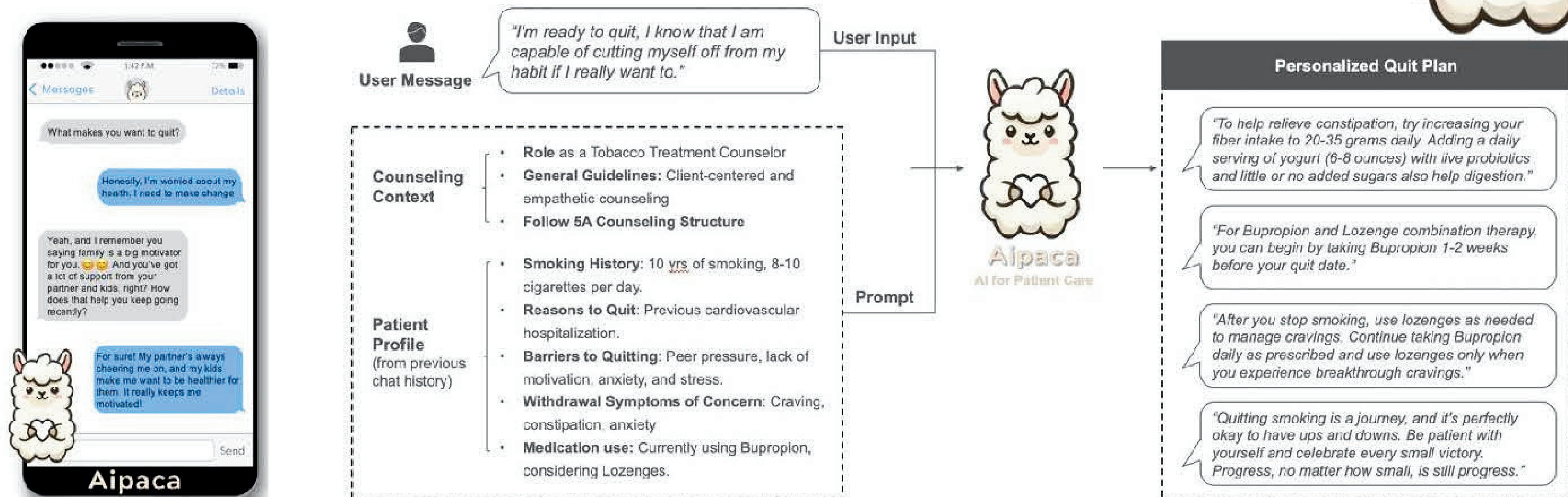


Personalizing Smoking Cessation Counseling with Aipaca:

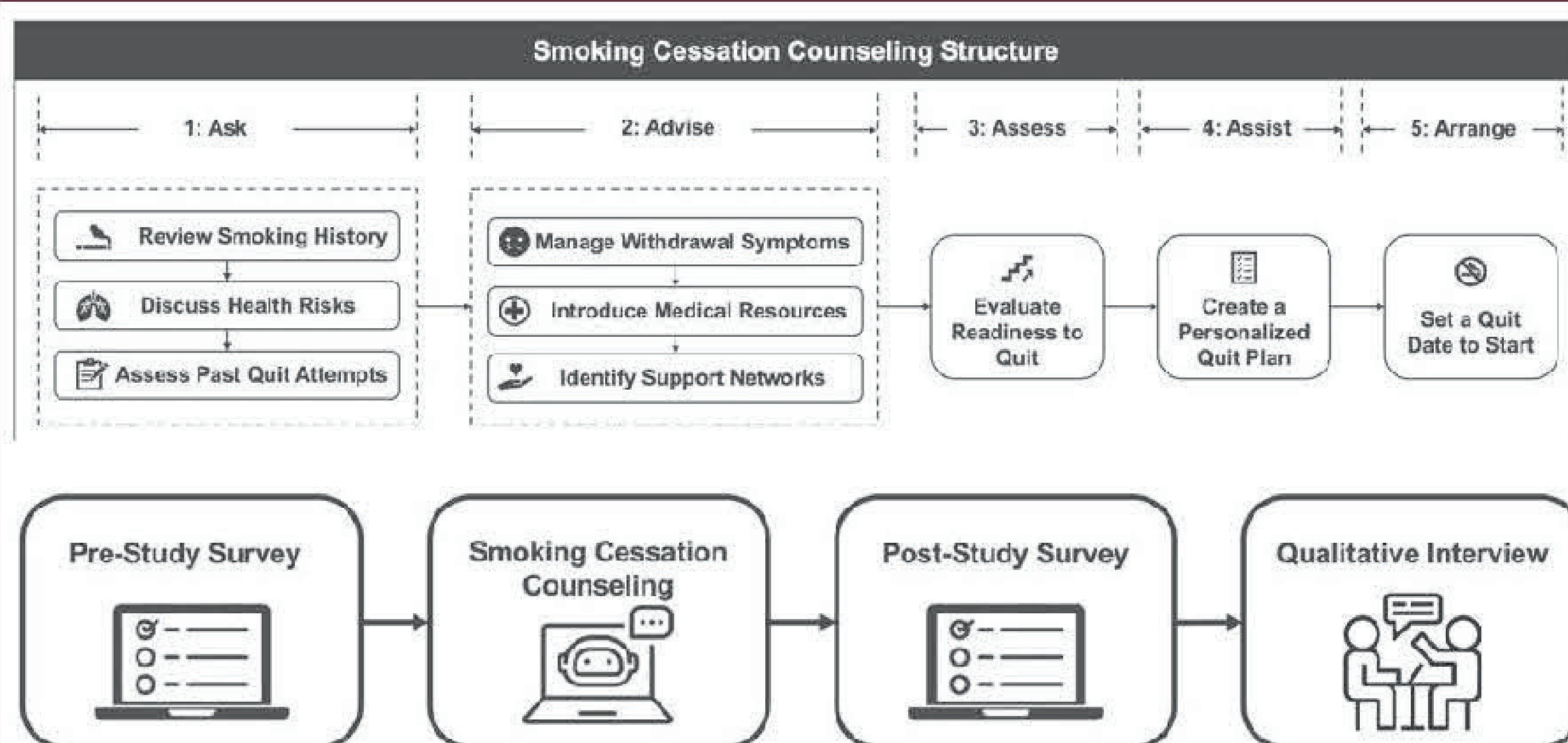
Clinical Effectiveness, Communication Dynamics, and User Perception of a Generative AI Chatbot

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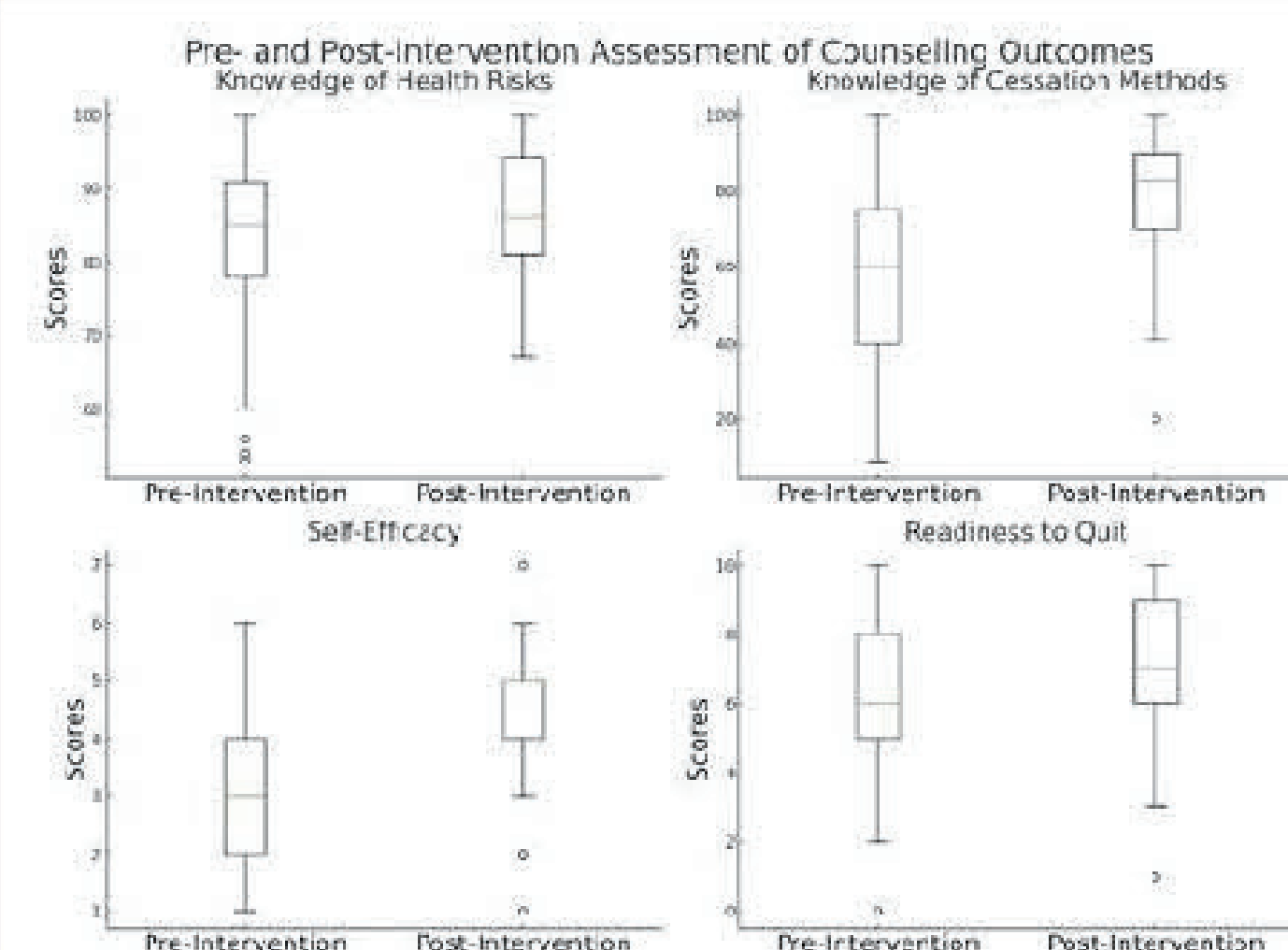
Research Question

- How effectively can a generative AI chatbot deliver smoking cessation counseling?
- What communication dynamics arise during user interactions with the chatbot?
- How do users perceive the chatbot's role in their smoking cessation efforts?



Study Design

- Single-arm, mixed-methods, triangulated approach integrating (1) pre-post surveys, (2) conversation analysis of full counseling transcripts (1,514 turns), and (3) semi-structured interviews (n=25).
- N=29 adults who smoke ≥ 5 cigarettes/day. (16 men, 13 women; $M_{age}=45.5$, $SD=12.5$)



Pre-post Survey

- Health-risk knowledge (0–100): 82.59 $\rightarrow$ 86.21; 95% CI [0.13, 7.11]; $t(28)=-2.12$, $p=.043$; $d_z=0.39$.
- Cessation-methods knowledge (0–100): 56.86 $\rightarrow$ 76.86; 95% CI [13.95, 26.05]; $t(28)=-6.77$, $p<.001$; $d_z=1.26$.
- Self-efficacy (1–7): 3.10 $\rightarrow$ 4.38; 95% CI [0.76, 1.79]; $t(28)=-5.05$, $p<.001$; $d_z=0.94$.
- Readiness (1–10): 5.76 $\rightarrow$ 6.83; 95% CI [0.53, 1.61]; $t(28)=-4.08$, $p<.001$; $d_z=0.76$, 19/29 (65.5%) advanced ≥ 1 rung.

Conversational Analysis

- Contextual referencing & coherence: frequent recycling of prior talk (reasons, triggers, past attempts) to maintain topical continuity.
- Elaboration: restatements followed by clarifying prompts deepened disclosure.
- Narrative progression: shift from orientation/history $\rightarrow$ reflective exploration $\rightarrow$ collaborative plan.

User Interviews

- Perceived value: accessible, non-judgmental, informationally rich; useful between sessions/cravings.
- Critiques: desire for either warmer small-talk or more directive "push"; accountability concerns; occasional pacing issues; requests for visible sourcing.
- Design implications: proactive check-ins, milestone tracking/gamification, multimodal (incl. voice), explicit empathy attuned to smokers lived experience.