

Bem-te-vejo: Connecting people and mental health professionals to promote care in the face of depression signs

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Abstract. *Mental health is a global challenge. In Brazil, depressive disorders have a high incidence, often undiagnosed and with limited treatment, especially in vulnerable areas. Digital technologies offer means for transforming health-care models through telehealth, reducing geographical and socioeconomic barriers. This work presents the “Bem-te-vejo” platform, a conversational agent designed to promote connection between individuals and mental health professionals in the face of depression signs. The solution proposes continuous care, supporting people and mental health policies. An evaluation based on the Technology Acceptance Model has been conducted with mental health professionals and potential users, who indicated good acceptance and intention to use.*

1. Introduction

Recognized as one of the major public health challenges by the World Health Organization (WHO), depression is a serious mental disorder which affects individuals’ emotional state, triggering signs of persistent low mood, low self-esteem, feelings of worthlessness or guilt, and, in severe cases, suicidal ideation [Casani et al. 2020]. Given that clinical assessment is based on the subjective psychopathological evaluation of patient’s signs and symptoms, and that individuals affected by this condition are gradually incapacitated from leading a healthy life, initiatives that enable the early identification of depressive signs are essential. Early diagnosis and treatment increase the likelihood of symptom reduction and help prevent progression to more critical cases [Carvalho et al. 2024].

A promising approach to identifying indicators of depressive signs and symptoms involves analyzing spontaneous textual reports shared by individuals on digital platforms, such as social media or mood-monitoring applications [Pavlopoulos et al. 2024]. In this light, some digital technologies have been developed to support emotional well-being and provide continuous user assistance. For example, Woebot is a chatbot based on Cognitive Behavioral Therapy (CBT) principles, that offers real-time emotional support to individuals. Buddhify, Calm and Headspace are other tool examples that provide mindfulness practices, guided meditation, and strategies for stress and anxiety reduction, contributing to the promotion of mental health in individuals’ daily lives [Oliveira 2025].

Meanwhile, the growing innovation in health, driven by the convergence of digital technologies and scientific knowledge, has become a key driver of the transformation of care model. Telehealth, in modalities such as teleconsultation, telemonitoring, and tediagnosis, has shown potential to expand access, optimize resources, and improve the quality of healthcare by overcoming geographical and socioeconomic barriers [Catapan et al. 2024]. Particularly, the rise of Artificial Intelligence (AI) based conversational agents represents a new frontier for mental health interventions. These systems can provide initial support, triage, continuous monitoring, and support self-care strategies, operating as an accessible and non-stigmatizing communication channel [Jabir et al. 2023].

According to the Federal Council of Psychology (CFP), in its guide on the use of AI platforms in mental health care [Conselho Federal de Psicologia 2025], conversational agents are increasingly popular due to factors such as: (a) the search for affordable, low-cost help amid the pent-up demand for psychological care; (b) the convenience of 24/7 support; and (c) the promise of an anonymous and judgment-free space, which is attractive to people seeking to circumvent the stigma that still surrounds mental health.

The development of conversational agents can be enhanced by the use of Large Language Models (LLMs), which represent an important advancement over traditional systems. Unlike conventional chatbots that rely on pre-programmed responses and rigid interaction flows, LLM-based agents can process natural language inputs and generate dynamic responses while considering user context and intent throughout the dialogue [Caseli and Nunes 2024]. By enabling greater contextual understanding and natural language generation, these systems expand their applicability to complex scenarios such as mental health monitoring, where sensitivity and continuous adaptation are indispensable.

With this scenario in mind, this work has been guided by the following research question: how can a conversational agent be developed to identify signs and symptoms of depression, support self-care, and connect people with mental health professionals?

In response to the research question, this work introduces the Bem-te-vejo platform, a conversational agent designed to provide a welcoming interactive dialogue that promotes self-care related to depressive symptoms and signs. The assistant considers Brazilian Portuguese and serves as a communication channel between individuals and mental health professionals in scenarios such as: (i) individuals seeking an initial point of contact to report their feelings through the platform, rather than others lacking medical protocols (e.g., cases where platforms like ChatGPT have provided harmful guidance¹); (ii) mental health professionals (psychiatrists, psychologists) who encourage their patients to use the platform as an auxiliary tool for monitoring the progress of their emotional state; or (iii) detection of crisis or imminent risk situation requiring rapid professional intervention, while the platform provides immediate emotional support. In all scenarios, Bem-te-vejo guides the user to look for public or private professional assistance.

These scenarios are challenging and may raise skepticism regarding the role attributed to AI systems, especially given their accessibility and the risk of being perceived as autonomous substitutes for therapeutic support. This perception reflects concerns about the limits within which digital technologies can positively or negatively impact users' mental health. However, Bem-te-vejo is strictly positioned as an auxiliary tool, and not a

¹<https://www.bbc.com/portuguese/articles/ce8z4x2060lo>

replacement for specialized professional care.

An initial evaluation of Bem-te-vejo examined user acceptance and intention to use based on the Technology Acceptance Model (TAM) [Davis et al. 1989]. Two evaluation groups were considered: mental health professionals and students representing potential users. The findings indicate that the system is well-received by both groups. However, some resistance among mental health professionals is observed, likely reflecting caution toward adopting the use of new technologies in a sensitive domain.

The paper is disposed as follows: Section 2 provides concepts and related works; Section 3 and Section 4 presents the approach and results; Section 5 concludes the paper.

2. Theoretical Background and Related Works

A conversational agent or chatbot is a software system capable of interacting with users and simulating human dialogue to meet a wide range of needs. Technological approaches have evolved over time, moving from the simple strategy of matching input text against predefined rule patterns (e.g., ELIZA) to modern AI chatbots, also referred to as “intelligent conversational agents” [Paes and Freitas 2026]. This modern category of chatbots uses Natural Language Processing (NLP) techniques and Language Models trained to understand dialogue context, learn from conversations, establish complex interactions, and offer personalized experiences [Abdul-Kader and Woods 2020]. Conversational agents have also the potential to be used as an alternative form of journaling, easing the collection of personal data, such as textual reports on depression signs or mood [Kim et al. 2024].

To help matters in providing more empathetic and welcoming dialogues on conversational agents, LLMs can be guided by textual instructions known as prompts. Prompt Engineering (PE) consists of crafting structured instructions for the model to follow when executing specific tasks [Liu et al. 2023]. To this end, LLMs utilize in-context learning (ICL), a paradigm where the model infers task patterns from the provided context and adapts its response accordingly. These instructions may include examples to support this process (few-shot learning) [Dong et al. 2024]. Nevertheless, LLMs are not infallible [Tu et al. 2025], their probabilistic nature can generate “hallucinations” when responses do not align with factual reality. To mitigate this issue, the RAG (Retrieval Augmented Generation) paradigm can be employed, which grounds the model’s response by integrating relevant external content [Paes and Freitas 2026].

In the light of healthcare, some studies have explored chatbots’ approaches. Two examples of healthcare chatbots developed for the Brazilian context are IaraMed [Färber et al. 2025] and MarIA [Silva et al. 2024]. The former is a chatbot tailored explicitly to women’s healthcare needs. To overcome data scarcity, the authors created a specialized corpus via scraping on Doctoralia platform and implemented a RAG architecture to ensure more grounded responses. Evaluation results suggest that combining RAG with LLMs can help improving the response relevance. However, the Doctoralia-based dataset may lack reliability as a medical source, indicating the need for literature-backed medical data. The latter presents MarIA, an assistant designed to promote self-care for patients with diabetes. Using PE techniques, the system seeks to enhance response personalization and safety while mitigating hallucinations. It was evaluated with health insurance users, showing satisfactory results in terms of quality of responses and engagement.

Particularly in the field of mental health, there are applications designed to as-

sist individuals in managing their emotions during critical moments. One such example is Woebot, which provides continuous access to mental health care, available 24/7 [Fitzpatrick et al. 2017]. This is especially useful for users who lack immediate access to a therapist. The Boamente tool, in turn, supports professionals in detection of suicidal ideation in non-clinical texts [Azevedo 2025]. The system performs continuous and passive monitoring via mobile devices, and identifies linguistic patterns associated with distress. It emphasizes clinical transparency by providing explanations for its classifications, regarding the presence or absence of suicidal ideation.

Likewise, MindfulDiary [Kim et al. 2024] is a LLM-driven journaling application designed to assist patients with depression in documenting daily experiences. The system utilizes a conversational interface driven by a LLM to ensure naturalistic dialogues and clinical safety. It also comprises a clinician dashboard for monitoring patient mood trends. A four-week study demonstrated that this approach not only helped users consistently enrich their records but also provided clinicians with deeper contextual insights. Critically, the reliance on AI-generated summaries introduces clinical risks. Summarization may obscure vital linguistic nuances, such as tone, necessary for mental status examinations, what could inadvertently reinforce distorted narratives in patients with psychotic features.

[Zhou et al. 2025] present an LLM-driven doctor-patient-family interactive system that generates assistive diagnostic reports to overcome the limited interpretability of traditional depression assessment. By leveraging instruction reasoning with RAG over DSM-V (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) criteria, the InterMind system provides structured insights, including depression severity. Evaluated by 5 psychiatrists and 18 psychology volunteers across three datasets, it demonstrated strong performance in terms of accuracy and F1-score. Notably, accurately estimating severity remains challenging and real-world clinical validation is still needed.

At last, a web application was developed to facilitate the understanding and analysis of data from the Reddit social network in the domain of Depression [Nascimento et al. 2025]. It allows customized queries using, for example, temporal filtering and keywords. This application introduced the use of a multi-class classifier adjusted from a language model pre-trained with data on depression in Brazilian Portuguese. Given a post, the classifier assigns one of the following labels for depression: absent, moderate, or severe.

Our present work advances the state-of-the-art of mental health technologies for the Portuguese language, considering Telehealth. It focuses on developing a conversational agent to assist on identifying depression signs and symptoms, while provides self-care for individuals. Furthermore, it provides (i) connection between users and mental health professionals, and (ii) a message classification model that categorizes user input into three levels of depression: absent, moderate, and severe.

3. Proposed approach

Bem-te-vejo belongs to the category of modern chatbots that use LLMs as an inference engine for processing dialogues, being able to maintain coherence throughout multiple interactions. This enables a more human-like communication experience, which fosters engagement and mitigates distrust in interactions with computational machines. An overview of the Bem-te-vejo architecture is shown in Figure 1.

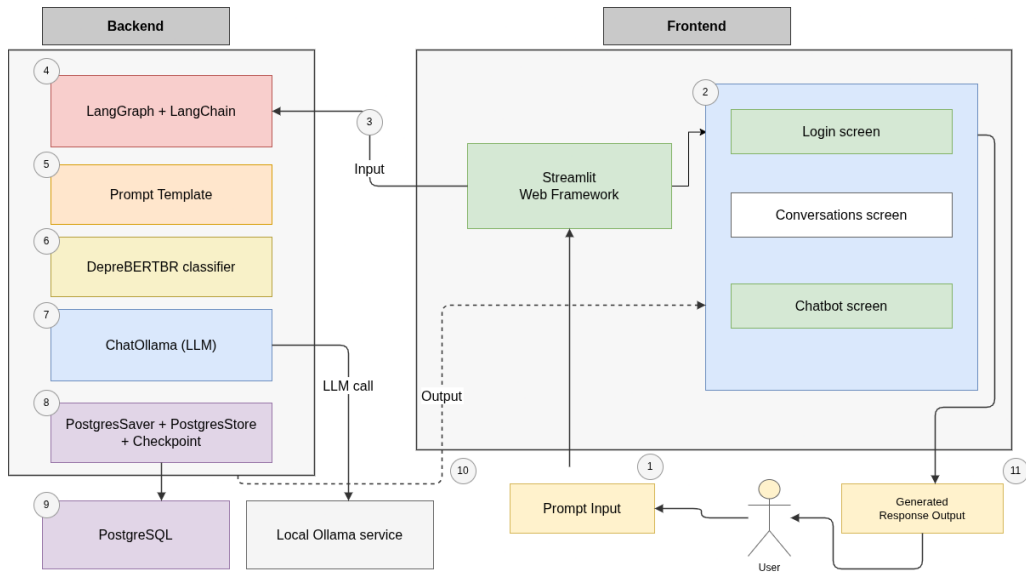


Figure 1. Bem-te-vejo Chatbot Architecture.

The system has been designed specifically for the domain of depression, capable of communicating for two distinct user profiles: individuals (end-user), who seek emotional support, thus offering accessible, empathetic, and easy-to-understand information; and mental healthcare professionals, who access evidence-based content including classified information for monitoring and support. This dual-channel approach ensures that both user groups receive the type and depth of information appropriate to their needs and expertise, in accordance with the continuous dialogue evolution.

The frontend assists both user profiles. Built on Streamlit² framework, it has been designed to promote a positive user experience, allowing users to authenticate via social *login* with a Google account. Regarding end-users, it provides the management of their conversations (create, delete, or rename). The interface aimed at mental health professionals is currently in the specification phase. It will allow such experts to review individuals' dialogue history through insights which may be noteworthy for monitoring or treatment.

On the backend, processing is orchestrated by a centralized pipeline. The Langchain and LangGraph frameworks manage the conversation flow and agent state logic. Ollama is the platform that ease running LLMs locally. The chatbot has been fine-tuned using a structured prompt designed to guide the LLM toward self-care, while maintaining a calm, welcoming tone and active listening. It also defines inviolable rules (e.g., "never provide clinical diagnoses or prescribe treatments"), specifying response structure, as well as ethical boundaries and crisis protocols. The user conversation history is persisted as checkpoints in a relational database (PostgreSQL).

Bem-te-vejo integrates a classifier fine-tuned as a service from a pre-trained model to analyze input texts and classify them according to the intensity level of depression (absent, moderate, or severe) [Herculano et al. 2024]. The model was pre-trained with texts regarding depression in Brazilian Portuguese. Evaluation results indicated that the classifier achieved a Macro F1-score of 0.88 in predicting the depression severity level.

²<https://streamlit.io/>

Figure 2 shows an illustration of the Bem-te-vejo interface with a sample of conversation. The chatbot prioritizes an empathetic, welcoming dialogue that promotes self-care and allows users to manage their interactions within the platform.



Figure 2. Conversation between a user and the chatbot.

4. Evaluation and discussion

To evaluate the utility and adoption likelihood of the Bem-te-vejo platform, a qualitative and exploratory survey was conducted using a questionnaire based on the Technology Acceptance Model (TAM) [Davis et al. 1989]. The instrument comprised five sections: (a) informed consent, ensuring data privacy and anonymity; (b) participation profile definition; (c) profile leveling and characterization; (d) application presentation; and (e) TAM-based criteria, shown in Table 1.

The evaluation considered both target user profiles of the platform as respondents: mental health professionals (psychologists and psychiatrists) and potential end-users that could utilize the chatbot seeking support to self-care. It was conducted in three stages: (i) a meeting with a presentation for the Bem-te-vejo evaluators; (ii) provision of a demonstration video of the functionalities and conversations in the chatbot; and (iii) responses to the defined questionnaire. Tailored questions were managed to each group. In the characterization section, data from mental health professionals included area of practice (public, private, or academic) and familiarity with integrating technology into their routine. For end-users, questions focused on familiarity with user interface evaluation. Based on a simplified TAM framework, four dimensions were evaluated: Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude Toward Using (ATU), and Intention to Use (ITU). A 6-point forced-short Likert scale was used, ranging from “strongly disagree” (1) to “strongly agree” (6), precluding a neutral response. In total, 21 responses were obtained (13 end-users and 8 mental healthcare professionals).

4.1. Evaluation by mental healthcare professionals

The group comprised 6 psychologists and 2 psychiatrists. Overall familiarity with technology was high; however, familiarity with the use of electronic health records or digital

tools showed slight variation, with scores concentrated at 4. For the TAM dimensions, mean scores range from 4.58 (ITU) to 4.96 (PU). The high PU score indicates that professionals perceived Bem-te-vejo as useful for their routines. PEOU was also highly rated, suggesting the interface is easy to learn and use. Regarding ATU, professionals demonstrated positive attitudes toward system. ITU diverged slightly from the other dimensions, with a more dispersed distribution and lower mean score, indicating some hesitation toward adopting the assistant into their daily workflow (Figure 3).

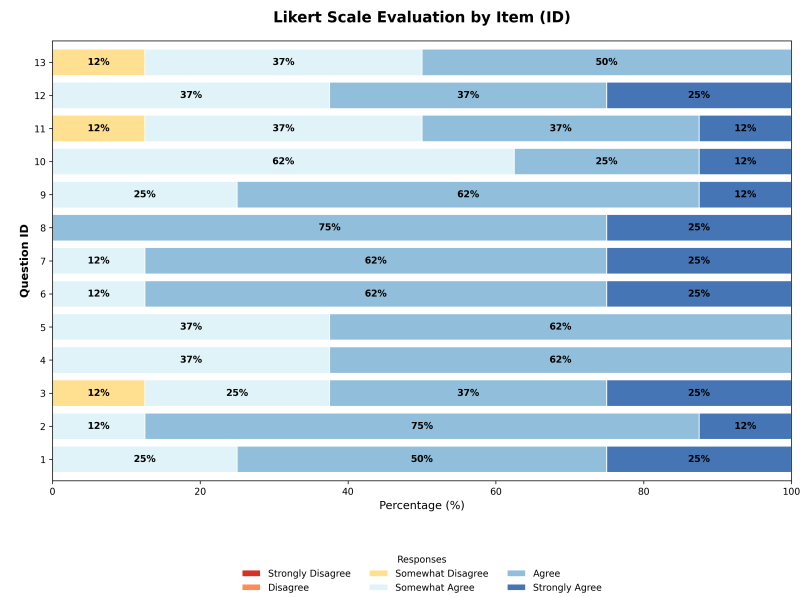


Figure 3. TAM form responses for mental healthcare professionals

Table 1. Mapping of the Items in the Assessment Questionnaire (TAM)

ID	Question / Questionnaire Phrase
Perceived Ease of Use (PEOU)	
1	As a user, the <i>Bem-te-vejo</i> chatbot would be simple to use in my daily life.
2	As a user, my interaction with the <i>Bem-te-vejo</i> chatbot would be clear and understandable.
3	As a user, using the <i>Bem-te-vejo</i> chatbot through conversations would be intuitive.
4	As a mental health professional, I consider that the system would make it easy to engage users.
Perceived Usefulness (PU)	
5	As a user, <i>Bem-te-vejo</i> could facilitate my self-care regarding mental health.
6	As a mental health professional, using the reports obtained through the chatbot would enhance my analysis and the monitoring of patients/users.
7	As a mental health professional, the chatbot would be useful for the early identification of warning signs.
8	I believe that using <i>Bem-te-vejo</i> would increase the effectiveness of my work/clinical monitoring.
Intention to Use (ITU)	
9	If I had access to <i>Bem-te-vejo</i> , I would intend to use it regularly for monitoring.
10	I would recommend the use of <i>Bem-te-vejo</i> to other people or patients.
11	I intend to use <i>Bem-te-vejo</i> in the future as an auxiliary tool.
Attitude Toward Use (ATU)	
12	Using the <i>Bem-te-vejo</i> chatbot for mental health care is a favorable idea.
13	I feel confident/comfortable regarding the proposed use of the <i>Bem-te-vejo</i> assistant.
14	I consider that the experience of using <i>Bem-te-vejo</i> would be positive.

Correlating the profile characterization data with the dimensions showing below-average scores reveals that these participants have lower level of technological familiarity. For example, they reported less familiarity with the use of electronic health records and patient triage systems. Overall, feedback from mental health professionals was highly positive, and demonstrated support for the Bem-te-vejo platform (Figure 3), as reflected in one participant's comment: "It is a great tool; I believe it would greatly assist as a support for treatment and mental health care if well-managed" (Participant 6).

4.2. Evaluation by End-Users

The end-user group comprised undergraduate students in technology-related fields, enabling analysis both as potential users of the application and from a technical user experience perspective. The mean scores for the TAM dimensions ranged from 4.73 (ITU) to 5.38 (PEOU). Compared to mental healthcare professionals, students rated the interface as more intuitive and easier to use, with a 0.54 higher ITU mean. Overall, all variables received slightly high ratings, reflecting positive evaluation of both the interface and the platform's purpose. Similarly to the professionals, ITU had the lowest score, suggesting a certain reticence among users regarding the adoption of the application.

4.3. Threats to validity

It is important to emphasize that the sample size is limited, with an n of 21 individuals. Furthermore, among these 21 participants, 13 potential users are technology students, which contributes to a bias toward familiarity with digital systems and applications. Also, due to the fact that the Bem-te-vejo platform is not yet hosted on a production server, participants were introduced to Bem-te-vejo via a narrated demonstration video showcasing the systems's functionalities and dialogues, which could impact the perception of the PEOU dimension. Although it does not provide a direct interaction, video-based evaluation still provides valuable insights, specially in early development stages.

5. Conclusions and future work

This work presented Bem-te-vejo, an LLM-based conversational agent to promote care in the face of depressive symptoms and signs. The chatbot has been fine-tuned using a structured prompt to guide self-care while maintaining a calm, welcoming tone. The evaluation results obtained by user groups (mental health professionals and students) hold a favorable perception, demonstrating strong initial acceptance and intention to use. These findings support the platform's idea and further development and enhancement. From a scientific point of view, the work contributes by exploring the intersection of Telehealth and conversational agents in a context that is still little explored in Brazilian Portuguese. On the other hand, from a practical point of view, the results suggest the potential use of the Bem-te-vejo platform to support individuals in their self-care and mental health professionals in decision-making based on insights obtained through conversations.

Future work includes investigating the feasibility of utilizing Small Language Models (SLMs), with strategies such as RAG, fine-tuning, and also PE. The DePreBERTBR model will be readjusted based on four classes of depression, enhancing the model as a risk classifier. In order to strengthen the TAM-based findings, subsequent evaluation will involve direct user testing of the chatbot, including participants from diverse socioeconomic profiles and age groups. Further investigations will assess ethical and

safety concerns. Additional metrics and evaluation protocols focused on conversational quality will be incorporated to enable a more comprehensive assessment of the chatbot.

6. Generative AI Use Disclosure

Generative AI was only used to assist text translation, summarize text excerpts and make fixes or improvements to the text. It was not used to generate evaluation results, data analyses, or core scientific contributions. All methodological design, implementation, evaluation and interpretations were conducted by the authors.

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