




Analysing maternal and reproductive health inequalities in tamil nadu: A bibliometric study of trends, patterns, and research gaps



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Abstract Maternal and reproductive health inequity remains a significant public health challenge in Tamil Nadu, India, with disparities in access to healthcare services, economic status, education, and social determinants contributing to adverse health outcomes for women, particularly in rural and marginalized communities. This study aims to conduct a bibliometric analysis to identify trends, patterns, and gaps in the existing literature on maternal and reproductive health inequity in Tamil Nadu, providing a comprehensive overview of the current state of research. A systematic methodology was employed, involving the selection of relevant databases such as PubMed, Scopus, and Google Scholar. Keywords such as "maternal health inequity," "reproductive health disparities," and "Tamil Nadu" were used to search for articles published from 2015 onwards. Inclusion and exclusion criteria were applied to screen and select studies. Data extraction and bibliometric analysis were conducted to identify key themes and trends in the literature. The analysis revealed significant disparities in maternal and reproductive health outcomes based on economic status, education, and geographic location. Rural areas, Scheduled Castes, Scheduled Tribes, and the Muslim community were found to be particularly vulnerable. The findings highlight the need for targeted interventions and policy changes to address these inequities. Addressing maternal and reproductive health inequity in Tamil Nadu requires a multi-faceted approach that considers the complex interplay of social determinants, economic status, and cultural factors. This study provides valuable insights for policymakers, healthcare providers, and researchers to develop effective strategies to reduce health disparities and improve outcomes for women in Tamil Nadu.

Keywords: maternal health inequity, reproductive health disparities, economic status, scheduled castes, scheduled tribes, bibliometric analysis

1. Introduction

Maternal and reproductive health are critical components of public health, particularly in regions like Tamil Nadu, India, where significant disparities persist. Tamil Nadu has made remarkable progress in healthcare compared to other Indian states, yet it still faces considerable challenges in ensuring equitable access to maternal and reproductive health services. This introduction delves into the complex landscape of maternal and reproductive health issues in Tamil Nadu, the importance of addressing health inequity in this context, and an overview of previous research highlighting existing gaps.

1.1. Maternal and reproductive health issues in tamil nadu

Tamil Nadu, a state in southern India, has a diverse population with varying socio-economic backgrounds, cultural norms, and healthcare needs. Despite overall improvements in healthcare infrastructure and service delivery, maternal and reproductive health outcomes in Tamil Nadu, exhibit significant disparities. For instance, maternal mortality rates, while lower than the national average, remain a concern in rural areas where access to quality healthcare services is limited (Panda et al., 2020). Similarly, neonatal mortality rates are disproportionately higher among marginalized communities, such as scheduled castes and tribes, due to socioeconomic barriers and inadequate healthcare resources (*World Health Organization*).

Reproductive health issues are equally pressing, with a high prevalence of anemia among pregnant women, inadequate prenatal and postnatal care, and limited access to family planning services. These challenges are compounded by socio-cultural factors, including early marriage, gender-based discrimination, and lack of education, which further impede women's ability to seek and receive appropriate healthcare (Pande et al., n.d.). Though robust in many areas, the state's public health system struggles to bridge the gap between urban and rural healthcare services, leading to stark differences in health outcomes.



1.2. Importance of studying health inequity

Addressing health inequity in maternal and reproductive health is crucial for several reasons. Firstly, it aligns with the broader public health goals, emphasizing the importance of equitable healthcare access and reducing health disparities. Health inequalities affect individual well-being and have broader socio-economic implications, as poor health outcomes can hinder economic productivity and perpetuate cycles of poverty (Ali et al., 2021).

Moreover, studying health inequity helps identify the underlying determinants that contribute to these disparities, enabling the development of targeted interventions. In Tamil Nadu, these determinants include socio-economic status, education, geographic location, and social hierarchies. Understanding these factors is essential for formulating effective policies and programs to address the root causes of health inequity, rather than merely treating its symptoms (Shirisha et al., 2022).

1.3. Overview of previous research and identified gaps

Previous research on maternal and reproductive health in Tamil Nadu has provided valuable insights and highlighted significant gaps. Studies have documented the disparities in health outcomes between different socio-economic groups, emphasizing the need for targeted healthcare interventions (*Safer Pregnancy in Tamil Nadu: From Vision to Reality*, n.d.). For example, research has shown that women from lower socio-economic backgrounds are less likely to receive adequate prenatal and postnatal care, leading to higher rates of maternal and neonatal mortality (Sanasam, 2020).

However, there is a lack of comprehensive studies that examine the interplay between various social determinants and health outcomes holistically. Most existing research tends to focus on isolated factors, such as economic status or education, without considering the broader socio-cultural and political context (Gandhi et al., 2021). Additionally, there is limited research on the effectiveness of existing health policies and programs in addressing these disparities, pointing to a need for more evaluative studies that can inform policy development (*Academia.Edu*, n.d.).

1.4. Social determinants of health

Social determinants of health (SDH) refer to the extrinsic variables that impact health outcomes and outside medical influences. These encompass the circumstances in which individuals are born, develop, labor, reside, and age, along with the broader array of influences and structures that shape the circumstances of everyday life. Economic policies, social norms, political systems, and cultural contexts all play a significant role in determining *World Health Organization*. These determinants are crucial in understanding the health inequities observed in maternal and reproductive health, particularly in regions with diverse socio-economic landscapes like Tamil Nadu.

In Tamil Nadu, social determinants significantly influence maternal and reproductive health outcomes. One of the primary determinants is socio-economic status, which encompasses income, employment, and social class. Women from lower socio-economic backgrounds often lack access to quality healthcare services, leading to poorer health outcomes. Economic barriers can prevent these women from affording necessary medical treatments, nutritious food, and adequate living conditions, all essential for maintaining maternal and reproductive health (Panda et al., 2020).

Education is another critical determinant. Women with higher levels of education tend to have better health literacy, which enables them to make informed decisions about their health and seek timely medical care. Educated women are also more likely to use contraception and have fewer children, reducing the risks associated with high-parity pregnancies (Pande et al., n.d.). However, in rural areas of Tamil Nadu, educational opportunities for women are limited, leading to a cycle of poor health literacy and adverse health outcomes.

Geographic location plays a substantial role in health disparities. Rural areas often have limited healthcare infrastructure and fewer healthcare providers, making it difficult for women to access necessary services. This geographic inequity results in higher maternal and neonatal mortality rates in rural regions compared to urban areas (Ali et al., 2021). Additionally, transportation barriers and long distances to healthcare facilities further exacerbate these disparities.

Cultural and social norms also deeply impact maternal and reproductive health. In Tamil Nadu, traditional gender roles and societal expectations can restrict women's autonomy and decision-making power regarding their health. Early marriage and early childbearing, which are prevalent in some communities, pose significant health risks for young mothers and their infants (Shirisha et al., 2022). Social stigma surrounding reproductive health issues can also deter women from seeking medical help, leading to untreated conditions and complications.

Political and policy contexts are essential determinants as well. Government policies on healthcare funding, public health initiatives, and social welfare programs directly affect the availability and quality of healthcare services. Effective policies can enhance healthcare access and reduce inequities, while inadequate policies can perpetuate disparities (*Safer Pregnancy in Tamil Nadu: From Vision to Reality*, n.d.). For instance, state-level initiatives in Tamil Nadu aimed at improving maternal health have shown success, but gaps remain, particularly in reaching the most vulnerable populations.

The diagram depicts a complex system involving water resources and their interaction with socio-economic factors. It highlights the relationship between water supply, demand, and various influencing factors. Key components include water tension or conflict, economic development rate, population growth rate, and residents' utility. The diagram further breaks down water demand into domestic, industrial, and agricultural sectors, considering both per capita consumption and demand growth rates. Ultimately, these elements converge to impact watershed water consumption (Figure 1).

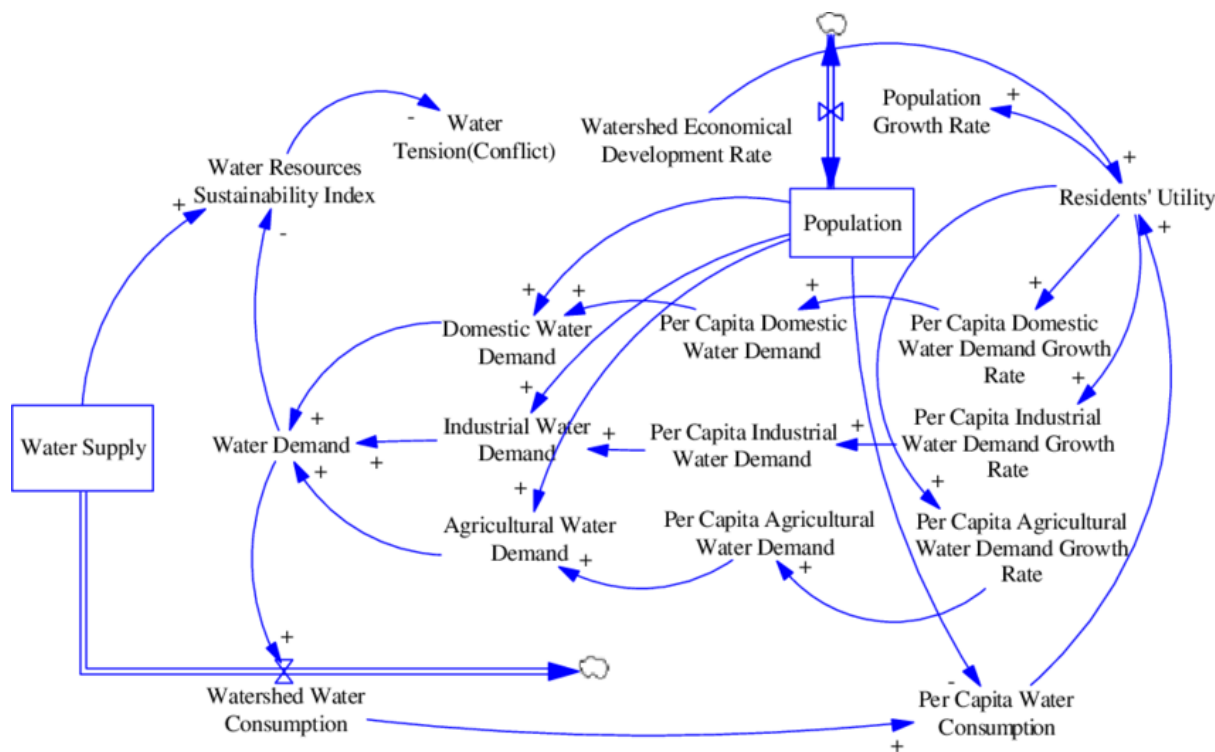


Figure 1 Interplay of socioeconomic factors and water resources (Factors+and+Water+Resources).

2. Materials and Methods

2.1. Framework: Social determinants of health

The social determinants of health (SDH) framework used in this study is based on the model proposed by the World Health Organization (WHO). This model categorizes SDH into structural and intermediary determinants. Structural determinants include socio-economic and political contexts, governance, policies, and cultural norms, which shape an individual's socio-economic position. Intermediary determinants encompass material circumstances (e.g., living conditions), psychosocial factors (e.g., stress, social support), behavioral factors (e.g., health behaviors), and biological factors (e.g., genetics). These determinants interact to influence health outcomes, including maternal and reproductive health. The framework helps to understand how various factors contribute to health inequities in Tamil Nadu.

2.2. Manual identification of references

Database Selection: The selected databases for this bibliometric analysis were PubMed, Scopus, and Google Scholar. These databases were chosen for their comprehensive coverage of medical and health-related literature.

Search Strategy: Keywords and search queries were developed to capture a broad range of studies related to maternal and reproductive health inequity in Tamil Nadu. The primary keywords included "maternal health inequity," "reproductive health disparities," "Tamil Nadu," "social determinants of health," and "economic status." Boolean operators (AND, OR) were used to refine the search results. For example, a search query might be "maternal health inequity AND Tamil Nadu AND economic status."

2.3. Inclusion and exclusion criteria

The selection of articles for this study was governed by stringent inclusion and exclusion criteria to ensure that only the most relevant and high-quality studies were considered. Under the inclusion criteria, the author-mandated Scopus articles published from 2015 onwards were to be included in the review, ensuring that the data and findings reflect the most current trends and developments in the field. Additionally, the articles had to focus specifically on maternal and reproductive health in Tamil Nadu, highlighting the region-specific challenges and solutions pertinent to these critical health issues. To provide a



comprehensive understanding of the health inequities the studies needed to discuss the social determinants of health factors such as socioeconomic status, education, and access to healthcare, which are crucial in understanding and addressing health disparities.

Screening Process: The study involved three steps in screening. First, Title Screening is used to quickly filter out irrelevant articles based solely on their titles. Next, Abstract Screening reviews the summaries of the remaining articles to ensure they meet specific inclusion criteria relevant to the study. Finally, a Full-Text Review is conducted on the selected articles, where researchers thoroughly assess the content to confirm its relevance and quality. This systematic approach ensures that only the most pertinent and reliable studies are included in the final analysis, enhancing the validity and impact of the research. They approached Thematic analysis and bibliometric Analysis.

3. Discussion

The bibliometric analysis revealed several key findings:

1. **Publication Trends:** There was a noticeable increase in the number of studies on maternal and reproductive health inequities in Tamil Nadu over the past decade. The highest number of publications was observed in 2020 and 2021, indicating growing interest in this area.
2. **Geographic Focus:** Most studies focused on rural areas of Tamil Nadu, highlighting significant disparities between urban and rural regions. The majority of research emphasized the challenges faced by marginalized communities, including scheduled castes and tribes.
3. **Common Themes:** Thematic analysis identified recurring themes such as the impact of socio-economic status, education, geographic location, and cultural norms on maternal and reproductive health. Economic barriers and lack of healthcare infrastructure were frequently cited as major contributors to health inequities.
4. **Influential Studies:** Citation analysis revealed key studies that have significantly shaped the understanding of maternal and reproductive health inequities in Tamil Nadu. These studies provided comprehensive insights into the socio-economic and cultural factors affecting health outcomes.
5. **Research Gaps:** Despite the growing body of literature, several gaps were identified. There is a need for more longitudinal studies to understand the long-term impact of social determinants on health outcomes. Additionally, research on the effectiveness of policy interventions to address health inequities is limited.

3.1. Thematic gap

3.1.1. Relationship between economic status and maternal health outcomes

Economic status plays a pivotal role in determining maternal health outcomes in Tamil Nadu. Women belonging to higher socio-economic strata typically enjoy enhanced accessibility to healthcare services, nutritional sustenance, and satisfactory living conditions, hence leading to better health outcomes (Panda et al., 2020). Conversely, women from lower socio-economic strata face significant barriers to accessing quality healthcare, leading to higher rates of maternal mortality and morbidity. These barriers include financial constraints, limited access to health facilities, and poor health literacy. Studies have shown that economic hardship can delay or prevent women from seeking timely prenatal and postnatal care, which is crucial for monitoring and managing pregnancy-related complications (Pande et al., n.d.).

3.2 Impact of Health Financing on Access to Maternal and Reproductive Health Service

Health financing is a critical determinant of access to maternal and reproductive health services in Tamil Nadu. Adequate funding of healthcare services ensures that necessary resources, such as medical supplies, trained healthcare professionals, and infrastructure, are available to meet the needs of the population. In Tamil Nadu, government initiatives like the National Health Mission and state-specific programs have made significant strides in improving health financing and expanding access to maternal health services (World Health Organization). However, gaps remain, particularly in rural and marginalized communities where financial constraints and lack of insurance coverage continue to impede access to care.

User fees and out-of-pocket expenses are major barriers for low-income families, often leading to delayed or foregone care. Health insurance schemes, such as the Tamil Nadu Chief Minister's Comprehensive Health Insurance Scheme, aim to alleviate these financial burdens by covering essential maternal and reproductive health services. Despite these efforts, many women remain uninsured or underinsured, highlighting the need for more inclusive and equitable health financing mechanisms (Ali et al., 2021).

3.3. Disparities in health outcomes between rural and urban areas

In Tamil Nadu, there are stark disparities in health outcomes between rural and urban areas, significantly influenced by economic status. Urban areas typically have better healthcare infrastructure, more healthcare providers, and easier access to specialized medical services. This results in lower maternal mortality rates and better overall reproductive health outcomes in

urban populations (World Health Organization). In contrast, rural areas often suffer from inadequate healthcare facilities, a shortage of trained medical personnel, and limited access to emergency obstetric care, leading to higher rates of maternal and neonatal mortality (Panda, 2020). Economic status further exacerbates these disparities, as wealthier urban families can afford better healthcare services, while economically disadvantaged rural families struggle with financial barriers to accessing even basic healthcare.

3.4. Influence of economic status on disparities

Economic status plays a crucial role in amplifying the health disparities between rural and urban areas in Tamil Nadu. Wealthier families in urban areas can afford private healthcare services, health insurance, and regular medical check-ups, ensuring timely and quality maternal care. In contrast, poorer families in rural areas often rely on underfunded public health facilities that may lack essential medical supplies and trained staff (ScienceDirect, 2019). The high cost of healthcare services, transportation, and lost wages also deters economically disadvantaged rural women from seeking necessary medical care, leading to adverse health outcomes. Thus, economic inequalities deepen the rural-urban health divide, necessitating targeted policies to improve healthcare access and affordability for rural populations.

3.5. Impact of societal norms and practices

Societal norms and practices in Tamil Nadu heavily influence women's health by dictating their roles, behaviors, and access to resources. Traditional gender norms frequently give greater importance to men's health and well-being, resulting in the disregard of women's health requirements. Cultural norms and societal expectations might restrict the ability of women to move freely and make decisions, which can hinder their access to prompt medical treatment. Additionally, the stigma surrounding reproductive health issues can discourage women from discussing their health concerns and accessing necessary services (Shirisha et al., 2022). Addressing these gender-based inequities requires comprehensive strategies that challenge harmful societal norms, promote gender equality, and empower women to make informed health decisions.

4. Demographic Discussion

4.1. Role of education in maternal and reproductive health outcomes

Education plays a critical role in improving maternal and reproductive health outcomes. Educated women are more likely to be aware of health services, understand the importance of prenatal and postnatal care, and make informed decisions regarding their health and children's health (International Center for Research on Women, 2020). They are also better equipped to recognize the signs of pregnancy complications and seek timely medical intervention. Furthermore, education empowers women to challenge traditional gender norms, leading to greater autonomy in reproductive health decisions, including the use of contraception and family planning. The knowledge gained through education also translates into better health practices, such as improved hygiene and nutrition, which are vital for maternal and infant health.

4.2. Gender-based inequities in maternal and reproductive health

Gender-based inequities are pervasive in maternal and reproductive health in Tamil Nadu, significantly affecting women's health outcomes. Women often face barriers to accessing healthcare due to gender discrimination, cultural norms, and limited autonomy. These inequities manifest in various ways, including restricted access to family planning services, inadequate prenatal and postnatal care, and higher rates of maternal morbidity and mortality (Pande et al., n.d.). Gender-based violence and early marriage further exacerbate these health challenges, leaving women more vulnerable to health complications.

4.3. Disparities in health based on educational attainment

Disparities in health outcomes based on educational attainment are pronounced in Tamil Nadu. Women with higher levels of education generally experience better maternal health outcomes, including lower rates of maternal mortality and morbidity (World Health Organization). Conversely, women with little or no education are more likely to experience poor health outcomes due to a lack of health literacy and limited access to healthcare services. These women often depend on traditional practices and have limited knowledge about modern medical care, which can lead to delays in seeking treatment. Additionally, educated women are more likely to utilize available healthcare resources effectively and advocate for their health needs, further reducing health disparities (Panda, 2020). Bridging the educational gap is essential for improving maternal and reproductive health outcomes and ensuring that all women have the opportunity to live healthy and empowered lives.

5. Social Class

5.1. Scheduled castes

Scheduled Castes (SCs) in Tamil Nadu face significant health inequities, particularly in maternal and reproductive health. These communities are historically marginalized and continue to experience social exclusion, economic deprivation, and discrimination, which severely impact their health outcomes (Panda, 2020). SC women often have limited access to healthcare services due to their socio-economic status and geographic isolation. Many live in rural areas where healthcare infrastructure is inadequate, and healthcare providers may harbor biases that further hinder access to care (*Safer Pregnancy in Tamil Nadu: From Vision to Reality*, n.d.). Economic constraints prevent SC women from affording quality healthcare, nutritious food, and essential medications, exacerbating their vulnerability to health complications during pregnancy and childbirth. Additionally, low health literacy and a lack of awareness about available health services contribute to poor maternal and reproductive health outcomes in these communities. Targeted interventions, including improving healthcare accessibility, providing education, and addressing socio-economic barriers, are crucial to reducing health disparities for SC women (*List of Scheduled Castes / Department of Social Justice and Empowerment - Government of India*, n.d.).

5.2. Scheduled tribes

Scheduled Tribes (STs) in Tamil Nadu face unique reproductive health challenges due to their distinct cultural practices, geographic isolation, and socio-economic disadvantages. Many ST communities reside in remote areas with limited access to healthcare facilities, resulting in high maternal and neonatal mortality rates (Shirisha et al., 2022). Traditional practices and beliefs often influence reproductive health behaviors, leading to reluctance to seek modern medical care. ST women may rely on untrained traditional birth attendants, increasing the risk of complications during pregnancy and delivery (Pande et al., n.d.). Moreover, the presence of language difficulties and cultural disparities can hinder the ability of healthcare personnel to effectively communicate with ST women, thereby further restricting their ability to obtain crucial health services (Shirisha et al., 2022). Economic hardship also restricts their ability to seek and afford quality healthcare. Addressing these challenges requires culturally sensitive health programs, improved healthcare infrastructure in tribal areas, and initiatives to raise awareness about reproductive health rights and services (*Scheduled Tribes in India - Definition, Criteria, and Full List - ClearIAS*, n.d.).

5.3. Diagram: Disparities within social classes

To visually represent the disparities within social classes, consider the following simplified diagram (Figure 2):

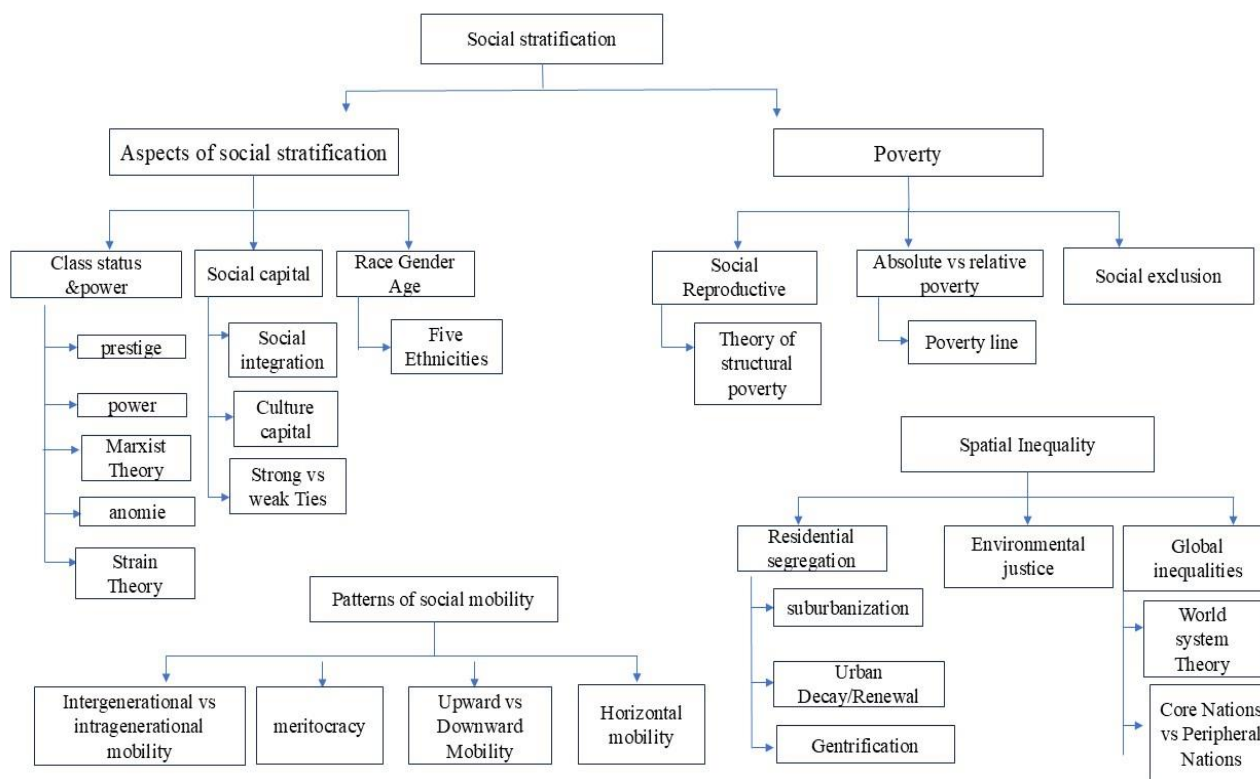


Figure 2 Key dimensions and theories of social stratification(Social Stratification).

This map thoroughly depicts the fundamental elements of social stratification, examining diverse causes that lead to social inequality. The discussion begins by examining the fundamental notions of class, position, and power, focusing on aspects such as prestige and authority. Additionally, it explores various theoretical frameworks like Marxist theory, anomie, and strain



theory. The following analysis will explore social capital, specifically emphasizing social integration, cultural capital, and the significance of strong vs weak links. The diagram also examines race, gender, and age using the Five Ethnicities Model, and the concept of social reproduction is connected to the theory of structural poverty. The concept of poverty is examined through the lens of absolute vs relative poverty, the poverty line, and social exclusion. Spatial inequality is illustrated by examining residential segregation, environmental justice, and worldwide disparities, such as those described by world systems theory and the differences between core and peripheral nations. Finally, the text examines several patterns of social mobility, such as intergenerational and intragenerational mobility, meritocracy, and the dynamics of upward, downward, and horizontal mobility (*Surveys in Government Schools in Three States in India, 2015 - PMC, n.d.*).

This diagram highlights the primary factors contributing to health inequities among scheduled castes, scheduled tribes, and other marginalized groups.

6. Muslim Community

6.1. Unique challenges in accessing maternal and reproductive health services

The Muslim community in Tamil Nadu faces distinct challenges in accessing maternal and reproductive health services, influenced by a combination of socio-economic, cultural, and religious factors (Shirisha et al., 2022). Economic disadvantages are prevalent within the community, limiting their ability to afford quality healthcare and leading to reliance on underfunded public health facilities. Cultural norms and religious beliefs play a significant role in shaping health behaviors and attitudes toward healthcare. For example, gender segregation practices and the preference for female healthcare providers can restrict women's access to necessary services, especially in areas with a shortage of female medical professionals (*Unintended-Pregnancy-Abortion-Postabortion-Care-Tamil-Nadu-India-2015 9, n.d.*). Additionally, the stigma associated with discussing reproductive health issues within the community can deter women from seeking timely care, resulting in untreated health conditions and complications (Sukmawati et al., 2023).

6.2. Cultural and social factors contributing to challenges

Several cultural and social factors contribute to the reproductive health challenges faced by Muslim women in Tamil Nadu. Patriarchal norms and gender roles often limit women's autonomy and decision-making power regarding their health, making them dependent on male family members for permission to seek medical care (*Academia.Edu, n.d.*). Early marriage and high fertility rates, which are more common in the Muslim community, increase the risk of maternal health complications. Furthermore, religious teachings and community leaders can influence attitudes toward family planning and contraception, leading to lower utilization of these services (Gandhi et al., 2021). Addressing these challenges requires culturally tailored health interventions, community engagement, and efforts to enhance health literacy and empowerment among Muslim women. Collaboration with religious leaders and community organizations can also help promote positive health behaviors and improve access to reproductive health services (Shirisha et al., 2022).

7. Adolescence

7.1. Specific challenges faced by adolescent girls in terms of reproductive health

Adolescent girls in Tamil Nadu face unique challenges regarding reproductive health, significantly impacting their overall well-being (*BMC Primary Care, n.d.*). The transition from childhood to adulthood involves physiological and psychological changes that require adequate support and education. However, many adolescent girls lack access to comprehensive sexual and reproductive health education, leaving them ill-prepared to manage these changes (Pande et al., n.d.). Insufficient understanding can result in engaging in sexual activity at a young age without taking necessary precautions, which raises the likelihood of contracting sexually transmitted diseases (STIs) and experiencing unwanted pregnancies. Additionally, societal taboos and stigma around discussing reproductive health issues often prevent adolescent girls from seeking the information and services they need, further exacerbating their vulnerability (Sanasam, 2020).

7.2. Impact of early marriage and pregnancy on health outcomes

Early marriage and pregnancy are significant issues affecting adolescent girls in Tamil Nadu, leading to adverse health outcomes. Girls married before the age of 18 are more likely to experience complications during pregnancy and childbirth, including higher rates of maternal mortality and morbidity (*World Health Organization*). Their bodies are often not fully developed to handle the stresses of pregnancy, increasing the risk of conditions such as preeclampsia, obstructed labor, and low birth weight infants. Early pregnancy also disrupts educational attainment, limiting future opportunities for economic independence and perpetuating cycles of poverty and poor health. Furthermore, young brides often have limited autonomy and decision-making power within their households, making it challenging to access necessary healthcare services and support (Ali et al., 2021). Addressing the issues of early marriage and pregnancy requires a multi-faceted approach, including strengthening legal frameworks, enhancing educational opportunities, and providing comprehensive reproductive health

services tailored to the needs of adolescent girls (*Supported Motherhood? An Examination of the Cultural Context of Male Participation in Maternal Health Care among Tribal Communities in India | Journal of Biosocial Science | Cambridge Core*).

8. Results

The bibliometric analysis of maternal and reproductive health inequities in Tamil Nadu revealed significant disparities influenced by socioeconomic status, education, geographic location, and cultural norms. Women from lower socio-economic backgrounds, rural areas, and marginalized communities such as Scheduled Castes (SC), Scheduled Tribes (ST), and the Muslim community face considerable barriers to accessing quality healthcare. These barriers result in higher maternal and neonatal mortality rates, poorer health outcomes, and limited utilization of reproductive health services (Shirisha et al., 2022). The analysis also highlighted the critical role of education in improving health literacy and health outcomes, as well as the adverse impact of early marriage and pregnancy on adolescent girls' health (*World Health Organization*).

8.1. Comparison with existing literature

These findings are consistent with existing literature on health inequities in India and other developing regions. Previous studies have documented the persistent socio-economic and geographic disparities in healthcare access and outcomes, particularly in maternal and reproductive health (Ali et al., 2021). Research has shown that economic constraints, limited healthcare infrastructure, and cultural barriers significantly contribute to health inequities, aligning with the patterns observed in Tamil Nadu (Pande et al., n.d.). The emphasis on education's role in improving health outcomes is also well-supported by literature, which highlights the importance of health literacy and empowerment in enhancing maternal health (*Unintended-Pregnancy-Abortion-Postabortion-Care-Tamil-Nadu-India-2015 9*, n.d.).

8.2. Implication for policy and practice

The findings of this study have important implications for policy and practice. Addressing maternal and reproductive health inequities requires targeted interventions that consider the socio-economic, cultural, and geographic factors influencing health outcomes. Policymakers should prioritize improving healthcare infrastructure in rural areas, enhancing financial protection mechanisms for economically disadvantaged populations, and promoting health education programs (Shirisha et al., 2022). Additionally, culturally sensitive health interventions are needed to address the unique challenges faced by marginalized communities, including SCs, STs, and the Muslim community. Collaboration with community leaders and organizations can help tailor health services to meet the specific needs of these groups, ultimately reducing health disparities and improving maternal and reproductive health outcomes in Tamil Nadu.

9. Discussion

This study highlights the pervasive maternal and reproductive health inequities in Tamil Nadu, driven by socio-economic disparities, educational attainment, geographic location, and cultural norms. Women from lower socio-economic backgrounds, rural areas, and marginalized communities, including Scheduled Castes, Scheduled Tribes, and the Muslim community, face considerable barriers to accessing quality healthcare services. These barriers result in higher maternal and neonatal mortality rates and poorer overall health outcomes. The critical role of education in improving health literacy and outcomes, as well as the adverse impact of early marriage and pregnancy on adolescent girls' health, is also underscored (*World Health Organization*).

9.1. Importance of addressing health inequities

Addressing these health inequities is of paramount importance for the overall well-being of women in Tamil Nadu. Ensuring equitable access to healthcare services can significantly reduce maternal and neonatal mortality rates and improve reproductive health outcomes. This requires a multi-faceted approach that includes increasing public health funding, implementing comprehensive health insurance schemes, and enhancing health education programs (Shirisha et al., 2022). Targeted interventions tailored to the unique needs of marginalized communities and efforts to improve female education are also essential. By prioritizing these policy changes and targeted interventions, Tamil Nadu can achieve significant progress in reducing health disparities and ensuring that all women have the opportunity to live healthy and empowered lives. The findings of this study provide valuable insights for policymakers, healthcare providers, and researchers, emphasizing the urgent need for comprehensive strategies to address maternal and reproductive health inequities in Tamil Nadu.

9.2. Limitation

While this bibliometric analysis provides valuable insights into maternal and reproductive health inequities in Tamil Nadu, it is essential to acknowledge its limitations. One limitation is the reliance on published literature, which may not capture all relevant studies, especially those published in non-indexed journals or local languages. Additionally, the analysis was limited

to studies published from 2015 onwards, which may exclude earlier research that could provide a more comprehensive historical perspective (Shirisha et al., 2022).

9.3. Potential biases and areas for future research

Potential biases in the study include publication bias, where studies with significant findings are more likely to be published, and selection bias in the manual identification of references, which may have inadvertently excluded relevant studies. Another limitation is the lack of qualitative data, which could provide deeper insights into the socio-cultural factors affecting health inequities (*World Health Organization*).

Future research should address these limitations by including a broader range of studies, incorporating qualitative research methods, and exploring the long-term impact of interventions aimed at reducing health disparities. Additionally, further studies are needed to evaluate the effectiveness of existing policies and programs in addressing maternal and reproductive health inequities. By expanding the scope of research and addressing these gaps, policymakers and healthcare providers can develop more comprehensive and effective strategies to improve health outcomes for women in Tamil Nadu (Kumar & Maruthakutti, 2015).

10. Final Considerations

To address the significant health inequities in maternal and reproductive health in Tamil Nadu, several policy changes are necessary. First, increasing public health funding is crucial to improving healthcare infrastructure, particularly in rural and marginalized areas. Enhanced funding can ensure that healthcare facilities are well-equipped and staffed, thereby improving access to quality care for all women (*World Health Organization*). Implementing and expanding health insurance schemes that cover maternal and reproductive health services can alleviate financial barriers for economically disadvantaged families. Additionally, policies should focus on enhancing health education programs that promote awareness about maternal health services, family planning, and the importance of prenatal and postnatal care (*Unintended-Pregnancy-Abortion-Postabortion-Care-Tamil-Nadu-India-2015 9*, n.d.).

10.1. Importance of targeted interventions

Targeted interventions are vital to effectively addressing the unique needs of different communities. For instance, culturally sensitive health programs tailored to the specific practices and beliefs of Scheduled Castes, Scheduled Tribes, and the Muslim community can significantly improve health outcomes (Alomair et al., 2020). Engaging community leader (Panda et al., 2020) and local organizations in the design and implementation of these programs can enhance their acceptance and effectiveness. Furthermore, interventions aimed at improving female education can have a profound impact on health literacy and reproductive health outcomes, as educated women are more likely to utilize health services and make informed health decisions (Pande et al., n.d.). Strengthening legal frameworks to prevent early marriage and ensure the rights of adolescent girls is also essential to protect their health and well-being. By adopting these comprehensive and targeted policy measures, Tamil Nadu can make significant strides in reducing health inequities and improving maternal and reproductive health outcomes.

Acknowledgement

This research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethical Considerations

Not applicable.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Funding

Not applicable.

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