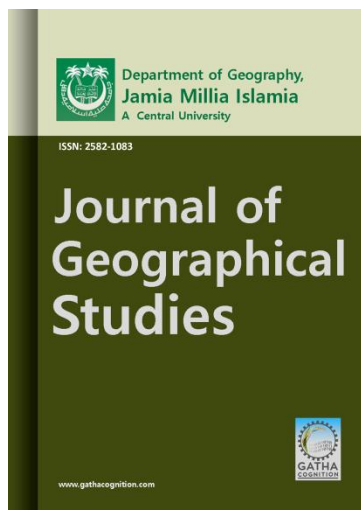




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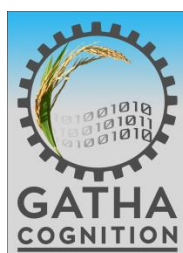
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Original Research Paper

An Assessment of Health-Related Quality of Life (HRQoL) among the Married Women in Rural Areas of Koch Bihar District, West Bengal, India

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Abstract

The health-related quality of life (HRQoL) of married women in rural areas is influenced by a range of socio-economic and health factors. This study aims to assess the HRQoL among married women residing in the rural areas of Koch Bihar district, West Bengal. A total of 569 married women were selected using a simple random sampling method from 58 villages across all 12 blocks of the district. Data were collected through a structured interview schedule designed to capture information on various dimensions of HRQoL. The findings reveal that rural married women face multiple challenges that impact their physical, psychological, social and environmental well-being. The study highlights significant variations in HRQoL scores based on age, education, economic status and access to health care services. The results emphasize the need for targeted interventions to address the specific needs of rural women, particularly in improving access to health care, education and economic opportunities. This research provides valuable insights for policymakers and public health professionals aiming to enhance the overall well-being of women in rural settings.

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1 INTRODUCTION

HRQoL has emerged as a vital construct in contemporary public health and social science research, reflecting an individual's perceived physical and mental health over time. Unlike traditional health indicators that focus primarily on morbidity and mortality, HRQoL provides a more holistic view of health by incorporating subjective assessments of well-being, functional status, and social participation. It encapsulates a broad spectrum of factors, including physical functioning, emotional well-being, social relationships and environmental influences. In recent years, growing recognition of the socio-cultural determinants of health has underscored the need to contextualize HRQoL within specific demographic and geographic settings. One such setting that merits close examination is the population of married women in rural India particularly in socio-economically challenged districts like Koch Bihar in West Bengal. Koch Bihar

district, located in the northeastern part of West Bengal, is predominantly rural, with agriculture being the primary source of livelihood. The district, while rich in cultural heritage, faces numerous structural challenges including poor infrastructure, low literacy rates, inadequate access to healthcare services and pervasive gender disparities. Within this context, married women constitute a particularly vulnerable group. They often bear the dual burden of domestic responsibilities and economic contribution to the household, all while navigating a socio-cultural landscape that frequently restricts their autonomy, mobility and access to essential health resources. These compounded disadvantages can significantly diminish their quality of life and health outcomes. Married women in rural areas are frequently subjected to traditional gender norms that prioritize family welfare over personal health. As a result, issues

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such as reproductive health complications, nutritional deficiencies, mental health disorders and chronic conditions often remain unaddressed or inadequately treated. Moreover, the intersectionality of gender, economic status, educational attainment, and geographical location further complicates their access to quality healthcare and psychosocial support. In such settings, the assessment of HRQoL not only serves as a diagnostic tool to identify health disparities but also as a critical lens through which the broader socio-economic and cultural dynamics can be examined. Despite the growing interest in HRQoL research globally, there remains a paucity of empirical studies focusing specifically on rural married women in regions like Koch Bihar. Most health-related research in India has traditionally emphasized urban populations or focused narrowly on disease-specific outcomes, often overlooking the lived experiences and subjective well-being of rural women. Addressing this gap is imperative for achieving inclusive and equitable health development, as envisioned in national health policies and global health frameworks such as the Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being) and Goal 5 (Gender Equality).

This research aims to explore and analyze the various dimensions of HRQoL among married women residing in the rural areas of Koch Bihar district. It seeks to identify key determinants that influence their health perceptions and well-being, including socio-economic status, educational level, access to healthcare, family structure and cultural norms. By adopting a multidimensional and gender-sensitive approach, this study intends to contribute to the growing body of literature on rural health inequities and provide actionable insights for policymakers, healthcare providers and community-based organizations working toward improving the health and quality of life of rural women. In doing so, the study not only endeavors to illuminate the specific health challenges faced by this demographic but also to advocate for more responsive and contextually grounded interventions that can foster a more inclusive approach to rural health and development in India.

Women constitute nearly half of the nation's population, yet their overall condition has historically remained severely disadvantaged. For centuries, their social, economic, and personal development was consciously restricted under the guise of religious doctrines and entrenched socio-cultural norms. In the pre-independence period, women were subjected to numerous inhumane customs, rigid traditions and social evils that reduced their status to its lowest point and left their lives marked by pervasive hardship. They endured widespread illiteracy, enforced seclusion through practices such as purdah, early and forced marriages, lifelong widowhood, strict moral codes denying remarriage, which often pushed widows into social marginalization, along with polygamy, female

infanticide, physical and psychological violence, coercion into practices like Sati, and the complete suppression of their individuality (Dangi and Bansal, 2023).

Women in Indian society have long been subjected to humiliation, violence and exploitation, manifested through practices such as sexual assault, dowry-related deaths, domestic abuse and systemic discrimination in social, economic and educational spheres. In rural areas, persistent poverty and traditional gender roles compel girls to engage in household labour instead of schooling, which adversely affects their physical health, nutritional status, mental well-being, and access to health awareness and healthcare services, thereby perpetuating poor health outcomes among rural women (Yasaswini *et al.* 2017).

The present study aims to examine the various health problems experienced by the respondents and the medical treatments sought by them. It further seeks to assess their reproductive health status and psychological health conditions. In addition, the study aims to analyse and represent the spatial variation in Health-Related Quality of Life (HRQoL) among married women across the rural areas of Koch Bihar district, West Bengal.

2 LITERATURE REVIEWS

HRQoL is a comprehensive concept that encompasses physical, psychological, social and environmental dimensions of health as perceived by individuals or groups (WHO, 1996). It is increasingly being recognized as a crucial outcome measure in public health research and healthcare evaluation, particularly in assessing the well-being of specific populations such as women in rural settings. Several studies have emphasized the importance of HRQoL as a multidimensional indicator. According to Ware and Sherbourne (1992), HRQoL goes beyond traditional health indicators by incorporating an individual's subjective evaluation of physical functioning, emotional status and social roles. This is especially relevant for married women in rural areas who often experience a unique set of socio-economic and cultural challenges impacting their quality of life (Kumar *et al.*, 2014). A study by Ghosh and Mukhopadhyay (2018) on rural women in West Bengal found that limited access to healthcare, lower educational attainment and economic dependence significantly reduced HRQoL scores. Similarly, Dasgupta *et al.*, 2017 highlighted that reproductive health issues, lack of autonomy and inadequate health services were major determinants of poor HRQoL among married rural women. In global contexts, research by Bowling (2005) also supports the view that social support, economic stability and health awareness contribute positively to HRQoL, while chronic illnesses, caregiving burdens and restricted mobility have negative impacts. Moreover, HRQoL has been used to

assess the effectiveness of interventions targeting women's health, with findings showing that community-based programs can significantly improve physical and psychological domains of quality of life (Patel *et al.*, 2010).

In the Indian context, research on HRQoL among rural married women highlights the impact of socio-economic determinants, reproductive health, domestic responsibilities and restricted mobility. A study by Pandey *et al.* (2019) in Uttar Pradesh showed that poor education, early marriage, high fertility and lack of decision-making power significantly lowered HRQoL scores among rural women. Similarly, Ghosh and Mukhopadhyay (2018) reported that women in rural West Bengal faced lower HRQoL due to financial dependency, limited access to healthcare services and high burden of household labor. Moreover, a study by Ali and Parveen (2020) on rural women in Bihar revealed that women with access to healthcare services, higher educational attainment, and employment opportunities exhibited significantly better HRQoL outcomes. This aligns with findings from global literature, such as that of Bowling (2005), which emphasized the role of social determinants, especially education and income in shaping HRQoL.

Gender-based disparities also contribute significantly to HRQoL variations. According to Sen and Östlin (2008), social norms often restrict women's autonomy, limit access to healthcare and increase vulnerability to violence, all of which have detrimental effects on physical and mental health. Additionally, mental health issues like depression and anxiety, often unaddressed in rural settings, have been identified as key predictors of poor HRQoL (Patel *et al.*, 2010). The use of standardized tools such as the WHOQOL-BREF and SF-36 has facilitated cross-cultural comparisons and consistent measurement of HRQoL. These tools have proven effective in capturing the complex interplay between health and quality of life across different settings and populations (Skevington *et al.*, 2004). The concept of HRQoL has gained prominence in both clinical and public health research for its ability to evaluate how diseases, treatments and socio-environmental factors affect a person's day-to-day functioning and general well-being (Guyatt *et al.*, 1993). HRQoL is especially important in developing countries like India, where health disparities are wide and often deeply embedded in socio-economic structures. HRQoL measures have been widely applied using standardized instruments such as the WHOQOL-BREF, SF-36, and EQ-5D, which enable the assessment of physical, psychological and social well-being. As stated by Patrick and Erickson (1993), these tools are valuable in capturing subjective health experiences, particularly among women who often suffer silently due to socio-cultural barriers.

Women in rural areas, especially in developing countries, frequently experience lower HRQoL than their urban counterparts due to limited access to health care, poor sanitation, high rates of illiteracy and economic dependency (UNFPA, 2017). Studies have consistently shown that married rural women often shoulder multiple responsibilities such as caregiving, household chores and agricultural work, which significantly contribute to physical and emotional exhaustion (Kumar and Srivastava, 2014). In a cross-sectional study by Rani and Bonu (2003) using data from the National Family Health Survey, it was found that rural Indian women experienced poorer health outcomes and lower quality of life indicators compared to men and urban women. This was attributed to factors like early marriage, high fertility, low autonomy and undernutrition. Further, Tiwari *et al.* (2014) found that psychological well-being among rural women was significantly compromised due to lack of social support, financial insecurity, and gender-based violence.

Education and income levels have a strong positive correlation with HRQoL. Saxena *et al.* (2013) reported that higher levels of education among women in rural Uttar Pradesh were associated with improved physical and mental health scores. Dandona *et al.* (2016) also observed that social determinants like caste, religion and employment status influenced the accessibility and affordability of health services, thereby impacting HRQoL among women in rural Bihar and Odisha. Furthermore, gender inequality remains a pervasive issue affecting women's health. Jejeebhoy and Sathar (2001) documented that restricted mobility and limited decision-making power negatively affect women's mental health and their ability to seek timely medical help. These gender-based constraints further exacerbate the disparities in health outcomes. Several studies have shown that targeted health interventions can significantly improve HRQoL among rural women. Chowdhary *et al.* (2014) conducted a randomized controlled trial in India to assess the impact of community-based mental health interventions and found improvements in psychological and environmental domains of WHOQOL-BREF. Likewise, Krishna *et al.* (2012) evaluated maternal health programs in Tamil Nadu and showed that access to antenatal and postnatal care services led to enhanced HRQoL outcomes.

3 STUDY AREA

The name "Koch Bihar" originated from two terms: "Koch" refers to the ethnic group that primarily resides in this region, and "Bihar" or "Behar" derived from the Sanskrit word "Vihara", which means "to abode or spot". The Koch Bihar district in its present status was formed by the agreement of August 28, 1948, which

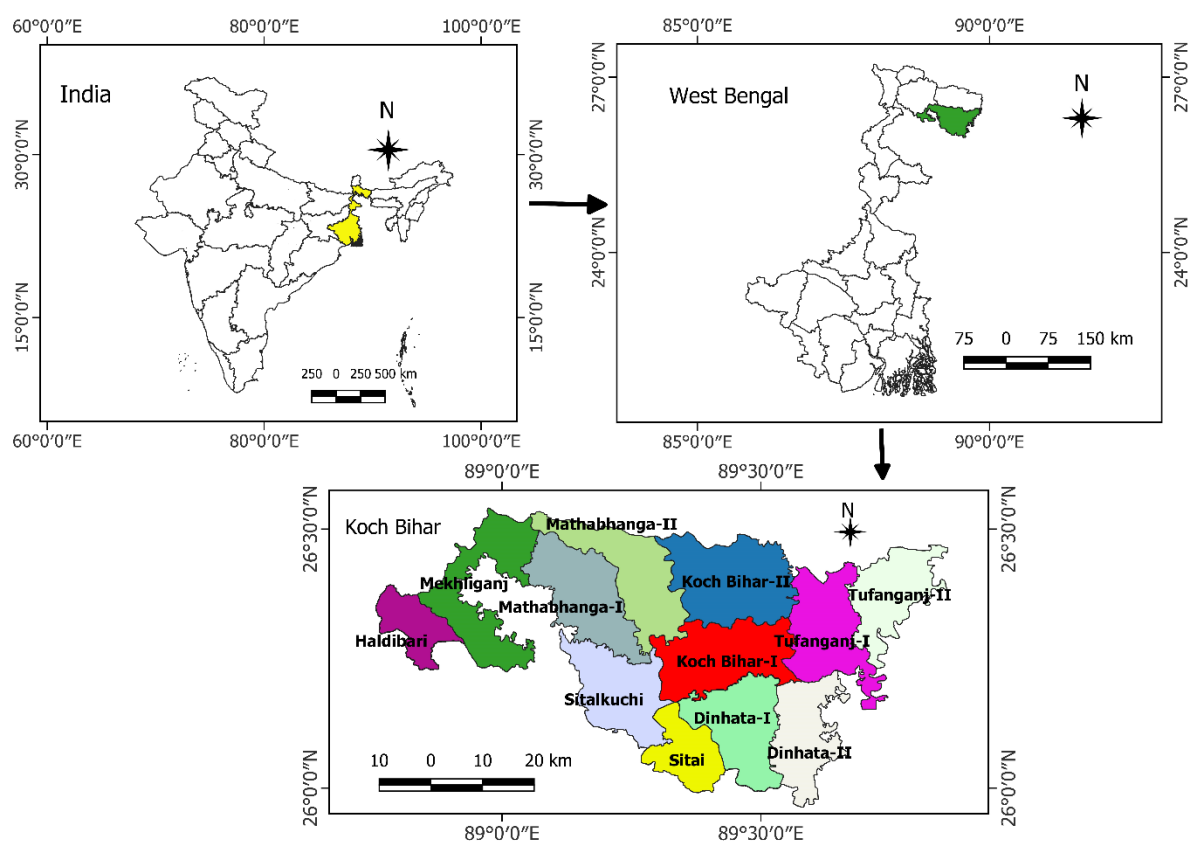


Figure 1. Location of the study area

declared the termination of complete and comprehensive authority and the transfer of jurisdiction and power from the former princely rulers of feudatory Koch Bihar state to the Dominion of India. The present-day district of Koch Bihar in the state of West Bengal was formally established on January 19, 1950, following the transfer of power from the monarchal rulers to the Indian Union (DCHB, 2011). After the amalgamation of the district with Union of India, Koch Bihar is now a district in the state of West Bengal and is administered by the same administrative, civil and judicial structures as the other districts.

4 SAMPLES AND DATA COLLECTION

The present study employed a simple random sampling technique to select respondents from the target population of married women in rural areas of Koch Bihar district. A total of 569 married respondents were selected using this method (Table 1). Simple random sampling was chosen due to its capacity to minimize selection bias. Each respondent in the population had an equal and independent probability of being included in the sample, thus ensuring that the sample was representative of the broader population of interest. The sampling frame consisted of married individuals who met predefined inclusion criteria

relevant to the research objectives. The selection was executed using a computerized random number generator to guarantee the objectivity and replicability of the process. This approach is particularly suitable for quantitative research, where statistical inference and generalizability of findings to the larger population are critical.

Data were collected using the interview method, guided by a structured questionnaire schedule. This method was selected to ensure standardized data collection while allowing for the clarification of queries in real time. Structured interviews were conducted face-to-face, facilitating personal engagement and promoting respondent cooperation, particularly valuable in capturing sensitive or complex information. This questionnaire was meticulously designed to align with the research objectives and included both closed-ended and Likert-scale items to elicit quantifiable responses. Prior to full-scale deployment, the instrument was pilot-tested to assess its reliability and validity. Necessary revisions were made to improve clarity, relevance, and internal consistency. The data collection process was executed with strict adherence to ethical guidelines. Informed consent was obtained from all participants, and

Table 1. Sample size

CDBs	No. of married respondents
Haldibari	30
Mekhliganj	65
Mathabhanga-I	50
Mathabhanga-II	52
Koch Bihar-I	69
Koch Bihar-II	60
Tufanganj-I	40
Tufanganj-II	26
Dinhata-I	58
Dinhata-II	59
Sitai	31
Sitalkuchi	29
Koch Bihar	569

confidentiality of responses was maintained throughout the study. The structured nature of the interview schedule ensured uniformity in the administration of questions, thereby minimizing interviewer bias and improving data quality.

5 RESEARCH METHODS

The study was carried out in the rural areas of Koch Bihar district, West Bengal, India. Administratively, the district is composed of 12 Community Development Blocks (CDBs), which are further subdivided into Gram Panchayats (GPs) and villages (mouzas). According to the Census of India (2011), Koch Bihar district comprises 1,132 inhabited villages. A multi-stage random sampling technique was employed for the selection of sample villages. In the first stage, all 12 CDBs were included to ensure district-wide representation. In the second stage, 5% of the total inhabited villages from each block were randomly selected. Consequently, a total of 58 villages were surveyed for the present study. To capture spatial and infrastructural variability, both remote villages and villages located in proximity to the respective CDB headquarters were prioritized in the sampling process. Collected data were processed and analyzed using the simple percentage method. This descriptive statistical technique was applied to summarize and interpret the responses, allowing for a clear presentation of variations in HRQoL among married women across the study area. For spatial representation and cartographic analysis, QGIS (Quantum Geographic Information System) software was used. Maps were prepared to illustrate the geographical location of the study area and the administrative divisions.

6 INDICATORS TAKEN FOR THE STUDY

The present study adopts a multidimensional framework to examine HRQoL among rural women, recognizing that health is influenced by a complex interplay of physical, psychological, reproductive and social factors. HRQoL in this context, refers to an

individual's perceived physical and mental health over time, particularly as it is shaped by socio-cultural and healthcare-related determinants. To holistically assess HRQoL, the study incorporates five critical indicators: psychological health condition, various health complications, types of medical treatments, reproductive health status and married life satisfaction. Psychological well-being is a fundamental determinant of HRQoL. In rural settings, women often encounter stressors such as poverty, gender-based discrimination and limited autonomy, which may contribute to mental health issues including anxiety, depression and emotional distress. These psychological burdens can impair a woman's ability to function effectively in daily life, reduce motivation for self-care and negatively influence overall health outcomes. Therefore, assessing psychological health is essential for understanding the broader implications of well-being. The presence of physical health complications ranging from communicable diseases to chronic non-communicable conditions directly influences quality of life. Inadequate nutrition, limited access to clean water and insufficient health education in rural areas often result in higher susceptibility to illness. These health complications not only diminish physical capacity but also affect psychological and economic stability, thereby lowering HRQoL. Access to timely and appropriate medical treatment plays a pivotal role in determining health outcomes. In many rural areas, healthcare infrastructure is underdeveloped, and women face barriers such as lack of transportation, high out-of-pocket expenses and social stigma. The study examines the type, frequency and quality of medical interventions received, as well as perceived satisfaction with treatment. These factors are integral in evaluating how effectively rural women can manage their health conditions. Reproductive health is a core aspect of women's health and significantly impacts HRQoL. Issues such as menstrual hygiene, family planning, maternal healthcare and postnatal services are often neglected in rural areas due to cultural taboos and infrastructural limitations. Poor reproductive health can lead to serious long-term complications, both physically and psychologically, highlighting the importance of including this dimension in the overall assessment of quality of life. The quality of marital life is a vital social determinant of health, particularly in patriarchal societies. Marital satisfaction is linked to emotional support, decision-making power and overall life stability. Conversely, marital discord, domestic violence or lack of communication can contribute to chronic stress and deteriorating mental and physical health. Including this indicator enables a more nuanced understanding of how interpersonal relationships influence women's well-being.

Variables taken for construction of health index (HI)

Variables code	List of selected variables
X1	Percentage of respondents reported no illness
X2	Percentage of respondents take medicine on time
X3	Percentage of respondents timely go to the doctors when they feel sick
X4	Percentage of respondents go for health check up every month
X5	Percentage of respondents have taken Covid-19 vaccine
X6	Percentage of respondents take medical treatments from private nursing homes
X7	Percentage respondents satisfied on health services provided by local Accredited Social Health Activists (ASHAs)
X8	Percentage of respondents uses sanitary latrine
X9	Percentage of respondents maintain hygiene
X10	Per month expenditure on health
X11	Percentage of respondents aware of govt. family planning schemes
X12	Percentage of respondents feel enough energy to do daily activities
X13	Percentage of respondents satisfied with their sleep
X14	Percentage of respondents satisfied with their overall health conditions
X15	Average number of health workers in nearest PHC

7 RESULTS

7.1 Types of health problems

Health is a multidimensional construct influenced by biological, environmental and socio-cultural factors. In rural settings, where access to healthcare services is often constrained, short-term illnesses can serve as indicators of broader systemic inadequacies in health infrastructure and awareness. Table 2 presents a quantitative summary of short-term health problems experienced by women across various CDBs in Koch Bihar district, based on primary data collected during the 2024 field survey. The table categorizes short-term health conditions into seven major types: fever, cold/cough, headache, toothache, body pain, mood swings, and wound/cut. The data illustrate the percentage of female respondents affected by each condition in every CDBs surveyed. Across the district, body pain emerged as the most frequently reported condition (average: 17.85%), followed by headache (13.72%) and cold/cough (10.03%) (Figure 2). The predominance of body pain and headache is suggestive of physically demanding labor, poor ergonomic practices and potentially insufficient rest conditions

common in agrarian and informal sector employment typically undertaken by rural women. Psychosomatic symptoms, represented by mood swings (11.58%), indicate a growing burden of mental health issues among rural women; possibly linked to social stressors, lack of autonomy and inadequate emotional support. While traditionally underreported, the inclusion of mood swings in the study reflects a more holistic approach to women's health. Toothache (5.87%) and wound/cut injuries (7.19%) were the least reported problems, yet their presence points to gaps in preventive care, hygiene awareness and first-aid accessibility. Notably, the variation in prevalence across blocks suggests regional disparities in health status, possibly influenced by environmental, occupational and infrastructural differences. Sitalkuchi recorded the highest incidence of headache (19.34%) and cold/cough (10.43%), potentially due to climatic variations, pollution exposure or respiratory sensitivity. Sitai registered the highest level of body pain (22.13%), indicating high physical workload and possibly musculoskeletal strain. Tufanganj-I had the highest prevalence of toothache (8.41%), pointing to oral health neglect or dietary factors. Haldibari reported the highest rate of mood swings (14.85%), which may be reflective of psychosocial distress unique to this locality. Mathabhanga-II demonstrated higher-than-average values in multiple categories, notably headache (15.76%) and cold/cough (11.64%), which may reflect a cluster of morbidity factors related to environmental and housing conditions. The diversity in health problems across CDBs highlights the need for decentralized and tailored health interventions. Physical morbidities, particularly those associated with manual labor, should be addressed through community-level awareness campaigns, ergonomic education and primary care services. Simultaneously, the recognition of mood-related symptoms calls for integrating mental health services within the rural healthcare system. Moreover, preventive healthcare, including dental check-ups, immunizations and first-aid training, should be prioritized in public health agendas. Regional disparities underscore the importance of block-level health assessments to inform policy decisions and ensure equitable distribution of healthcare resources.

Table 3 delineates the prevalence of various long-term health conditions among respondents across different CDBs in the Koch Bihar district. The table encapsulates seven major categories of chronic illnesses, namely: thyroid disorders, blood pressure (BP) problems, diabetes, cancer, asthma, tuberculosis (TB) and gastrointestinal diseases.

The data indicate that thyroid-related problems are most prevalent in Mathabhanga-I (9.33%) and Haldibari (8.89%), followed by Mathabhanga-II (8.00%). This trend suggests a regional concentration

Table 2. Short-term health problems of the respondents in Koch Bihar district

CDBs	Short-term health problems						
	Percentage of respondents						
	Fever	Cold/Cough	Headache	Toothache	Body Pain	Mood Swings	Wound/Cut
Haldibari	6.54	8.33	12.67	2.54	18.23	14.85	5.65
Mekhliganj	5.82	7.34	14.23	4.37	16.76	13.43	7.33
Mathabhanga-I	7.45	10.62	9.54	3.45	14.27	11.39	6.78
Mathabhanga-II	4.42	11.64	15.76	5.32	15.65	9.86	8.43
Koch Bihar-I	6.75	12.64	16.69	5.72	17.89	12.55	9.63
Koch Bihar-II	8.31	9.33	16.82	7.49	20.61	10.23	4.61
Tufanganj-I	6.53	10.83	8.57	8.41	19.35	13.33	9.82
Tufanganj-II	10.42	13.73	13.28	3.92	14.58	9.27	4.84
Dinhata-I	6.72	5.83	7.25	6.74	16.73	13.65	6.15
Dinhata-II	5.18	8.21	14.72	7.33	19.46	10.27	7.65
Sitai	7.42	11.38	15.77	8.26	22.13	9.53	6.10
Sitalkuchi	8.40	10.43	19.34	6.90	18.54	10.61	9.27
Koch Bihar	6.99	10.03	13.72	5.87	17.85	11.58	7.19

Table 3. Long-term health problems of the respondents in Koch Bihar district

CDBs	Long term health problems						
	Percentage of respondents						
	Thyroid Problems	BP Problems	Diabetic	Cancer	Asthma	TB	Gastrointestinal Disease
Haldibari	8.89	6.67	4.44	0.00	0.00	2.22	11.11
Mekhliganj	6.67	7.62	5.71	0.95	1.90	0.95	4.76
Mathabhanga-I	9.33	8.00	5.33	0.00	0.00	0.00	9.33
Mathabhanga-II	8.00	9.33	6.67	0.00	0.00	0.00	10.67
Koch Bihar-I	7.62	9.52	8.57	0.00	1.90	0.00	10.48
Koch Bihar-II	4.44	8.89	5.56	0.00	0.00	0.00	7.78
Tufanganj-I	5.00	5.00	8.33	1.67	0.00	0.00	10.00
Tufanganj-II	6.67	4.44	8.89	0.00	0.00	0.00	11.11
Dinhata-I	5.56	4.44	6.67	0.00	0.00	0.00	7.78
Dinhata-II	7.78	12.22	10.00	0.00	1.11	1.11	8.89
Sitai	4.44	8.89	11.11	0.00	0.00	0.00	6.67
Sitalkuchi	6.67	11.11	8.89	0.00	0.00	0.00	4.44
Koch Bihar	6.78	8.16	7.36	0.23	0.57	0.34	8.51

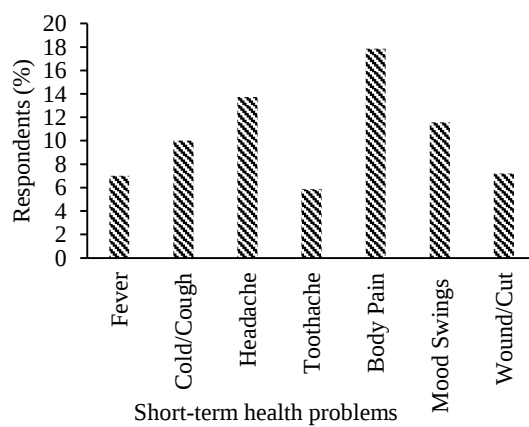


Figure 2. Short-term health problems of the respondents

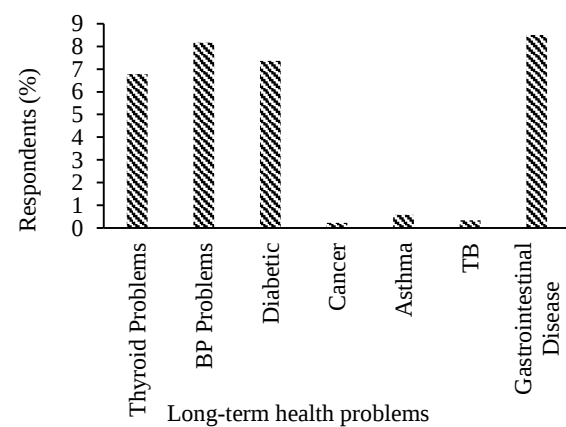


Figure 3. Long-term health problems of the respondents

of thyroid issues that may be linked to dietary or environmental factors specific to these blocks. In terms of blood pressure-related problems, Dinhata-II exhibits the highest prevalence (12.22%), followed by Sitalkuchi (11.11%), and Koch Bihar-I (9.52%). The elevated incidence of hypertension in these areas could be associated with lifestyle patterns, including stress and dietary habits. Diabetes is notably high in Sitai (11.11%), Dinhata-II (10.00%), and Tufanganj-II (8.89%), which indicates an emerging non-communicable disease burden that may require targeted public health interventions. The lowest diabetes prevalence was recorded in Haldibari (4.44%). Cancer remains a relatively rare condition among respondents, with a marginal presence in Mekhliganj (0.95%) and Tufanganj-I (1.67%). The overall district average stands at 0.23%, indicating limited incidence but suggesting the need for early screening and detection mechanisms. The incidence of asthma is also generally low, with the highest percentage observed in Koch Bihar-I (1.90%). This could potentially be attributed to urban environmental factors such as pollution or indoor air quality. Tuberculosis (TB) shows minimal presence, with Haldibari (2.22%) and Dinhata-II (1.11%) recording the highest values. These figures suggest localized vulnerability, possibly linked to socio-economic and living conditions. Gastrointestinal diseases are the most widespread among the chronic conditions listed, particularly in Haldibari (11.11%), Tufanganj-II (11.11%) and Mathabhanga-II (10.67%). The district average for gastrointestinal issues is 8.51%, indicating a significant public health concern that

may be connected to water quality, sanitation and food safety issues (Figure 3).

7.2 Types of medical treatment

Table 4 presents a comparative analysis of the types of medical treatment utilized by respondents across different CDBs in the Koch Bihar district. The three principal categories of treatment considered are Allopathic, Homeopathic and Ayurvedic systems. The data, derived from a field survey conducted in 2024, sheds light on the dominant healthcare preferences among the population in both rural areas. The findings reveal that allopathic treatment is overwhelmingly the most preferred medical system across all CDBs, with an overall average of 75.71% of respondents relying on it. The highest dependence on allopathy is observed in Haldibari (85.71%), followed closely by Tufanganj-II (85.71%). These figures suggest a strong public inclination towards modern, institutionalized medical care, likely due to its perceived efficacy and accessibility. Conversely, the adoption of homeopathic treatment varies significantly, with the highest proportion of users in Dinhata-II (22.22%), followed by Tufanganj-I and Dinhata-I (21.05% and 16.67%, respectively). The average usage of homeopathy stands at 12.14% across the district. These findings point to the sustained relevance of alternative medicine, particularly in areas where individuals may seek treatments with fewer side effects or prefer more traditional healing modalities. Ayurvedic medicine, the indigenous system of healthcare rooted in Indian tradition, is utilized by an average of 12.15% of respondents. Notably, Koch Bihar-II exhibits the highest usage at 21.05%, followed by Mathabhanga-I (16.67%) and Mathabhanga-II (16.00%). The data implies that

Table 4: Types of medical treatments taken by the respondents

CDBs	Types of medical treatment		
	Percentage of respondents		
	Allopathic	Homeopathic	Ayurvedic
Haldibari	85.71	4.76	9.52
Mekhliganj	73.68	10.53	15.79
Mathabhanga-I	77.78	5.56	16.67
Mathabhanga-II	76.00	8.00	16.00
Koch Bihar-I	81.82	13.64	4.55
Koch Bihar-II	63.16	15.79	21.05
Tufanganj-I	63.16	21.05	15.79
Tufanganj-II	85.71	4.76	9.52
Dinhata-I	70.83	16.67	12.50
Dinhata-II	66.66	22.22	11.11
Sitai	80.77	11.54	7.69
Sitalkuchi	83.33	11.11	5.56
Koch Bihar	75.71	12.14	12.15

Ayurveda still maintains cultural and therapeutic significance in certain parts of the district, possibly influenced by generational knowledge, trust in natural remedies and accessibility to Ayurvedic practitioners. It is important to highlight the inverse relationship between reliance on allopathic treatment and alternative systems (homeopathy and Ayurveda) in several blocks. For instance, blocks with high allopathic usage, such as Haldibari and Tufanganj-II, show markedly lower percentages in both alternative systems, indicating a substitutional rather than complementary pattern of medical system adoption. Overall, the table suggests a hybrid healthcare landscape in Koch Bihar, where while modern allopathic medicine predominates, traditional and alternative systems like homeopathy and Ayurveda continue to serve as significant components of the health-seeking behavior among sections of the population. This pluralistic approach to healthcare may reflect varying levels of access, affordability, cultural beliefs, and perceptions of efficacy. Many rural women consume medicines such as paracetamol, antibiotics, analgesics and drugs for gastric problems by purchasing them directly from local medical stores without a doctor's prescription for common ailments like fever, headache, cold and cough and diarrhoea. In addition, they often rely on home remedies and Ayurvedic or herbal treatments, including the use of Tulsi leaves, ginger, turmeric milk, neem leaves and medicines prescribed by traditional healers.

7.3 Place of medical treatment

Table 5 illustrates the healthcare-seeking behavior of respondents across various CDBs in the Koch Bihar district, highlighting the places where medical treatments are most commonly sought. The data, collected through a field survey in 2024, categorizes treatment venues into Government Hospitals, Nursing Homes and Chemists/Pharmacists. The findings reveal a complex pattern of health service utilization, influenced by factors such as accessibility, affordability, quality of care and perceived effectiveness. On average, 56.70% of respondents across the district reported utilizing government hospitals (Figure 4). This preference is especially high in Mathabhanga-II (68.00%), Haldibari (65.00%) and Sitai (65.38%), indicating a significant reliance on public healthcare infrastructure. These figures suggest that, despite infrastructural constraints, government hospitals remain the cornerstone of medical treatment for a large section of the rural population due to cost-effectiveness and broader reach. Utilization of nursing homes, which typically offer private healthcare services, remains comparatively low, with a district-wide average of 11.39%. However, certain blocks like Tufanganj-I (19.05%), Mathabhanga-I (17.65%) and Sitai (15.38%) show relatively higher utilization, which may be attributed to the proximity of private facilities or dissatisfaction with government services in those areas. The moderate-to-low usage of nursing

homes across most blocks reflects economic limitations, indicating that private healthcare remains inaccessible for a substantial portion of the population. A significant finding is the relatively high dependence on chemists/pharmacists for medical treatment, averaging 31.91% across the district. In blocks such as Tufanganj-II (45.00%), Koch Bihar-I (38.10%), and Sitalkuchi (38.89%), the reliance on pharmacists surpasses that on government hospitals or nursing homes. This trend is indicative of informal healthcare practices, where individuals bypass formal consultation and directly approach pharmacists, often due to lower costs, convenience or a lack of awareness about the potential risks of self-medication. The data suggest a worrying pattern of medical pluralism in which a significant portion of the population continues to rely on less formal and often unregulated healthcare providers. This is particularly concerning in the context of accurate diagnosis, treatment adherence and long-term health outcomes. For example, blocks like Mathabhanga-I (35.29%) and Dinhata-I (33.34%) show notable dependence on chemists, which may be a result of poor access to doctors or inefficient healthcare delivery systems. Primary Health Centres (PHCs) and ASHAs play a crucial role in providing healthcare services to rural women in the Koch Bihar district of West Bengal. PHCs serve as the primary point of contact within the formal healthcare system and deliver preventive, promotive and curative services. They provide maternal and child healthcare, including antenatal and postnatal care, immunization, family planning and treatment for common illnesses, thereby contributing to the reduction of maternal and infant morbidity and mortality. PHCs also function as referral centres for complicated cases requiring higher-level medical attention. ASHAs complement the services of PHCs by acting as community-based health workers who bridge the gap between rural women and healthcare facilities.

7.4 Types of delivery

Table 6 presents an analysis of childbirth practices among married women respondents across various CDBs of Koch Bihar district, focusing on the proportion of women who have had children and the types of deliveries (Cesarean Section vs. Normal/Vaginal delivery). Out of the total sample, 528 women (92.79%) reported having children, indicating a high fertility rate across the district. Among the blocks, Tufanganj-I (97.50%), Sitai (96.77%), and Dinhata-I (94.83%) recorded the highest percentages of women with children, reflecting the prevailing social norms of early and nearly universal childbearing in rural Koch Bihar. When examining the types of delivery, 418 births (79.17%) occurred through normal delivery, while 110 births (20.83%) were conducted via Cesarean Section (C-section).

The relatively lower prevalence of C-section deliveries is consistent with rural healthcare practices

where institutional deliveries may not always involve advanced surgical interventions, either due to lack of facilities or cultural preference for vaginal births. However, notable variations exist across CDBs. The highest rate of C-section deliveries is observed in Koch Bihar-II (31.48%), Tufanganj-I (33.33%) and Koch Bihar-I (25.00%). These blocks are relatively more urbanized and have better access to institutional medical services, possibly contributing to the greater incidence of surgical interventions. In contrast, Tufanganj-II (13.04%), Mekhliganj (13.79%) and Sitalkuchi (14.29%) show significantly lower reliance on C-sections, which may reflect limited access to emergency obstetric care or a stronger inclination toward traditional birthing practices. The predominance of normal deliveries in most CDBs suggests a continuing dependence on either home births or primary health centers that may not always support or recommend surgical options unless absolutely necessary. Blocks such as Tufanganj-II (86.96%), Sitalkuchi (85.71%) and Mathabhanga-II (85.71%) show a clear preference for normal deliveries, potentially pointing to effective maternal health management in those areas or a lack of facilities to conduct C-sections.

7.5 Place of delivery

Table 7 presents the percentage distribution of respondents across various CDBs based on the place of delivery. The places of delivery are classified into four categories: government hospitals, nursing homes, Matreema centres and at home. A closer examination of the data reveals that government hospitals remain the most utilized institutional facility for childbirth, accounting for 34.09% of all deliveries. This preference indicates a moderate level of trust in public

healthcare infrastructure for maternal services across the region. However, a substantial proportion of women, 40.53%, reported delivering at home, which reflects enduring reliance on traditional birthing practices and suggests potential barriers to institutional delivery, such as geographical inaccessibility, financial constraints, cultural preferences or lack of awareness (Figure 5).

Private sector facilities, namely nursing homes, contribute 11.93% to the total deliveries. These figures indicate a growing but still limited role of private maternity care services, which may be influenced by affordability, perceived quality of care, and availability of such institutions in rural and semi-urban localities. At the block level, considerable

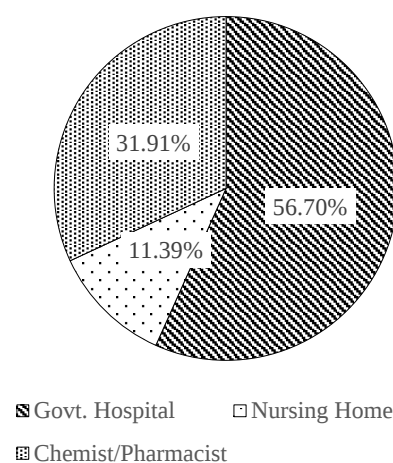


Figure 4. Percentage of the respondents visit different places for medical treatments

Table 5. Place of medical treatments visited by the respondents

CDBs	Place of medical treatments		
	Percentage of respondents		
	Govt. Hospital	Nursing Home	Chemist/Pharmacist
Haldibari	65.00	5.00	30.00
Mekhliganj	55.56	16.67	27.77
Mathabhanga-I	47.06	17.65	35.29
Mathabhanga-II	68.00	12.00	20.00
Koch Bihar-I	52.38	9.52	38.10
Koch Bihar-II	64.71	5.88	29.41
Tufanganj-I	42.86	19.05	38.10
Tufanganj-II	50.00	5.00	45.00
Dinhata-I	58.33	8.33	33.34
Dinhata-II	61.11	11.11	27.78
Sitai	65.38	15.38	19.23
Sitalkuchi	50.00	11.11	38.89
Koch Bihar	56.70	11.39	31.91

Table 6. Percentage distribution of the respondents by types of delivery

CDBs	Total married women	Women having children		Types of delivery			
				C-Section		Normal	
		Nos.	%	Nos.	%	Nos.	%
Haldibari	30	26	86.67	5	19.23	21	80.77
Mekhliganj	65	58	89.23	8	13.79	50	86.21
Mathabhanga-I	50	47	94.00	9	19.15	38	80.85
Mathabhanga-II	52	49	94.23	7	14.29	42	85.71
Koch Bihar-I	69	64	92.75	16	25.00	48	75.00
Koch Bihar-II	60	54	90.00	17	31.48	37	68.52
Tufanganj-I	40	39	97.50	13	33.33	26	66.67
Tufanganj-II	26	23	88.46	3	13.04	20	86.96
Dinhata-I	58	55	94.83	11	20.00	44	80.00
Dinhata-II	59	55	93.22	12	21.82	43	78.18
Sitai	31	30	96.77	5	16.67	25	83.33
Sitalkuchi	29	28	96.55	4	14.29	24	85.71
Total	569	528	92.79	110	20.83	418	79.17

variation in delivery patterns is observed. For instance, Sitai and Sitalkuchi exhibit the highest percentages of home deliveries, at 56.67% and 53.57% respectively, pointing to either low institutional penetration or strong sociocultural inclinations toward home births. In contrast, Tufanganj-I shows the highest institutional delivery rate in government hospitals (51.28%), reflecting better public health infrastructure or awareness campaigns promoting hospital deliveries in that area. Some blocks, such as Tufanganj-I and Tufanganj-II, show relatively balanced distributions among institutional and home deliveries. However, even in blocks with relatively higher institutional delivery rates, the proportion of home births remains significantly high, suggesting that further efforts are needed to promote safe delivery practices through

accessible and culturally sensitive maternal healthcare services.

Table 8 presents the percentage distribution of respondents based on the reception of Tetanus Toxoid (TT) injections during pregnancy across selected CDBs. The analysis of this data reveals important insights into the extent of maternal health service utilization, specifically concerning immunization during pregnancy. Overall, the reception of TT injection among the respondents was notably high, with 486 women (92.05%) reporting that they received at least one dose during pregnancy, while only 42 women (7.95%) indicated otherwise. This high percentage reflects a relatively strong penetration of maternal health services in the surveyed region. However, notable inter-block variations were observed.

Table 7. Distribution of respondents by place of delivery

CDBs	Women having children	Place of Delivery							
		Govt. hospital		Nursing home		Matreema		At home	
		Nos.	%	Nos.	%	Nos.	%	Nos.	%
Haldibari	26	6	23.08	4	15.38	5	19.23	11	42.31
Mekhliganj	58	16	27.59	5	8.62	9	15.52	28	48.28
Mathabhanga-I	47	14	29.79	7	14.89	9	19.15	17	36.17
Mathabhanga-II	49	17	34.69	6	12.24	5	10.20	21	42.86
Koch Bihar-I	64	25	39.06	12	18.75	6	9.38	21	32.81
Koch Bihar-II	54	18	33.33	8	14.81	6	11.11	22	40.74
Tufanganj-I	39	20	51.28	4	10.26	5	12.82	10	25.64
Tufanganj-II	23	8	34.78	2	8.70	3	13.04	10	43.48
Dinhata-I	55	27	49.09	4	7.27	7	12.73	17	30.91
Dinhata-II	55	18	32.73	5	9.09	7	12.73	25	45.45
Sitai	30	4	13.33	4	13.33	5	16.67	17	56.67
Sitalkuchi	28	7	25.00	2	7.14	4	14.29	15	53.57
Total	528	180	34.09	63	11.93	71	13.45	214	40.53

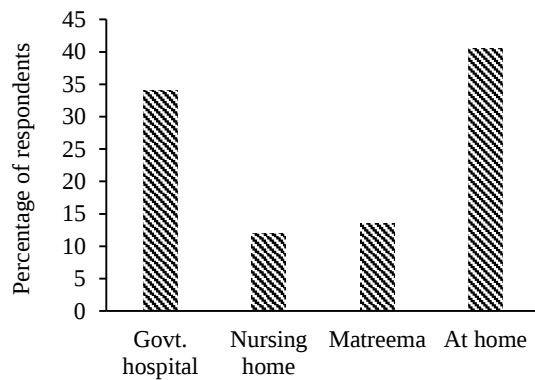


Figure 5. The place of delivery Reception of Tetanus Toxoid (TT) injection during pregnancy

Among the CDBs, Koch Bihar-II (96.30%) and Dinhata-II (96.36%) recorded the highest proportion of TT injection reception, indicating robust healthcare outreach and effective delivery of immunization services. Dinhata-I (94.55%) and Mathabhanga-II (93.88%) also exhibited high levels of TT coverage, underscoring the relative success of maternal health interventions in these areas. Moderately high TT coverage was observed in Tufanganj-I (89.74%), Sitalkuchi (89.29%), and Mathabhanga-I (89.36%), which, although below the overall average, still reflect a favorable situation. However, Sitai (80.00%) emerged as the most underperforming block, with 6 out of 30 women (20.00%) not having received the TT injection during pregnancy. This is followed by Haldibari (84.62%), which also warrants attention due to its relatively lower coverage. The disparities among different blocks suggest that while immunization programs are largely effective, localized challenges persist. These may be attributable to factors such as logistical constraints, lack of awareness, socio-cultural barriers or gaps in health infrastructure.

7.6 Types of family planning methods

Table 9 presents the percentage distribution of married respondents across various CDBs who reported using different types of family planning methods. Based on data collected during a 2024 field survey, the table reflects the contraceptive preferences of 193 individuals and provides valuable insight into the family planning practices prevalent in the region. The data shows a clear dominance of temporary methods, particularly contraceptive pills and Nirodh (condoms), over permanent and clinical methods such as sterilization and intrauterine devices (IUDs). Among all the methods recorded, contraceptive pills emerge as the most commonly used, with 41.45% of the respondents reporting their use (Figure 6). This is closely followed by Nirodh, which accounts for 35.23% of users. The preference for these methods highlights a strong tendency toward temporary, reversible contraceptive options. These methods are widely accessible, do not require clinical procedures, and are generally perceived as safe and convenient by users. In contrast, only 6.74% of the respondents reported using injectable contraceptives and an even smaller proportion, 3.11%, opted for IUDs. The use of sterilization, a permanent method, was reported by 6.22% of the respondents, while 7.25% used other unspecified methods, possibly including traditional or indigenous practices. A closer examination of the data reveals significant variations across different blocks. In blocks such as Sitalkuchi, Mathabhanga-I, and Sitai, the use of contraceptive pills is notably high, indicating effective dissemination of oral contraceptives, possibly supported by government or health worker distribution. Similarly, Nirodh usage is relatively high in blocks like Koch Bihar-I and Dinhata-II, suggesting a fair degree of male participation in family planning in these areas. On the other hand, the adoption of more clinical or long-term methods remains

Table 8. Percentage distribution of the respondents based on the reception of Tetanus Toxoid (TT) during pregnancy

CDBs	Women having children	Reception of Tetanus Toxoid (TT) injection during pregnancy:			
		Yes		No	
		Nos.	%	Nos.	%
Haldibari	26	22	84.62	4	15.38
Mekhliganj	58	53	91.38	5	8.62
Mathabhanga-I	47	42	89.36	5	10.64
Mathabhanga-II	49	46	93.88	3	6.12
Koch Bihar-I	64	61	95.31	3	4.69
Koch Bihar-II	54	52	96.30	2	3.70
Tufanganj-I	39	35	89.74	4	10.26
Tufanganj-II	23	21	91.30	2	8.70
Dinhata-I	55	52	94.55	3	5.45
Dinhata-II	55	53	96.36	2	3.64
Sitai	30	24	80.00	6	20.00
Sitalkuchi	28	25	89.29	3	10.71
Total	528	486	92.05	42	7.95

Source: Field survey, 2024

limited. The low figures for IUD and injectable use point to potential barriers such as lack of awareness, limited access to trained medical personnel or cultural hesitation towards invasive procedures. Sterilization, although limited in most blocks, appears to be more accepted in specific areas such as Tufanganj-II, where 28.57% of respondents reported undergoing the procedure. This suggests a more favorable attitude toward permanent methods in certain local contexts. It may also reflect higher levels of health literacy or greater trust in the public health system. Conversely, in blocks like Sitai and Haldibari, the presence of a significant proportion of respondents using “other” methods may point toward reliance on informal practices or a lack of clarity in understanding standard contraceptive categories. The overall pattern that emerges from the data illustrates a predominantly female-centered approach to family planning, with the burden of contraceptive responsibility falling largely on women. This may be indicative of broader gender dynamics in reproductive health decision-making, where male involvement remains limited to condom use and is otherwise minimal. The low uptake of long-term and permanent contraceptive options across the majority of blocks underscores the need for improved health education, enhanced counseling services and expanded access to a wider range of family planning methods.

7.7 Child birth interval

Table 10 presents the distribution of respondents based on the spacing between childbirths, categorized into intervals of less than 1 year, 1-2 years, 2-3 years, 3-4 years, and more than 4 years. The results indicate a significant skew toward longer birth intervals, particularly in the 3-4 year and more than 4-year

categories. Specifically, 32.95% of the respondents reported a birth interval of 3-4 years, while 21.02% reported spacing of more than 4 years between children. These figures reflect a gradual shift toward healthier spacing practices, which are positively associated with improved maternal and child health outcomes. A further 32.20% of women reported a 2-3 year interval, which also falls within the recommended birth spacing suggested by public health agencies such as the WHO.

Shorter birth intervals-those less than 2 years-were far less common. Only 0.57% of women reported a spacing of less than one year, while 13.26% indicated a birth interval of 1-2 years. These figures are

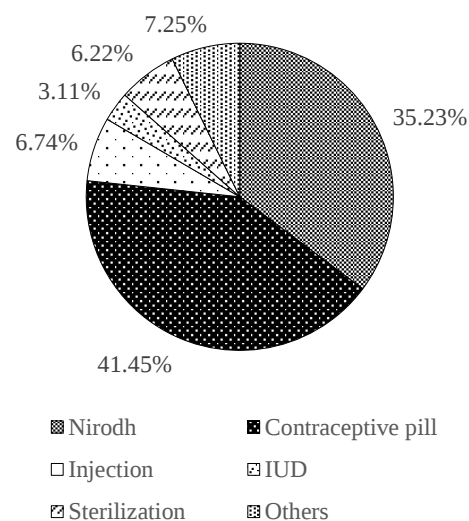


Figure 6. Types of family planning methods

Table 9. Percentage distribution of the respondents based on types of family planning methods adoption

CDBs	No. of married respondents using family planning methods	Types of family planning methods											
		Nirodh		Contraceptive pill		Injection		IUD		Sterilization		Others	
		No. s.	%	N os.	%	N os.	%	N os.	%	N os.	%	N os.	%
Haldibari	12	4	33.33	5	41.67	0	0.00	0	0.00	1	8.33	2	16.67
Mekhliganj	18	7	38.89	8	44.44	1	5.56	1	5.56	0	0.00	1	5.56
Mathabhanga-I	20	6	30.00	9	45.00	2	10.00	0	0.00	2	10.00	1	5.00
Mathabhanga-II	17	5	29.41	7	41.18	1	5.88	1	5.88	1	5.88	2	11.76
Koch Bihar-I	20	9	45.00	7	35.00	2	10.00	0	0.00	2	10.00	0	0.00
Koch Bihar-II	25	8	32.00	10	40.00	3	12.00	2	8.00	1	4.00	1	4.00
Tufanganj-I	11	4	36.36	5	45.45	0	0.00	0	0.00	1	9.09	1	9.09
Tufanganj-II	7	2	28.57	3	42.86	0	0.00	0	0.00	2	28.57	0	0.00
Dinhata-I	22	7	31.82	10	45.45	2	9.09	0	0.00	0	0.00	3	13.64
Dinhata-II	23	11	47.83	7	30.43	1	4.35	2	8.70	2	8.70	0	0.00
Sitai	10	3	30.00	5	50.00	0	0.00	0	0.00	0	0.00	2	20.00
Sitalkuchi	8	2	25.00	4	50.00	1	12.50	0	0.00	0	0.00	1	12.50
Total	193	68	35.23	80	41.45	13	6.74	6	3.11	12	6.22	14	7.25

encouraging, as short intervals between pregnancies are often associated with higher risks of adverse outcomes, including low birth weight, premature births and maternal depletion. The relatively low prevalence of short intervals may indicate an increasing awareness of the health implications of closely spaced pregnancies, as well as the impact of family planning interventions and maternal counseling services. However, there are significant variations across CDBs. For instance, Mathabhanga-I and Koch Bihar-I reported notably high percentages of respondents with birth intervals exceeding four years (40.43% and 37.50% respectively), while Tufanganj-II and Dinhata-II recorded high proportions in the 3-4 year category (43.48% and 41.82%). These findings may point to better access to and utilization of family planning services in these areas, or to specific cultural or economic factors that influence reproductive decision-making. Conversely, blocks such as Koch Bihar-I and Koch Bihar-II also exhibit considerable representation in the 3-4 year interval group (32.81% and 27.78% respectively), but they also have sizable proportions of women spacing births over four years (37.50% and 22.22%). These results suggest a balanced distribution between moderately and widely spaced births, possibly indicating diverse patterns of fertility control. Interestingly, some blocks such as Dinhata-I and Dinhata-II report a relatively even distribution across multiple spacing categories, suggesting heterogeneity in reproductive behaviors within these populations. On the other hand, blocks like Sitai show a clustering in the 2-3 year (46.67%) and 3-4 year (20.00%) categories, potentially reflecting a prevailing community norm regarding birth intervals. The minimal number of respondents reporting childbirth intervals shorter than one year; restricted to a handful of blocks such as Koch Bihar-I (1.56%) and Dinhata-I (3.64%); is a positive public health indicator. It suggests that the region has largely moved away from

extremely short birth intervals, which historically posed significant health risks. Nonetheless, the presence of any such cases warrants continued monitoring and targeted counseling, especially in rural or underserved areas where awareness and access might still be limited.

7.8 Married life satisfaction

Table 11 presents the distribution of married life satisfaction among respondents across different CDBs of Koch Bihar district. Overall, the findings indicate a predominantly positive perception of married life among the respondents. More than half of the respondents (50.44%) reported being satisfied with their married life, while nearly one-fourth (23.20%) stated that they were very satisfied. Together, these categories account for over 73% of the total respondents, reflecting a generally favourable marital experience in the study area. However, a notable proportion of respondents (20.21%) reported being neither satisfied nor dissatisfied, suggesting the presence of marital ambivalence, possibly influenced by socio-economic pressures, health conditions or household responsibilities. A relatively smaller share of respondents (6.15%) expressed dissatisfaction with their married life, though variations are evident across CDBs. Higher levels of dissatisfaction were observed in blocks such as Sitalkuchi and Dinhata-I, whereas blocks like Haldibari and Tufanganj-II recorded comparatively lower dissatisfaction levels. Inter-block variation in satisfaction levels highlights the influence of local socio-economic, cultural and health-related factors on marital well-being. Overall, the table underscores that while marital satisfaction is generally high, a significant minority experiences neutrality or dissatisfaction, warranting focused policy and intervention measures to improve family well-being and quality of life.

Table 10. Spacing of child births of the respondents

CDBs	Women having children	Birth Interval									
		1 year		1-2 years		2-3 years		3-4 years		>4 years	
		Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Haldibari	26	0	0.00	7	26.92	10	38.46	7	26.92	2	7.69
Mekhliganj	58	0	0.00	10	17.24	20	34.48	22	37.93	6	10.34
Mathabhanga-I	47	0	0.00	0	0.00	10	21.28	18	38.30	19	40.43
Mathabhanga-II	49	0	0.00	16	32.65	13	26.53	11	22.45	9	18.37
Koch Bihar-I	64	1	1.56	2	3.13	16	25.00	21	32.81	24	37.50
Koch Bihar-II	54	0	0.00	7	12.96	20	37.04	15	27.78	12	22.22
Tufanganj-I	39	0	0.00	3	7.69	16	41.03	16	41.03	4	10.26
Tufanganj-II	23	0	0.00	3	13.04	5	21.74	10	43.48	5	21.74
Dinhata-I	55	2	3.64	10	18.18	19	34.55	15	27.27	9	16.36
Dinhata-II	55	0	0.00	4	7.27	17	30.91	23	41.82	11	20.00
Sitai	30	0	0.00	2	6.67	14	46.67	6	20.00	8	26.67
Sitalkuchi	28	0	0.00	6	21.43	10	35.71	10	35.71	2	7.14
Total	528	3	0.57	70	13.26	170	32.20	174	32.95	111	21.02

Table 11. Level of married life satisfaction of the respondents

CDBs	Total Respondents	Married Life Satisfaction Level							
		Very Satisfied		Satisfied		Neither Satisfied nor Dissatisfied		Dissatisfied	
		Nos.	%	Nos.	%	Nos.	%	Nos.	%
Haldibari	30	8	26.67	16	53.33	5	16.67	1	3.33
Mekhliganj	65	15	23.08	36	55.38	11	16.92	3	4.62
Mathabhanga-I	50	12	24.00	27	54.00	9	18.00	2	4.00
Mathabhanga-II	52	16	30.77	25	48.08	8	15.38	3	5.77
Koch Bihar-I	69	15	21.74	31	44.93	18	26.09	5	7.25
Koch Bihar-II	60	14	23.33	29	48.33	13	21.67	4	6.67
Tufanganj-I	40	10	25.00	20	50.00	8	20.00	2	5.00
Tufanganj-II	26	7	26.92	13	50.00	5	19.23	1	3.85
Dinhata-I	58	12	20.69	26	44.83	15	25.86	5	8.62
Dinhata-II	59	13	22.03	30	50.85	12	20.34	4	6.78
Sitai	31	6	19.35	18	58.06	5	16.13	2	6.45
Sitalkuchi	29	4	13.79	16	55.17	6	20.69	3	10.34
Koch Bihar	569	132	23.20	287	50.44	115	20.21	35	6.15

7.9 Psychological health conditions

Table 12 provides a comprehensive overview of respondents' perceptions regarding mental health conditions across various CDBs within the study area. Based on data derived from a field survey conducted in 2024, the table categorizes perceptions into four evaluative dimensions: very good, good, poor and very poor. A majority of respondents displayed a favorable disposition toward mental health conditions, with 59.40% rating their perception as "good" and 30.05% as "very good".

These positive assessments indicate an encouraging trend of mental health awareness and potentially greater acceptance or destigmatization in the general population. The predominance of favorable perceptions was particularly evident in blocks such as Mathabhanga-I (42.00% very good and 46.00% good), Dinhata-II (25.42% very good and 66.10% good), and Sitalkuchi (31.03% very good and 58.62% good), suggesting these areas may have benefited from greater outreach or exposure to mental health information. Notably, the block of Koch Bihar-II exhibited the highest percentage of respondents who rated mental health conditions as "poor" (15.00%), although it also had a majority rating of "good" (55.00%). Similarly, Dinhata-I recorded the highest proportion of respondents (20.69%) who assessed mental health conditions negatively as "poor," reflecting a possible persistence of misconceptions, stigma, or inadequate access to mental health resources in that area. Moreover, Tufanganj-II, though smaller in size, had the highest share of respondents perceiving mental health conditions as "very poor" (7.69%), suggesting the presence of significant gaps in understanding and awareness. Across all blocks, the cumulative percentage of "poor" and "very poor" perceptions remained relatively low, at 8.96% and 1.58%, respectively.

However, the presence of any negative perception, even in smaller proportions, is indicative of lingering stigma and a critical need for targeted mental health education and outreach programs. Blocks like Mathabhanga-II (5.77% poor and 1.92% very poor), Koch Bihar-I (4.35% poor), and Dinhata-II (8.47% poor) represent areas that may benefit from intensified sensitization campaigns. The perceptual landscape across the blocks reflects a complex interplay of socio-cultural, educational and possibly infrastructural factors influencing community attitudes. The dominance of "good" and "very good" ratings is promising and reflects a growing recognition of the importance of mental health in rural and semi-urban settings. However, the persistence of some negative evaluations underscores the need for a sustained, multifaceted approach to mental health literacy, which combines public education, integration of mental health services into primary care and the reduction of associated stigma through community engagement.

Table 13 presents the percentage distribution of respondents' perceptions regarding thinking about life across different CDBs of Koch Bihar district. Overall, the findings reveal a predominantly positive outlook among the respondents. At the district level, more than half of the respondents (52.37%) reported a positive perception, followed by 20.39% who expressed a very positive perception. Together, nearly three-fourths of the respondents demonstrate a favourable orientation towards life, indicating comparatively better psychological well-being. About 22.14% of respondents were somewhat positive, while only a small proportion (5.10%) reported a negative perception. Block-wise variations are evident. Blocks such as Tufanganj-II and Mathabhanga-II recorded relatively higher proportions of very positive responses, whereas Sitalkuchi showed

Table 12. Perceptions of the respondents on mental health conditions

CDBs	Total respondents	Perceptions on mental health conditions							
		Very good		Good		Poor		Very poor	
		Nos.	%	Nos.	%	Nos.	%	Nos.	%
Haldibari	30	11	36.67	18	60.00	1	3.33	0	0.00
Mekhliganj	65	22	33.85	40	61.54	3	4.62	0	0.00
Mathabhanga-I	50	21	42.00	23	46.00	4	8.00	2	4.00
Mathabhanga-II	52	14	26.92	34	65.38	3	5.77	1	1.92
Koch Bihar-I	69	24	34.78	42	60.87	3	4.35	0	0.00
Koch Bihar-II	60	15	25.00	33	55.00	9	15.00	3	5.00
Tufanganj-I	40	12	30.00	25	62.50	2	5.00	1	2.50
Tufanganj-II	26	7	26.92	14	53.85	3	11.54	2	7.69
Dinhata-I	58	13	22.41	33	56.90	12	20.69	0	0.00
Dinhata-II	59	15	25.42	39	66.10	5	8.47	0	0.00
Sitai	31	8	25.81	20	64.52	3	9.68	0	0.00
Sitalkuchi	29	9	31.03	17	58.62	3	10.34	0	0.00
Koch Bihar	569	171	30.05	338	59.40	51	8.96	9	1.58

Table 13. Percentage distributions of the respondents based on perceptions on thinking about life

CDBs	Total Respondents	Perceptions on Thinking about Life							
		Very Positive		Positive		Somewhat Positive		Negative	
		Nos.	%	Nos.	%	Nos.	%	Nos.	%
Haldibari	30	7	23.33	18	60.00	4	13.33	1	3.33
Mekhliganj	65	12	18.46	40	61.54	11	16.92	2	3.08
Mathabhanga-I	50	10	20.00	29	58.00	8	16.00	3	6.00
Mathabhanga-II	52	13	25.00	24	46.15	11	21.15	4	7.69
Koch Bihar-I	69	11	15.94	33	47.83	21	30.43	4	5.80
Koch Bihar-II	60	12	20.00	31	51.67	14	23.33	3	5.00
Tufanganj-I	40	9	22.50	22	55.00	7	17.50	2	5.00
Tufanganj-II	26	8	30.77	12	46.15	4	15.38	2	7.69
Dinhata-I	58	10	17.24	28	48.28	17	29.31	3	5.17
Dinhata-II	59	14	23.73	26	44.07	17	28.81	2	3.39
Sitai	31	7	22.58	16	51.61	7	22.58	1	3.23
Sitalkuchi	29	3	10.34	19	65.52	5	17.24	2	6.90
Koch Bihar	569	116	20.39	298	52.37	126	22.14	29	5.10

a stronger concentration in the positive category. In contrast, Koch Bihar-I and Dinhata-I exhibited comparatively higher shares of somewhat positive perceptions, suggesting moderate levels of life satisfaction. Across all blocks, the proportion of negative perceptions remains consistently low, rarely exceeding 7-8 percent.

7.10 Health Index (HI)

To show the spatial variation in HRQoL of the rural women, a composite health index has been constructed. The value of the index ranges 0-1, value nearing 1 indicates better health related quality of life. The Health Index (HI) scores across the twelve CDBs of Koch Bihar district present a revealing snapshot of the spatial distribution of health system performance in this part of northern West Bengal (Figure 7). The values range from a low of 0.310 in Sitai to a high of 0.724 in Koch Bihar-

I, with an overall district average of 0.535 (Table 14). This spread highlights considerable intra-district disparities in healthcare delivery, accessibility, and utilization. Such variation is indicative of broader structural and systemic inequalities that persist across the rural-urban continuum and among differing socio-economic profiles within the district. The relatively high scores observed in blocks such as Koch Bihar-I (0.724), Dinhata-II (0.715), and Mathabhanga-I (0.652) suggest the presence of more established health infrastructure, better human resource deployment and more efficient administrative mechanisms governing public health delivery. These areas may benefit from a combination of favorable geographic accessibility, higher literacy and awareness levels, and better institutional capacity to implement national and state-level health programs effectively. Furthermore, these blocks may be better integrated into district and sub-district level referral

Table 14. Spatial variation in HRQoL

CDBs	Health Index (HI)
Haldibari	0.441
Mekhliganj	0.645
Mathabhanga-I	0.652
Mathabhanga-II	0.534
Koch Bihar-I	0.724
Koch Bihar-II	0.610
Tufanganj-I	0.437
Tufanganj-II	0.361
Dinhata-I	0.554
Dinhata-II	0.715
Sitai	0.310
Sitalkuchi	0.434
Average	0.535

systems, thus enhancing access to secondary and tertiary care facilities when required. In contrast, the lower scores recorded in blocks such as Sitai (0.310), Tufanganj-II (0.361), and Sitalkuchi (0.434) reflect persistent challenges that continue to impede healthcare progress in the more remote and underserved regions of the district. These challenges may include a lack of adequate health infrastructure, high vacancy rates of skilled health personnel, poor transportation and connectivity, and socio-cultural barriers to health-seeking behavior. The low index values in these areas could also be symptomatic of broader socio-economic deprivation, which influences not only access to healthcare but also outcomes such as maternal and child health, nutritional status, and prevalence of communicable and non-communicable diseases. The intermediate scores observed in some blocks, notably Mathabhanga-II (0.534), Dinhata-I (0.554), and Koch Bihar-II (0.610), further reflect the heterogeneity in health service delivery within the district. These variations may be the result of uneven implementation of health schemes, differential prioritization by local administrative bodies or disparities in community engagement and awareness. Overall, the data underscores the fragmented nature of health development within the district and calls attention to the need for spatially nuanced and evidence-based planning approaches. Rather than a one-size-fits-all model, there is a pressing need for targeted health interventions that are sensitive to the local context, particularly in low-performing blocks. This includes scaling up investments in primary healthcare infrastructure, addressing human resource shortages, strengthening community-based health outreach, and improving transport and communication networks to connect remote populations with essential services.

8 DISCUSSION

This study offers a comprehensive and regionally inclusive assessment of the HRQoL among married women in the rural areas of Koch Bihar district, West Bengal. By encompassing all 12 CDBs of the district, the research ensures a geographically diverse and representative sample. Such wide coverage enhances the

generalizability of the findings and allows for the identification of common patterns and disparities in women's health conditions and healthcare access across the district. One of the prominent findings of the study is the widespread incidence of health-related complications among respondents, with 17.85% of participants specifically reporting body pain as a chronic concern. This physical morbidity can largely be attributed to the occupational demands placed on rural women, most of whom are engaged in agricultural activities. Women in these settings often perform strenuous physical labor—ranging from planting, harvesting and carrying heavy loads to managing livestock—without the benefit of mechanized tools or ergonomic training. Coupled with household responsibilities such as cooking, childcare and water collection, this dual burden can lead to long-term musculoskeletal strain and fatigue, adversely impacting overall quality of life (Chattopadhyay and Dey, 2021). In the absence of regular medical screening and access to rehabilitative care, such ailments may go unaddressed, leading to a cycle of poor health and reduced productivity. The study also reveals that while educational attainment among the respondents is generally at a medium level, it has not translated into adequate health literacy or proactive healthcare behavior. Despite being literate, many women demonstrate limited awareness of basic health issues and available services, which is reflected in their health-seeking behavior. Approximately 31.91% of respondents rely on local pharmacists or informal medical providers for treatment. This trend is indicative of both accessibility challenges and a broader trust deficit in formal health systems. In many rural Indian contexts, pharmacies often serve as the first point of contact for healthcare due to their accessibility, flexible hours, and absence of consultation fees (Rao *et al.*, 2011). However, reliance on such informal providers can lead to misuse of medications, antibiotic resistance, and delays in receiving appropriate treatment for more serious health conditions. Reproductive and maternal health behaviors in the district present a mixed picture. While 79.17% of the women reported undergoing natural childbirth, a substantial 40.53% delivered at home. Despite governmental efforts under programs like Janani Suraksha Yojana and Pradhan Mantri Matru Vandana Yojana to incentivize institutional deliveries, cultural norms, lack of transport facilities, cost concerns and fears surrounding hospital-based delivery still result in a high proportion of home births (Singh *et al.*, 2012). This exposes women to preventable maternal and neonatal complications and highlights the need for stronger community engagement and education on the benefits of institutional care. However, certain indicators suggest progress in maternal health outreach. A notable 92.05% of women reported receiving at least one dose of the tetanus toxoid (TT) injection during pregnancy. This high coverage rate underscores the effectiveness of frontline health workers—especially ASHAs—in ensuring antenatal care compliance in rural settings. ASHAs have been instrumental in improving reproductive health outcomes

by facilitating immunization, nutritional counseling, and referrals for institutional deliveries. Their presence in the community and cultural proximity to the women they serve make them trusted figures in local healthcare delivery (Scott *et al.*, 2019). The study also sheds light on contraceptive practices and birth spacing behavior. Approximately 41.45% of respondents use contraceptive pills for birth control, while 32.95% reported spacing their next childbirth by three to four years. These figures reflect a moderate level of awareness and acceptance of family planning, although the reliance on a single method (oral pills) points to a lack of informed choice and limited access to the full range of contraceptive options, such as intrauterine devices (IUDs), injectables and sterilization. Moreover, the predominance of pill usage raises concerns about adherence and the risk of method failure if not used consistently. The findings suggest the need for comprehensive family planning counseling and diversified method availability through community-based distribution programs (Jejeebhoy *et al.*, 2014). Overall, the HRQoL of married women in rural Koch Bihar is influenced by a complex interplay of socio-economic, occupational, cultural and systemic factors.

While the presence of community health infrastructure and interventions like TT vaccination and ASHA-led maternal health services indicate positive developments, considerable gaps remain in terms of health awareness, institutional health utilization and sustainable reproductive health practices. Structural barriers such as poverty, limited transport infrastructure, gender norms and inadequate health system responsiveness continue to hinder equitable access to quality healthcare services.

To improve HRQoL in these communities, a multi-dimensional approach is necessary. This includes scaling up health education initiatives tailored to local cultural contexts, strengthening primary health care infrastructure, ensuring availability of diverse contraceptive methods and enhancing the skills and support mechanisms for community health workers. Additionally, fostering community-level awareness through targeted campaigns, integrating health with livelihood programs, and improving women's education and empowerment are essential to creating a holistic framework for sustained health improvement.

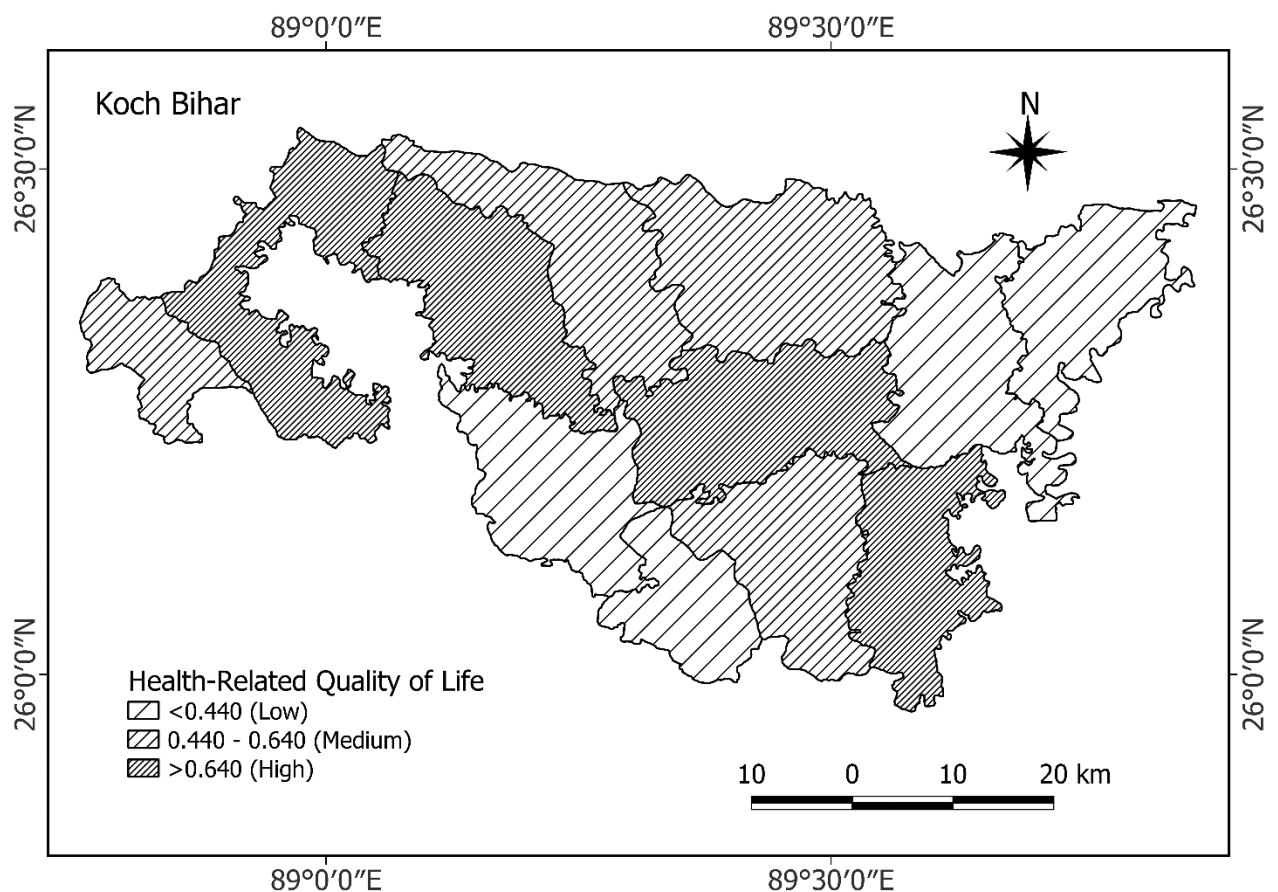


Figure 7. Spatial variation in HRQoL

9 CONCLUSION

This study provides valuable insights into the HRQoL among rural married women across the twelve CDBs of Koch Bihar district. The findings reveal a significant spatial disparity in the health status of women, highlighting that health outcomes are not uniform across the district. To capture this variation, a composite Health Index (HI) was developed, effectively illustrating the uneven distribution of HRQoL among the blocks. Notably, Koch Bihar-I emerged as the block with the highest HI, reflecting better health conditions, while Sitai reported the lowest HI, indicating the need for targeted health interventions. The research also found that most married women in these rural areas rely predominantly on allopathic treatment for health issues and generally experience natural childbirth, suggesting a certain level of accessibility to basic healthcare services. However, the disparities in health status emphasize the need for localized policy measures, improved healthcare infrastructure and greater awareness programs to address the specific challenges faced by women in the lower-performing blocks. Overall, this study underscores the importance of spatial analysis in public health planning and the need for tailored strategies to enhance the quality of life for rural married women in Koch Bihar.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest at all. There is no specific grant received from any agency or sources in the public, commercial or profit sectors for this article.

ABBREVIATIONS

HRQoL: Health Related Quality of Life, **DCHB:** District Census Hand Book, **CDB:** Community Development Block, **GP:** Gram Panchayat, **QGIS:** Quantum Geographic Information System, **HI:** Health Index, **ASHA:** Accredited Social Health Activist, **PHC:** Primary Health Center, **BP:** Blood Pressure, **TB:** Tuberculosis, **TT:** Tetanus Toxoid, **IUD:** Intrauterine Device, **WHO:** World Health Organization.

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REFERENCE

Ali, S. and Parveen, H., 2020. Quality of life and associated factors among rural women in Bihar. *International Journal of Community Medicine and Public Health*, 7(3), 935-941.

Bhandari, L. and Dutta, S., 2007. *Health infrastructure in rural India*. India Infrastructure Report, 265-285.

Bowling, A., 2005. *Measuring Health: A Review of Quality of Life Measurement Scales* (3rd ed.). Open University Press.

Chattopadhyay, A. and Dey, S., 2021. Occupational health of women in agriculture: A review from rural

India. *Indian Journal of Gender Studies*, 28(1), 45-63.

Chowdhary, N., Jotheeswaran, A. T., Nadkarni, A., et al., 2014. The MANAS trial effectiveness of lay health counsellor intervention for depression and anxiety in primary care in India. *British Journal of Psychiatry*, 204(6), 466-473.

Dandona, R., Pandey, A. and Dandona, L., 2016. A review of national health surveys in India. *Bulletin of the World Health Organization*, 94(4), 286-296A. DOI: <https://doi.org/10.2471/blt.15.158493>

Dangi, S. and Bansal, V., 2023. Socio-economic status of women in rural Udaipur, India. *International Journal of Environment and Climate Change*, 3(8), 2242-2248. DOI: <https://doi.org/10.9734/ijec/2023/v13i82188>

Dasgupta, A., Sinha, R. N. and Yadav, K., 2017. Assessment of quality of life among married women in rural India. *Indian Journal of Community Health*, 29(3), 287-291.

Ghosh, S. and Mukhopadhyay, D. K., 2018. Quality of life among rural women in India: A case study from West Bengal. *Journal of Rural Health Research*, 7(1), 22-29.

Guyatt, G. H., Feeny, D. H. and Patrick, D. L., 1993. Measuring health-related quality of life. *Annals of Internal Medicine*, 118(8), 622-629. DOI: <https://doi.org/10.7326/0003-4819-118-8-199304150-00009>

Jejeebhoy, S. J. and Sathar, Z. A., 2001. Women's autonomy in India and Pakistan: The influence of religion and region. *Population and Development Review*, 27(4), 687-712. DOI: <https://doi.org/10.1111/j.1728-4457.2001.00687.x>

Jejeebhoy, S. J., Santhya, K. G. and Acharya, R., 2014. Contraception in India: Towards a paradigm shift. *Economic and Political Weekly*, 49(43-44), 54-61.

Krishna, A., Reddy, R. M. and Muralidharan, A., 2012. Evaluation of maternal health services in Tamil Nadu: Access and quality. *Indian Journal of Public Health*, 56(2), 105-110.

Kumar, S., Singh, R. and Dubey, R., 2014. Health-related quality of life among rural women: Evidence from a cross-sectional study. *International Journal of Health Sciences and Research*, 4(10), 146-152.

Pandey, S., Sinha, R. K. and Sahu, D., 2019. Health-related quality of life among rural married women in Uttar Pradesh, India. *Indian Journal of Public Health Research and Development*, 10(3), 702-707.

Patel, V., Weiss, H. A., Chowdhary, N., et al., 2010. Effectiveness of an intervention led by lay health counsellors for depressive and anxiety disorders in primary care in Goa, India: A cluster randomized controlled trial. *Lancet*, 376(9758), 2086-2095. DOI: [https://doi.org/10.1016/s0140-6736\(10\)61508-5](https://doi.org/10.1016/s0140-6736(10)61508-5)

Patrick, D. L. and Erickson, P., 1993. *Health Status and Health Policy: Quality of Life in Health Care Evaluation and Resource Allocation*. Oxford University Press.

- Rani, M. and Bonu, S., 2003. *Rural Indian women's care-seeking behavior and choice of provider for gynecological symptoms*. *Studies in Family Planning*, 34(3), 173-185. DOI: <https://doi.org/10.1111/j.1728-4465.2003.00173.x>
- Rao, M., Rao, K. D., Kumar, A. K. S., Chatterjee, M. and Sundararaman, T., 2011. *Human resources for health in India*. *The Lancet*, 377(9765), 587-598. DOI: [https://doi.org/10.1016/s0140-6736\(10\)61888-0](https://doi.org/10.1016/s0140-6736(10)61888-0)
- Saxena, D., Vangani, R., Mavalankar, D. V. and Thomsen, S., 2013. Inequity in maternal health care service utilization in Gujarat: Analyses of district-level health survey data. *Global Health Action*, 6(1), 19652. DOI: <https://doi.org/10.3402/gha.v6i0.19652>
- Scott, K., George, A. S. and Ved, R. R., 2019. Taking stock of 10 years of published research on the ASHA programme: Examining India's national community health worker programme from a health systems perspective. *Health Research Policy and Systems*, 17(1), 29. DOI: <https://doi.org/10.1186/s12961-019-0427-0>
- Sen, G. and Östlin, P., 2008. Gender inequity in health: Why it exists and how we can change it. *Global Public Health*, 3(S1), 1-12. DOI: <https://doi.org/10.1080/17441690801900795>
- Singh, A., Pallikadavath, S., Ogollah, R. and Stones, W., 2012. Maternal Tetanus Toxoid Vaccination and Neonatal Mortality in Rural Northern India. *PLoS ONE*, 7(11), e48891. DOI: <https://doi.org/10.1371/journal.pone.0048891>
- Skevington, S. M., Lotfy, M. and O'Connell, K. A., 2004. The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. *Quality of Life Research*, 13(2), 299-310. DOI: <https://doi.org/10.1023/B:QURE.0000018486.91360.00>
- Tiwari, R., Saha, S. K. and Parhi, R. N., 2014. Depression and quality of life among rural women in India. *Journal of Mental Health and Human Behaviour*, 19(2), 92-97.
- UNFPA [United Nations Population Fund], 2017. *State of World Population 2017: Worlds Apart - Reproductive Health and Rights in an Age of Inequality*. United Nations Population Fund.
- Ware, J. E. and Sherbourne, C. D., 1992. The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Medical Care*, 30(6), 473-483.
- WHO [World Health Organization], 1996. *WHOQOL-BREF: Introduction, Administration, Scoring and Generic Version of the Assessment*. WHO.
- Yasaswini, Y., Tharaka, U. B. B. and Bhagavanulu, D. V. S., 2017. Socio-economic conditions of rural women: A case study. *International Journal of Research and Scientific Innovation*, 4(7), 52-53.
