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VACCINATING FOR VIKSIT BHARAT: ENHANCING MATERNAL HEALTH THROUGH AWARENESS AND ACTION

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Abstract:

Maternal vaccinations are crucial for protecting both mothers and newborns from preventable diseases such as tetanus, influenza, and pertussis. Despite their importance, vaccination uptake in India remains inconsistent due to varied socio-cultural, educational, and economic factors. This study employed a mixed-methods approach, combining quantitative surveys and qualitative focus group discussions (FGDs) and interviews, to assess the knowledge, attitudes, and practices (KAP) of pregnant women regarding immunizations. Results reveal significant relationships between education levels,social and cultural factors, location, and vaccine acceptance, with urban and educated women exhibiting higher uptake rates. Key barriers identified include lack of awareness, cultural stigma, and healthcare access. Based on findings, a comprehensive strategy leveraging the KAP framework is recommended to enhance maternal vaccination rates and support the goal of "Viksit Bharat" through improved maternal and neonatal health.

Introduction:

Maternal and neonatal health remains a cornerstone of public health priorities in India, with vaccination being one of the most effective tools to prevent life-threatening diseases. Vaccinations during pregnancy safeguard mothers and their newborns against conditions like tetanus, influenza, and pertussis, significantly reducing morbidity and mortality rates. However, despite their proven efficacy, vaccination coverage among pregnant women in India is uneven, largely influenced by socio-economic disparities, cultural beliefs, and lack of awareness.

This study aims to delve into the knowledge, perceptions, and attitudes of pregnant women toward recommended maternal vaccinations. By identifying barriers and enablers, this research seeks to provide actionable insights to improve vaccine uptake and contribute to India's vision of becoming a "Viksit Bharat."

Objectives:

1. To assess the level of knowledge, behavior, and perceptions regarding recommended vaccines among pregnant women in rural and urban areas of India.
2. To identify barriers to and facilitators of maternal vaccination uptake.
3. To explore the influence of socio-cultural and economic factors on maternal vaccine decisions.
4. To recommend strategies to improve maternal vaccination rates based on findings.

Literature Review:

Neonatal Deaths and the Role of Vaccination:

Neonatal mortality remains a pressing global health challenge, particularly in developing countries like India. According to the World Health Organization (WHO), nearly 2.4 million neonatal deaths occurred globally in 2020,

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with infections such as pneumonia, sepsis, and tetanus being leading causes. In 2021, India reported approximately 440,000 neonatal deaths, contributing substantially to global child mortality figures. Vaccination of pregnant women plays a pivotal role in preventing these infections, significantly reducing neonatal morbidity and mortality rates.

1. **Impact of Maternal Vaccinations**: Maternal immunization has been widely recognized as an effective intervention for protecting neonates. Vaccines like tetanus-diphtheria (Td), pertussis, and influenza not only safeguard mothers during pregnancy but also provide passive immunity to newborns. A study by Munoz et al. (2019) found that maternal pertussis vaccination reduced infant mortality by 78%, demonstrating its life-saving potential.
2. **Tetanus Elimination:** India's success in achieving maternal and neonatal tetanus elimination (MNTE) highlights the importance of integrating maternal vaccinations into public health programs. Campaigns promoting Td vaccination, coupled with improved access to antenatal care, significantly reduced neonatal tetanus deaths, which were once a major contributor to infant mortality.
3. **Influenza and Respiratory Infections:** Influenza infections during pregnancy can result in severe respiratory complications for both mothers and their babies. Studies have shown that maternal influenza vaccination reduces the risk of severe influenza in infants by 63% (Zaman et al., 2008). However, despite its benefits, influenza vaccine uptake in India remains low, primarily due to lack of awareness and limited availability in public healthcare facilities.
4. **Emerging Vaccines and Their Potential:** Recent advancements in maternal immunization include the development of vaccines targeting respiratory syncytial virus (RSV) and Group B Streptococcus (GBS), both significant contributors to neonatal mortality. Early clinical trials have demonstrated promising results, highlighting the need for their integration into maternal health programs.

Barriers to Vaccination Uptake:

1. Knowledge Gaps: Limited awareness about the availability and benefits of maternal vaccines beyond Td remains a significant barrier. Studies by Kumar et al. (2020) indicate that less than 20% of pregnant women in rural India were aware of influenza or pertussis vaccines.
2. Cultural and Social Influences: Cultural stigmas and misconceptions about vaccines, often perpetuated by family members, hinder vaccination uptake. In many communities, decision-making regarding maternal health is dominated by elder family members, further complicating the situation.
3. Healthcare System Challenges: Inconsistent recommendations from healthcare providers, coupled with logistical challenges such as long distances to health facilities and vaccine unavailability, exacerbate the issue.

Global Success Stories:

Countries like Brazil and South Africa have successfully increased maternal vaccination rates through targeted education campaigns and the inclusion of vaccines in national immunization programs. These examples underline the potential for similar initiatives in India to address neonatal mortality.

Methodology:

This study employed a mixed-methods approach to gather both quantitative and qualitative data:

1. **Quantitative Component:**
   a. A cross-sectional survey was conducted among pregnant women to evaluate their knowledge, attitudes, and practices (KAP) related to maternal vaccinations.
   b. Sample size 300 women

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c. Statistical analyses, including chi-square tests and correlation analyses, were performed to identify significant relationships between variables like age, education, location, and vaccination status.

2. **Qualitative Component:**

a. 4 Focus group discussions (FGDs) and 10 in-depth interviews were conducted with pregnant women, healthcare professionals, and medical scholars to explore deeper cultural and social factors influencing vaccination behavior.

b. Thematic analysis was used to interpret qualitative data and complement quantitative findings.

Data Analysis :

Quantitative Analysis:

1. **Age and Immunization (Correlation):** Correlation Coefficient: 0.133 Interpretation: There is a weak positive correlation between age and immunization status. This suggests that older individuals may be slightly more likely to be immunized, but the relationship is not strong.
2. **Location and Immunization (Chi-Square Test):** Chi-Square Statistic: 12.452 P-Value: 0.002 Degrees of Freedom: 2 Interpretation: The p-value is less than 0.05, indicating a statistically significant relationship between place of residence and immunization status. Location influences immunization rates.Women situated in urban areas were less reluctant towards immunization.
3. **Number of Pregnancies and Immunization (Chi-Square Test):** Chi-Square Statistic: 0.759 P-Value: 0.684 Degrees of Freedom: 2 Interpretation: The p-value is greater than 0.05, meaning there is no significant relationship between the number of pregnancies and immunization status.
4. **Education Level and Immunization (Chi-Square Test)**: Chi-Square Statistic: 48.802 P-Value: 2.53e-11 (very small) Degrees of Freedom: 2 Interpretation: The p-value is far below 0.05, showing a very strong and statistically significant relationship between education level and immunization status. Higher education levels are strongly associated with higher immunization rates.

Focus Group Discussions and Interviews:

Participants:

1. **Healthcare Professionals (HCPs)**: Doctors, nurses, and community health workers.
2. **Medical Scholars**: Public health experts and students specializing in maternal health.
3. **Pregnant Women**: Participants from urban and rural settings with diverse socioeconomic backgrounds.

Thematic Analysis:

Based on the survey questionnaire, qualitative data was analyzed to identify key themes, trends, and insights.

1. Awareness and Knowledge

Findings from Healthcare Professionals and Medical Scholars:

- **General Observation**: Healthcare professionals unanimously noted that awareness of vaccines like tetanus-diphtheria (Td) was high, but knowledge of influenza and pertussis vaccines was limited.
- **Key Insight**: Medical scholars emphasized the lack of structured, widespread public health campaigns promoting non-mandatory vaccines.

Findings from Pregnant Women:

- **Awareness**: Rural women were less aware of vaccines beyond Td compared to urban participants.
- **Sources of Information**: Family members and friends were the primary sources for vaccine-related information,

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highlighting a lack of direct communication from healthcare providers.

2. Attitudes Toward Vaccination

Findings from Healthcare Professionals and Medical Scholars:

- **General Perception**: Vaccination is viewed as essential for maternal and neonatal health, but HCPs admitted they often prioritize mandatory vaccines over others due to time constraints or lack of training.
- **Barriers Identified**: Cultural beliefs and vaccine safety concerns were significant issues raised by pregnant women.

Findings from Pregnant Women:

- **Positive Attitudes**: Most participants showed a willingness to vaccinate if educated about the benefits and safety.
- **Concerns**: Fear of side effects and misinformation about vaccines harming the baby were common concerns.

3. Practices and Accessibility

Findings from Healthcare Professionals and Medical Scholars:

- **Challenges in Delivery**:

○ Limited availability of vaccines like influenza in public healthcare facilities. ○ Logistical challenges such as inflexible vaccination schedules.

○ Lack of consistent follow-up mechanisms for pregnant women.

Findings from Pregnant Women:

- **Access Issues**: Rural women often cited the distance to healthcare facilities and long waiting times as barriers. Urban women highlighted the affordability of vaccines in private settings as a challenge.

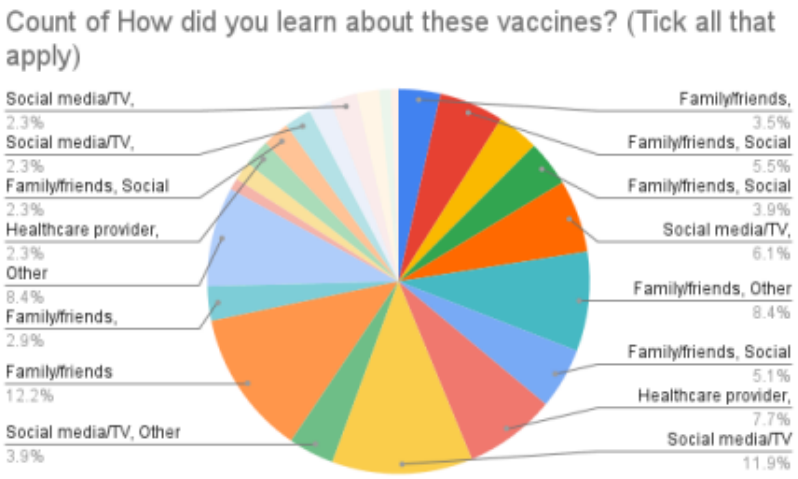
4. Recommendations for Improvement :

Healthcare Professionals and Medical Scholars:

- Develop a structured approach to include non-mandatory vaccines in public health programs.
- Conduct targeted training for HCPs to counsel pregnant women effectively.

Pregnant Women:

- Increase community-level awareness campaigns involving family members and local leaders.
- Provide mobile vaccination units in remote areas for better accessibility.



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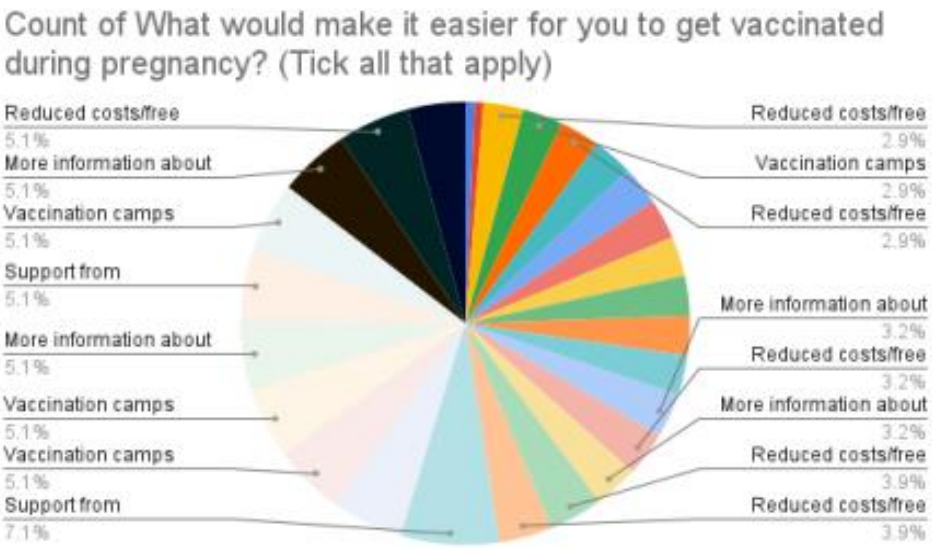

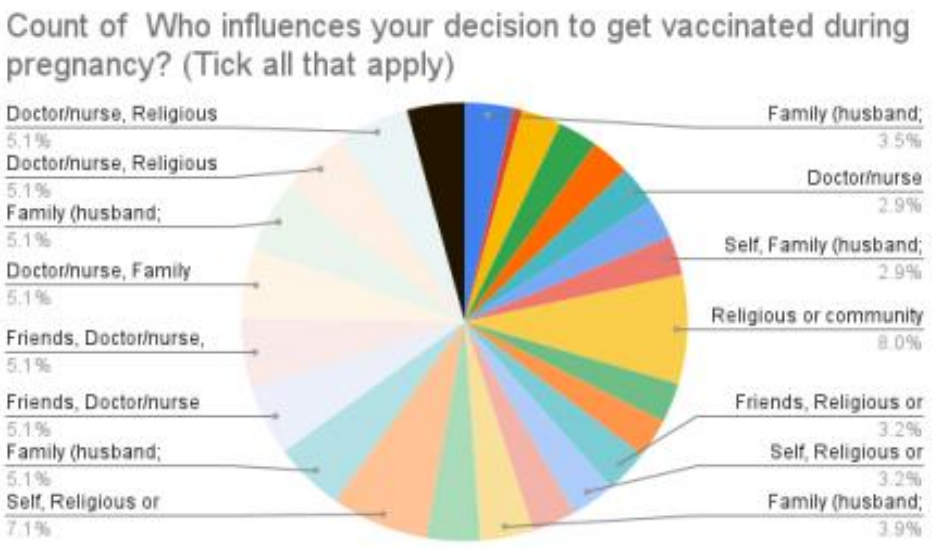

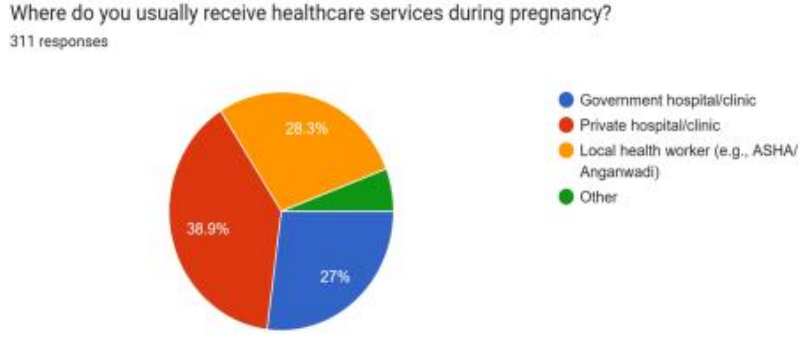

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Results and Findings:

Quantitative Analysis:

1. **Age and Immunization:**
   a. A weak positive correlation (r = 0.133) was observed, suggesting older women were slightly more likely to be vaccinated.
   b. Women aged 30 and above exhibited slightly higher vaccination rates compared to younger age groups, though the difference was not substantial.
2. **Location and Immunization:**
   a. A statistically significant relationship (p = 0.002) was found, with urban women showing higher immunization rates compared to their rural counterparts.
   b. Rural participants often cited logistical challenges such as long travel distances to healthcare facilities and inflexible vaccination schedules.
3. **Number of Pregnancies and Immunization:**
   a. No significant relationship (p = 0.684) was observed, indicating that the number of pregnancies did not influence vaccination status.
   b. Multiparous women demonstrated similar attitudes and practices toward vaccination as primiparous women, suggesting parity was not a determining factor.
4. **Education Level and Immunization:**
   a. A very strong relationship (p < 0.001) was observed, with higher education levels strongly associated with increased vaccine uptake.
   b. Women with secondary or higher education were three times more likely to be vaccinated compared to those with primary education or no formal schooling.

Qualitative Insights:

1. **Healthcare Professional Perspectives:**
   a. Highlighted the lack of structured public health campaigns for non-mandatory vaccines like influenza and pertussis.
   b. Admitted prioritizing mandatory vaccines due to time and resource constraints during antenatal visits.
   c. Suggested incorporating non-mandatory vaccines into government immunization programs to improve uptake.
2. **Pregnant Women's Views:**
   a. Family and community members were primary sources of vaccine-related information, often leading to misinformation and hesitancy.
   b. Many women expressed willingness to vaccinate if educated about the benefits and safety, underscoring the importance of targeted awareness campaigns.
3. **Barriers Identified:**
   a. Cultural stigmas surrounding vaccinations, such as fear of harming the baby, persisted in rural areas.
   b. Inadequate counseling by healthcare providers was frequently reported, with many women feeling uninformed about vaccine schedules and benefits.
   c. Poor access to vaccination centers, especially in rural areas, posed logistical challenges, with women citing travel costs and time as major deterrents.

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4. **Facilitators of Uptake:**

a. Trusted healthcare providers significantly influenced women's decisions to vaccinate.

b. Positive peer experiences and testimonials helped dispel fears and build confidence in vaccine safety.

Recommendations:

Using the KAP framework, the following strategies are proposed:

1. **Knowledge:**
   a. Launch awareness campaigns using local media and community health workers to educate women about vaccine benefits and safety.
   b. Provide training for healthcare professionals to improve counseling skills.
2. **Attitudes:**
   a. Organize peer support groups and share success stories to address cultural stigmas.
   b. Conduct empathy-driven counseling sessions to build trust.
3. **Practices:**
   a. Ensure vaccines are accessible in rural areas through mobile clinics. b. Use digital reminders, incentives, and follow-up visits to encourage compliance.

Conclusion:

This study highlights the pivotal role of education, healthcare accessibility, and cultural attitudes in shaping maternal vaccination behaviors. To achieve the vision of a "Viksit Bharat," it is imperative to address these challenges through a holistic, community-centric approach. By empowering women with knowledge, fostering positive attitudes, and ensuring accessible healthcare services, India can significantly enhance maternal and neonatal health outcomes.

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