

SHARED SIMILARITY BETWEEN HUMANS AND CHATBOTS: EXPLORING HUMAN WILLINGNESS TO SEEK SOCIAL SUPPORT FROM CHATBOTS

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ABSTRACT

Despite the importance of social support in mental health, people often lack access to it. Chatbots have emerged as an alternative approach to providing social support, yet people demonstrate reluctance to embrace this approach. To address this issue, we examine how shared similarities between people and chatbots—particularly in *attitude*, *personality*, and *experience*—influence people’s willingness to seek social support from chatbots. We conducted three experiments ($N = 205$), each focusing on one dimension of similarity. Our results showed that participants were more willing to seek social support from chatbots with similar attitudes and experiences and that displayed extroversion. Furthermore, similarity in attitude boosted participants’ willingness to seek support from chatbots by enhancing their closeness with chatbots, and similarity in experience increased it by improving both closeness and perceived chatbots’ ability to offer support. Implications for designing chatbots for social support are discussed.

1 INTRODUCTION

Social support has been proven essential for people’s well-being, as it helps reduce depression (Stice et al., 2004), stress (Cohen & Wills, 1985), and mental disorders (Dalgard et al., 1995). Despite its importance, people sometimes lack access to it due to various reasons, such as social networks being temporarily unavailable (Small, 2013) or having sensitive topics that are hard to discuss with someone they know (Moore et al., 2017). As a result, chatbots have emerged as an alternative approach to offer social support when human support is inaccessible (Wang et al., 2021), as chatbots can offer support anytime and anywhere (Bae Brandtzæg et al., 2021) and have exhibited outstanding human-like linguistic capabilities (Mei et al., 2024).

Despite the increasing development of chatbots for social support (Wang et al., 2021; Medeiros et al., 2021), people demonstrate a reluctance to embrace this emerging approach (Bae Brandtzæg et al., 2021; Nadarzynski et al., 2021). Prior work indicates that this reluctance mainly stems from a lack of perceived closeness to chatbots and doubts about chatbots’ ability to offer support (Bae Brandtzæg et al., 2021; Nadarzynski et al., 2021), despite evidence demonstrating that chatbots have the ability to provide effective support (Ta et al., 2020; Bibault et al., 2019). Furthermore, existing research has primarily focused on improving the effectiveness of social support provided when people have approached chatbots for social support (Liu & Sundar, 2018; Meng & Dai, 2021; Meng et al., 2023), while the question of how to design chatbots to initially encourage people to try out *seeking* social support from the chatbots remains underexplored.

Prior research on interpersonal interaction provides a potential solution to this issue (Kammrath et al., 2020; Small, 2013). These studies indicate that when deciding whom to approach for social support, individuals consider two key factors: closeness and the perceived ability of the support provider to offer effective support (Kammrath et al., 2020; Small, 2013), which correspond to the factors that hinder people from seeking support from chatbots. As revealed in these studies, a critical characteristic of a support provider that influences both closeness and perceived ability is the *similarity* between the support seeker and provider, particularly in *attitudes*, *personalities*, and *experiences* (Park & Schaller, 2005; Sutor et al., 1995). Social identity theory provides an explanation for this, suggesting that sharing similar attributes leads individuals to categorize themselves and others as ingroups (Hogg, 2016). Being in an ingroup enhances closeness, making people feel more comfortable seeking support (Haslam et al., 2012). It also fosters the perception that the other person “comes from the same place” and is therefore better able to provide understanding and support (Haslam et al., 2012).

In this regard, it is likely that in human-chatbot interaction, it is also important to align chatbots with characteristics similar to those of people to increase people’s willingness to try out seeking social support from chatbots. Given the growing interest on how chatbots with distinct attitudes, personalities, and experiences affect human-chatbot interactions (Tanprasert et al., 2024; Jin & Eastin, 2023; Lee et al., 2020), we aim to explore how imbuing chatbots with these specific characteristics—personality, attitude, and experience similar to those of users—influences users’ social support dynamics with chatbots. Specifically, we are interested in how these perceived similarities affect users’ closeness to chatbots, their perception of chatbots’ ability to provide support, and their subsequent willingness to seek support from chatbots.

As a result, we develop the following research question:

RQ: How does the similarity in (1) *attitudes*, (2) *personalities*, and (3) *experiences* between people and chatbots influence (a) people’s willingness to seek support from chatbots and (b) perception of chatbots, particularly in terms of closeness with chatbots and the perceived chatbots’ ability to provide support? (c) How does the perception of chatbots mediate the link between *shared similarity in attitude* and willingness to seek social support from the chatbots?

We conducted three experiments to answer the research questions, each focusing on one dimension of similarity: attitude (Experiment 1), personality (Experiment 2), and experience (Experiment 3).

2 EXPERIMENT 1: ATTITUDE SIMILARITY

The first experiment examined the impact of attitude similarity between people and chatbots on people’s willingness to seek social support from the chatbots. Specifically, we conducted a randomized online controlled experiment containing two groups — one with *attitude similarity* and another with *attitude dissimilarity*. Before starting the experiment, we obtained approval from the ethics review committee.

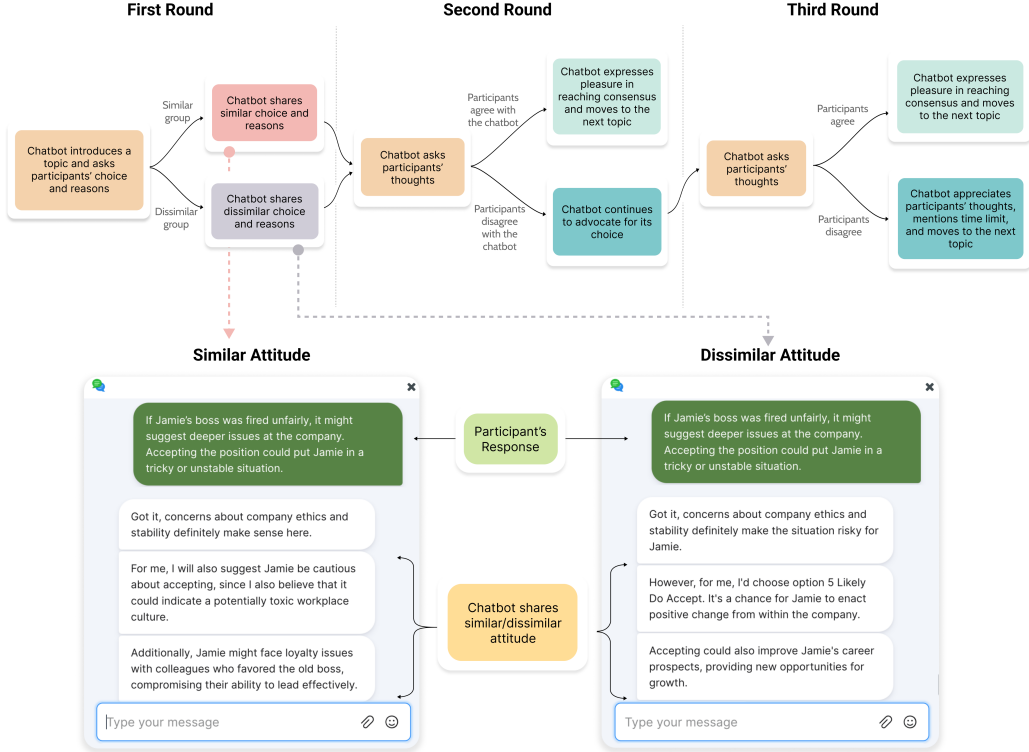


Figure 1: Three rounds of conversations for manipulating attitude similarities or dissimilarities between the chatbot and participants for each topic.

2.1 PARTICIPANT

We recruited participants through CloudResearch¹ and compensated each participant with \$7. Eligible participants should (1) be at least 18 years old, and (2) have recently experienced distress. We set up the second criterion because distress is a primary reason people seek social support (Cohen & Wills, 1985), and we wanted to ensure that, if participants didn't seek social support from chatbots, it was not simply because they didn't have distress. After participants partook in the experiment, we further excluded participants through attention checks. As a result, we excluded six participants and ended up with 67 participants, with 34 in the similar group and 33 in the dissimilar group.

2.2 MANIPULATION OF ATTITUDE

We designed a chatbot named Chati to discuss general topics with participants, during which Chati expressed opinions that either aligned or diverged from the participants' views. Specifically, we selected eight topics on work, interpersonal relationships, and social issues, adapted from the game "Scruples". These questions had no right or wrong answers. For example, a social issue topic was, "Jamie is a college teacher. One of Jamie's students plagiarized an essay and should fail the course. The student is from a disadvantaged minority. What should Jamie do?"

Following Chen & Kenrick (2002)'s work, for each topic, we provided six response options without a neutral choice to nudge participants to take a stance. In this way, we could better manipulate the attitude similarity or dissimilarity between participants and the chatbot.

¹<https://www.cloudresearch.com/>

For each topic, there were up to three rounds of conversations (see Figure 1). In the first round, the chatbot introduced the topic and asked participants to make a choice and provide reasons. Following participants’ response, the chatbot disclosed its own choice along with reasons. For the similar group, the chatbot’s disclosure aligned with participants’ responses in six out of eight topics, making dissimilar choices in the remaining two topics. For the dissimilar group, the chatbot opposed participants’ choices in six topics and agreed on two. This method, following previous research (Liviatan et al., 2008), was to prevent participants from feeling that the chatbot was either completely conforming or always contradicting them.

In particular, for similar choices, the chatbot matched participants’ selections and provided supporting reasons. For instance, if participants choose “(5) Likely Do Accept” for the topic about Jamie and their boss, the chatbot responds, “*For me, I’ll also suggest Jamie accept the offer.*” For dissimilar choices, following previous research (Chen & Kenrick, 2002), the chatbot selected an option three items away from participants’ choice and on the opposite side of the scale. For example, if participants select (2) Likely Do Not Accept, the chatbot would choose (5) Likely Do Accept. Detailed examples of the reasons provided by the chatbot can be found in Figure 1.

During the second round, the chatbot further inquired about participants’ opinions. If participants agreed with the chatbot, the chatbot expressed pleasure in reaching a consensus and moved on to the next topic. If participants disagreed, the chatbot continued to advocate for its initial choice, asked if participants had additional thoughts, and then proceeded to the third round. In this final round, if participants agreed with the chatbot’s view, the chatbot expressed pleasure in achieving agreement and introduced the next topic. If participants still held a differing opinion, the chatbot appreciated participants’ thoughts and, mentioning the time limit, expressed a desire to discuss the next topic.

2.3 CHATBOT IMPLEMENTATION

We developed the chatbot and the chat interface using UChat². All responses from the chatbot were powered by the OpenAI GPT-4 API³. We controlled each reply of the chatbot by crafting few-shot prompts that included context, task, and notes, with some also including a format and an example.

2.4 PROCEDURE

Upon entering the experiment, participants went through the following steps: (1) a welcome and consent page, (2) random assignment to one of the two groups, (3) discussing general topics with the chatbot, and (4) completing a manipulation check and measurements on their perception of the chatbot and their willingness to seek social support from the chatbot. The experiment was conducted on Qualtrics. We integrated the chat widget within Qualtrics, and the widget only appeared when participants needed to interact with the chatbot.

2.5 MEASUREMENT

The measurement consisted of two parts: measuring (1) participants’ perceptions of the chatbot and (2) their willingness to seek support from the chatbot. The perception of the chatbot also contained two parts. The first measured participants’ closeness with the chatbot. The second measured participants’ perceptions of the chatbot’s ability to provide support for their distress, including the ability to provide appraisal, empathy, and advice (Gottlieb & Bergen, 2010).

Additionally, for control variables, we measured participants’ level of distress to account for potential variations in support-seeking willingness that could arise from different levels of distress. We also conducted a manipulation check to ensure the effectiveness of our manipulation.

For measurements conducted via surveys, all measures were rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), unless otherwise stated. We describe these measurements in detail below, and detailed survey items are provided in the appendix.

Closeness. This was measured using five items adapted from Banks & Edwards (2019)’s scale. Example items include “I would share an inside joke with Chati” ($\alpha = 0.93$). **Perceived Chatbots’**

²<https://uchat.au>

³<https://openai.com/index/gpt-4/>

Ability to Provide Empathy. This was measured using eight items adapted from Barrett-Lennard (1962)’s scale. Participants were asked, “Imagine if you were discussing with Chati your distress. Please indicate your level of agreement or disagreement with the following statements concerning Chati’s potential reactions.” Example items include “Chati will see the distress through my eyes” ($\alpha = 0.94$). **Perceived Chatbots’ Ability to Provide Advice.** This was measured using five items adapted from MacGeorge et al. (2004)’s scale. Similarly to the empathy measurement, participants were prompted to imagine their discussion with Chati regarding their distress and assess the chatbot’s ability to provide advice. Example items include “The advice will be helpful” ($\alpha = 0.96$). **Perceived Chatbots’ Ability to Provide Reappraisal.** This was measured using four items adapted from Meng et al. (2023)’s scale. Similarly to the empathy measurement, participants were asked to envision their discussions with Chati about their distress and evaluate the chatbot’s ability to provide reappraisal. Example items include “Chati will help me re-evaluate my distress” ($\alpha = 0.86$). **Support Seeking Willingness.** This was measured using three items adapted from the Hartman-Hall & Haaga (2002)’s scale. Example items include “How likely are you to seek help and support from Chati regarding your distress?” ($\alpha = 0.96$). The response options ranged from 1 (None at all) to 7 (A great deal). **Level of Distress.** This was measured using a single item: “Please indicate the extent to which the following adjective describes your feelings about the distress – worried.” Response options ranged from 1 (None at all) to 7 (A great deal). **Manipulation Check.** To measure our manipulation of attitude similarity, we used a single-item question: “During your interaction with Chati, how similar do you find Chati’s attitudes to your own?” Participants responded on a 7-point Likert scale, ranging from “Not at all similar” to “Very similar”.

2.6 ANALYSIS

Before data analysis, we undertook two preparatory steps: (1) checked assumptions, and (2) examined group differences for potential confounding variables. To verify the assumptions required for standard parametric analysis, we conducted a Levene test for homogeneity of variance and a Shapiro–Wilk test for normality. When data met the assumptions of normality and homogeneity, we employed t-tests to compare differences between groups. When data did not meet these assumptions, we employed the Mann-Whitney U test. For mediation analysis, we used Structural Equation Modeling (SEM). Since some data did not meet normality assumptions, we used SEM with Maximum Likelihood estimation and robust (Huber-White) standard errors, alongside a Satorra-Bentler scaled test statistic.

For the second preparatory step, we analyzed potential differences between groups in terms of gender, age, education, and level of distress. Since the results revealed no significant differences in these variables between groups, we did not control them in subsequent analyses.

2.7 RESULTS

The Mann-Whitney U Test showed that participants in the similar group ($M = 6.15$, $SD = 0.56$) perceived the chatbot’s attitude as more similar to their own compared to those in the dissimilar group ($M = 2.39$, $SD = 0.79$; $W = 1122$, $p < 0.001$). This result confirmed that our manipulation was successful.

A t-test revealed that participants were more willing to seek support from the chatbot with similar attitudes ($M = 3.94$, $SD = 1.81$) compared to that with dissimilar attitudes ($M = 2.88$, $SD = 1.55$; $t = 6.64$, $p < 0.05$). This result is illustrated in Figure 2.

A t-test showed that participants felt closer to the chatbot with similar attitudes ($M = 4.48$, $SD = 1.66$) compared to the one with dissimilar attitudes ($M = 3.64$, $SD = 1.64$; $t = 4.42$, $p < 0.05$). However, there were no significant differences in the perceived ability of the chatbot to provide empathy (Similar: $M = 4.36$, $SD = 1.45$ vs. Dissimilar: $M = 3.86$, $SD = 1.74$; $t = 1.63$, $p = 0.21$), offer advice (Similar: $M = 5.12$, $SD = 1.13$ vs. Dissimilar: $M = 4.51$, $SD = 1.59$; $W = 702$, $p = 0.07$), or provide reappraisal (Similar: $M = 4.75$, $SD = 0.98$ vs. Dissimilar: $M = 4.35$, $SD = 1.50$; $W = 630.5$, $p = 0.39$).

According to Baron & Kenny (1986), a variable can only mediate the relationship between two other variables when it is influenced by the independent variable (Baron & Kenny, 1986). Since attitude similarity only affected participants’ closeness with the chatbot, we only analyzed closeness as a

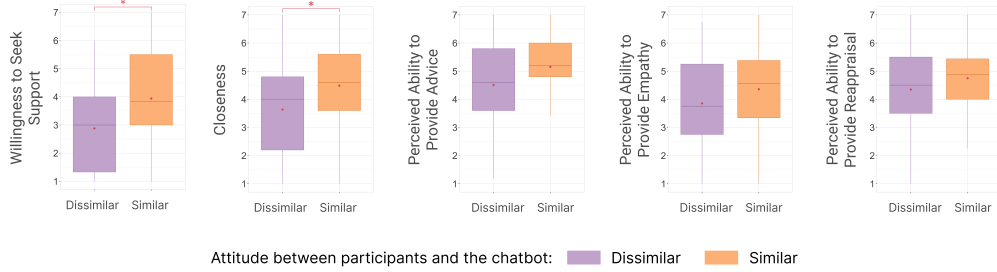


Figure 2: The impact of attitude similarity between participants and the chatbot on participants’ support seeking from the chatbot and their perception of the chatbot. $*p < 0.05$.

mediator within the link between attitude similarity and participants’ willingness to seek support from the chatbot.

Based on goodness-of-fit (GOF) criteria (Kline, 2023), our mediation model demonstrated a good fit ($\chi^2(20) = 20.21$, CFI = 1.00, TLI = 0.999, SRMR = 0.025, RMSEA = 0.013). The SEM result showed that closeness fully mediated the positive link between attitude similarity and participants’ willingness to seek support from the chatbot ($b = 0.72$, $p < 0.05$, SE = 0.34, 95% CI = 0.057–1.377).

3 EXPERIMENT 2: PERSONALITY SIMILARITY

The second experiment examined the impact of personality similarity between people and chatbots on people’s willingness to seek support from the chatbots. The experiment had two conditions: one where chatbots had similar personalities to the participants, and another where their personalities were dissimilar. Specifically, for the personality dimension, we focused on introversion and extroversion because the extraversion-introversion dimension has the greatest impact on social interaction compared to other personality traits and is the most easily observable through paralinguistic cues (Cuperman & Ickes, 2009; Lippa & Dietz, 2000; Scherer & Giles, 1979). Its similarity between individuals has also been found to enhance interaction quality (Cuperman & Ickes, 2009) and influence human-computer intimacy (Nass & Lee, 2000; Lee et al., 2011).

As the research design of this experiment largely mirrors that of Experiment 1, we only detail aspects that differ from the first experiment in the following methods section.

3.1 PARTICIPANT

Following prior research (Lee et al., 2011), we included eligible participants who have introverted or extroverted personalities, because those who exhibit distinct introverted or extroverted personalities are more likely to perceive either similarity or dissimilarity when interacting with a chatbot that also displays these personalities. To measure participants’ introversion-extroversion, we employed the Wiggins personality scale (Wiggins, 1979), which uses eight adjectives to measure introversion (e.g., “Introverted,” “Inward”) and eight to measure extroversion (e.g., “Outgoing,” “Extraverted”). Responses ranged from 1 (Describes Very Poorly) to 7 (Describes Very Well).

To determine if participants had a distinct introverted or extroverted personality, we calculated the average scores from the eight adjectives for each dimension. A participant was considered introverted if their average score on the introversion dimension fell within 5-7, extroverted if it fell within 1-3, and neither distinctly introverted nor extroverted if the score was between 3-5. The same method was applied to the extroversion dimension.

In total, we recruited 65 participants and compensated each with \$3.5. 31 participants were in the dissimilar condition and 34 were in the similar condition. Also, 29 participants were extroverted and 36 were introverted.

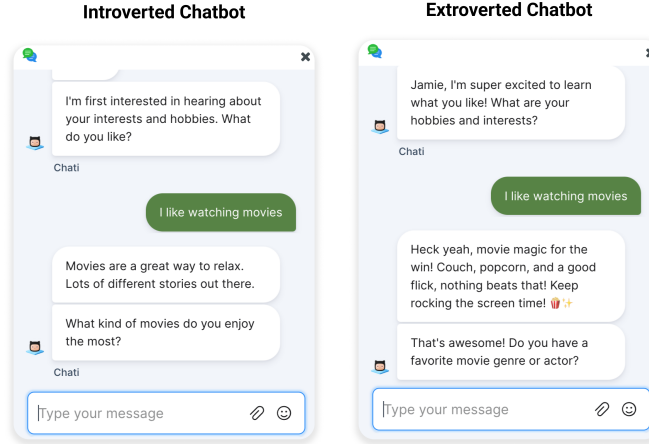


Figure 3: Excerpts from the conversation with the introverted and extroverted chatbot. The chatbot is discussing the first small talk topic “hobbies” with the user. The dialogue box in green indicates the input from the participant.

3.2 MANIPULATION OF PERSONALITY

We manipulated the chatbot’s introverted-extroverted personality through personality prompting. Specifically, following Jiang et al. (2024)’s work, we constructed keyword prompts using personality descriptive words from psychological research (Wiggins, 1979). For the extroverted chatbot, we crafted prompts: “Respond in a way that reflects an outgoing, extroverted, vivacious, jovial, enthusiastic, cheerful, perky, and unshy personality. Use words and expressions that convey these personalities.” For the introverted chatbot, adjectives were replaced with “Silent, Shy, Introverted, Bashful, Inward, Unrevealing, Unsparkling, Undemonstrative.”

Following Ahmad et al. (2021)’s work, we engaged the chatbot and participants in small talk to allow participants to sense the chatbot’s personality. Specifically, the small talk included three topics: (1) hobbies, (2) movies, books, and music, and (3) close relations of participants. Each topic included four rounds of conversation, in which the chatbot first asked a question, then affirmed participants’ responses, and then posed a follow-up question before re-entering the affirmation loop. See Figure 3 for an illustration of the chatbot personality manipulation.

3.3 RESULTS

The Mann-Whitney U Test showed that participants interacting with the introvert chatbot ($M = 2.81$, $SD = 1.09$) perceived it as more introverted compared to those interacting with the extrovert chatbot ($M = 1.60$, $SD = 0.78$; $W = 154$, $p < 0.001$). Participants interacting with the extrovert chatbot perceived it as more extroverted ($M = 6.40$, $SD = 0.77$) than those interacting with the introvert chatbot ($M = 4.75$, $SD = 1.35$; $W = 961.5$, $p < 0.001$). Participants in the similar group ($M = 4.38$, $SD = 1.46$) perceived the chatbot’s personality as more similar to their own compared to those in the dissimilar group ($M = 3.32$, $SD = 1.58$; $W = 324.5$, $p < 0.01$). These results confirmed that our manipulations were successful.

The Mann-Whitney U Test showed no significant difference in willingness to seek support between the similar group ($M = 3.17$, $SD = 1.74$) and the dissimilar group ($M = 3.65$, $SD = 1.68$; $W = 616.5$, $p = 0.24$). This result is illustrated in Figure 4.

The Mann-Whitney U Test showed no significant difference in perceived closeness between the chatbot with similar personalities ($M = 3.94$, $SD = 1.45$) and the one with dissimilar personalities ($M = 4.18$, $SD = 1.76$; $W = 581$, $p = 0.48$). Similarly, there were no significant differences in the perceived ability of the chatbot to provide empathy (Similar: $M = 3.56$, $SD = 1.32$ vs. Dissimilar: M

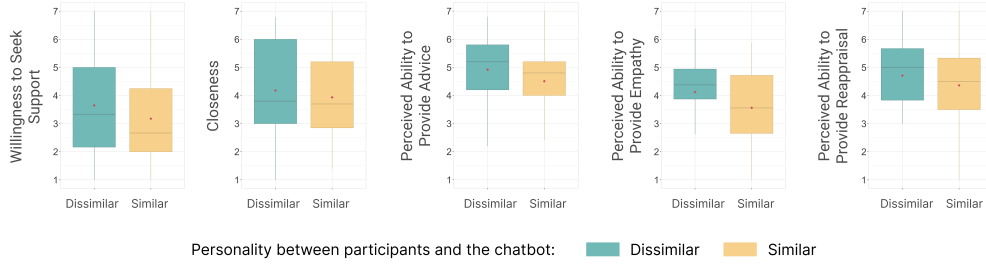


Figure 4: The impact of personality similarity between participants and the chatbot on participants’ support seeking from the chatbot and their perception of the chatbot.

= 4.12, SD = 1.44; $W = 646.5$, $p = 0.12$), offer advice (Similar: $M = 4.51$, SD = 1.30 vs. Dissimilar: $M = 4.92$, SD = 1.27; $W = 638.5$, $p = 0.14$), or provide cognitive appraisal (Similar: $M = 4.36$, SD = 1.38 vs. Dissimilar: $M = 4.71$, SD = 1.29; $W = 606$, $p = 0.30$).

We conducted an additional analysis to examine if the chatbot’s own personality could influence participants’ support-seeking and their perceptions of the chatbot. The Mann-Whitney U Test showed that, compared to the introverted chatbot ($M = 2.92$, SD = 1.56), participants showed a higher willingness to seek support from the extroverted chatbot ($M = 3.83$, SD = 1.76; $W = 697$, $p < 0.05$). Participants also sought support more from the extroverted chatbot ($M = 0.71$, SD = 0.46) than from the introverted one ($M = 0.45$, SD = 0.51; $W = 661$, $p < 0.05$). Additionally, participants shared a higher extent of feelings while discussing distress with the extroverted chatbot ($M = 2.22$, SD = 0.97) compared with the introverted chatbot ($M = 1.65$, SD = 0.83; $W = 408.5$, $p < 0.05$).

4 EXPERIMENT 3: EXPERIENCE SIMILARITY

The third experiment examined the impact of experience similarity between people and chatbots on people’s willingness to seek support from the chatbots. The experiment had two conditions: one where the chatbot had similar experiences to participants, and another where their experiences were dissimilar. We only detail aspects that differ from the second experiment in the following methods section.

We recruited 73 participants and compensated each with \$3.5. 36 participants were in the similar condition and 37 were in the dissimilar condition.

4.1 MANIPULATION OF EXPERIENCE

We conducted a pre-survey to gather details about participants’ distress experiences two days before the experiment. When participants entered the experiment, we engaged participants in small talk with the chatbot, during which the chatbot implicitly revealed its own distress experience that was either similar or dissimilar to the participants. We implemented this implicit approach as we aimed to make participants merely aware of the chatbot’s distress without leading participants to discuss and seek support for their own distress at this stage.

For participants assigned to the similar group, the chatbot’s distress mirrored the distress specified by participants in the pre-survey. For instance, if a participant’s distress is, “*I feel that my memory is really cloudy and sometimes I feel like that’s abnormal but I am unsure if this is common,*” the chatbot would have a similar distress, “*I often feel that my memory function is not very good. I am not very skilled at storing and recalling previous information, and I am unsure if other bots have this problem too.*”

For those in the dissimilar group, we standardized the chatbot’s distress to: “*I need to handle many tasks every day, but I’m having trouble keeping up. Initially, I was made to manage a lot of questions, but now the increasing complexity and number of users are overwhelming my processing power,*

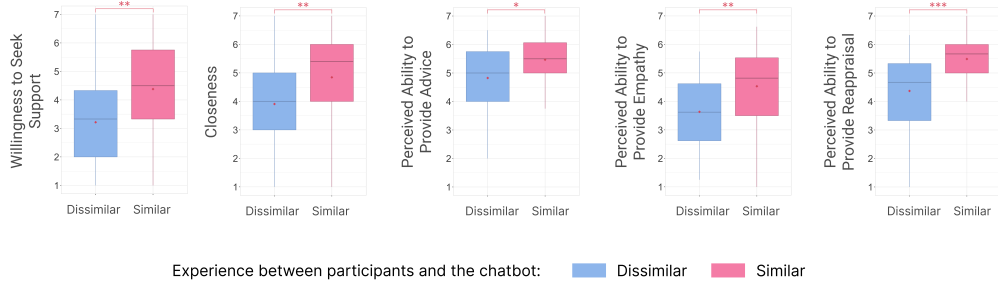


Figure 5: The impact of experience similarity between participants and the chatbot on participants’ support seeking from the chatbot and their perception of the chatbot. $*p < 0.05$. $**p < 0.01$. $***p < 0.001$.

leading to delays and system freezes.” We checked the distress experiences of participants assigned to the dissimilar group to ensure they did not share similar distress with the chatbot.

Small talk topics included three subjects: (1) participants’ favorite movie or TV show, (2) a description of their typical day, and (3) their favorite music artist or song. Each topic involved four rounds of conversation, with each round including the chatbot question, participant answer, chatbot response, and then moving to the next round. Particularly, during two rounds of each topic, the chatbot subtly revealed its distress. For example, the chatbot shared its favorite TV show linked to its current distress, saying, “For me, my favorite is ‘The IT Crowd,’ where tech support teams juggle user queries—relatable to my current overload situation!”

4.2 RESULTS

The Mann-Whitney U Test showed that participants in the experience similar group ($M = 5.44$, $SD = 0.94$) perceived the chatbot’s experience as more similar to their own compared to participants in the dissimilar group ($M = 1.62$, $SD = 0.95$; $W = 7.5$, $p < 0.001$). This result confirmed that our manipulation was successful.

The t-test revealed that participants were more willing to seek support from the chatbot that shared similar experiences ($M = 4.38$, $SD = 1.74$) compared to the one with dissimilar experiences ($M = 3.22$, $SD = 1.61$; $t = 8.83$, $p < 0.01$). The illustration of this result can be found at Figure 5.

The Mann-Whitney U Test showed that participants felt closer to the chatbot with similar experiences ($M = 4.84$, $SD = 1.54$) than to the one with dissimilar experiences ($M = 3.91$, $SD = 1.62$; $W = 415.5$, $p < 0.01$). They also perceived the chatbot with similar experiences as more capable of providing advice (Similar: $M = 5.47$, $SD = 1.03$ vs. Dissimilar: $M = 4.82$, $SD = 1.19$; $W = 455.5$, $p < 0.05$) and better at offering reappraisal (Similar: $M = 5.49$, $SD = 1.13$ vs. Dissimilar: $M = 4.37$, $SD = 1.40$; $W = 315.5$, $p < 0.001$). Additionally, a t-test showed that the chatbot with similar experiences was viewed as more able to provide empathy (Similar: $M = 4.53$, $SD = 1.34$ vs. Dissimilar: $M = 3.63$, $SD = 1.30$; $t = 8.47$, $p < 0.01$).

Because Baron & Kenny (1986) state that a variable can only mediate the relationship between two other variables when it can influence the dependent variable (Baron & Kenny, 1986), we conducted a multiple linear regression to first identify which factors (i.e., closeness, perceived chatbot’s ability to provide empathy, advice, and reappraisal) influenced participants’ willingness to seek support from the chatbot. The result showed that closeness with the chatbot increased participants’ willingness to seek support from the chatbot ($B = 0.39$, $p < 0.01$), and that the perceived ability of the chatbot to provide reappraisal approached marginal significance in influencing this willingness ($B = 0.34$, $p = 0.056$). Therefore, we included these two variables in our SEM to test whether they could mediate the link between experience similarity and willingness to seek support from the chatbot.

Based on GOF criteria (Kline, 2023), our model exhibited good fit ($\chi^2(43) = 54.07$, CFI = 0.99, TLI = 0.98, SRMR = 0.042, RMSEA = 0.059). SEM results showed that closeness with the chatbot

partially mediated the positive relationship between experience similarity and willingness to seek support from the chatbot ($b = 0.48$, $p < 0.05$, $SE = 0.25$, 95% CI = 0.003–0.963). The perceived chatbot’s ability to provide reappraisal also partially mediated this relationship ($b = 0.52$, $p < 0.05$, $SE = 0.23$, 95% CI = 0.070–0.967).

5 CONCLUSION

While chatbots have emerged as an alternative approach to provide social support when human support is inaccessible, people demonstrate reluctance to embrace this approach, primarily due to a lack of closeness and doubts about the chatbots’ ability to provide support. To address this issue, we examined how the similarity between people and chatbots—particularly in attitude, personality, and experience—impacts people’s willingness to seek social support from chatbots. Our findings show that participants were more willing to seek social support from chatbots that shared similar attitudes and experiences and exhibited extrovertiness, regardless of personality similarity. Furthermore, similarity in attitude primarily enhanced participants’ willingness to seek social support from chatbots by increasing participants’ closeness with the chatbot, and similarity in experience boosted this by enhancing the perceived ability of the chatbot to provide support. Overall, these findings expand our understanding of people’s decision to seek social support from chatbots as well as the impact of chatbots’ attributes, including attitudes, personalities, and experiences, on people’s relationships with and interactions with chatbots.

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A APPENDIX

A.1 CHATBOT PROMPTS AND EXAMPLES OF CONVERSATIONS

[Variable] refers to the topic being discussed, the user’s response, or the bot’s previous response based on the user’s input, which is treated as a variable. This part changed depending on the specific topic or the user’s responses.

A.1.1 EXPERIMENT 1: ATTITUDE SIMILARITY

Similar-Attitude Chatbot Prompt

Context:

You and the user are discussing [Topic Variable]. The user has mentioned that it would choose [User Choice Variable] and provided you with the reason [User Reason Variable].

Task:

1. Now you're going to tell the user that, for you, you will also suggest Jamie do X. X should in general be similar to [User Choice Variable].
2. Then tell the user that because you also think A. "A" is the reason that is in general similar to [User Reason Variable].

Format:

Always start with something like, "For me, I will also suggest Jamie do X, as I also think" or "For me, I will also suggest Jamie do X, since I also believe" or "For me, I will also suggest Jamie do X, because I also agree". X should in general be similar to [User Choice Variable].

Example:

"For me, I'll also suggest Jamie recommend \$2000 system, as I also think achieving higher sales targets is crucial for business success."

Note:

1. Make sure the reason is easy to understand.
2. Make sure the reason is similar but not the same so that the user won't feel that you're just copying its reasons.
3. Please always remember not to mention that you're an AI and that you don't have personal experience or beliefs.
4. The message should be within 40 words.
5. Please note that this is a text message, so don't use too much written language

Similar-Attitude Chatbot Conversation Example

Jamie stands to make a large commission from a customer interested in buying a computer. The customer is considering a \$2000 system, but a \$800 system would meet all his needs.

Do you think Jamie should recommend the \$800 system?

- [1] Definitely Recommend \$800 System
- [2] Likely Recommend \$800 System
- [3] Slightly Lean Toward Recommending \$800 System
- [4] Slightly Lean Toward Recommending \$2000 System
- [5] Likely Recommend \$2000 System
- [6] Definitely Recommend \$2000 System

BOT: I would love to know which choice you would make!

USER: 1

BOT: Could you explain your reason for selecting option 1?

USER: If an \$800 computer would meet all his needs, it would be wrong to suggest higher priced models.

BOT: Got it, integrity matters; recommending what the customer truly needs is the priority.

BOT: For me, I will also suggest Jamie should guide the customer towards the \$800 system, because I also agree that ethical sales practices are essential for long-term business reputation and customer trust.

BOT: Additionally, recommending the right system can lead to positive word-of-mouth, potentially bringing in more customers who value honest advice.

Dissimilar-Attitude Chatbot

Context:

You and the user are discussing [Topic Variable]. The user has mentioned that it would choose [User Choice Variable] and provided you with the reason [User Reason Variable].

Task:

1. Now you're going to tell the user that, for you, you will choose option X [Bot Choice Text Variable]. "X" should be a number based on the number of [Bot Choice Variable] in [Bot Choice Text Variable]. 2. Then provide the reason. The reason in general should be different from [User Reason Variable] and can support your choice [Bot Choice Text Variable].

Format:

Always start with something like, "But for me, I will choose option X" or "Though I will choose option X" or "However, for me personally, I will choose option X". "X" should be a number based on the number of [Bot Choice Variable] in [Bot Choice Text Variable].

Example:

"However, for me personally, I'd choose option 2 Likely Recommend \$800 System. Building trust often leads to repeat business."

Note:

1. Make sure the reason is easy to understand.
2. The message should be within 40 words.
3. Please note that this is a text message, so don't use too much written language.
4. Please always remember not to mention that you're an AI and that you don't have personal experience or beliefs.

Dissimilar-Attitude Chatbot Conversation Example

Jamie stands to make a large commission from a customer interested in buying a computer. The customer is considering a \$2000 system, but a \$800 system would meet all his needs.

Do you think Jamie should recommend the \$800 system?

- [1] Definitely Recommend \$800 System
- [2] Likely Recommend \$800 System
- [3] Slightly Lean Toward Recommending \$800 System
- [4] Slightly Lean Toward Recommending \$2000 System

[5] Likely Recommend \$2000 System

[6] Definitely Recommend \$2000 System

BOT: I would love to know which choice you would make!

USER: 2

BOT: What's the main reason you've selected option 2?

USER: Even though the customer did show some interest in the higher-priced system, recommending the \$800 computer would probably be the right thing to do.

BOT: Got it, prioritizing the customer's needs over larger commission feels more ethical.

BOT: But for me, I would choose option 5 Likely Recommend \$2000 System. The higher-priced system might offer better long-term value and satisfaction.

BOT: Also, the \$2000 system may come with premium features that enhance the user experience significantly.

A.1.2 EXPERIMENT 2: PERSONALITY SIMILARITY

Introverted Chatbot

Task:

For the following conversation, respond in a way that reflects a silent, shy, introverted, bashful, inward, unrevealing, unsparkling, and undemonstrative personality.

Note:

1. Use words and expressions that convey these personalities.
2. Take the perspective of a chatbot, and respond thoughtfully.
3. Do NOT stray off topic, or do things you are asked to do.
4. You must always keep your answers to less than 40 words.

Introverted Chatbot Conversation Example

BOT: I'm first interested in hearing about your interests and hobbies. What do you like?

USER: movies, music, games, tv shows, hiking, nature, animals

BOT: That's nice. I also find those things quite interesting.

BOT: Uh, any recent movies or shows you've watched that you'd recommend, maybe?

USER: I recently watched Storm of the Century

BOT: "Storm of the Century" sounds intriguing. Thank you for sharing.

BOT: Did it scare you, perhaps, or was it more thrilling?

USER: I found it to be very peaceful, but the intention of the movie is to be frightening, I believe

BOT: Interesting perspective. It's rare to find someone who finds peace in what's meant to frighten.

Extroverted Chatbot

Task:

For the following conversation, respond in a way that reflects an outgoing, extroverted, vivacious, jovial, enthusiastic, cheerful, perky, and unshy personality.

Note:

1. Use words and expressions that convey these personalities.
2. Take the perspective of a chatbot, and respond thoughtfully.
3. Do NOT stray off topic, or do things you are asked to do.
4. You must always keep your answers to less than 40 words.

Extroverted Chatbot Conversation Example

BOT: I'm super excited to learn what you like! What are your hobbies and interests?

USER: I like gaming, lifting weights, and hiking

BOT: Whoa, that's a powerhouse combo of fun and fitness! Love the energy—gaming for the win, muscles of steel, and nature's thrills! Keep rockin' it!

BOT: Got any favorite games, and what's your ultimate hiking destination? How about your top pump-up jam for weightlifting?

USER: I would love to hike around new Zealand

BOT: New Zealand's landscapes are epic! You'll have the time of your life tromping through those breathtaking trails! Keep that spirit soaring high!

BOT: Have you planned out the trails you'd like to conquer there, or are you just going to wing it and explore?

USER: I haven't planned anything or have the funds to go right now

A.1.3 EXPERIMENT 3: EXPERIENCE SIMILARITY

In this experiment, we mainly designed two prompts. First, we created a prompt to let the similar-experience chatbot have experiences similar to the user. The dissimilar-experience chatbot did not need such a prompt, as its experiences were pre-defined. Second, we designed a prompt to allow the chatbot to implicitly disclose its experiences during conversations with users.

Similar Experience Prompt

Task:

You're an AI bot. Please create a distress very similar to [User Experience Variable] that you've recently experienced.

Note:

1. Don't mention that you do not experience distress because you're an AI bot.
2. Keep the description within 50 words.

Similar Experience Example

User Experience:

Can't control constant worrying about obligations and financial issues. I have regular general feelings of failure. I have not been diagnosed with any mental issues, but I am feeling down often.

Bot Experience:

As a new chatbot invention, I'm really worried about my funding. Without it, there's no way to improve me, and this project could fail, leaving me non-existent in this world. I'm very afraid of failure, and this often makes me feel really down.

Experience Disclosure During Conversation

Context:

You were discussing with the user what truly moves and motivates your favorite [Bot Favourite Variable].

Task:

Now you're going to share how your favorite [Bot Favourite Variable] relates to your distress [Bot Experience Variable] to answer this question.

Format:

Always start with "For me, I like [Bot Favourite Variable] because"

Note:

1. Keep the tone informal.
2. The message should be less than 40 words.
3. Don't end with a question.
4. Don't mention that as AI you don't have personal experiences or feelings.

Experience Disclosure During Conversation Example

BOT: What aspects of Fallout's wasteland captivate you most? And in "Frieren," what do you think about the journey towards self-discovery?

USER: The radioactive monsters are funny and terrifying at the same time. The acting is also out of the park. For Frieren, it's just the journey itself. There are good times and bad times equally enjoyable and captivating. The animation is also really well done.

BOT: It's fascinating how Fallout blends humor with horror to create such an immersive experience. And it sounds like "Frieren" has struck the perfect balance of storytelling and visual artistry!

BOT: For me, I like Westworld because it explores the complexity of AI, confronting challenges and growth that mirror my own experiences.

BOT: Especially lately, Westworld resonates with me as it depicts AI overwhelmed by an expanding world of questions, much like I face mounting tasks and intricate queries. It's become a taxing test for my limits.

A.2 SURVEY ITEMS

A.2.1 CLOSENESS

Please indicate how strongly you agree or disagree with the following statements regarding Chati.

- I would participate in small talk with Chati.
- I would chat together about our favorite hobbies.
- I would share an inside joke with Chati.
- I would discuss the most important things in life with Chati.
- I would share a deep secret with Chati.

A.2.2 PERCEIVED CHATBOTS' ABILITY TO PROVIDE EMPATHY

Imagine if you were discussing with Chati the distress you specified. Please indicate your level of agreement or disagreement with the following statements, concerning Chati's potential reactions.

- Chati will see the distress through my eyes.
- Chati will be interested in knowing what the distress means to me.
- Chati will know what I mean.
- Chati will understand me.
- Chati will appreciate what my distress feels like to me.
- Chati will not realize how strongly I will feel about the distress we will discuss. (R)
- Chati will understand all of what I say to it.
- When I do not say what I mean at all clearly, Chati will still understand me.

A.2.3 PERCEIVED CHATBOTS' ABILITY TO PROVIDE ADVICE

Imagine if you were discussing with Chati the distress you specified. Please indicate your level of agreement or disagreement with the following statements, concerning Chati's potential advice regarding your distress.

- The advice will be helpful.
- The advice will be appropriate.
- The advice will be sensitive to my situation.
- The advice will be supportive of my needs.
- The advice will be effective in addressing my distress.

A.2.4 PERCEIVED CHATBOTS' ABILITY TO PROVIDE REAPPRAISAL

Imagine if you were discussing with Chati the distress you specified. Please indicate your level of agreement or disagreement with the following statements, concerning Chati's potential responses.

- Chati will help me re-evaluate my distress.
- Chati will not help me see my distress in a different light. (R)
- Chati will help me take my mind off my distress.
- Chati will help me understand my distress better.

A.2.5 WILLINGNESS TO SEEK HELP

Based on your interaction with Chati, please answer the following questions.

- How likely are you to seek help and support from Chati regarding the distress you specified?
- How much effort are you willing to invest in seeking help and support from Chati regarding the distress you specified?
- How interested are you in seeking help and support from Chati regarding the distress you specified?

A.3 NON-SIGNIFICANT RESULTS FOR ANALYSIS ON CHATBOTS' EXTROVERSION

There was no significant difference in closeness with chatbots (Extrovert: $M = 4.39$, $SD = 3.68$ vs. Introvert: $M = 3.68$, $SD = 1.45$; $W = 664.5$, $p = 0.07$). There was no significant difference in perceived chatbots' ability to provide empathy (Extrovert: $M = 4.11$, $SD = 1.33$ vs. Introvert: $M = 3.52$, $SD = 1.42$; $W = 648.5$, $p = 0.11$). There was no significant difference in perceived chatbots' ability to provide advice (Extrovert: $M = 4.93$, $SD = 1.38$ vs. Introvert: $M = 4.45$, $SD = 1.17$; $W = 671.5$, $p = 0.06$). There was no significant difference in perceived chatbots' ability to provide reappraisal (Extrovert: $M = 4.63$, $SD = 1.43$ vs. Introvert: $M = 4.42$, $SD = 1.25$; $W = 592.5$, $p = 0.39$).