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Evaluating Awareness of Hypothyroidism in Pregnancy Among Women Attending ANC Clinics, Bundelkhand Medical College, Sagar

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ABSTRACT

Background: Hypothyroidism is a common endocrine disorder in women of reproductive age and poses significant risks during pregnancy. If unrecognized or inadequately treated, it can lead to complications such as miscarriage, anemia, pre-eclampsia, preterm birth, low birth weight, and long-term neurodevelopmental deficits in the child. Early identification and management are essential; however, awareness among pregnant women especially in mixed rural-urban populations remains limited. Assessing existing knowledge is crucial for improving antenatal services and guiding targeted health education.

Objective: To assess awareness and knowledge of hypothyroidism among pregnant women attending antenatal care (ANC) clinics at Bundelkhand Medical College, Sagar.

Methods: A descriptive cross-sectional study was conducted among 200 pregnant women selected through convenient sampling. Data were collected using a pre-tested, structured questionnaire covering socio-demographic characteristics, obstetric and medical history, and awareness of thyroid gland function, symptoms, complications, screening, and treatment. Interviews were conducted in the local language. Data were analyzed using descriptive statistics.

Results: The mean age of participants was 23 years; most were literate (93.5%), homemakers (87.5%), and from rural areas (57%). Only 3.5% reported a previous thyroid disorder, and 8% had a family history. Although 80.5% had heard of the thyroid gland, only 56% correctly identified its neck location, and nearly all (99%) lacked knowledge of its physiological role. Awareness of hypothyroidism was poor: only 21% had heard of it, and 99% did not know its meaning. Most participants were unaware of symptoms (87.5%), complications (89%), and pregnancy risks such as miscarriage, anemia, preterm birth, and developmental delay (77.5%). Knowledge of screening was inadequate; only 13.5% recognized the need for thyroid testing in pregnancy. Although 86% knew hypothyroidism is treatable, awareness regarding follow-up and fetal brain effects was extremely low.

Conclusion: Awareness of hypothyroidism among pregnant women was markedly inadequate across all domains. Strengthened antenatal counseling, community awareness programs, and routine thyroid screening are urgently needed to improve maternal and fetal outcomes.

Keywords: Hypothyroidism; Pregnancy; Awareness; Screening; Maternal health; Antenatal care.

INTRODUCTION

Background: Hypothyroidism is among the most common endocrine disorders in women of reproductive age, and its presence during pregnancy carries significant risks for both the mother and the foetus. Physiological changes during gestation increase the demand for thyroid hormones, making pregnant women particularly vulnerable to thyroid dysfunction. Untreated or inadequately managed hypothyroidism in pregnancy has been linked to adverse outcomes such as miscarriage, pre-eclampsia, preterm birth, anaemia, placental abruption, and poor fetal neurodevelopment. [1,2] The risk to fetal brain development is especially concerning, as maternal thyroid hormones play a critical role in neuronal migration, synaptogenesis, and myelination during early gestation. [3,4]

In India, the prevalence of thyroid dysfunction in pregnancy remains high. Epidemiological data indicate that up to 13% of pregnant women in multiple regions may have hypothyroidism, most commonly in its subclinical form.[3,5] Given this substantial burden, national guidelines recommend screening of thyroid function during pregnancy to facilitate early detection and treatment.[6] However, despite these recommendations, awareness of hypothyroidism among pregnant women is often limited. Previous hospital-based studies have demonstrated low levels of knowledge regarding thyroid gland function, the consequences of untreated disease, and the necessity for screening.[7,8]

Bundelkhand Medical College, Sagar, serves a mixed rural–urban population, making it an apt setting to evaluate knowledge gaps among antenatal women. Understanding women's awareness of hypothyroidism in this context is critical to designing effective education and screening interventions. Therefore, this study was undertaken to assess awareness of hypothyroidism, including risk perception, symptom recognition, and attitudes toward thyroid testing and treatment, among pregnant women attending antenatal care clinics.

Rationale and Significance

Hypothyroidism in pregnancy is linked to serious maternal and fetal complications, yet awareness among pregnant women especially in low-resource settings remains low. Early identification and treatment are essential, but knowledge gaps often delay diagnosis and increase risks. In central India, where educational and socioeconomic disparities influence health-seeking behavior, assessing awareness becomes critical. This study addresses the need to understand how much antenatal women know about thyroid disorders and identifies misconceptions that may hinder timely screening. The findings will guide improvements in antenatal counseling, development of effective educational materials, and strengthening of community

awareness efforts. Ultimately, this evidence will support strategies to reduce preventable adverse pregnancy outcomes.

MATERIALS AND METHODOLOGY

This cross-sectional study was conducted among pregnant women attending the antenatal clinic of Bundelkhand Medical College, a tertiary care center in Sagar, during the period of twelve months. The study aimed to assess the awareness of hypothyroidism among antenatal women. All pregnant women aged 18 years and above who attended the clinic during the study period and were willing to provide informed consent were included. Women with a previously diagnosed thyroid disorder or those currently receiving thyroid medication were excluded to avoid bias. A total sample of 200 participants was selected using a simple sampling method, where in every eligible woman was approached for participation. Data were collected using a structured, interviewer-administered questionnaire developed after reviewing relevant literature and previously validated tools assessing thyroid knowledge in pregnancy. The questionnaire included sections on socio-demographic details, obstetric history, knowledge of thyroid function, awareness of hypothyroidism, and perceived risks to maternal and fetal health. A pilot test was conducted on a small group of antenatal women to ensure clarity and reliability of the tool, and necessary modifications were made prior to the final data collection. After obtaining written informed consent, participants were interviewed in a private setting to maintain confidentiality. Each correct response was scored as one point, and total awareness scores were calculated and categorized into low, moderate, or high awareness based on predetermined cut-offs. All data were entered into Microsoft Excel and analyzed using SPSS Trial version. Descriptive statistics such as frequencies and percentages were used to summarize categorical variables, while means and standard deviations were used for continuous variables. Ethical approval for the study was obtained from the Institutional Ethics Committee of Bundelkhand medical College, and confidentiality and voluntary participation were ensured throughout the study.

RESULTS

The present study assessed the awareness of hypothyroidism among 200 pregnant women attending antenatal clinics at Bundelkhand Medical College, Sagar. The socio-demographic profile of the participants revealed that the mean age was **23 years**, indicating that most women belonged to the younger reproductive age group. A majority of the respondents (93.5%) were literate, and 87.5% were homemakers. More than half (57%) resided in rural areas, while 33% belonged to urban areas. With respect to socioeconomic characteristics, 86.5% of participants were classified as belonging to the lower-middle socioeconomic status.

In terms of obstetric characteristics, 22.5% of the women were primigravida, 39.5% were second-gravida, 23% were third-gravida, and 15% had four or more pregnancies. The mean gestational age at the time of interview was **18 weeks**. Only 3.5% of the participants had a previously diagnosed thyroid disorder, while 8% reported a family history of thyroid disease, suggesting a relatively low baseline prevalence of known thyroid conditions in this population.

Assessment of general awareness of the thyroid gland showed that 80.5% of women had heard of the thyroid, although 12.5% had not, and 7% were unsure. When asked about the anatomical location of the thyroid, 56% correctly identified it as being in the neck, whereas 41.5% responded that they did not know. Understanding of thyroid function was extremely limited; only 0.5% each identified its role in hormone production or growth and development, while 99% were not aware of its functions.

Specific awareness of hypothyroidism was found to be markedly low. Only 21% of the participants had heard of hypothyroidism, and 99% were unable to correctly identify it as a condition caused by low thyroid hormone levels. Knowledge of symptoms was poor, with 87.5% reporting that they did not know any symptoms associated with hypothyroidism, such as fatigue, weight gain, constipation, hair fall, or cold intolerance. Awareness of the potential maternal or fetal complications was similarly low; 89% did not know whether hypothyroidism affects the mother, the baby, or both. When asked about pregnancy-related risks, including miscarriage, anaemia, preterm birth, low birth weight, or developmental delays, 77.5% of respondents reported having no knowledge of these associations.

Furthermore, awareness regarding screening and preventive measures was unsatisfactory. Only 5.5% knew that early detection of hypothyroidism could prevent complications, whereas 77.5% reported being unaware. When questioned about the need for thyroid testing during pregnancy, 86.5% stated that they did not know. Regarding actual testing practices, 67.5% of participants did not know whether they had undergone a thyroid test in their current pregnancy, 19% reported they had not been tested, and only 13.5% confirmed undergoing thyroid testing.

Knowledge of treatment aspects was slightly better, with 86% of women acknowledging that hypothyroidism is treatable. However, only 31.5% recognized the importance of regular follow-up during pregnancy. Awareness regarding the impact of untreated maternal hypothyroidism on the child's brain development was exceptionally poor, with only 1% aware of this risk.

Overall, the study findings reveal significant gaps in knowledge and awareness regarding hypothyroidism among pregnant women, underscoring the need for enhanced health education, early screening, and counselling at the community and facility levels.

DISCUSSION

The present study assessed the awareness of hypothyroidism among 200 pregnant women attending antenatal clinics at Bundelkhand Medical College, Sagar, and revealed markedly low levels of knowledge regarding thyroid function, symptoms, complications, and the importance of screening during pregnancy. Despite the high literacy rate (93.5%) among participants, overall awareness of hypothyroidism remained poor, indicating that general education does not necessarily translate into adequate health-related knowledge. Similar observations have been reported in studies conducted in other regions of India, where awareness of thyroid disorders among pregnant women was found to be low despite adequate schooling.[9,10]

In this study, although 80.5% had heard of the thyroid gland, only 21% were aware of hypothyroidism as a specific condition. Comparable findings were reported by Nambiar et al., where only 18% of antenatal women demonstrated awareness of hypothyroidism and its implications.[11] Furthermore, the majority of participants in our study (99%) could not correctly identify the basic function of the thyroid gland or the meaning of hypothyroidism. This gap highlights the need for targeted health education during antenatal visits, particularly in rural populations where understanding of endocrine disorders is limited.

Awareness of symptoms and complications associated with hypothyroidism was very low in the present study, with 87.5% unable to name any symptoms and 89% unaware of maternal or fetal consequences. Previous studies have shown that untreated hypothyroidism during pregnancy is associated with miscarriage, anemia, pre-eclampsia, preterm birth, and impaired neurocognitive development in the fetus.[12,13]The limited knowledge about such complications among our participants is concerning, as early detection and management significantly reduce adverse outcomes. Only 5.5% of women in the present study recognized that early diagnosis can prevent complications, which is lower than the 12–25% awareness reported in similar studies.[10,14]

Regarding screening practices, 86.5% of women did not know whether thyroid testing is necessary during pregnancy. These findings echo the results of Dhanwal et al., who reported inconsistent thyroid screening practices among antenatal women across India despite national guidelines recommending universal screening, especially in high-risk regions.[15] In our study, only 13.5% confirmed undergoing a thyroid test during the current pregnancy, indicating suboptimal screening coverage. This emphasizes the need to strengthen routine ANC counselling and ensure that providers adhere to recommended screening protocols.

Although 86% of participants believed that hypothyroidism is treatable, only 31.5% recognized the importance of regular follow-up. This limited understanding may hinder adherence to long-term therapy, which is essential for maintaining euthyroid status during pregnancy. The extremely low awareness (1%) regarding the impact of untreated hypothyroidism on fetal brain development further underscores the

information gap. Several studies have established that maternal hypothyroidism, especially during early gestation, can significantly impair cognitive and motor development in children.[13,16]

Overall, our findings indicate substantial gaps in awareness, consistent with previous research from developing countries, where cultural, educational, and accessibility barriers contribute to limited knowledge about endocrine disorders in pregnancy.[9,11,14] Strengthening health education interventions, training frontline health workers, and incorporating thyroid education into routine ANC counselling may help bridge these gaps. Universal thyroid screening and targeted awareness programs could significantly improve maternal and fetal outcomes associated with hypothyroidism.

CONCLUSION AND RECOMMENDATIONS

The present study, conducted among 200 pregnant women attending antenatal clinics at Bundelkhand Medical College, Sagar, reveals significant gaps in awareness and understanding of hypothyroidism during pregnancy. Although a considerable proportion of participants had heard of the thyroid gland, only a minority were aware of hypothyroidism, its symptoms, its impact on maternal health, and its potential consequences on fetal development, including miscarriage, anemia, preterm birth, low birth weight, and impaired neurodevelopment. Knowledge regarding the importance of early screening, regular follow-up, and timely treatment was also notably inadequate. These findings underscore the urgent need for strengthening awareness and education on thyroid disorders within antenatal care services. To address these gaps, it is recommended that comprehensive counselling on thyroid health be incorporated into routine ANC sessions, supported by user-friendly information, education, and communication (IEC) materials tailored to local language and literacy levels. Universal screening for thyroid dysfunction early in pregnancy should be encouraged in accordance with national guidelines, along with reinforcement of the importance of adherence to prescribed treatment. Capacity-building initiatives for healthcare workers, including ANMs, ASHAs, and staff nurses, are essential to enhance their ability to identify, counsel, and manage women with thyroid disorders effectively. Furthermore, community-based awareness activities should be intensified to reach women who may not regularly access institutional health services. Establishing reliable follow-up mechanisms will further help ensure treatment continuity and reduce preventable complications. Overall, improving awareness, strengthening screening practices, and enhancing the quality of antenatal counseling can substantially contribute to better maternal and fetal outcomes associated with hypothyroidism in pregnancy.

Strengths:

The study used a structured questionnaire among 200 antenatal women, ensuring systematic assessment of awareness regarding hypothyroidism. Conducting interviews in the local language improved response

accuracy. The findings provide valuable baseline data for strengthening counseling, screening, and public health interventions in antenatal care settings.

Limitations:

Being a single-center, hospital-based study limits generalizability. Self-reported responses may involve recall or social desirability bias. Awareness was assessed without evaluating biochemical thyroid status or treatment adherence. The close-ended questionnaire restricted deeper exploration of participants' understanding, reducing the study's ability to capture nuanced knowledge gaps.

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