WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ASSESSMENT OF KNOWLEDGE REGARDING IDENTIFICATION OF HIGH-RISK PREGNANCY AMONG COMMUNITY HEALTH OFFICERS IN JAIPUR, RAJASTHAN

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ABSTRACT

Background: High-risk pregnancy (HRP) remains a significant public health concern, contributing to maternal and neonatal morbidity and mortality. Community Health Officers (CHOs) play a crucial role in early identification and management of HRPs, yet knowledge gaps persist. This study assesses CHOs' knowledge regarding HRP identification and explores associated factors influencing their competency. **Methods:** A descriptive cross-sectional study was conducted among 60 CHOs enrolled in the Bridge Course Programme on Certificate in Community Health for Nurses (BPCCHN) at selected centers in Jaipur, Rajasthan. A structured questionnaire was used to assess knowledge levels. Statistical analysis was performed using descriptive statistics and Chi-square tests to evaluate associations between socio-demographic factors and knowledge levels. **Results:** Only 26.7% of CHOs had adequate knowledge, while 40% demonstrated moderately adequate knowledge, and 33.3% had inadequate knowledge of HRP identification. A statistically significant association was found between professional education (p=0.001) and prior training on HRP (p=0.000) with knowledge levels. However, age, gender, and clinical experience did not show significant associations (p>0.05). **Conclusion:** The study highlights gaps in CHOs' knowledge regarding HRP identification, emphasizing the need for structured training programs and educational resources to improve early detection and intervention strategies. Integrating targeted educational materials, such as informational booklets, could enhance CHOs' competency in HRP management.

KEYWORDS: High-risk pregnancy, Community Health Officers, Maternal health, Knowledge assessment, Training programs.

INTRODUCTION

Maternal health is a critical component of global public health, as pregnancy-related complications continue to contribute to significant morbidity and mortality rates worldwide. High-risk pregnancy (HRP) is defined as a pregnancy in which the mother, fetus, or both face increased risks of complications, requiring specialized monitoring and management to prevent adverse outcomes.[1] Globally, an estimated 15% of all pregnancies are considered high-risk, with varying prevalence based on geographic location, socioeconomic factors, and availability of healthcare services.[2]

Early detection of high-risk pregnancies is essential to reduce maternal and neonatal complications, as timely intervention can improve pregnancy outcomes.[3] Various risk factors, such as maternal age (<18 or >35 years), pre-existing medical conditions (hypertension, diabetes,

anemia), lifestyle factors (malnutrition, substance use), and obstetric history (multiple pregnancies, previous cesarean sections), contribute to the classification of pregnancies as high-riskτ. Community health officers (CHOs) play a vital role in identifying and managing high-risk pregnancies, particularly in low-resource settings where access to specialized care is limitedυ.

Several studies emphasize the importance of structured training programs and digital interventions in equipping CHOs with the necessary skills to detect and manage high-risk pregnanciesϖ. The implementation of digital health solutions, such as the SEWA (System E-approach for Women at Risk) model, has demonstrated a significant increase in the identification of high-risk pregnancies from 3.5% to 27.9%, highlighting the impact of technology-driven surveillanceω. In addition, machine learning algorithms are being integrated into healthcare

systems to enhance the prediction and management of pregnancy-related complicationsξ. The effectiveness of high-risk pregnancy detection also depends on community engagement and awareness. Studies suggest that empowering healthcare cadres and family members in early detection significantly improves maternal health outcomesψ. Furthermore, telehealth-based screening and continuous monitoring have emerged as innovative solutions to bridge healthcare gaps in remote and underserved areas[1]π.

This study aims to assess the knowledge of community health officers regarding the identification of high-risk pregnancies and to develop an information booklet that can serve as a resource for improving maternal health services. By strengthening CHO training and resource availability, we can enhance early detection and intervention strategies, ultimately reducing maternal and neonatal mortality.

METHODOLOGY
This study employed a quantitative research approach with a descriptive research design to assess the knowledge of community health officers (CHOs) regarding the identification of high-risk pregnancy. The descriptive design was chosen to systematically collect, analyze, and interpret data to understand the level of knowledge among CHOs studying in the Bridge Course Programme on Certificate in Community Health for Nurses (BPCCHN) at selected study centers in Jaipur, Rajasthan.

The study was conducted at GNMTC & GCON Jaipur, which were selected for their accessibility and availability of CHOs enrolled in the BPCCHN programme. The target population included all CHOs in the programme, while the accessible population consisted of those available at the study centers during data collection. Using a convenient sampling technique, a total of 60 CHOs were selected for participation. The inclusion criteria encompassed CHOs studying in the programme and willing to participate, while those absent during data collection were excluded.

Data were collected using a **structured questionnaire**, consisting of **two sections**.
1. **Demographic Data** – Age, gender, education, clinical experience, and prior training on high-risk pregnancy.
2. **Knowledge Assessment** – A set of 40 questions designed to evaluate knowledge regarding high-risk pregnancy identification.

To ensure **validity and reliability**, the tool was reviewed by experts, and its internal consistency was tested using the **Kuder-Richardson Formula 20 (KR-20)**, yielding a reliability coefficient of **0.79**, indicating good reliability. A **pilot study** was conducted on **10 participants** to test feasibility and clarity before the main data collection.

Ethical approval was obtained from the **Institutional Ethics Committee (IEC)**, and written **informed consent** was secured from all participants. Data collection followed ethical principles, ensuring **confidentiality and anonymity**. The collected data were analyzed using **SPSS Version [XX]**, applying **descriptive statistics** (mean, standard deviation, percentage) for demographic details and **inferential statistics** (Chi-square test) to examine associations between knowledge levels and socio-demographic variables. A **p-value < 0.05** was considered statistically significant.

RESULTS
Table 1: Frequency and Percentage Distribution of Socio-Demographic Variables of Community Health Officers.

Demographic Variable	Categories	Frequency (n=60)	Percentage (%)
Age	< 25 years	20	33.3%
	25-30 years	20	33.3%
	31-35 years	14	23.3%
	> 35 years	6	10.0%
Gender	Male	26	43.3%
	Female	34	56.7%
Professional Education	GNM	14	23.3%
	B.Sc Nursing	25	41.7%
	PB B.Sc Nursing	15	25.0%
	M.Sc Nursing	6	10.0%
Clinical Experience After Course Completion	Yes	39	65.0%
	No	21	35.0%
Any Training/Course on High-Risk Pregnancy	Yes	20	33.3%
	No	40	66.7%
Marital Status	Married	45	75.0%
	Unmarried	15	25.0%
Type of Family	Nuclear	32	53.3%
	Joint	28	46.7%

Employment Status	Government	30	50.0%
	Private	20	33.3%
	Unemployed	10	16.7%

Above table 1 presents the demographic characteristics of the 60 community health officers included in the study. The majority of participants were aged below 30 years (66.6%), with a higher proportion of females (56.7%) than males. Most CHOs had a B.Sc. Nursing qualification (41.7%), and 65% had prior clinical experience. Additionally, 33.3% had received training on high-risk pregnancy, while 75% were married and 53.3% belonged to nuclear families.

Table 2: Frequency and Percentage Distribution of Knowledge Score of Community Health Officers.

Knowledge Level	Scoring Criteria	Frequency (n=60)	Percentage (%)
Inadequate Knowledge	0-20	20	33.3%
Moderately Adequate Knowledge	21-30	24	40.0%
Adequate Knowledge	31-40	16	26.7%

Table 2 presents the **knowledge levels of community health officers** regarding the identification of high-risk pregnancy. Among the **60 participants**, the majority (**40.0%**) had **moderately adequate knowledge**, while **33.3% demonstrated inadequate knowledge**, and only **26.7% had adequate knowledge**.

Table 3: Association Between Knowledge and Socio-Demographic Variables (Chi-Square Test).

Demographic Variable	Chi-Square Value	df	p-value	Significance
Age	9.508	6	0.146	Not Significant
Gender	1.001	2	0.605	Not Significant
Professional Education	37.258	6	0.001	**Significant**
Clinical Experience	0.165	2	0.920	Not Significant
Prior Training on High-Risk Pregnancy	45.600	2	0.000	**Significant**

Above table 3 presents the **association between knowledge scores of community health officers and their socio-demographic variables** using the **Chi-square test**. The results indicate that **professional education (p = 0.001)** and **prior training on high-risk pregnancy (p = 0.000)** had a statistically significant relationship with knowledge levels. However, **age, gender, and clinical experience** did not show a significant association.

Knowledge Level Distribution Among CHOs (n=60)
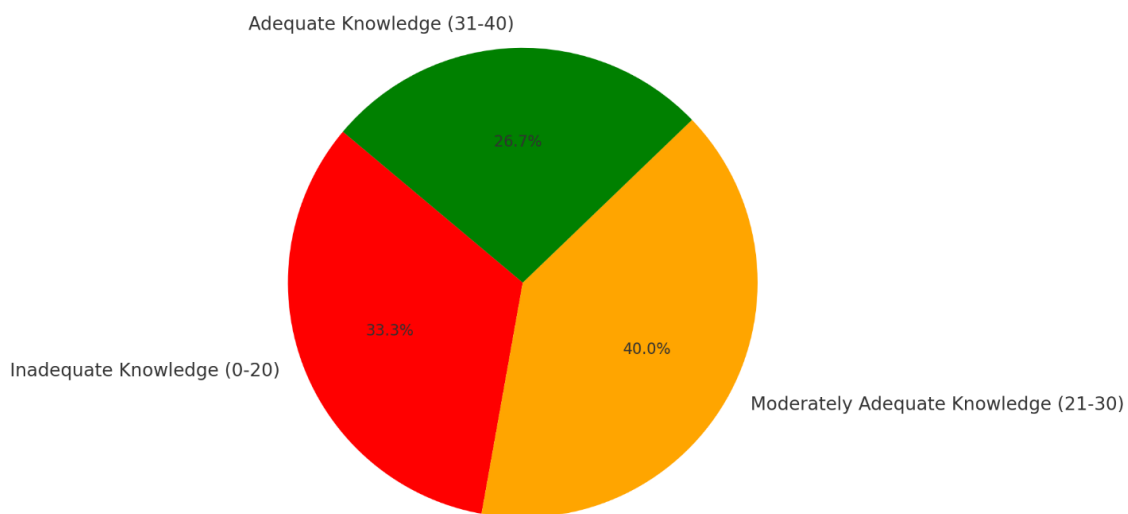
DISCUSSION
The findings of this study highlight the gaps in knowledge among community health officers (CHOs) regarding high-risk pregnancy identification, with only 26.7% demonstrating adequate knowledge. These results align with previous research that underscores the importance of training and education in improving maternal healthcare practices.

Comparison with Existing Studies

A study by Husada et al. found that education and experience were significant factors influencing the knowledge of healthcare cadres regarding high-risk pregnancy. Their study demonstrated that individuals with higher education levels and more experience in maternal healthcare had better knowledge of risk factors in pregnancy.[11] Similarly, Rusmita and Reginita found that knowledge of high-risk pregnancy was significantly correlated with education level, employment status, and maternal age. Their study reported that women with lower education and employment levels were less aware of pregnancy risks, which is consistent with the present study's findings regarding professional education's impact on knowledge levels.[12]

Additionally, Parmawati et al. demonstrated that training on pregnancy complications significantly improved knowledge levels among community health workers. This aligns with our study's finding that prior training was a key determinant of knowledge regarding high-risk pregnancy.[13] The present study identified professional education and prior training on high-risk pregnancy as significant factors influencing knowledge levels ($p < 0.05$). This finding is supported by Handayani et al., who found that structured health education significantly improved awareness and early detection abilities in high-risk pregnancy management[14]. In contrast, variables such as age, gender, and clinical experience did not show significant associations with knowledge levels. This is consistent with Astari et al., who found that continuous education had a greater impact on knowledge enhancement than demographic factors alone[15].

This study emphasizes the need for regular, structured training programs to improve CHOs' knowledge of high-risk pregnancy identification, as training interventions have been shown to significantly enhance competency[16]. Government health initiatives, such as Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), should integrate digital learning tools and hands-on training to strengthen CHOs' skills. Additionally, the development of a standardized informational booklet could help bridge knowledge gaps and serve as a reference for healthcare workers. However, this study has certain limitations. The small sample size (60 CHOs) may not fully represent the broader population of community health workers. Furthermore, as the study relied on self-assessment questionnaires, there is a possibility of response bias. Lastly, the cross-sectional design provides a one-time assessment of knowledge levels, rather than tracking changes over time, highlighting the need for longitudinal studies to evaluate knowledge retention and the effectiveness of training interventions.

CONCLUSION

This study highlights knowledge gaps among CHOs regarding high-risk pregnancy identification, emphasizing the need for continuous training and educational interventions. Professional education and prior training were found to be key determinants of knowledge levels. Future research should explore the long-term impact of training interventions and assess the effectiveness of digital learning tools in enhancing CHOs' knowledge and practice in maternal healthcare.

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