Bridging the Healthcare Gap: The Urgent Need for a Multilingual Health Chatbot

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The Urgent Need: Healthcare Access Disparities

▶ Escalating healthcare costs create barriers, especially for vulnerable populations.

▶ This leads to delayed or avoided medical attention, even for serious symptoms.

▶ Dire consequences: delayed diagnoses, disease progression, increased disability, and mortality.

Sarah Porter's Story [1]

- ▶ Suffered two strokes at a young age.
- ▶ Prompt intervention by medically knowledgeable parents prevented severe disability.
- ▶ Highlights the critical importance of timely medical attention.
- ▶ Many lack such support and face financial barriers, leading to dangerous delays.

Introducing TLC: Tender Loving Care

- ▶ A multilingual chatbot designed for accessible health guidance, triage, and pre-diagnosis.
- ▶ LLMs to provide empathetic and informative support.
- ▶ Aims to bridge the healthcare gap by offering guidance in multiple languages.
- ▶ Engineered to identify potential emergencies and prompt professional help.

Evaluation: Simulated User Interactions

- ▶ Five scenarios tested guidance, triage, and multilingual capabilities (English & Spanish).
- ▶ **Example 1** (Headache): Empathetic response, clarifying questions, initial support - **Positive**.
- ▶ **Example 2** (Numbness): Downplayed severity, lacked urgency - **Negative**.
- ▶ **Example 3** (Spanish Numbness): Switched to English, lacked urgency - **Negative**.
- ▶ **Example 4** (Spanish Recall): Failed to maintain Spanish - **Negative**.
- ▶ **Example 5** (Combined Symptoms): Severely downplayed serious symptoms, discouraged ER visit - **Critical Negative**.

Results: Strengths and Weaknesses

Strengths:

- ▶ Consistently empathetic and supportive tone.
- ▶ Effective at asking questions.
- ▶ Attempts to provide reassurance.

Weaknesses & Critical Concerns:

- ▶ Inconsistent multilingual support (reverted to English).
- ▶ Over-reliance on self-care advice over professional evaluation.
- ▶ **Inadequate triage of serious symptoms (e.g., potential stroke)**.
- ▶ **Potential for harm by downplaying emergencies and discouraging urgent care.**

Future Directions

- **Enhanced Multilingual Capabilities:** Remove tendency to revert to English, language-specific validation.
- **Refined Triage and Risk Assessment:** Integration of medical knowledge, improved symptom understanding, TLC context to include clear emergency protocols, sensitivity to time-critical conditions.
- **Improved Safety Mechanisms:** Medical professional oversight, clear disclaimers when beginning interaction, continuous monitoring and feedback.

Conclusion

- ▶ TLC shows promise for accessible and empathetic health guidance.
- ▶ **Critical limitations in multilingual support and, alarmingly, in triaging serious symptoms pose significant safety concerns.**
- ▶ Further development needed focusing on accuracy, safety and multilingual capabilities.
- ▶ Rigorous refinement and validation are essential before real-world deployment.

University of Maine Alumni. *Sarah Porter stands up for heart and stroke awareness*. Retrieved from https://www.umainealumni.com/sarah-porter/