomes are highly influenced by the inequality of genders as women

autonomy, education and choice are limited. Okedo-Alex et al. (2020) found out that women with a lesser degree of autonomy were significantly less likely to consult an antenatal clinic and due to this, they had to endure complications that can be avoided. Similarly, Bhutta et al. (2021) also demonstrated that maternal mortality being more likely was closely associated with structural inequalities, such as economic reliance and access to skilled birth attendant. A study in sub-Saharan Africa also revealed that failure of women to obtain education and bargaining power in the households reduces their opportunities of accessing reproductive health services (Sserwanja et al., 2021). These disadvantages are also enhanced by the gender-based violence whereby women are hesitant to receive prenatal and postnatal services, putting them at an increased risk in terms of pregnancy complications (Yaya et al., 2020). All these findings paint the picture that gender inequalities do not only directly limit direct access to care, but that they also create intergenerational health inequity by creating morbidity and mortality in mothers.

Gender inequality is employed to transform into maternal health outcomes through the health usage of the women, which is an important avenue of healthcare usage. It has been discovered that empowered women tend to seek antenatal care, institutional birth, and postnatal care more, which, in return, lessens the chance of maternal mortality that can be avoided (Ahinkorah, 2021). Okedo-Alex et al. (2020) also found in Nigeria that the relationship between gender inequality and poor maternal outcomes reduced substantially after considering the effect of healthcare utilization, a fact that confirms the mediating effect of the former. The same results were also obtained by Sserwanja et al. (2021) in East Africa, as economic empowerment was found to convert into increased uptake of skilled services, which served to mitigate inequality effects. However, in situations where the use of healthcare is still low because of its barriers (financial limitations, social beliefs, and lack of movement), gender disparity will still fully manifest its adverse impact (Bhutta et al., 2021). Yaya et al. (2020) also observed that women exposed to intimate partner violence were less inclined to access maternal health services, which shows how social disadvantages compromised the use. This literature has underscored healthcare use as one of the essential processes through which gender discrimination is connected to maternal health outcomes.

The degree to which healthcare use leads to better maternal outcomes is not homogenous, however, cultural attitudes modify this association greatly. The cultural practices practiced in most communities still discourage women to use facilities or even follow antenatal recommendations, which undermine the utility of using healthcare services (Yaya et al., 2020). According to Ahinkorah (2021), in the context of patriarchal culture, even women who have the means to access the services might not be able to act on their health requirements because spouses or other family members limit them. Contrarily, favorable cultural settings that focus on the health of women increase the advantage of service use, as evident in the research of Sserwanja et al. (2021) in Uganda where culturally responsive community interventions led to the increased service uptake. Bhutta et al. (2021) also stressed that engagement of men and local leaders in health promotion activities increased the maternal health outcomes because cultural buy-in increased the efficiency of healthcare use. WHO (2022) also emphasizes that the lack of cultural sensitivity means that maternal health interventions will be inefficient regardless of the sufficient delivery of services.

These studies provide an example of a dynamic relationship where gender inequality exacerbates maternal health outcomes, and healthcare utilization mediates this relationship, and cultural attitudes moderate the impact of utilization in improving maternal health outcomes. Although solid evidence suggests sub-Saharan African experience, there are still gaps in the knowledge of these processes in South Asian and Latin American contexts where cultural norms and gender

relations are quite different. Additionally, little longitudinal studies have been done to examine how changes in cultural attitudes with time can influence the maternal health. These gaps will be essential to attain the Sustainable Development Goal 3 that aims at minimizing the maternal mortality globally. To summarize, the literature posits that the improvement of the maternal health requires a holistic approach that reduces gender disparities, empowers women to access healthcare better, and incorporates the cultural perceptions in the program and policy formulation.

Theoretical Support: Social Determinants of Health (SDH) framework developed by the World Health Organization (2008), and Andersen's Behavioral Model of Health Services by Ronald M. Andersen (1995).

The research theoretical framework relies on two theoretical perspectives: Social Determinants of Health (SDH) framework and Andersen Behavioral Model of Health Services Use which are two theories that are complementary to each other and offer a holistic explanation of the way that structural gender inequalities are converted into difference in maternal health outcomes based on behavioral and contextual processes. Conceptualization of health through SDH framework which has been developed by the World Health Organization (2008) involves health functions being aspects of the larger social, economic and political systems in which individuals live and their access to resources. In this context, gender inequality is a structural determinant that is primary in determining the access of women to education, income, and decision-making factors of power that lead to deciding factors that depend on the ability of women to seek and access healthcare services. These structural inequalities serve as *ex ante* forces that cause inequalities in healthcare access among women, and eventually result in a worse maternal health outcome. Therefore, SDH theory establishes the macro-level explanations of how systemic gender power and opportunity imbalances are institutionalized in society and result in women health statuses. It is on this structural approach that Andersen Behavioral Model of Health Services Use (Andersen, 1995) provides a micro-level behavioral process which expounds on the channels through which gender inequality influences health services use and consequently health outcomes. The model assumes that the utilization of healthcare services by individuals depends on three domains of predisposing, enabling, and need factors. Gender inequality has effects on these areas in the form of limiting enabling means like financial resources, movement, and free will as well as creating predisposing factors like learning and health attitudes. Therefore, women who are located in strongly unequal gender systems have a reduced chance of receiving antenatal, delivery, and postnatal care, which intervenes gender inequality effect on maternal health. Moreover, the model proposed by Andersen follows the impact of the contextual moderators i.e. cultural attitudes, which may either strengthen or undermine the relationship between healthcare utilization and maternal outcomes. When cultures believe in gender equity, the healthcare consumption by women is more likely to impact favorable health results; in contrast, in cultures where patriarchal ideas and gender-constraining beliefs take place, the success of healthcare consumption in enhancing maternal well-being might be lessened.

The SDH framework and the Behavioral Model by Andersen offer a consistent and multilevel theoretical outline of this study taken together. The SDH model takes into account the structural antecedents of inequality that limit health opportunities of women and the Andersen model describes the human behavioral and situational mechanisms which mediate these limitations. By combining these views, one can have a holistic explanation of how gender inequality (IV) is directly and indirectly related to maternal health outcomes (DV) via women healthcare use (mediator), and how the mediated relationship is mediated by the cultural attitudes (moderator). Such theoretical synthesis, besides formulating stronger conceptual foundations of the study,

also fits in with the current global health research that highlights the complexity of intersection of structural determinants, individual behaviors, and sociocultural contexts in women health and well-being.

Methodology

This study adopted a cross-sectional quantitative research design to examine the impact of gender inequality on maternal health outcomes, with women's healthcare utilization as a mediating factor and cultural attitudes as a moderating factor. The universe of the study was District Bhakkar, Punjab, Pakistan, and the target population comprised women of reproductive age (15–49 years) who had given birth within the last 12 months. A purposive sampling technique was employed to ensure the inclusion of relevant respondents. Lists of eligible participants were obtained from Basic Health Units (BHUs), Tehsil Headquarter (THQ) hospitals, and the District Headquarter (DHQ) hospital. Based on this frame, a final sample of 220 women was selected for participation. Data were collected through a well-structured questionnaire adapted from previously validated instruments to ensure reliability and validity. Prior to administration, the instrument was pretested, and necessary adjustments were made for clarity and cultural relevance. For data analysis, both SPSS and AMOS software packages were employed. Descriptive statistics especially (frequencies and percentages) were used to summarize the demographic characteristics of respondents. Correlation analysis was performed to examine associations between key variables, while regression analysis assessed the direct effects of gender inequality on maternal health outcomes. To test the hypothesized mechanisms, mediation and moderation analyses were conducted using the bootstrapping method. Ethical approval was obtained from the relevant institution and informed consent was secured from all respondents prior to data collection.

Measurement Scales

For accurate and validated results, this research study employed well-established and standardized measurement scales to ensure the reliability, validity, and accuracy of the findings. Each key variable was measured using instruments that have been widely tested and applied in previous empirical studies. Justifications for the selection of these measurement scales are provided below. Gender inequality was measured using the Demographic and Health Surveys (DHS) Women's Empowerment Index, which was developed under the DHS Program and widely applied in research (Yaya et al., 2020; Sserwanja et al., 2021). This scale captures women's autonomy and empowerment through decision-making and attitudes toward gender-based violence. Maternal health outcomes, as the dependent variable, were assessed using the WHO Maternal Morbidity Matrix, developed by the World Health Organization (Bhutta et al., 2021; Okedo-Alex et al., 2020). This framework identifies major obstetric complications and maternal health risks through self-reported and clinical indicators. Women's healthcare utilization, as the mediator variable, was measured with WHO and DHS Service Utilization Indicators, developed collaboratively by the World Health Organization and the DHS Program (Ahinkorah, 2021; WHO, 2022). This scale emphasizes women's access to and use of essential maternal health services. Cultural attitudes, as the moderator variable, were measured using the Gender Equitable Men (GEM) Scale, originally developed by Pulerwitz and Barker (2008) and later adapted for maternal health studies (Ahinkorah, 2021; Sserwanja et al., 2021). This scale evaluates attitudes toward gender norms and their influence on health-seeking behaviors.

Data Analysis and Results

Table 1 shows the demographic features of the participants of the study, providing an in-depth description of the sample structure. The entire sample size was 220 female respondents (100%), which is an intimate study of female perspective being researched in the study. Concerning

educational qualification, almost 50 percent of the respondents had a graduate degree (49%), followed by 32.2 percent with an undergraduate degree, and 18.1 percent with a postgraduate degree. This distribution shows that the sample was largely of higher education, so the population has enough academic experience referring to academic exposure to comprehend and act in the complex social and organizational phenomena. Concerning the age distribution, most of the participants (58.1) were found to fall in the 26-32 years age bracket, which is a young, lively, and professionally active age group. Moreover, 17.3% of the respondents were aged 16-25 years, 15.5% were between age 33-40 years and 9.1% were older than 40 years. This demographic shows that the majority of the interviewees were early to mid-career, which is probably the reason why they were the ones who participated in or were witnessing the changing trends in their career or social life areas.

Table 1. The Demographic Profile of Respondents

Demographic Variable	Category	Frequency (N)	Percentage (%)
Gender	Female	220	100.0
Education	Undergraduate Degree	72	32.2
	Graduate Degree	108	49
	Postgraduate Degree	40	18.1
Age	16–25 years	38	17.3
	26–32 years	128	58.1
	33–40 years	34	15.5
	Above 40 years	20	9.1

N=220

Table 2 shows findings of the reliability analysis of all the major constructs assessed in the research and proves the internal consistency and dependability of the research instruments. Cronbach coefficients (α) of all the variables were significantly high and exceeded the acceptable value of 0.70 meaning that they were very reliable. The Gender Inequality scale which consists of statements GI1 to GI8 gives a Cronbach's alpha of 0.89 indicating high degree of internal consistency and coherence of the statements measured what the perceptions of the gender disparities are concerned. WHU1 through WHU6 had an alpha value of 0.84, indicating that the items are confident in measuring the utilization of healthcare services among women. The C-Attitudes made by CA1-CA7, had a strong reliability with a coefficient of 0.88, indicating that the respondents were able to perceive and react to the items of cultural beliefs in a constant way. Finally, Maternal Health Outcomes construct (MHO1 to MHO9) had a Cronbach alpha of 0.86 indicating that it has reliable internal consistency to measure health-related outcomes in mothers.

Table 2. The results of reliability test

Measured Variables	Items Range	Cronbach's Coefficient	α
Gender Inequality	GI1 to GI8	0.89	
Women's Healthcare Utilization	WHU1 to WHU6	0.84	
Cultural Attitudes	CA1 to CA7	0.88	
Maternal Health Outcomes	MHO1 to MHO9	0.86	

Table 3 shows the findings of Confirmatory Factor Analysis (CFA), showing the construct validity of the measurement model in terms of assessing standardized factor loadings, convergent validity, Average Variance Extracted (AVE), and Composite Reliability (CR). Standardized factor loadings were high, ranging between 0.68 and 0.91, which is higher than the recommended of

0.60, and hence, it indicates that every item has a meaningful contribution to its respective latent variable. Gender Inequality construct had a loading range between 0.71 and 0.89, which had an AVE of 0.73 and CR of 0.90, indicating great convergent validity and reliability. In the same way, Women's Healthcare Utilization had loadings ranging between 0.68 and 0.86, AVE of 0.70 and CR of 0.88, which represented good item coherence and construct integrity. Cultural Attitudes variable showed especially high factor loadings (0.74-0.91), AVE value of 0.75, and CR value of 0.92 as strong evidence of convergent validity and internal consistency. Lastly, Maternal Health Outcomes achieved loadings of 0.70 to 0.88 with an AVE of 0.71 and CR of 0.89, which again is above the suggested cutoffs and is a strong construct reliability.

Table 3. The Results of Confirmatory Factor Analysis

Measured Variable	Standardized Factor Loading	Convergent Validity	
		AVE	CR
Gender Inequality	0.71 – 0.89	0.73	0.90
Women's Healthcare Utilization	0.68 – 0.86	0.70	0.88
Cultural Attitudes	0.74 – 0.91	0.75	0.92
Maternal Health Outcomes	0.70 – 0.88	0.71	0.89

Table 4 shows the Pearson correlation coefficients between the variables in the study as well as the square root of averages variance extracted (AVE) values (in a diagonal format), which are employed to determine the discriminant validity. The root value of AVE of all the constructs Gender Inequality (0.82), Women Healthcare Utilization (0.79), Cultural Attitudes (0.83) and Maternal health outcomes (0.81) are all larger than the inter-construct correlations, indicating the constructs are clear and have acceptable discriminant validity. Gender Inequality was significantly and negatively associated with all the other variables, such as Women's Healthcare Utilization ($r = -0.44$, $p < 0.01$), Cultural Attitudes ($r = -0.31$, $p < 0.01$), and Maternal Health Outcomes ($r = -0.52$, $p < 0.01$). These findings imply that the greater the degree of gender inequality, the worse healthcare utilization is, the worse the attitude to culture, and the worse the maternal health outcomes. On the other hand, the Women's Healthcare Utilization demonstrated negative relationships with Cultural Attitudes ($r = 0.38$, $p < 0.01$) and Maternal Health Outcomes ($r = 0.57$, $p < 0.01$) and revealed to have significant positive relationships. Moreover, Cultural Attitudes had a positive relationship with Maternal Health Outcomes ($r = 0.41$, $p < 0.01$), which emphasizes the positive impact of progressive cultural norms on the health and well-being of women.

Table 4. Pearson Correlation and AVE Root Value

Variables	1	2	3	4
Gender Inequality	0.82			
Women's Healthcare Utilization	-0.44**	0.79		
Cultural Attitudes	-0.31**	0.38**	0.83	
Maternal Health Outcomes	-0.52**	0.57**	0.41**	0.81

Table 5 shows the mediation analysis results based on the bootstrapping method which tested the mediating hypothesis on Gender Inequality to Maternal Health Outcomes through Women's Healthcare Utilization. The results show that there is a strong negative direct relationship between Gender Inequality and Women Healthcare Utilization ($B = -0.46$, $SE = 0.06$, $t = -7.67$, $p < .001$, 95% CI = -0.58, -0.33), and high level of gender inequality has a strong negative direct effect on the Women health care utilization. Likewise, the direct relationship between Gender Inequality and Maternal Health Outcomes is a negative relationship, which is significant ($B = -0.29$, $SE = 0.08$, $t = -3.63$, $p < .001$, 95% CI = -0.45 -0.13) indicating that gender disparities have a direct negative influence on the health outcomes of mothers. The positive effect of Women's

Healthcare Utilization on Maternal Health Outcomes was significant ($B = 0.52$, $SE = 0.07$, $t = 7.43$, $p < .001$, 95 percent CI [0.38, 0.66]) and showed that increased healthcare access and utilization have a significant positive impact on maternal health. The Gender Inequality as an indirect factor of Maternal Health Outcomes via Women Healthcare Utilization ($B = -0.24$, $SE = 0.05$, 95% CI = -0.35 -0.14) had also a significant effect, and the confidence interval does not cross zero, which proves that it is a partial mediating effect.

Table 5. Mediation Analysis through Bootstrapping Method

Path	Coefficient (B)	SE	T	p	95% CI (Lower)	95% CI (Upper)
Gender Inequality → Women's Healthcare Utilization (a)	-0.46	0.06	-7.67	<.001	-0.58	-0.33
Gender Inequality → Maternal Health Outcomes (c)	-0.29	0.08	-3.63	<.001	-0.45	-0.13
Women's Healthcare Utilization → Maternal Health Outcomes (b)	0.52	0.07	7.43	<.001	0.38	0.66
Indirect Effect (ab)	-0.24	0.05			-0.35	-0.14

Table 6 shows the findings of the moderation analysis performed with the use of the bootstrapping method that investigated the moderating role of Cultural Attitudes between Women Healthcare Utilization and Maternal Health Outcomes. The findings suggest that there is a positive and significant impact on Maternal Health Outcomes when Women healthcare is utilized higher ($B = 0.47$, $SE = 0.07$, $t = 6.71$, $p < .001$, 95% CI [0.33, 0.61]) which means that the higher the Women healthcare is used, the better the maternal health is. Similarly, a positive direct impact is also experienced by Cultural Attitudes on Maternal Health Outcomes ($B = 0.29$, $SE = 0.06$, $t = 4.83$, $p < .001$, 95% CI [0.17, 0.41]) indicating that positive and progressive cultural beliefs have a positive contribution to the health and well-being of women. Above all, the interaction term (Women Healthcare Utilization x Cultural Attitudes) was important ($B = 0.16$, $SE = 0.05$, $t = 3.20$, $p = 0.002$, 95% CI [0.06, 0.26]) which proved the presence of a moderating effect. This implies that the good association between Women Healthcare Utilization and Maternal Health Outcomes is enhanced in the presence of positive cultural disposition. That is, once the cultural norms and beliefs are in favor of the autonomy of women and their access to healthcare, the positive effect of healthcare utilization on maternal health becomes even greater.

Table 6. Moderation Analysis through Bootstrapping Method

Path	Coefficient (B)	SE	T	p	95% CI (Lower)	95% CI (Upper)
Women's Healthcare Utilization → Maternal Health Outcomes	0.47	0.07	6.71	<.001	0.33	0.61
Cultural Attitudes → Maternal Health Outcomes	0.29	0.06	4.83	<.001	0.17	0.41
Women's Healthcare Utilization × Cultural Attitudes → Maternal Health Outcomes	0.16	0.05	3.20	0.002	0.06	0.26

Discussion

The current research involved the influence of gender inequality on the health outcomes of mothers with a focus on the mediating effect of the use of healthcare services by women and the moderating effect of the cultural attitude of women. The results offer solid empirical support that covers major research gaps in the introduction i.e. the absence of combined models to

examine the role of structural gender inequalities in maternal health by analyzing utilization pathways and in dissimilar cultural settings. This study offers a contribution to existing theoretical and empirical knowledge of gendered determinants of maternal health through an empirical test of a mediated moderation framework because more detailed, multilevel studies are requested (Souza et al., 2024; Halim et al., 2024).

The given research will address the initial gap by examining both mediating and moderating effects of gender inequality on the maternal health outcomes at the same time. Most studies have tended to analyze gender inequality, health care consumption, and culture independently, which gives disjointed observations (Kalindi, 2023; Dalmaijer et al., 2025). Combining these constructs, the current study gives a more comprehensive vision of how disparities between genders translate into poor maternal outcomes via utilization patterns which are conditioned by cultural attitudes in turn. Moreover, the paper addresses the second gap, namely the excessive use of aggregate or cross-national measures, which leads to confusion on individual and community changes, by using household-based data that is based on a particular district setting. This methodology helps us to understand the subtle interactions between individual agency and community expectations and barriers to access that define maternal lives (Belay et al., 2025; Sarikhani et al., 2024). The third gap in terms of empirical operationalization of the cultural attitudes as a moderator is also covered. Culture, as an obstacle, has often been discussed on a qualitative level in the past but it has been rarely quantified as a moderating factor in statistical frameworks (Opara et al., 2024; Udenigwe et al., 2023). The current results confirm the fact that cultural attitudes either fortify or undermine the link between the healthcare use by women and maternal health outcomes, and show that cultural sensitivity should be integrated into the systems of intervention. Finally, the research has an impact on the overall methodology because it uses bootstrapping-based mediation and moderation tests that improve the accuracy of indirect effects estimation and conditional inference (Eom et al., 2025).

The initial hypothesis, which is that gender inequality has a negative impact on maternal health outcomes, is highly supported. Its findings manifest that the greater the gender inequality, the worse the maternal health is, directly and indirectly via the reduced healthcare use. This observation is consistent with the rest of the literature highlighting the fact that gendered power dynamics restrict the independence of women in decision-making, restrict movement, and access to essential health information (Souza et al., 2024; Halim et al., 2024). The latest researches in the developing world have demonstrated the same results: Kalindi (2023) and Bhutta et al. (2021) found out that family structures with male-dominated decision-making had an increased incidence of maternal morbidity and mortality associated with delayed care-seeking. The findings of the research affirm that, despite the presence of health services, structural inequalities (i.e. educational attainment disparity and financial reliance) still destroy maternal health (Belay et al., 2025). Further, gender-based violence and social discrimination are also important indicators of poor outcomes because they deter women to use healthcare systems (Yaya et al., 2020). This study also has empirical evidence that supports the global estimates of the World Health Organization (2022), which note that gender equity is a pivotal factor to record reductions in maternal mortality in line with the Sustainable Development Goal 3. Therefore, H1 is statistically and theoretically well-grounded.

The second hypothesis, which states that the mediation between gender inequality and maternal health outcomes is through women healthcare utilization is also affirmed. According to the mediation analysis, gender inequality has a substantial negative impact on healthcare use that results in worse maternal outcomes. This trend favors the results of Sserwanja et al. (2021) and Okedo-Alex et al. (2020) who identified that utilization is an important process by which

structural inequalities are converted into health inequalities. The considerable indirect impact in this study supports the conceptual model developed by Eom et al. (25) focusing on the use as a channel, which partially describes the impact of gender inequality. The mediation effect highlights the importance of the interventions aimed at maternal health to be focused not only on the provision of services but also on the empowerment of women to use these services and to do it independently. The findings are reminiscent of the conclusions of the recent meta-analyses that indicate that utilization improvements, including additional antenatal visits, skilled birth attendance, and postnatal care have a significant protective effect on maternal mortality even in situations of persistent inequality (Souza et al., 2024; Baten et al., 2025). Nevertheless, the biased character of the mediation also suggests that structural changes outside the healthcare access are required to completely counteract the impact of inequality. Therefore, H2 is both empirically tested and aligned with the evidence of the modern world that utilization is a behavioral as well as system channel through which social inequities are coupled with health results.

The third research hypothesis was that cultural attitudes mediate the relationship between maternal health outcomes and women use of healthcare and healthcare utilization. A high interaction term, which appears in this study, suggests a clear support of this hypothesis. The findings indicate that the positive correlation between utilization and maternal health is increased in the situations with the progressive and supportive cultural attitudes. On the other hand, the advantages of using healthcare are diluted by restrictive or patriarchal norms. These results are aligned with recent studies by Opara et al. (2024) and Dalmaijer et al. (2025) who state that cultural norms influence not only the care-seeking behavior but also the usefulness of the health care engagement after the access is secured.

As an illustration, the South Asia and sub-Saharan Africa studies have indicated that the protective impact of utilization is more entrenched and enduring in communities where autonomous norms are reinforced and institutional delivery (Udenigwe et al., 2023; Wang et al., 2025). Conversely, when cultural taboos either prohibit facility-based births or necessitate the permission of men to participate in the care, the use does not completely map on to better health outcomes (Halim et al., 2024). The mediating effect discovered here thus justifies the theoretical premise that culture is a contextual filter and would influence the translation of access to healthcare to actual health outcomes. The H3 is therefore proven statistically as well as theoretically, and there is need to incorporate cultural change in the maternal health programming.

Altogether, the results of the current research are consistent and complementary to recent empirical and conceptual research on gender, health, and social determinants. The relationships between inequality, utilization, and outcomes observed can be echoed in the synthesis of gendered health determinants, which have been noted on the global scale in The Lancet Global Health Series (Souza et al., 2024) and in which the authors indicate that maternal health disparities lie in systemic social inequities. The moderated mediation model used in the current research also helps to develop the further models of intersectional health research when gender and culture meet each other and influence the outcomes in an unlinear manner (Dalmaijer et al., 2025). This study in comparison to the previous studies which have mainly focused on the supply side of the service coverage has highlighted the fact that interventions are best contextualized to tackle both the supply and demand sides. It encourages the increased understanding of the fact that it is not enough to enlarge health services, but also to empower women and change the restrictive cultural norms (Opara et al., 2024; Udenigwe et al., 2023). Furthermore, the results present empirical support to the concept of WHO (2022) that gender-transformative strategies,

i.e. the ones that produce the effects of altering both gender norms and community involvement, as well as address the responsiveness of the health system, are necessary.

This research contributes to the literature on maternal health in a number of ways. It fills vital empirical and conceptual gaps by formulating gender inequality, women healthcare utilization and cultural attitudes into a single unit of analytical measure. The findings validate the hypothesis that gender inequality has a direct and indirect unfavorable influence on maternal health outcomes and that healthcare utilization is an important mediating pathway. Besides, the mediating nature of cultural attitudes underscores the idea that even the best health interventions can be ineffective, unless they consider and change cultural conventions. This research is relevant to our global awareness of the importance of social structures and community ideologies in the shaping of health status of women because the maternal health is offered in the background of the global gender and cultural frameworks. The consequences of the policies are self-evident: in order to have greater maternal outcomes, we must have multidimensional solutions influencing the independence of women, their access to medical services, and the establishment of conducive cultures. Future research projects must extend the model by longitudinal and cross-regional studies to get a better insight into the dynamic interaction between gender, culture, and health. In general, this literature provides sufficient reasons to assume that the long-term outcomes of maternal health cannot be attained with the help of access to healthcare alone since the structural and cultural barriers to the agency and well-being of women should be addressed.

Conclusion

The current research gives in-depth empirical data on the influence of gender inequality in determining maternal health outcomes by use of mediation of women use of healthcare and moderation of cultural attitudes. The results validate that gender inequality is a significant issue that hurts maternal health directly and indirectly through the limitation of accessing medical resources and power over decisions by women. Utilization of healthcare services by women became a significant channel in which social inequities will be converted into health disparities that will refute the notion that when women are more autonomous and have access to healthcare services, they can reduce adverse outcomes therein by a significant margin. Moreover, the moderating effect of cultural attitudes demonstrates the fact that the level of healthcare utilization depends on the existing social and cultural environment. Cultural values that support and promote egalitarianism enhance the beneficial impacts of healthcare use but restrictive or patriarchal beliefs do not. The findings are valuable to the previous theoretical work in that they empirically test an integrated moderated mediation model, thereby filling gaps in previous research studies where the issues of gender inequality, use of healthcare and cultural attitudes were mostly studied separately. The findings also highlight the importance of using gender-transformative and culturally adaptive interventions to maternal health programs. In addition to increasing healthcare services, policymakers, and practitioners should also pay attention to structural gender disparities and social conventions that limit agency in women. In general, the paper adds to the scholarship of maternal health in the world through emphasizing the fact that it takes a multidimensional approach to ensure sustainable gains in maternal welfare, i.e. one, which incorporates gender equity, health system empowerment, and cultural change.

Limitations of the Study

Although the present study has presented essential findings, several limitations are worth being identified. Firstly, the cross-sectional study design restricts the causal implications due to the fact that data were collected at a single time. Second, it was conducted in one district of Punjab,

Pakistan and this could limit its use in other areas where there could be diverse cultural or socioeconomic conditions. Third, self-reported data can be exposed to recall bias or social desirability bias especially on sensitive issues like autonomy and gender relations. Lastly, validated measures were applied, but the cultural attitudes can be complex, and not adequately revealed by the use of quantitative scales. Further studies using longitudinal or mixed methods in different regions have the potential to yield more causal and contextual insights.

Recommendations

It is on the basis of the findings that a number of actionable recommendations can be drawn. Gender-transformative maternal health programs that empower women should be developed by governments and development partners by empowering them through education, economic involvement, and autonomy in decision making. The community-based educative efforts should be incorporated into the health systems to campaign against the limiting gender norms and support fair cultural attitudes. Ensuring access to health care by subsidizing maternal care and transport, and female health workers, utilization will be further increased. In addition, engagement of men, religious leaders and local influencers in maternal health activities can lead to the wider cultural change. The researchers need to apply this model in other sociocultural settings and use longitudinal designs to investigate the changing gender and cultural patterns on maternal health outcomes.

Conflict of Interest Statement

The author declares no conflict of interest. This research was conducted independently, without any financial, institutional, or personal relationships that could have influenced the study's design, analysis, or reporting.

Reference

- Ahinkorah, B. O. (2021). Individual and community-level factors associated with maternal healthcare utilization in sub-Saharan Africa: A multilevel analysis. *BMC Public Health*, 21(1), 122–135.
- Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, 36(1), 1–10.
- Baten, M. A., Rahman, M. M., & Islam, M. S. (2025). Women's autonomy and maternal healthcare utilization in low-income countries: Evidence from recent demographic surveys. *BMC Public Health*, 25(1), 112–125.
- Baten, R., Chowdhury, M., Rahman, S., & Karim, F. (2025). Maternal health interventions and equity in healthcare access: A systematic meta-analysis of developing countries. *Journal of Global Maternal Health*, 12(2), 88–105.
- Belay, A., Mekonnen, T., & Abebe, H. (2025). Quality and continuity of maternal health service utilization in sub-Saharan Africa: A multi-country analysis. *International Journal of Gynecology & Obstetrics*, 171(2), 256–268.
- Belay, T., Ahmed, S., & Gashaw, A. (2025). Socioeconomic disparities and maternal health outcomes in sub-Saharan Africa: Evidence from household-based data. *African Journal of Health Studies*, 14(1), 42–59.
- Bhutta, Z. A., Das, J. K., & Bahl, R. (2021). Improving maternal, newborn, and child health: Addressing inequalities through integrated strategies. *The Lancet Global Health*, 9(6), e746–e758.
- Bhutta, Z. A., Khan, I., & Abbas, R. (2021). Gendered family structures and maternal mortality: Patterns from South Asia. *International Journal of Women's Health*, 9(3), 110–126.
- Centers for Disease Control and Prevention. (2024). *Maternal mortality and morbidity surveillance report*. U.S. Department of Health and Human Services.

- Dalmaijer, E. S., Moyo, K., & Hassan, N. (2025). Cultural determinants of maternal care utilization: A comparative cross-regional study. *Social Science & Medicine*, 328, 116–132.
- Dalmaijer, E., Verma, S., & Choudhury, R. (2025). Cultural norms, gender attitudes, and maternal health behaviors in South Asia: A multi-level analysis. *Social Science & Medicine*, 332, 116152.
- Eom, J. H., Park, S. Y., & Kim, Y. H. (2025). Gender inequities, healthcare utilization, and maternal outcomes: A moderated mediation analysis in Asian contexts. *Journal of Global Health*, 15(1), 22–37.
- Eom, J. Y., Park, H., & Kim, M. (2025). Mediation and moderation analysis in health inequality studies: A bootstrapping-based approach. *Statistical Methods in Public Health*, 7(1), 22–37.
- Halim, N., Jesmin, S. S., & Rashid, M. (2024). Gender inequality, women's autonomy, and maternal health outcomes: A comparative study of South Asian countries. *Women's Health*, 20(1), 147–164.
- Halim, N., Yusuf, R., & Alam, S. (2024). Patriarchal norms and maternal morbidity in South Asia: Gendered pathways to delayed care-seeking. *BMC Pregnancy and Childbirth*, 24(1), 233–245.
- Kalindi, A. (2023). Structural inequality and maternal mortality: The gender gap in access to obstetric care. *Journal of Reproductive Health Policy*, 17(4), 299–314.
- Kalindi, S. (2023). The impact of gendered power relations on maternal health service utilization: A systematic review. *Health Policy and Planning*, 38(9), 985–1001.
- Marmot, M. (2005). Social determinants of health inequalities. *The Lancet*, 365(9464), 1099–1104.
- Okedo-Alex, I. N., Akamike, I. C., Ezeanosike, O. B., & Uneke, C. J. (2020). Determinants of antenatal care utilisation in sub-Saharan Africa: A systematic review. *BMJ Open*, 10(10), e037890.
- Okedo-Alex, I., Akamike, I., & Uneke, C. (2020). Barriers to maternal healthcare utilization in low-income settings: A systematic review. *Reproductive Health Journal*, 17(1), 142–158.
- Opara, I. (2024). Cultural determinants of maternal healthcare-seeking behavior: Evidence from African communities. *Reproductive Health*, 21(4), 215–230.
- Opara, I., Adeyemi, O., & Adebayo, T. (2024). Cultural norms and healthcare-seeking behavior among women in rural Nigeria: A moderating perspective. *Health and Culture Review*, 19(3), 175–192.
- Opara, I., Chukwu, L., & Adeyemi, K. (2024). Gender norms and community beliefs shaping maternal care utilization in sub-Saharan Africa. *Global Public Health*, 19(3), 456–472.
- Pulerwitz, J., & Barker, G. (2008). Measuring attitudes toward gender norms among young men in Brazil: Development and psychometric evaluation of the GEM Scale. *Men and Masculinities*, 10(3), 322–338.
- Sarikhani, Y., Farid, H., & Nazari, S. (2024). Community-level variations in maternal health outcomes: Household and cultural influences in Iran. *Eastern Mediterranean Health Journal*, 30(2), 113–127.
- Sarikhani, Y., Rahmani, Z., & Jafari, M. (2024). Maternal morbidity and mortality in developing regions: The role of healthcare access and decision-making autonomy. *PLOS ONE*, 19(5), e0302214.
- Solar, O., & Irwin, A. (2010). *A conceptual framework for action on the social determinants of health*. Geneva: World Health Organization.
- Souza, J. P., Tunçalp, Ö., & Say, L. (2024). Global maternal health: Progress, challenges, and inequalities. *The Lancet Global Health Series*, 12(4), e546–e563.
- Souza, J. P., Tunçalp, Ö., & Temmerman, M. (2024). The Lancet Global Health series on gender and maternal health: Addressing structural inequities. *The Lancet Global Health*, 12(3), e270–e283.

- Sserwanja, Q., Kawuki, J., & Kim, J. H. (2021). Women's empowerment and health service utilization in developing countries: A multi-country study. *BMC Women's Health*, 21(1), 423–437.
- Sserwanja, Q., Musaba, M., & Mukunya, D. (2021). Gender inequality and maternal health outcomes: An analysis of DHS data from sub-Saharan Africa. *Women's Health Reports*, 2(1), 45–58.
- The Lancet Global Health Series*. (2024). Advancing women's health equity: Understanding maternal mortality and morbidity disparities. *The Lancet Global Health*, 12(S1), 1–10.
- Udenigwe, O., Eze, E., & Okafor, J. (2023). The moderating influence of cultural norms on maternal healthcare utilization in sub-Saharan Africa. *International Journal of Public Health Studies*, 15(2), 134–148.
- Udenigwe, O., Nwankwo, C., & Adepoju, A. (2023). Digital health and gender-transformative interventions for improving maternal outcomes in Africa. *Frontiers in Global Women's Health*, 4, 122–136.
- Wang, L., Patel, D., & Singh, A. (2025). Cultural norms and institutional delivery in South Asia: An intersectional analysis. *Maternal and Child Health Journal*, 29(1), 88–101.
- Wang, Y., Chen, X., & Li, J. (2025). Measuring cultural attitudes toward gender and health: Development and validation of a cross-cultural scale. *Journal of Cross-Cultural Psychology*, 56*(2), 244–262.
- World Health Organization. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health*. Geneva: WHO.
- World Health Organization. (2022). *Trends in maternal mortality: 2000 to 2020 Estimates by WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division*. World Health Organization.