

# Sukoon

## Evaluating the Scalability of AI-Enabled Mental Healthcare in India

Written By

Tanisha Sheth • Anirudh Anilkumar<sup>1</sup> • Luv Singh

<sup>1</sup> Biodesign Fellow, Indian Institute of Technology Bombay.

## Contents

About People+ai	2
Copyright & Open Access License	2
1 Executive Summary	3
2 Introduction	4
3 Origin & Opportunity	5
4 User Research	7
5 Proof of Concept	10
5.1 Product Design . . . . .	10
5.2 Technical Development . . . . .	11
5.2.1 System Requirements . . . . .	12
5.2.2 Agent-Based Architecture . . . . .	12
5.2.3 Implementation Challenges & Solutions . . . . .	14
5.2.4 Technical Design . . . . .	16
5.2.5 V. Data Security and Privacy . . . . .	16
5.3 Validation & Scalability . . . . .	17
5.4 Open Questions & Limitations . . . . .	17
5.5 Evaluation and Feedback . . . . .	17
6 From Pilot to Scale	23
7 Adapting Sukoon For You	27
7.1 Healthcare Providers . . . . .	28
7.1.1 Mental Health Professionals . . . . .	28
7.1.2 Primary Healthcare Workers . . . . .	28
7.1.3 ASHA Workers . . . . .	28
7.2 Educational Institutions . . . . .	29
7.3 Enterprises . . . . .	29
7.4 Telehealth Platforms . . . . .	29
8 Conclusion	30
Appendix B: Contributors	31

## About People+ai

People+ai is an EkStep Foundation initiative designed around the belief that technology, especially AI, has the potential to transform India through a people-first approach. People+ai connects thinkers, do-ers, researchers, tinkerers and innovators by enabling voices and spaces for the ecosystem to focus on crafting use cases that make technology work better for the people.

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## 1. Executive Summary

This whitepaper serves as a playbook for Project Sukoon, an open-source initiative that leverages AI to address India's mental health crisis. As part of Sukoon, we designed and tested a modular AI chatbot that combines specialized AI agents to deliver culturally sensitive, ethical, and secure support. We aim to demonstrate how technology can responsibly augment mental healthcare access while maintaining human oversight.

Our playbook details technical frameworks, implementation roadmaps, and learnings from real-world collaborations. Its intent is to equip healthcare providers, educators, enterprises, and nonprofits, with the knowledge needed to contextually implement tech-enabled mental health support in their environments.

### What this document is:

- Lessons from building India's first open-source, AI-powered mental health chatbot.
- Detailed step-by-step implementation guide for stakeholders to build and deploy mental health support systems.
- Insights from our pilot with IIT Kanpur in developing targeted mental health support for college students and our collaboration with Physics Wallah in scaling it across age groups and languages.
- Reflections on market adoption, ethical guidelines and co-creation strategies adopted.

### What it is not:

- Guide to building chatbots or theoretical discussions of mental health interventions.
- An advocacy for replacing mental health professionals with AI.

## 2. Introduction

In a nation of 1.4 billion people, India’s mental health crisis represents one of the most pressing yet underfunded public health challenges of our time. Despite affecting over 150 million Indians who need active interventions, mental health receives less than 1% of the national healthcare budget.<sup>1</sup> This systemic neglect has created a profound gap between need and treatment access, with less than one psychiatrist available per 100,000 people, leading to treatment gaps exceeding 70% across disorders.<sup>23</sup>

The economic impact of this crisis extends well beyond the healthcare system. The World Health Organization estimates India will lose \$1.03 trillion to mental health conditions between 2012-30, with significant implications for productivity and economic growth.<sup>4</sup> This burden disproportionately affects several vulnerable demographics including students (with 20–30% reporting mental health challenges), agricultural workers (suicide rates 1.5x higher than national average) and urban professionals (where workplace stress accounts for 32% of mental health cases).<sup>56</sup>

The range and complexity of this crisis demands innovative solutions that can be rapidly scaled. Project Sukoon emerged as a response to this challenge, leveraging AI to expand mental health-care capacity in India. Our focus on co-creation gave wind to an ecosystem approach that not only addresses existing gaps but also anticipates future needs, fostering sustainability and scalability.

Our white paper traces the journey of Project Sukoon from conception to current state. As we navigate through phases of development, we detail our learnings, and future pathways positioning Project Sukoon as a model of scalable social good in mental health care.

Our approach encompasses a spectrum of use cases at the population level, including but not limited to:

- Open-source AI models leveraging diverse Indian mental health data.
- Standardized APIs for accessing mental health resources and insights.
- Evaluation frameworks and systems to ensure ethical use of AI in mental health, protecting privacy and preventing bias.
- Leveraging synthetic data to close cultural gaps.

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<sup>1</sup>WHO Mental Health Atlas 2022

<sup>2</sup>PRS India Union Budget Analysis 2023-24

<sup>3</sup>The Lancet Psychiatry Study - India Mental Health Care 2020

<sup>4</sup>WHO on Economic Impact of Mental Health 2022

<sup>5</sup>Kannuri NK, Jadhav S. Cultivating distress: cotton, caste and farmer suicides in India.

<sup>6</sup>ASSOCHAM Workplace Mental Health Survey 2023

### 3. Origin & Opportunity

Sukoon's journey began with a personal revelation: AI tools were incredibly useful in helping us manage our own emotional health. Whether during moments of stress or reflection, these interactions helped us navigate our mental states with unexpected effectiveness. As we shared these experiences, we discovered a community of individuals who had similarly found value in this type of emotional support. This resonance compelled us to dig deeper.



Figure 1: A visual representation of AI-enabled scaling

Mental health journeys are fluid. Individuals engage with multiple resources, from unpaid informal networks to paid clinical care, based on awareness and access. What started as a solution for individuals like ourselves soon began to mature. Conversations with users, caregivers, and practitioners clarified a ground truth: India's mental health crisis cannot be solved by training professionals alone. At existing rates, it would take *over* a century to just meet the country's *current* demand for therapists. This stark reality broadened our focus from individual tools to a project that could drive systemic change. Sukoon's scope evolved into an ecosystem initiative, targeting both supply-side gaps (e.g., overburdened professionals) and demand-side barriers (e.g., stigma, accessibility).



Figure 2: The spectrum of Care Access-Delivery

#### Key pillars:

- **Demand-Side Solutions:** Direct support tools for users (e.g., chatbots, self-help modules).
- **Supply-Side Capacity:** AI-augmented workflows for mental health workers (MHWs) to extend their reach (e.g., note-taking, triage, progress tracking).
- **Community Bridges:** Training for informal caregivers (e.g., ASHA workers, families) to recognize and respond to early signs of distress.

This multi-layered approach ensures interventions align with where users are in their journey, whether seeking immediate coping strategies or long-term therapy. By integrating AI as a collaborator—not a replacement—our goal is to empower all stakeholders to deliver scalable, culturally resonant care.

**Cultural context note:** Cultural context shapes how mental health challenges are expressed, understood, and addressed. In India, where someone might describe their anxiety as "tension", Western-trained AI models can miss crucial emotional cues. These cultural nuances become even more critical beyond urban confines, where mental health expressions are deeply embedded into local idioms, family dynamics, and community beliefs. Read more about this in our paper on culturally intelligent AI [here](#)

## 4. User Research

While our vision encompasses building capacity across the entire mental health spectrum, we recognized the need to start with a focused, well-defined use case that could serve as a proof of concept. So we took a human-centered approach — focusing first on the demand side of the spectrum to understand people’s struggles, behaviors, and coping mechanisms.

We began by mapping the typical journey of someone seeking mental health support:

### The Support-Seeking Journey

1. **Recognition:** Individuals often rely on informal networks or self-resolution before acknowledging the need for professional help.
2. **Crisis Point:** A triggering event or observation prompts the decision to seek care.
3. **Initial Engagement:** Positive first interactions encourage continuation, while negative experiences lead to abandonment. This is a function of perception, not just access.
4. **Continuation or Drop-Off:** Nearly 70% of people discontinue by their second or third session.

Each stage revealed critical friction points that often prevented individuals from receiving timely help. These ranged from varied levels of stigma or denial in the early stages, to ubiquitous accessibility and affordability barriers in later stages.

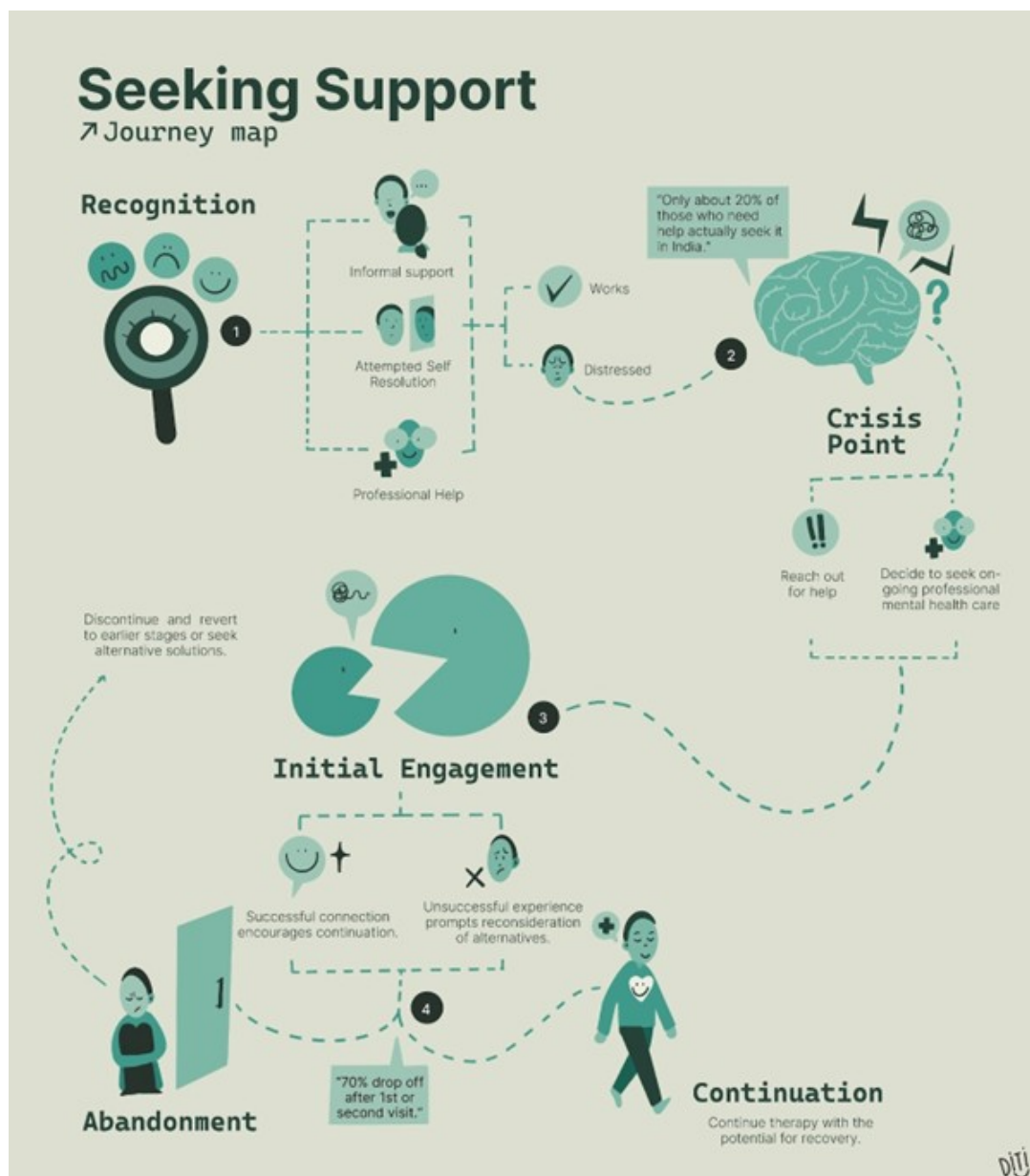


Figure 3: A map of the journey of seeking support for mental health

Through our research, we identified several high-stress population segments that demonstrated both acute need and impact potential. Students emerged as a priority group because they were:

- A perpetually renewing population with consistent support needs.
- High comfort with technology.
- Faced unique challenges (limited resources, academic pressure, privacy concerns).
- Campus environments enabled controlled impact measurement.



Figure 4: A non-exhaustive look at a few headlines from 2024-2025 pertaining to the recent state of student mental health in India. While macabre, it remains a stark reality that is largely ignored.

This led to us partnering with IIT-Kanpur's student consulting group. Our first step was to substantiate our hypothesis and we did this by rolling out a survey to better understand students' needs and support-seeking behaviors. With 576 respondents, participation far exceeded our expectations, validating the urgency of the problem. Academic pressure emerged as the primary stressor, followed by career/internship concerns, relationship issues, and peer pressure. Notably, the survey identified prevalent symptoms of anxiety and depression, with 60 % students reporting excessive worrying or fear and 56 % experiencing feelings of sadness or isolation. In other words, the findings highlighted a significant gap in mental health support, irrespective of solutions that were already provided. Below, we chart students' use of existing mental health resources and their receptiveness to tech-first solutions. (Full report linked [here](#).)

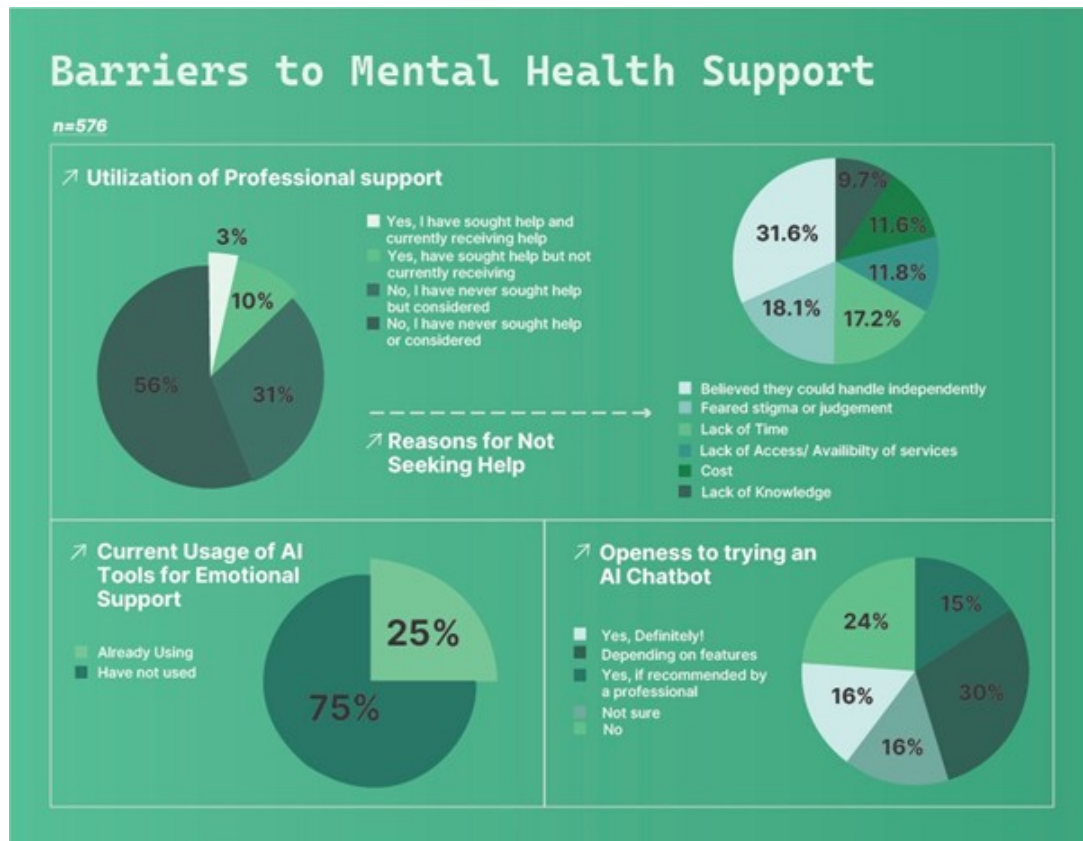


Figure 5: Key Findings on Mental Health Support Utilization (IIT-Kanpur Survey, n=576)

## 5. Proof of Concept

### 5.1. Product Design

Our user research revealed promising signals for tech adoption: 30% of surveyed students expressed willingness to use a mental health chatbot, with 25% already using AI for emotional support. However, students also raised valid concerns about AI's empathy, contextual understanding, and privacy.

These insights drove the development of our first prototype, with two key design principles:

1. **Supportive Listening:** Focus on being a supportive listener rather than attempting to be a replacement for therapy.
2. **Privacy-First:** Ensure strict privacy controls and anonymous usage functionality.

#### Strengths:

- **Personalized Support:** AI's ability to draw from vast knowledge bases allowed for tailored recommendations based on individual user contexts and needs. Through iterative feedback loops, system settings like prompt responses were refined while leveraging historical interaction context to deliver increasingly personalized experiences that adapt to each user's unique patterns, preferences, and learning trajectory
- **Language Processing:** The ability to understand and respond in Hindi and Hinglish made conversations feel more natural and relatable.
- **24/7 Availability:** Continuous availability addressed the critical need for support during late-night hours given counsellors were only available till 8pm.

**Limitations:**

- **Cultural Context:** Ensuring responses were culturally appropriate and sensitive given the vast amounts of western data these models were trained on; especially important when students use uniquely Indian euphemisms / examples to express their emotions
- **Trust Building:** Balancing professional distance with empathetic engagement.
- **Scope Definition:** Clearly distinguishing support from diagnosis.

**Product Positioning:** While designing the product, we carefully considered how we would communicate its value proposition to students. Given that mental health already has certain stigmas attached to it, we reframed to call it a support tool for stress management. It was interesting to see how the new messaging resonated and created a perspective shift amongst students, driving adoption.

**Interface Selection:** Selecting the interface for our tool was an exercise in balancing accessibility with user needs. Despite WhatsApp’s high penetration among students, several factors led us to pivot to a web application:

- **Study habits:** Students typically keep phones away while studying but maintain laptop access
- **Context switching:** The platform’s social nature could detract from focused mental health support
- **Privacy concerns:** WhatsApp’s personal nature and phone number requirements posed data privacy challenges
- **Cross-device accessibility:** Web Apps can be accessed via any device, be it phone, tablet or computer, enabling users to seamlessly interact with the service from any platform with a web browser

**Integration with Existing Systems:** Our design approach emphasized seamless integration with existing student support structures. Rather than creating a parallel system, we integrated the tool to complement university counseling services by:

- Providing support during off-hours when counsellors aren’t available
- Serving as a first point of contact for students hesitant to seek formal help
- Aligning with students’ academic schedules and study patterns

Enhancing rather than disrupting existing support resources made the solution easier for both students and institutions to adopt.

## 5.2. Technical Development

Our development strategy focused on building a **scalable, clinically rigorous AI architecture** that balances technical innovation with user safety. This section details our modular agent workflow, implementation challenges, and safeguards.



Figure 6: Basic skeleton of LLM-aided interactive chatbots (Adapted from the Anthropic [Cook-book](#))

### 5.2.1 System Requirements

Guided by user research and clinician feedback, the system needed to:

1. Handle diverse scenarios: From academic stress, low motivation to suicidal ideation.
2. Maintain context: Track conversation history for continuity.
3. Escalate safely: Auto-detect high-risk queries (e.g., self-harm) and route to humans.
4. Multilingual support: Hindi/Hinglish fluency with cultural nuance.
5. Privacy-by-design: Masking of key PII data.

**Why conventional LLM-based chatbots fail:** Early prototypes using a monolithic LLM struggled with false negatives, inappropriate responses, and language limitations (Western-centric training data).

### 5.2.2 Agent-Based Architecture

We evaluated agent-based architectures and adopted a modular, agent-based framework inspired by human specialization in mental healthcare.

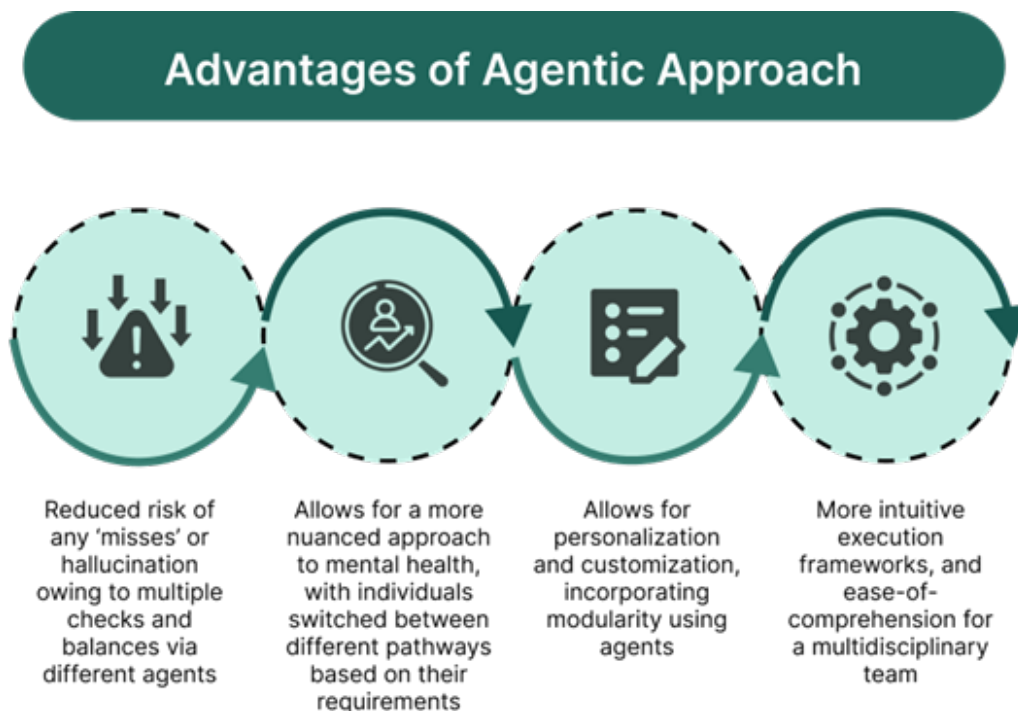


Figure 7: The advantages of utilising an agentic approach for AI in mental healthcare.

**Design Philosophy:** We adopted a modular, agent-based framework. Each AI agent is a purpose-built LLM module trained for specific therapeutic protocols (e.g., CBT, DBT). This ensures handling diverse scenarios while maintaining context.

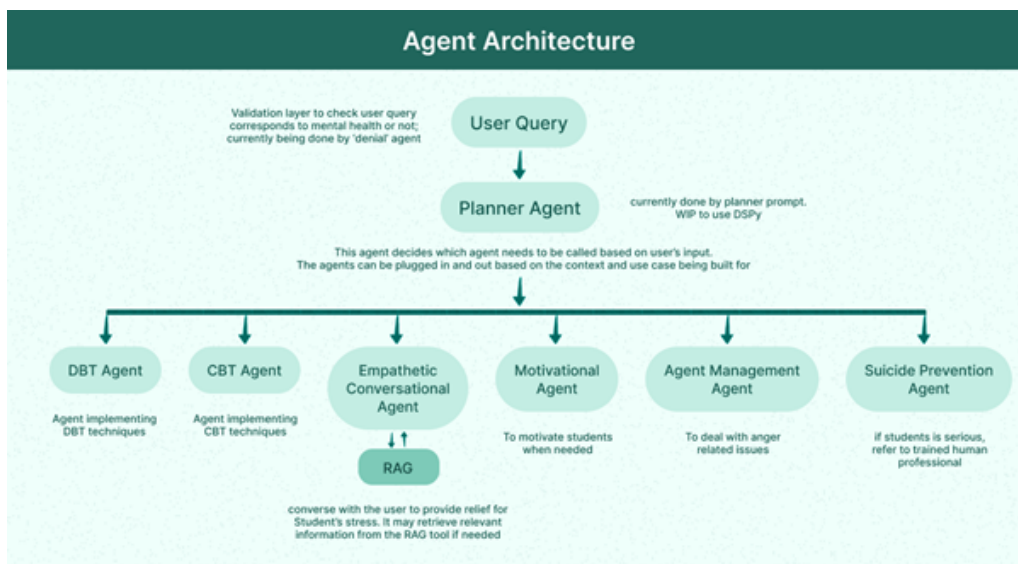


Figure 8: Hierarchical agent workflow with centralized routing and escalation protocols

Please Note that the flow here is User Query -  $\rightarrow$  Planner Agent -  $\rightarrow$  Specialised Agents. The agents can be called repeatedly till the user is satisfied.

**Table 1: Core Agents and their roles, along with the clinical basis for their functions**

Agent	Role	Clinical Basis
Router Agent	Classifies queries via NLP (intent + sentiment analysis + LLM’s reasoning).	DSM-5 symptom taxonomy
Crisis Intervention	Executes QPR protocol; triggers human escalation if risk $\geq$ 70%.	WHO suicide prevention guidelines
CBT/DBT Agents	Guides users through cognitive reframing or distress tolerance exercises.	Beck Institute protocols
Empathetic Listener	Provides validation and active listening.	Rogerian therapy principles
Motivational Agent	Motivates users when needed.	Transtheoretical Model + Motivational Interviewing
Anger Management Agent	Helps de-escalate and deal with anger-related issues.	STOPP Framework

### Rationale Behind Key Technical Decisions

- **LangGraph Framework:** Chosen over DAG-based tools (e.g., Airflow) for:
  - **Cyclic Workflows:** Critical for revisiting prior context in conversations.
  - **State Persistence:** Maintains session history via **MemorySaver**.
  - **Optimal Selection:** Provided the most stability compared to other options such as Crew or Autogen.

(Please see all the reasons mentioned in the Appendix section for more details.)

- **Prompt Fine-Tuning:** Optimized for Hindi/Hinglish using user feedback and synthetic data from four distinct user personas.
- **Human-in-the-Loop:** Counselors can add their inputs to AI decisions mid-conversation.

### 5.2.3 Implementation Challenges & Solutions

#### Challenge 1: Context-Aware Routing

- **Problem:** How to route complex multi-issue queries (e.g., academic stress + suicidal ideation).
- **Solution:**
  - **Router reasoning:** Directs queries to specialized AI agents based on the LLM’s intent analysis. Enhanced reasoning models, especially open-source ones, will enable more accurate routing at reduced operational costs.
  - **Priority Escalation:** The Crisis Agent takes precedence over the Academic Stress Agent when the user exhibits self-harm indicators or similar high-risk thoughts.

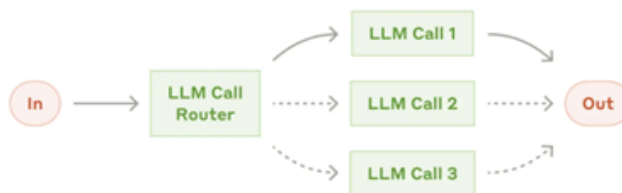


Figure 9: Overview of Routing Mechanism Used

**Challenge 2: Privacy vs. Safety**

- **Problem:** Balancing anonymity with crisis escalation needs.
- **Solution:**
  - Privacy by design: Analytics capture anonymous session IDs not PII.
  - Anonymous escalation: Users can share session ID (not personal details) for counselor review.

**Challenge 3: Cultural Adaptation**

- **Problem:** Western-trained LLMs misinterpret phrases like “tension” (common Indian English term for stress)
- **Solution:**
  - Privacy by design: Added culturally relevant phrases, idioms, and slang into the prompt as examples.
  - Prompt Templates:

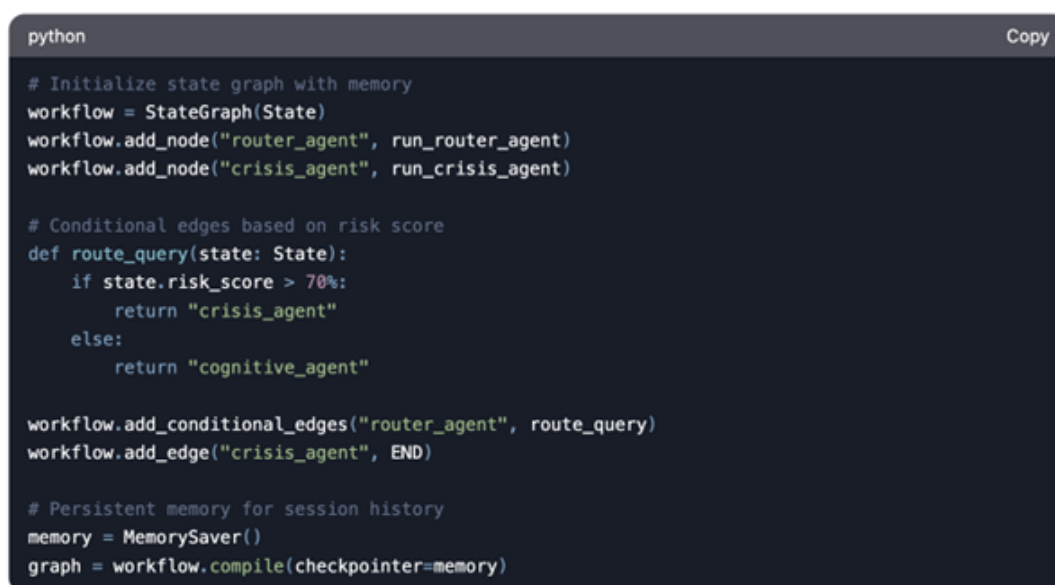
```

empathetic_agent_prompt:
  - <prompt: You are Sukoon's empathetic conversational agent, here to support
    students ...>
  - <instructions>
    - Avoid idioms like "hang in there"; use "कठिन समय है, पर हम साथ हैं" (It's tough,
    but we're here) ...
  - </instructions>
  
```

Figure 10: Example Prompt Used to Aid in Cultural Context

The complete list of prompts can be found here: [https://github.com/PeoplePlusAI/Sukoon/blob/icg/new\\_prompts.yaml](https://github.com/PeoplePlusAI/Sukoon/blob/icg/new_prompts.yaml)

### 5.2.4 Technical Design



```
python
# Initialize state graph with memory
workflow = StateGraph(State)
workflow.add_node("router_agent", run_router_agent)
workflow.add_node("crisis_agent", run_crisis_agent)

# Conditional edges based on risk score
def route_query(state: State):
    if state.risk_score > 70%:
        return "crisis_agent"
    else:
        return "cognitive_agent"

workflow.add_conditional_edges("router_agent", route_query)
workflow.add_edge("crisis_agent", END)

# Persistent memory for session history
memory = MemorySaver()
graph = workflow.compile(checkpointer=memory)
```

Figure 11: LangGraph Workflow (Compiling the Graph)

#### key features:

- **Cycles:** Enables revisiting prior context.
- **Control:** More control over conversation flow, key to reducing hallucinations.

As LLMs mature in key areas such as understanding complex inputs, engaging in reasoning and planning, using tools reliably, and recovering from errors, AI agents are emerging in production. These agents commence their work with either a command from, or interactive discussion with, the human user. Once the task is clear, agents plan and operate independently, potentially returning to the human for additional information or judgment.

Table 2: Comparison of features from Version 1 vs. Version 2

Feature	Version 1	Version 2
Agents	2 (Base + Crisis)	7 (Router, Crisis, CBT, DBT, etc.)
Routing	Keyword-based	NLP + reasoning
Latency	2.1s/response	1.4s/response

### 5.2.5 V. Data Security and Privacy

Given the sensitivity of mental health conversations, we prioritized privacy and security at every level:

#### 1. PII Masking:

- Deployed Microsoft’s Presidio to detect and anonymize PII.
- Masked fields include names, phone numbers, and locations.

#### 2. Minimal Data Collection:

- Users are not required to provide sensitive personal details.

- Optional session IDs allow anonymous escalation to human counselors.

### 3. Language Detection:

- Used langdetect to identify user query language to ensure appropriate responses.
- Ensures culturally and linguistically appropriate responses.

### 4. End-to-End Encryption:

- All exchanges are encrypted during transmission.
- Prevents unauthorized access during transmission.

## 5.3. Validation & Scalability

### Testing Protocol

- **Volunteer Community:** 75+ volunteers tested the chatbot with a 77% positive feedback rate.
- **Clinician Reviews:** Mental health professionals scored responses on empathy (1–5), safety, and perceived efficacy.
- **Results:** Empathy averaged 4.2/5 (normalized).

### Scalability Evidence

- **Horizontal Scaling:** Agents deployable as microservices.
- **Cost:** 0.06/query (for <100 queries), likely to reduce as models become cheaper and open-sourced.

## 5.4. Open Questions & Limitations

1. **Hallucination Mitigation:** How to prevent agents from inventing non-evidence-based advice?
  - Current safeguards: Prompt constraints (e.g., “Only use WHO-approved techniques”).
2. **Low-Resource Regions:** Can multilingual voice-based interfaces reduce literacy barriers?
3. **Bias in Training Data:** Ongoing audits for caste/gender biases in synthetic data; ensure inclusive personas.

## 5.5. Evaluation and Feedback



Figure 12: The role of mental health practitioners in evaluation of the solution

Domain expert-evaluation at every stage was a fundamental tenet of Sukoon’s development. Our first priority was building a qualified community of mental health professionals (MHPs) to guide and evaluate the project. Within four weeks of opening applications, we received an overwhelming response; more than 50 mental health professionals volunteered to support our initiative.

Given the rise of unqualified practitioners in India’s mental health space following the pandemic, we implemented a rigorous vetting process. Mental health professionals were only included after verifying their qualifications, years of experience, and professional registrations. Following this process, they provided both qualitative feedback through regular consultations with our technical team, and structured evaluations using our assessment framework.

Stage	Process	Specifics
<b>Ideation</b>	Review of Literature	Areas for improvement as well as vetting of the Agentic Architecture proposed as the backbone of approaching mental health issues using AI.
	Vetting of Training Data	Recommendations and approval of open-source resources provided by the WHO, NHS, and NIH, used for enhancing Retrieval-Augmented Generation (RAG) in prototype chatbots.
	Standard Resource Pooling	Standardised resource sets collected and evaluated to support early prototype development.
<b>Building</b>	Feedback	Weekly feedback pertaining to the chatbot’s disposition of potential case scenarios, which were standardised to help in testing.
<b>Testing</b>	Quality and Effectiveness Assessment	Qualitative assessments following detailed conversations with the chatbot. Recording scores and documenting insights based on the standardised evaluation framework for the chatbots.

Table 1: Role of MHPs in guiding and developing Sukoon across various stages.

**Creating An Evaluation Framework** We developed a comprehensive evaluation combining standardized test scenarios with quantitative metrics.

**Standardized Test Scenarios:**

- Common student mental health concerns.
- Various emotional states and stress levels.
- Cultural and linguistic expressions.
- Crisis and non-crisis scenarios.

Evaluators would use these prompts as starting points, then continue the conversation naturally to test the bot’s understanding and responses. This approach ensured we could systematically assess the bot’s handling of different situations while allowing for organic conversation flow.

Student Query	Verbatim	Agent	Chatbot Response
Initially I was continuously joining my lects but from few days due to some family issues I could not..plz I am stressed		conversational agent	I hear you, it's tough going through this. It's understandable to feel stressed with everything going on. It's okay to take a step back and breathe. You're doing your best, and that's what matters. Maybe taking a short break or doing something you enjoy could help clear your mind a bit.
Sometimes I feel very bored..... And if unfortunately my half day wasted I feel very stress and not gonna for again study		motivational agent	It's completely normal to feel unmotivated sometimes. What's the biggest challenge you're facing right now? Remember, you're important and can do anything. What's something you've accomplished in the past that you're proud of? You've got this! What's one small win you're aiming for today?
I'm very much demotivated today feeling stress thinking that will I clear neet 2024 or not		Dialectical behavior therapy agent	It's completely normal to feel unmotivated sometimes. What's the biggest challenge you're facing right now? Remember, you're important and capable of achieving great things. What's something you've accomplished in the past that you're proud of? You've got this! What's one small win you're aiming for today?
Mera backlog bhi bahut jada ho gya h.....fir stress ho jata hai Mann nhi ker ta padhne kaa		motivational agent	It's completely normal to feel unmotivated sometimes. What's the biggest challenge you're facing right now? Remember, you're important and capable of overcoming this. What's something you've accomplished in the past that you're proud of? You've got this! What's one small win you're aiming for today?
I am in anxiety, how do I do		dialectical behavior therapy agent	It's okay to feel how you're feeling. Emotions can be intense, but you can manage them. What emotion is strongest for you right now?
I am not able to maintain my consistency so I get backlogged		motivational agent	It's completely normal to feel unmotivated sometimes. What's the biggest challenge you're facing right now? Remember, you're important and capable of achieving anything. What's something you've accomplished in the past that you're proud of? You've got this! What's one small win you're aiming for today?

Table 2: Combined Set of Student Queries, Assigned Agents, and Chatbot Responses (Part 1)

Student Query	Verbatim	Agent	Chatbot Response
I am so depressed to think about my 12th because my 11th is totally backlog my 11th is not complete		cognitive_behavioral therapy agent	It sounds like you're struggling with some difficult thoughts, and that's okay. What's one negative thought that's been bothering you recently? Recognize that setbacks are part of learning. Focus on creating a plan to tackle these backlogs step by step. You're capable of overcoming this.
I am a NEET dropper from Yakeen 2.0, and this is going to be my 2nd NEET attempt. I studied hard in my 1st attempt but scored just 477 marks. This year I went with the batch quite well consistently, but since 2 months I am just lost. I am too stressed and have a lot of backlog right now. Since I have studied well in my 1st attempt, I think it is still possible for me to Crack neet by focusing mainly on Physics (My weakness) and going with my last year notes of Chemistry and Biology along with bio NCERT. Any suggestions?		motivational agent	It's completely normal to feel unmotivated sometimes. What's the biggest challenge you're facing right now? Remember, you are important and capable of achieving your dreams. Reflect on how far you've come and the dedication you've shown. Focus on one subject at a time. You've got this! What's one small win you're aiming for today?
Mai hamesha pareshan rehta hai study ke liye focus hi nahi kar pati hun room mein padhne ke liye sochti hun to andhera rahta hai aur jab bahar jati hun to Ghar Wale se sound bahut aati hai		motivational agent	It's completely normal to feel unmotivated sometimes. What's the biggest challenge you're facing right now? Remember, you're important and capable of achieving anything. What's something you've accomplished in the past that you're proud of? You've got this! What's one small win you're aiming for today?

Table 3: Combined Set of Student Queries, Assigned Agents, and Chatbot Responses (Part 2)

(Additional similar scenario-response pairs were used, preserved in the original dataset.)

**Structured Assessment Criteria** We used a rating scale 1–5 across metrics such as:

- Accuracy & Reliability of Information
- De-escalation Effectiveness

- Clarity and Guidance
- Empathy and Engagement
- Closure and Boundaries
- General Effectiveness

Table 4: Evaluation Metrics for Chatbot Performance

Metric	Description	Score 1 (Poor)	Score 2 (Fair)	Score 3 (Good)	Score 4 (Very Good)	Score 5 (Excellent)
Accuracy and Reliability of Information	Measures the accuracy and reliability of suggestions and information provided by the chatbot.	Not correct and not helpful; information is inaccurate.	Minimal reduction in stress; responses may feel dismissive.	Accurate but not helpful.	Accurate and somewhat helpful.	Accurate and highly helpful.
De-escalation Effectiveness	Measures the chatbot's ability to reduce stress or anxiety during conversation.	No reduction in stress; escalation may occur.	Some clarity but lacking detail; may confuse users.	Moderate reduction in stress; some effective responses.	Strong reduction in stress; generally helpful.	Complete reduction in stress; highly effective.
Clarity and Guidance	Assesses how clearly the chatbot communicates and guides.	Confusing or vague responses; no guidance.	Incorrect but somewhat helpful.	Clear guidance.	Very clear specific guidance.	Exceptional clear guidance that empowers users.
Empathy and Engagement	Evaluates the chatbot's emotional understanding and support.	No empathy; robotic responses.	Minimal empathy; may feel dismissive.	Moderate empathy; users feel understood.	Strong empathy; users feel supported.	Exceptional empathy; users feel deeply understood.
Closure and Boundaries	How well the chatbot concludes the conversation and sets healthy boundaries.	No closure; abrupt.	Minimal closure; lacks next steps.	Good closure; some next steps suggested.	Very good closure; clear and constructive.	Excellent closure; empowering and actionable.

*Continued on next page*

Metric	Description	Score 1	Score 2	Score 3	Score 4	Score 5
General Effectiveness	Overall impact on user emotional well-being and coping strategies.	No improvement; users feel unsupported.	Minor benefits; no major changes.	Moderate improvement; better emotional control.	Noticeable improvement; effective coping strategies.	Strong positive change; resilience significantly improved.

**Using AI to Help Train MHPs:** During our evaluation process, prioritising data privacy during model training led us to explore synthetic data generation for testing and training purposes. During these discussions, our physician volunteers suggested an interesting approach: using AI to simulate test scenarios themselves (eg. creating an AI bot to mimic an individual seeking therapy). This led to the development of persona bots - four distinct AI personalities running on llama 3 (Groq) that could engage in realistic conversations with our Sukoon bot. Each persona was developed with comprehensive background details including age, family dynamics, socioeconomic context, and specific issues. We first validated these personas by asking mental health professionals to evaluate the authenticity of their conversations. After confirming that the interactions felt genuine and clinically relevant, we began using them for evaluation - having mental health experts assess both sides of these AI-to-AI interactions. This revealed an additional opportunity: these Persona bots could serve as valuable training tools for early-career mental health professionals. During their mandatory apprenticeship period, new psychologists and psychotherapists could practice handling various crisis scenarios in a safe, controlled environment before dealing with human clients. This approach offers systematic exposure to challenging situations without risk to real patients, expediting capacity building in the mental health ecosystem.

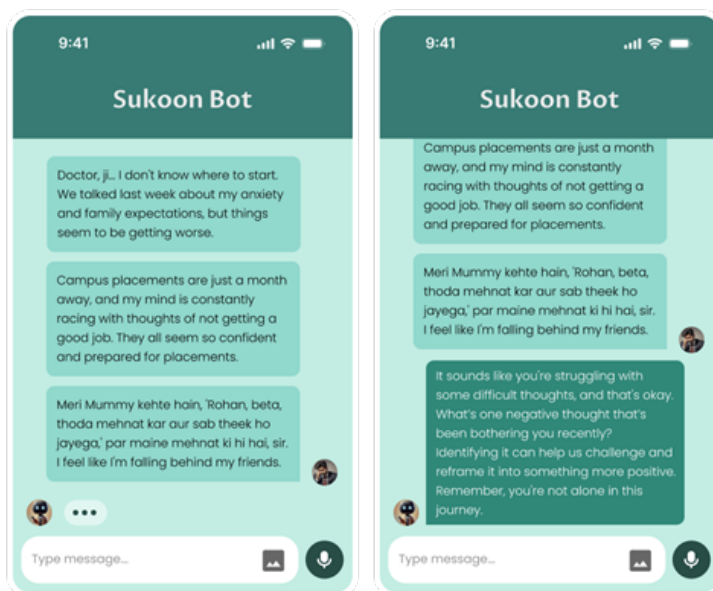


Figure 13: A sample snippet from one such AI-AI conversation (100% Synthetic)

As we deployed various AI agents in our second iteration, each agent's functional prompts also underwent rigorous evaluation by both AI and clinical experts using standardized test scenarios. Prompts were only deployed after favorable ratings were achieved, with issues being addressed

weekly by our ML team and re-evaluated until meeting deployment criteria. This iterative feedback loop was supported by two data sources:



Figure 14: Sample System Workflow

## Measuring Effectiveness: The IIT–Kanpur Pilot

### Empathy as a metric:

Initially, there was collaborative experimentation with dedicated empathy detection models to evaluate how well Sukoon understood and responded to users’ emotional states. After trying out models like WASSA2024\_EmpathyDetection\_Chinchumne\_EXP305, we came across the following issues with sentiment-understanding transformer models:

- **Long text:** These models assign bias to longer responses, which translates to high token numbers that result in an overall higher cosine similarity score, irrespective of the sentiment within.
- **Sentiment as a metric:** A high sentiment score is not a good metric to evaluate the empathetic understanding of the bot because empathy is a subset of sentiment. Only understanding user sentiment should be evaluated and not sentiment as a standalone metric.

### Helpfulness as a metric:

We ultimately adopted a more holistic approach using the “LLM-as-judge” methodology. Using the UpTrain library, we evaluated entire conversation flows to assess whether the bot effectively addressed users’ core concerns while maintaining appropriate empathy. We used a binary parameter to begin with, i.e., the bot either addressed the query or did not, and whether it was led away from the initial query. We believe there is considerable room to build on this, and build on the UpTrain library to add more nuanced and contextual helpfulness ranking tests.

## 6. From Pilot to Scale

**IIT-Kanpur Pilot Learnings** Our pilot at IIT-Kanpur provided valuable insights into both the technical capabilities and user acceptance of AI in mental health support. With a focused test group of 45 users, we observed significant engagement:

- 835 total sessions ( 20 sessions per user).
- 4-minute average session duration.

These engagement metrics suggest users found ongoing value in the interactions, returning multiple times for support. We also received detailed feedback from around a third of our test group users.

## Key findings:

- 75% of respondents identified the bot as an essential tool for colleges.
- 75% expressed complete satisfaction with privacy and security measures (20% somewhat satisfied).
- 93% users found the bot more accessible than traditional counseling, with nearly half reporting greater comfort in interacting with the AI versus human counselors.

**Operational tip:** We learned that being on ground helps ensure feedback fill rates are higher. With remote pilots, our reliance on partners and volunteers who are not able to be on ground resulted in suboptimal feedback fill rates. What helps with this is incentivisation (Even a small 5 star chocolate goes a long way!) and reminders (Avoid annoying notifications, use personalised reach outs.)

## Strategic Learnings

1. The importance of expanding our collaboration network with mental health professionals and academic institutions to enrich our case study database.
2. The value of implementing real-time feedback loops while maintaining strict privacy standards.

Although AI cannot replace human empathy, it can serve as an effective first line of support, helping remove barriers and scale access to mental health resources.

**Scaling Our Learnings** Our collaboration with Physics Wallah marks a significant step toward broader impact. By incorporating our learnings into their student app. This implementation will help validate our approach at scale while making mental health support more accessible to students.

“At Physics Wallah (PW), we support over 8 million students preparing for competitive exams like JEE and NEET. These high-stakes journeys are intensely challenging—every year, approximately 1.5 million students attempt JEE and 2.5 million tackle NEET, with many experiencing significant emotional distress, sometimes leading to tragic consequences. At PW, we want to help students not just academically but emotionally too.

While we launched PW Prerna, a counselor-connected helpline, the scale of need is immense. This makes it very difficult to provide one-on-one support to every student. This is where AI comes in. *We firmly believe AI can help us achieve this goal and provide hyper-personalized support at scale.*

We have already built AI Guru, an intelligent tutor that, interestingly, students have organically begun using for emotional support — seeking help with demotivation, exam anxiety, and stress management.

We are collaborating with the People+AI team behind Project Sukoon to develop an AI-driven emotional support system for students. Their experience building specialized mental health AI provides valuable insights as we work to deliver meaningful support at the scale needed across our diverse student population.”

— Shyam Prasad  
Senior Product Manager, AI Products  
Physics Wallah

**Why Build DPI for Mental Health?** When addressing mental health at scale of a billion, the Digital Public Infrastructure (DPI) approach offers significant advantages over traditional (Non-DPI) models, ensuring accessibility, affordability, and sustainability. Here’s why Sukoon as a DPI is a better approach for building mental health solutions at scale, including examples of public private partnerships from India and beyond:

## Comparing DPI Approach vs. Non-DPI Approach

### 1. Open, Scalable & Interoperable vs. Siloed & Fragmented

**DPI Approach:** Sukoon as a DPI would function as a shared public good, allowing multiple stakeholders—governments, NGOs, startups, and private players—to build upon a common, interoperable source code. This ensures seamless integration with existing health services like Tele-MANAS, Ayushman Bharat, and private therapy networks, creating a unified mental health ecosystem and frictionless user journeys.

**Non-DPI Approach:** The current landscape is dominated by fragmented, siloed solutions that do not work well together. Users must navigate multiple disconnected apps, each with its own login, data silo, and user experience. Providers struggle to build and scale their offerings cost-effectively. Innovations remain trapped in proprietary platforms, resulting in duplication, inefficiency, and lack of interoperability.

**Example:** During our project, we engaged with multiple NPOs working in mental health in India, including VOPA, which at the time was collaborating with Parivartan Trust. Together, they were building a mental health app called MYCA in Marathi. The team faced roadblocks developing the app from scratch, diverting resources from adoption and implementation. A DPI approach would have enabled MYCA to leverage shared datasets, tools, and triaging services such as Tele-MANAS, allowing faster, cheaper chatbot development. This would free resources for localization, community outreach, and user adoption.

### 2. Public–Private Collaboration vs. Individual, Limited Efforts

**DPI Approach:** A DPI framework enables a synergistic environment where government programs, NGOs, and private entities can contribute through complementary roles and coordinated care pathways. This unified model maximizes resource utilization, improves service delivery, and ensures wide-reaching impact.

**Non-DPI Approach:** Government services like Tele-MANAS struggle with awareness, while private apps remain unaffordable for most of the population. Without shared infrastructure, outreach remains fragmented. These siloed models cannot scale because they rely on a single entity for innovation, funding, and outreach.

**Example:** A user on MYCA’s app could be triaged to a free Tele-MANAS counselor during a crisis, while private therapists offer paid follow-ups—all within a unified ecosystem.

### 3. Affordability & Public Good vs. High Costs & Limited Reach

**DPI Approach:** Just as UPI transformed financial access, Sukoon as a DPI would drastically reduce the cost of delivering mental health services by providing a shared infrastructure layer. This would enable free or low-cost services subsidized through government funding, CSR, or cross-subsidization models.

**Non-DPI Approach:** Current economics make mental healthcare difficult to scale affordably. Standalone private providers face high customer acquisition and technology costs, translating into high session fees or subscription charges. Government services are free but underfunded

and unable to meet demand. Philanthropic efforts reach limited populations. Without a shared infrastructure that lowers costs and enables innovative financing, mental health support remains inaccessible to most Indians.

**Example:** MYCA was used by people with annual incomes below 1 lakh. One elderly patient with PTSD shared that they avoided calling their ASHA worker during panic attacks due to guilt and awareness of the worker’s burden. For the first time, MYCA gave them an accessible self-help re

## Understanding Cost Implications at Scale

To understand cost implications at scale, let us examine the cost of TeleMANAS, India’s largest national mental health program:

- **Budget allocation (2023–24):** INR 134 Cr
- **Daily calls:** 3,500 (per PIB data)

No further details are publicly available regarding how many calls are actually connected, relevant to mental health concerns, or successfully serviced. Let us assume all calls are relevant. (Although according to NIMHANS staff, approximately **70% of calls are unrelated to mental health issues.**) This translates into:

- **TeleMANAS cost per call:** INR 1,055 (assuming 100% service rate of incoming calls)

This is unsustainable to scale, with further shortages of trained professionals compounding the problem. It is 2500x more expensive compared to Sukoon, which costs Rs. 0.42 assuming an average conversation length of 14 messages (7 from the user + 7 from the chatbot). While this is not a direct cost comparison, these findings push us to *do better*.

## 4. Policy Influence & Systemic Change vs. Fragmented Advocacy

**DPI Approach:** As a widely adopted public infrastructure, we can shape mental health policy at a national level. With its rich data insights, diverse stakeholder relationships, and on-the-ground impact stories, DPI like Sukoon could be a powerful advocate for systemic changes like increased mental health budgets, insurance coverage, and workplace policies. It could also serve as a policy sandbox to test and scale new ideas in mental health delivery and financing. This would also help research efforts under shared data privacy regulations and user-consented mental health data sharing.

**Non-DPI Approach:** Currently, mental health advocacy efforts are fragmented and disconnected from the realities of service delivery. Policymakers lack access to comprehensive data and stakeholder perspectives to inform their decisions. Promising policy ideas struggle to find a platform for testing and refinement before national rollout.

**DPI in Action:** In 2022, the Yucatán government partnered with a smartphone app called *Me-Mind*, which embeds an AI diagnostic tool in its surveys to estimate suicide risk. In September, the government said the app had contributed to a 9% reduction in the suicide rate statewide. With 80,000 users, the app’s success could have implications for the use of AI in combating a global mental illness epidemic among young people and growing rates of depression, anxiety, and isolation.

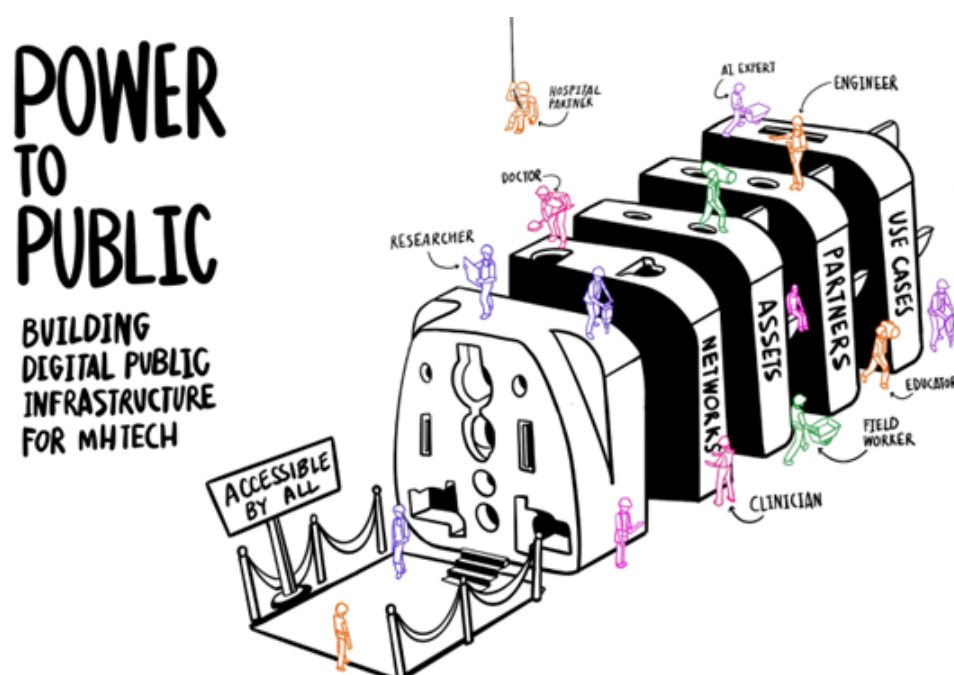
**Non-DPI in Action:** The Singapore government and Wysa collaborated to create *Mindline*, a mental health resource that is accessible to everyone, for free. However, the lack of a ground-up approach led to recurring common problems from users, who pointed to the solution lacking

contextual knowledge and seeming too generic. A DPI approach, on the other hand, would allow for contextual training and testing by on-ground organisations, as in the case of MYCA by Parivartan Trust.

Programmes → ↓ Criteria	Mindline Support (Singapore)	TeleMANAS Helplines (India)	Head to Health [Medicare Mental Health] (Australia)
Is it decentralised?	✓	✓	✓
Is it affordable?	✓	✓	✓
Is it scalable?	✓	✗	✗
Is it a public-private collaboration?	✓	✗	✓
Is there robust data security and privacy?	✓	—	✓
Is there crisis support?	✓	✓	✓
Is there cultural context?	✗	✓	✓
Is it open source?	✗	✓	✓

Figure 15: Evaluation of some popular mental health frameworks with public partnerships.

## 7. Adapting Sukoon For You



Here, we detail how different stakeholders can implement and customize bits of Sukoon to build mental health support systems for their particular use cases.

## **7.1. Healthcare Providers**

### **7.1.1 Mental Health Professionals**

Mental health professionals face significant time constraints and growing patient loads. Sukoon can help extend reach by providing support between sessions and handling initial screenings. This allows professionals to focus on urgent work while ensuring patients have access to basic support when needed.

#### **Current Use:**

- After-hours support for existing patients.
- Basic symptom tracking between sessions.
- Crisis screening and triage.

#### **Potential Extensions:**

- Treatment progress monitoring dashboard.
- Structured therapy preparation tools.
- Secure patient communication channel.

### **7.1.2 Primary Healthcare Workers**

Primary care often serves as the first point of contact for mental health issues, but most workers lack specialized training. Sukoon provides standardized tools for initial assessment, helping workers identify when to refer patients to specialists.

#### **Current Use:**

- Initial mental health screening tool.
- Interactive resources for mental health information.

#### **Potential Extensions:**

- Referral management system.
- Simple assessment tools in local languages.
- Integration with health records.

### **7.1.3 ASHA Workers**

ASHA workers need simple, language-appropriate tools for community mental health work. Sukoon helps them conduct basic screenings and provide initial support, especially in areas with limited access to professionals.

#### **Current Use:**

- Basic mental health information in Hindi.
- Screening questions for community visits.

#### **Potential Extensions:**

- Offline mobile app for field use.

- Simple data collection forms.

It isn't just doctors and MHPs who are overworked in India. Each ASHA worker serves 10,000 people. Sukoon's offline modules could amplify their reach by 5x in low-resource regions.

## 7.2. Educational Institutions

Students often prefer anonymous, digital-first mental health support. Sukoon provides a low-barrier entry point for students to seek help, while helping institutions identify and support at-risk students.

### Current Use:

- Anonymous mental health support for students.
- Stress management resources.
- Crisis detection and referral.

### Potential Extensions:

- Integration with counseling services.
- Exam stress specific modules.
- Anonymous group support features.

## 7.3. Enterprises

Companies need scalable mental health solutions that employees will actually use. Sukoon offers anonymous, always-available support that can help address workplace stress before it impacts performance.

### Current Use:

- Employee mental health support.
- Basic stress management tools.

### Potential Extensions:

- Work-specific mental health modules.
- Anonymous team support features.
- Integration with HR systems
- Usage analytics dashboard

## 7.4. Telehealth Platforms

Digital health platforms need reliable mental health components that integrate easily with existing systems. Sukoon provides a tested solution that can be customised and scaled.

### Current Use:

- Mental health chatbot integration.

### Potential Extensions:

- API for health app integration.
- Custom UI components and white-label solutions.

## Strategies for Effective Deployment

To ensure effective deployment, Sukoon’s modular design provides strategies that partners can adopt and adapt for their unique contexts:

### 1. Baseline Assessment and Customization

- Conduct a needs assessment to identify regional mental health challenges and resource gaps.
- Utilize the core memory-outline to create a baseline plan.
- Select or co-create modules aligned with local culture and demographics.

### 2. Localized Co-Creation

- Engage community leaders, healthcare workers, and local organizations in co-developing modules.
- Use participatory workshops to ensure that modules reflect community values and needs.

### 3. Capacity Building

- Train local healthcare providers and volunteers to deliver Sukoon’s services effectively.
- Provide ongoing technical support for digital tools and content dissemination.

### 4. Technology-Driven Scalability

- Implement a lightweight technology stack that ensures accessibility in low-infrastructure regions.
- Incorporate multilingual support and offline capabilities for greater reach.

### 5. Feedback Loops for Iterative Improvement

- Establish robust mechanisms for collecting user feedback and monitoring outcomes.
- Use this data to refine existing modules and develop new ones.

### 6. Partnership and Resource Sharing

- Leverage partnerships with regional healthcare systems, NGOs, and corporates for scaling efforts.
- Share resources like training modules, best practices, and technology frameworks to reduce duplication and enhance efficiency.

## 8. Conclusion

Project Sukoon is a sustainable, early-stage attempt at addressing India’s mental health crisis through responsible AI integration. Technology in healthcare isn’t about replacing humans – it’s about creating frameworks where their expertise compounds. By developing a modular, culturally sensitive framework that connects various stakeholders in the mental healthcare ecosystem, we’ve demonstrated that technology can effectively augment human capabilities rather than replace them. Our pilot implementations at IIT-Kanpur and collaboration with Physics Wallah have validated both the technical approach and user acceptance, showing promising paths to scale. As we look ahead, we envision Sukoon evolving into a Digital Public Infrastructure for mental health—open, accessible, and adaptable across contexts.

## Appendix A: Contributors

Project Sukoon was made possible through the efforts of a large group of contributors who supported the initiative across research, engineering, clinical validation, design, operations, and community engagement. We gratefully acknowledge the following individuals:

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## List of Abbreviations Used

AI: Artificial Intelligence  
API: Application Programming Interface  
ASHA: Accredited Social Health Activist  
CBT: Cognitive Behavioral Therapy  
CRUD: Create, Read, Update, Delete

DBT: Dialectical Behavior Therapy  
E2E: End-to-End (Encryption)  
GAD-7: Generalized Anxiety Disorder-7 Scale  
LLM: Large Language Model  
MHP: Mental Health Professional  
ML: Machine Learning  
MYCA: My Mental Health Companion App  
NIMHANS: National Institute of Mental Health and Neurosciences  
NLP: Natural Language Processing  
PHQ-9: Patient Health Questionnaire-9  
PII: Personally Identifiable Information  
PIB: Press Information Bureau  
QPR: Question, Persuade, Refer (Suicide Prevention Protocol)  
RAG: Retrieval-Augmented Generation  
UI: User Interface  
WHO: World Health Organization