A George Institute

Fact Sheet

SMART*health* ChatGPT : Supporting community health workers to provide guideline-based maternal care in rural India – March 2024

The George Institute for Global Health

Facts:

- India's maternal mortality ratio is 103 per 100,000 live births. Lack of access to quality care is a major contributing factor for these deaths, especially in rural areas.
- Up to 75% of Indian women with diabetes in pregnancy will develop high blood sugar levels or type 2 diabetes within five years of giving birth.
- India is home to the largest number of anemic pregnant women, accounting for about 80% of maternal deaths caused by anemia in South-East Asia.

Project Cycle:
2023–2024

Partners:
The George Institute, India
The George Institute for Global Health
Imperial College London
Computational Health Informatics Lab, University of Oxford

Supporters:
Bill & Melinda Gates Foundation

Principal Investigator:
Dr Devarsetty Praveen
Professor Jane Hirst

Background:

- Detecting high-risk conditions in women before complications arise is crucial for averting maternal and newborn mortality and morbidity. In rural India, factors like anaemia, hypertension, and gestational diabetes persist as significant risk factors.
- SMART*health* Pregnancy (SHP) improves community-based screening and management of anaemia, diabetes, and hypertension during pregnancy and the postnatal period. Integrating our large language model (LLM) chatbot into the SHP API will provide real-time assistance to community health workers (ASHAs), providing guideline-based information tailored to women.

Aims:

- This project aims to collaboratively develop a large language model to support ASHAs deliver guideline-based care for pregnant and postpartum women in rural India.

Methods:

- This pioneering initiative aims to co-create with ASHAs an LLM-based chatbot tailored to their needs to provide contextually precise, clinically accurate, and gender-equitable responses tailored for maternal healthcare.
- The approach involves implementing Retrieval-Augmented Generation (RAG) on the pre-trained GPT-4.0 model, followed by developing a repository of gold-standard questions with clinically validated answers. Iterative user testing, gathering ASHAs' feedback on utility, accuracy, biases, and limitations has been conducted. A user-friendly interface with diverse input/ output options (text to text, text to voice, voice to voice) and user personas tailored to ASHA preference in Hindi and Telugu will be created.

Impact:

- In India there are over 1 000 000 ASHA workers caring for 25 million pregnant women and their babies each year
- A tool to support the early detection of anaemia, diabetes and hypertension, the three leading high-risk conditions in pregnant and postpartum women, could improve outcomes and quality of life for millions of women.
- Easy access to guideline-based information for ASHAs will build their capacity and improve health promotion and health-seeking behaviours amongst women

Contact:
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