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Exploring the Cooperative Potential of AI: A Comparative Performance Evaluation of Human and Machine-Generated Hypnotic Sessions

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Abstract

This study explored the cooperative potential of Artificial Intelligence (AI) in stress reduction hypnosis by comparing human- and AI-generated hypnotic audio sessions among 48 Hong Kong adults experiencing family-related stress, utilizing a blinded within-subjects crossover design. The two sessions collectively produced a significant overall stress-relieving effect, reducing the average self-reported stress score by 28.93% (from an average of 2.52 out of 5 to 1.79). Participants rated the AI-led sessions as having a higher mean helpfulness score (2.92/5) than the human-led sessions (2.58/5), representing a 12.90% advantage in AI. This advantage was most pronounced in the tactile sensory modality (+26.67%) and among older age groups of 55+ (+30.73%), supporting the finding that AI and human-led hypnosis have a similar stress-relieving effect, with AI performing comparably or better in specific subgroups. Furthermore, a majority of participants (62.5%) ultimately preferred the AI-led session when blinded. The results suggest a model for integrating AI-designed audio into hypnosis services in Hong Kong to allow more client-centered service with higher efficiency and scalability.

Keywords

Artificial Intelligence (AI), Hypnosis, Stress Reduction, Within-Subjects Crossover Design

1. Introduction

1.1. Global Trend of Artificial Intelligence Use

The advancement of Artificial Intelligence (AI) technology has accelerated significantly, particularly following the launch of the generative AI language model (ChatGPT 3.0 by OpenAI), which has fundamentally altered professional and personal spheres. Nowadays, from data analysis to content creation, AI has been used in every aspect of human life and areas. According to McKinsey's 2025 State of AI Global Survey, although most of the companies are still in the pilot phase of AI use, 88% of organizations reported regular use of AI in at least one function currently (McKinsey & Company, 2025).

1.2. Artificial Intelligence in Psychology and Counselling

The abilities of AI are not only limited to performing administrative tasks. The United Nations (UN) has recognized the potential of AI in accelerating 80% of the Sustainable Development Goals (SDGs), including healthcare (SDG 3): AI could be helpful in making medical diagnoses and predicting prognosis (United Nations, 2025; United Nations Global Compact & Accenture, n.d.). Whereas in the field of psychology, AI can assist the therapist in assessment and diagnosis in the therapeutic session, or provide basic support to the client using a chatbot while the therapist is not available or out of service hours (National Counselling and Psychotherapy Society, 2025). In this study, we have examined the effectiveness of using Generative AI with Retrieval-Augmented Generation (RAG) in assisting hypnotists in case assessment and conducting hypnosis in the area of stress reduction.

1.3. Definition of Hypnosis

Hypnosis has a very long history and debate more than a decade regarding its definition to the effectiveness in different areas. Society of Psychological Hypnosis, Division 30 of the American Psychological Association (APA), defines hypnosis as "a state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion" (Society of Psychological Hypnosis Society of Psychological Hypnosis, American Psychological Association Division 30, 2014).

1.4. Mechanism of Hypnosis in Stress Reduction

1.4.1. Cognitive Restructuring

By leveraging a state of highly focused attention, hypnosis allows individuals to detach from their everyday stress-related concerns and thoughts. In this state, a therapist can introduce targeted suggestions to alter apprehensive thinking patterns that typically amplify stress and physical symptoms (Wagstaff et al., 2010).

1.4.2. Enhanced Self-Regulation

Hypnosis provides a bridge between simply knowing about self-care and actually practicing it. It empowers individuals with self-regulation tools—such as progres-

sive muscle relaxation, focused breathing, and soothing imagery—that they can use to effectively manage their physiological responses whenever stressful triggers arise (Linden et al., 2024).

1.5. Effectiveness of Hypnosis in Stress Reduction

The theory of stress reduction by cognitive restructuring and enhanced self-regulation has been proven to be practical. Various studies have supported that hypnosis is clinically effective in stress reduction (Alizamar et al., 2018; Fisch et al., 2020; Leung et al., 2025).

1.6. Research Gap and Hypotheses

1.6.1. The Use of Artificial Intelligence in Hypnosis

In a bibliometric analysis mapping electroencephalogram (EEG) based hypnosis research through 135 Scopus-indexed publications in the United States, Germany, Italy, and the United Kingdom, the emerging theme of AI for hypnotic depth monitoring and personalized interventions creation was highlighted (Rinaldi et al., 2025). It would be worth studying the effectiveness of AI-generated sound tracks in leading hypnosis sessions to address the current research gap in this area.

1.6.2. The Use of Hypnosis for Family-Related Stress

Hong Kong families reported a median wellbeing, as indicated by scoring a 6.06/10 in the Hong Kong Family Wellbeing Index (HKFWI) in 2024, with a continuous decline from 6.35 in 2019 (Hong Kong Family Welfare Society & Hong Kong Public Opinion Research Institute, 2024). While hypnosis demonstrates efficacy for general stress reduction, no studies have examined family-specific stress outcomes.

1.6.3. The Use of AI in Hypnosis for Family-Related Stress Especially for Younger Population

Additionally, the HKFWI score is particularly low among the younger population (Hong Kong Family Welfare Society & Hong Kong Public Opinion Research Institute, 2024). It would be worth studying the use of AI in hypnosis for family-specific stress reduction in view of the documented possibilities of aiding hypnosis with AI, together with the fact that the younger population generally has more trust and confidence in AI (Organization for Economic Co-Operation and Development, 2025).

1.6.4. Research Hypotheses

Five hypotheses were then established to be tested in this study: 1) Hypnotic intervention will significantly reduce family-associated stress, 2) Both human-led hypnosis and AI-led hypnosis are effective in stress reduction, 3) Higher AI acceptability predicts greater stress reduction in AI-led hypnosis sessions, 4) Younger participants (<35) will report higher AI acceptability for hypnosis than older groups, 5) Participants who reported higher susceptibility to hypnosis or level of depth in hypnosis predict greater stress reduction.

2. Method

2.1. Participants

2.1.1. Sample Size Calculation

The sample size calculation was based on the 6-point Likert scale on stress reduction with assumption of significance level α is 0.05, power $(1-\beta)$ is 0.8, and the expected effect size (d) is 0.5, was 33 participants. The minimum required sample size was at least 45 participants, that included 20% dropout and 15% buffer for non-parametric analysis.

2.1.2. Demographics

All the participants are adults from Hong Kong who showed interest in hypnosis. Details of the demographic composition will be shown in the results analysis part.

2.1.3. Recruitment

The recruitment was conducted by advertisement in social media. Each participant is required to fill out the enrollment questionnaire before entering the study.

2.1.4. Exclusion Criteria

The participants would be excluded from the study if any of the following criteria are met:

- participants aged below 18.
- participants who were unable to give written consent.
- participants who were physically or mentally unfit for hypnosis.
- participants who refused to follow any part of the study procedures.
- participants who responded rejecting AI-led hypnosis.
- participants who have received previous training of hypnosis.

2.2. Study Design

The study design was the Within-Subjects (Repeated Measures) Single-blineded Crossover Design.

2.2.1. Grouping of Participants

Participants were divided into 3 sensory modality groups (visual, auditory, tactile) based on their response to the answers on the enrollment questionnaire. Two special scripts, one designed and recorded by human hypnotists and another designed and recorded by AI, were designed for each subgroup of participants according to their dominant sense. Each subgroup was then further divided into 2 subgroups to undergo the one-hour hypnosis session. Both groups underwent 2 audio hypnosis experiences in the one-hour, with one group first undergoing an AI-led hypnosis session followed by a human-led hypnosis session, another group received exactly the same two sessions with reversed sequence.

2.2.2. Hypnosis Sessions

The scripts designed by human hypnotists were made into audio recordings by a human hypnotist. The scripts designed by AI were made into audio recordings by

AI. To ensure fairness of the comparison, the AI-generated sound tracks were produced by mimicking the voice and tone of the same human hypnotist.

2.2.3. Participant's Blinding

Prior to the hypnosis sessions, participants were aware that the hypnotic experience they received could be either AI-led or human-led. However, participants were blinded for whether the sound tracks they were listening to were AI-generated or recorded by a human hypnotist.

2.3. Materials

2.3.1. Written Script and Audio Recording

The hypnosis script was designed by the research team members who are certified hypnotists in various international hypnosis associations and ensure the contents of the hypnosis script is fit for the context of reducing stresses in family and interpersonal relationships.

2.3.2. Selection of AI Models

All AI Models being used in the study were legally accessible and commercially available in Hong Kong during the study period. The Google Gemini 3.0 model was selected for its outstanding multimodal reasoning and strong performance in text generation and audio-processing tasks (Google, 2025; Zhang et al., 2026). The MiniMax Speech 2.6 was chosen for its voice-cloning capabilities together with its ability to provide fluent Cantonese support, which enabled standardized delivery of the hypnotic narration with high speaker similarity to the reference hypnotist voice (MiniMax, 2025a, 2025b).

2.3.3. Ethical Considerations for AI Voice Use

Voice cloning was performed after obtaining informed consent from the voice owner. The use of cloned voice audio was restricted to research purposes only and all audio recordings generated through voice cloning were deleted after data collection.

2.3.4. Generative AI in Content Creation

This study utilized **Gemini 3.0 Pro** to assist in the development of hypnotic interventions. A customized AI agent (Google Gem) for generating hypnosis Script was created on January 24, 2026, which incorporated a retrieval-augmented generation (RAG) framework containing standardized script structures, specific hypnotic suggestion styles, and sensory-specific vocabularies. This Gem also included specific syntax instructions to guide the audio generation process. The final hypnosis audio files were generated on January 28, 2026, using the MiniMax Speech 2.6-hd model. To ensure consistency, the AI mimicked the voice and tone of the human hypnotist with the playback speed parameter set to 0.8.

2.3.5. AI-Assisted Psycholinguistic Analysis

Qualitative and quantitative analysis of participant responses was performed using a customized AI agent (Google Gem) powered by Gemini 3.0 Pro for audio

recording analysis. This Gem, created on January 15, 2025, utilized a RAG system including Cantonese linguistic structures, Hong Kong-specific cultural bias guardrails, the specific research interview questions, and a standardized analysis template. The analysis was conducted in a single batch on February 27, 2026.

2.3.6. Intervention

Hypnosis sessions were delivered to participants by pre-recorded audio script for both human-recorded and AI-generated audio.

2.3.7. Measurement Tools

Questionnaires were the key measurement instruments used in this research. Three sets of questionnaires were administered in this study. The enrollment questionnaire consisted of 10 questions that collected demographic information, experience of receiving hypnosis, willingness to receive hypnosis by AI, dominant sensory modality, and source of stress. The pre-hypnosis questionnaire consisted of 14 questions that measured the level of stress and its related level of different emotional disturbances. The post-hypnosis questionnaire consisted of 39 questions that measured the level of stress and related levels of different emotional disturbance, self-rating of preferable hypnosis recording. To evaluate the ability of identifying emotional disturbance from the AI model, a set of 7 questions was administered and the participants answered verbally and recorded for qualitative analysis.

2.4. Statistical Analysis Plan

The statistical analysis was performed using JASP (Version 0.96).

2.4.1. Data Cleaning and Participants

The total study sample consisted of 48 adults from Hong Kong. While all 48 participants provided data for the primary stress-relieving outcome, the AI-assisted psycholinguistic analysis was limited to 47 participants due to one invalid audio recording that was unsuitable for batch analysis.

2.4.2. Primary Outcome Measures

- Stress Relieving Effect: Changes in self-reported stress levels (measured on a 0 - 5 Likert-type scale) were analyzed by comparing pre-hypnosis and post-hypnosis scores.
- Significance Testing: Statistical significance was confirmed using paired students' t-tests and Wilcoxon signed-rank tests to account for non-parametric distribution where necessary.
- Effect Size: The magnitude of the intervention's effect was determined using Cohen's ***d***.

2.4.3. Comparative and Associative Analysis

- AI vs. Human Comparison: Perceived helpfulness was compared between the two session types using mean helpfulness ratings and an "AI Advantage" per-

centage calculation.

- Hypnotic Susceptibility and Depth: The relationship between hypnotic susceptibility (Arm Rising and Falling Test) and perceived depth was assessed using Pearson's correlation (r).
- Acceptability and Mood: The Kruskal-Wallis test was used to evaluate differences in stress reduction based on initial AI acceptability. Analysis of Variance (ANOVA) and Kruskal-Wallis tests were applied to analyze the relationship between self-reported mood scores and AI-classified stress levels.
- Demographic Variables: Associations between gender and AI acceptability were examined using Chi-square tests and Kendall's Tau-b.

2.4.4. Significance Level

All tests were two-tailed, and a p-value < 0.05 was considered statistically significant.

2.5. Ethical Considerations

2.5.1. Informed Consent

Participants were required to sign the informed consent before any study procedures and were free to withdraw from the study at any time.

2.5.2. Safety Guardrail in AI Model

All the AI Agents used in this study were instructed on the prohibition in generating any harmful, discriminate, or any context that is not suitable for hypnosis.

2.5.3. Review of AI-Generated Materials

All AI-generated scripts and audio hypnosis recordings were reviewed by certified hypnotists on the research team to ensure no harmful or inappropriate language was included.

2.5.4. Data Processing in AI Model

All the information analyzed by the AI model was anonymized and the data would not be used to train or improve the AI model training or reviewed by humans from the service provider, according to the terms and conditions from the service provider.

2.5.5. Data Privacy

All the information collected from the study was anonymized by assigning participant identification numbers and restricted from being accessible by the research team. Data will be aggregated and summarized before publication. Any data containing personal information is handled in compliance with the government regulations and laws in Hong Kong SAR.

3. Results

3.1. Demographic Information and Stress among Participants

3.1.1. Gender

Among the 48 participants, 79.17% (n = 38) were female, and 20.83% (n = 10)

were male (Table 1).

When dividing the participants into three subgroups according to their dominant sensory modality, the female-dominant phenomenon was consistent across the three subgroups: 84.21% (n = 16), 76.47% (n = 13), and 75.00% (n = 9) females in the auditory, visual, and tactile groups, respectively (Table 1).

Table 1. Gender distribution of participants in three sensory modality groups (n = 48).

Gender Distribution of Participants in Sensory Modality			
	Female	Male	Total
Auditory	16	3	19
Visual	13	4	17
Tactile	9	3	12
Total	38	10	48

3.1.2. Education Level

The majority (77.08%, n = 37) of the 48 participants were educated up to the undergraduate level. The remaining 16.67% (n = 8) were secondary school graduates and 6.25% (n = 3) were postgraduates (Table 2).

The auditory group consisted of 10.53% (n = 2) secondary school graduates and 89.47% (n = 17) undergraduates (Table 2).

The visual group consisted of 11.76% (n = 2) secondary school graduates, 76.47% (n = 13) undergraduates, and 11.76% (n = 2) postgraduates (Table 2).

The tactile group consisted of 33.33% (n = 4) secondary school graduates, 58.33% (n = 7) undergraduates, and 8.33% (n = 1) postgraduates (Table 2).

Table 2. Education level distribution of participants in three sensory modality groups (n = 48).

Education Level Distribution of Participants in Sensory Modality				
	Secondary School	Undergraduate	Postgraduate	Total
Auditory	2	17	0	19
Visual	2	13	2	17
Tactile	4	7	1	12
Total	8	37	3	48

3.1.3. Age Group

The auditory group was primarily composed of younger participants: 31.58% (n = 6) aged between 18 and 25, another 31.58% (n = 6) aged between 26 and 35, 15.79% (n = 3) aged between 36 and 45, and another 15.79% (n = 3) aged 56 or above (Table 3).

The visual group had a higher representation in the 26 - 55 age range: 35.29%

(n = 6) aged between 26 and 35, 29.41% (n = 5) aged between 36 and 45, and 23.53% (n = 4) aged between 46 and 55 (Table 3).

The tactile group had a more balanced age distribution: 16.67% (n = 2) aged between 18 and 25, 25.00% (n = 3) aged between 26 and 35, 25.00% (n = 3) aged between 36 and 45, 16.67% (n = 2) aged between 46 and 55, and another 16.67% (n = 2) aged 56 or above (Table 3).

Table 3. Age group distribution of participants in three sensory modality groups (n = 48).

Age Group Distribution of Participants in Sensory Modality						
	18 - 25	26 - 35	36 - 45	46 - 55	55+	Total
Auditory	6	6	3	1	3	19
Visual	1	6	5	4	1	17
Tactile	2	3	3	2	2	12
Total	9	15	11	7	6	48

3.1.4. Previous Experience of Hypnosis

All participants had no previous hypnosis experience.

3.1.5. Main Source of Stress

Among the 48 participants, 31.25% (n = 15) identified family finances as their primary source of stress, followed by marital relationships (27.08%, n = 13), relationships with elder family members (18.75%, n = 9), relationships with children (14.58%, n = 7), and living environment (8.33%, n = 4) (Table 4).

The composition of the visual group was similar to the overall data: 35.29% (n = 7) identified family finances as their primary source of stress, followed by marital relationships and relationships with elder family members (both at 23.53%, n = 4), relationships with children (11.76%, n = 2), and living environment (5.88%, n = 1) (Table 4).

Table 4. Main source of stress among participants in three sensory modality groups (n = 48).

Main Source of Stress Distribution of Participants in Sensory Modality						
	Family Finance	Living Environment	Relationship with Children	Marital Relationship	Relationship with Elderly	Total
Auditory	4	1	3	7	4	19
Visual	6	1	2	4	4	17
Tactile	5	2	2	2	1	12
Total	15	4	7	13	9	48

The tactile group similarly peaked at family finances (41.67%, n = 5). However, unlike the overall pattern, this group showed equal distribution across marital re-

lationships, parent-child relationships, and living environment (16.67% each, n = 2), with the lowest prevalence in elder family member relationships (8.33%, n = 1) (Table 4).

Unlike the other two groups, the auditory group peaked at marital relationships (36.84%, n = 7), followed by family finances and relationships with elder family members (both at 21.05%, n = 4). Consistent with the overall data, parent-child relationships had the second-lowest prevalence (15.79%, n = 3), while living environment had the lowest (5.26%, n = 1).

3.1.6. Frequency of Emotional Distress in the Previous Month Due to Family Condition

Most of the 48 participants reported experiencing emotional distress in the previous month when thinking about their family situations: 33.33% (n = 16) described it as occasional, 31.25% (n = 15) as often, and 29.17% (n = 14) as frequent. Only 6.25% (n = 3) reported emotional distress as rare or never during the previous month (Table 5).

The auditory group reported the highest frequency of emotional distress related to family situations: 42.11% (n = 8) described it as frequent, 36.84% (n = 7) as often, 15.79% (n = 3) as occasional, and 5.26% (n = 1) as rare or never (Table 5).

The tactile group exhibited a distribution similar to the overall data, with an equal proportion of participants reporting frequent and occasional distress (33.33%, n = 4 each), followed by those reporting often (25.00%, n = 3) and rare or never (8.33%, n = 1) (Table 5).

The visual group reported the lowest overall frequency of emotional distress related to family situations: 52.94% (n = 9) reported occasional distress, followed by 29.41% (n = 5) often, 11.76% (n = 2) frequent, and 5.88% (n = 1) rare or never (Table 5).

Table 5. Frequency of emotional distress in the previous month due to family conditions in three sensory modality groups (n = 48).

Frequency of Emotional Distress in the Previous Month Due to Family Condition					
	Rare/Never	Occasional (25% of time)	Often (50% of time)	Frequent (>75% of time)	Total
Auditory	1	3	7	8	19
Visual	1	9	5	2	17
Tactile	1	4	3	4	12
Total	3	16	15	14	48

3.1.7. Sequence of Hypnosis Sessions Experienced

All 48 participants underwent two hypnosis sessions. 60.42% (n = 29) first participated in a session conducted by a human hypnotist, followed by a session using an AI generated recording. The remaining 39.58% (n = 19) first experienced the AI-led hypnosis session, followed by the human-led session (Table 6).

In the auditory group, 57.89% (n = 11) of the participants first experienced the

human-led session, while 42.11% (n = 8) began with the AI-led session (Table 6).

In the visual group, 70.59% (n = 12) first experienced the human-led session, while 29.41% (n = 5) started with the AI recording session (Table 6).

In the tactile group, an equal number of participants (50.00%, n = 6) were assigned to begin with either the human-led session or the AI-led session (Table 6).

Table 6. Sequence of hypnosis sessions experienced in three sensory modality groups (n = 48).

Sequence of Hypnosis Sessions Experienced			
	Human → AI	AI → Human	Total
Auditory	11	8	19
Visual	12	5	17
Tactile	6	6	12
Total	29	19	48

3.2. Acceptability towards AI

3.2.1. Acceptability towards AI—Use of AI in Hypnosis

1) Overall Acceptability towards Use of AI in Hypnosis

Regarding the acceptability of using AI in hypnosis, 60.42% (n = 29) of participants expressed a neutral stance. The remaining participants were divided: 29.17% (n = 14) remained somewhat doubtful about the use of AI in hypnosis, while 10.42% (n = 5) found it highly acceptable (Table 7).

Table 7. Overall acceptability towards use of AI in hypnosis (n = 48).

Acceptability towards the Use of AI in Hypnosis				
	Highly Acceptable	Neutral	Somewhat Doubtful	Total
Count	5	29	14	48

2) Acceptability towards Use of AI in Hypnosis by Gender

Among the female participants, 60.53% (n = 23) of them expressed a neutral stance, similar to the overall data; 5.26% (n = 2) of them reported high acceptance, lower than the overall data; 34.21% (n = 13) of them reported somewhat doubtful, higher than the overall data (Table 8).

Among the male participants, 60% (n = 6) of them were in neutral stance, similar to the overall data; the percentage of high acceptance was higher than the overall data (30%, n = 3) and the percentage of somewhat doubtful was lower than the overall data (10%, n = 1) (Table 8). The chi-square test statistic was 6.24 with p-value 0.044, showed that there was association between gender and acceptability toward AI, further analysis of Kendall's Tau-b with statistical value of −0.31 with p-value is 0.029, confirmed the association between them. This indicated a statis-

tically significant finding of male being more acceptable in using AI for hypnosis.

Table 8. Acceptability towards use of AI in hypnosis by gender (n = 48).

Acceptability towards the Use of AI in Hypnosis by Gender				
	Highly Acceptable	Neutral	Somewhat Doubtful	Total
Female	2	23	13	38
Male	3	6	1	10
Total	5	29	14	48

3) Acceptability towards Use of AI in Hypnosis by Age Group

When comparing across age groups, the 18-to-25-year-old group presented similar data as the overall data in feeling neutral (66.67%, n = 6) and somewhat doubtful (33.33, n = 3), but lower percentage in reporting highly acceptable (0.00%, n = 0). The 26-to-35-year-old group showed higher percentages in both high acceptance (13.33%, n = 2) and somewhat doubtful (40.00%, n = 6) and lower percentages in neutral stance (46.67%, n = 7). The 36-to-45-year-old group was relatively more acceptable towards the use of AI in hypnosis: 18.18% (n = 2) expressing high acceptance, 72.72% (n = 8) in neutral, and 9.09% (n = 1) reporting somewhat doubtful. The 46-to-55-year-old group also demonstrated a higher acceptance compared with the overall data: 71.43% (n = 5) reporting neutral and 14.29% (n = 1) for both highly acceptable and somewhat doubtful. The 56-year-old-or-above group was composed of half neutral (50.00%, n = 3) and half somewhat doubtful (50.00%, n = 3) (Table 9).

Table 9. Acceptability towards use of AI in hypnosis by age group (n = 48).

Acceptability towards the Use of AI in Hypnosis by Age Group				
	Highly Acceptable	Neutral	Somewhat Doubtful	Total
18 - 25	0	6	3	9
26 - 35	2	7	6	15
36 - 45	2	8	1	11
46 - 55	1	5	1	7
55+	0	3	3	6
Total	5	29	14	48

4) Acceptability towards Use of AI in Hypnosis by Three Sensory Modality Groups

Consistent with the overall data, all the three sensory modality groups exhibited the highest prevalence in the neutral category and the lowest prevalence in the highly acceptable category: the visual group had 58.82% (n = 10) in the neutral

category and 17.65% (n = 3) in the highly acceptable category; the auditory group had 52.63% (n = 10) in the neutral category and 5.26% (n = 1) in the highly acceptable category; the tactile group had 75% (n = 9) in the neutral category and 8.33% (n = 1) in the highly acceptable category (Table 10).

The somewhat doubtful category had a moderate prevalence across the three groups, with the auditory group showing the highest prevalence (42.11%, n = 8), followed by the visual group (23.53%, n = 4) and the tactile group (16.67%, n = 2) (Table 10).

Table 10. Acceptability towards use of AI in hypnosis by three sensory modality groups (n = 48).

Acceptability towards the Use of AI in Hypnosis by Sensory Modality				
	Highly Acceptable	Neutral	Somewhat Doubtful	Total
Auditory	1	10	8	19
Visual	3	10	4	17
Tactile	1	9	2	12
Total	5	29	14	48

3.2.2. Acceptability towards AI—Preference in Expressing Emotions

1) Overall Acceptability towards the Use of AI in Expressing Emotions

When asked about their preference for expressing emotions, 43.75% (n = 21) of the participants reported equal confidence in both a professional hypnotist and an AI system. The remaining participants were divided: 31.25% (n = 15) felt more comfortable expressing emotions to a professional hypnotist, while 25.00% (n = 12) found it more comfortable with an AI system (Table 11).

Table 11. Overall acceptability towards the use of AI in expressing emotions (n = 48).

Acceptability towards the Use of AI on Expressing Emotions				
	Prefer AI	Equal Comfort	Prefer Professional Hypnotist	Total
Count	12	21	15	48

2) Acceptability towards the Use of AI in Expressing Emotions by Gender

When comparing between female and male participants, the female group demonstrated a similar distribution as the overall data: 28.85% (n = 11) preferring AI, 44.74% (n = 17) no preference, and 26.32% (n = 10) preferring a professional hypnotist (Table 12).

Among the male participants, the percentage reporting no preference was similar to the overall data (40.00%, n = 4). However, the percentage preferring AI was lower than that of the overall data (10.00%, n = 1) and the percentage preferring a professional hypnotist was higher than the overall data (50.00%, n = 5) (Table 12).

Table 12. Acceptability towards the use of AI in expressing emotions by gender (n = 48).

Acceptability towards the Use of AI on Expressing Emotions by Gender				
	Prefer AI	Equal Comfort	Prefer Professional Hypnotist	Total
Female	11	17	10	38
Male	1	4	5	10
Total	12	21	15	48

3) Acceptability towards the Use of AI in Expressing Emotions by Age Group

When comparing across age groups, both the 18-to-25-year-old group and the 26-to-35-year-old group demonstrated higher acceptance towards AI in expressing emotions compared with the overall data. Among the 18-to-25-year-old group, 33.33% (n = 3) of them preferred AI and 44.44% (n = 4) of them reported they felt the same for both AI and professional hypnotists when they need to choose an audience for expressing their emotions, only 22.22% (n = 2) of them preferred a professional hypnotist. Among the 26-to-35-year-old group, 26.67% (n = 4) of them preferred AI and 53.33% (n = 8) felt the same, only 20.00% (n = 3) preferred a professional hypnotist (Table 13).

The elder groups presented a lower acceptance towards AI in expressing emotions compared with the overall data. In the 36-to-45-year-old group, 18.18% (n = 2) of them preferred AI, 36.36% (n = 4) of them reporting feeling the same, and 45.45% (n = 5) of them preferred a professional hypnotist. For the 46-to-55-year-old group, the same percentage (28.57%, n = 2) of them reported preferring AI and reported no preference, and 42.85% (n = 3) of them reported preferring human therapists. For the 56-year-old-or-above group, 50.00% (n = 3) of them reported feeling the same, followed by 33.33% (n = 2) of them choosing human therapists, and 16.67% (n = 1) of them choosing AI (Table 13).

Table 13. Acceptability towards the use of AI in expressing emotions by age group (n = 48).

Acceptability towards the Use of AI on Expressing Emotions by Age Group				
	Prefer AI	Equal Comfort	Prefer Professional Hypnotist	Total
18 - 25	3	4	2	9
26 - 35	4	8	3	15
36 - 45	2	4	5	11
46 - 55	2	2	3	7
55+	1	3	2	6
Total	12	15	21	48

4) Acceptability towards the Use of AI in Expressing Emotions by Three Sensory Modality Groups

Both the visual and auditory groups predominantly reported equal confidence in professional hypnotists and AI systems, with 47.06% (n = 8) of the visual group and 47.37% (n = 9) of the auditory group sharing this sentiment. Consistent with overall trends, the visual group showed a higher preference for expressing emotions to a professional hypnotist (35.29%, n = 6) than to an AI system (17.65%, n = 3). Conversely, the auditory group showed a higher preference for the AI system (31.58%, n = 6) compared to a professional hypnotist (21.05%, n = 4) (Table 14).

The tactile group displayed a different pattern: the highest proportion preferred a professional hypnotist (41.67%, n = 5), followed by those who expressed equal confidence in both a professional hypnotist and an AI system (33.33%, n = 4). Similar to the overall trends, the tactile group also showed the lowest preference for an AI system (25%, n = 3) (Table 14).

Table 14. Acceptability towards the use of AI in expressing emotions by three sensory modality groups (n = 48).

Acceptability towards the Use of AI on Expressing Emotions by Sensory Modality				
	Prefer AI	Equal Comfort	Prefer Professional Hypnotist	Total
Auditory	6	9	4	19
Visual	3	8	6	17
Tactile	3	4	5	12
Total	12	21	15	48

3.2.3. Acceptability towards AI—Use of AI and Personal Data Privacy

1) Overall Acceptability towards the Use of AI Regarding Personal Data Privacy

Regarding use of AI and personal data privacy, participants were nearly evenly split between somewhat concerned and perceived safety: 45.83% (n = 22) were somewhat concerned, while 43.75% (n = 21) felt safe. Extreme reactions were less common, with 8.33% (n = 4) feeling highly secure and 2.08% (n = 1) feeling anxious (Table 15).

Table 15. Overall acceptability towards the use of AI regarding personal data privacy (n = 48).

Acceptability towards the Use of AI and Personal Data Privacy					
	Anxious	Somewhat Concern	Safe	Highly Secure	Total
Count	1	22	21	4	48

2) Acceptability towards the Use of AI Regarding Personal Data Privacy by Gender

When comparing the sexual difference regarding the use of AI and personal data privacy, higher percentage of the male participants perceived the use of AI safe compared with their female counterparts. In the female group, 2.63% (n = 1) of them reported being anxious regarding personal data privacy in the use of AI, 50.00% (n = 19) of them reported somewhat concerned, 39.47% (n = 15) of them reported feeling safe, and 7.89% (n = 3) of them reported feeling highly secure. In the male group, none of them reported feeling anxious, 30.00% (n = 3) of them were somewhat concerned, 60.00% (n = 6) reported feeling safe, and 10.00% (n = 1) reported feeling highly secure (Table 16).

Table 16. Acceptability towards the use of AI regarding personal data privacy by gender (n = 48).

Acceptability towards the Use of AI and Personal Data Privacy by Gender					
	Anxious	Somewhat Concern	Safe	Higily Secure	Total
Femle	1	19	15	3	38
Male	0	3	6	1	10
Total	1	22	21	4	48

3) Acceptability towards the Use of AI Regarding Personal Data Privacy by Age Group

When comparing across age groups, the younger groups were more concerned about personal data privacy compared with the elder groups.

In the 18-to-25-year-old group, 55.56% (n = 5) of them were somewhat concerned and 44.44% (n = 4) of them felt safe. In the 26-to-35-year-old group, 6.67% (n = 1) of them reported feeling anxious, 60.00 (n = 9) of them reported somewhat concerned, 26.67% (n = 4) of them felt safe, and 6.67% (n = 1) of them found it highly secured (Table 17).

Table 17. Acceptability towards the use of AI regarding personal data privacy by age group (n = 48).

Acceptability towards the Use of AI and Personal Data Privacy by Age Group					
	Anxious	Somewhat Concern	Safe	Highly Secure	Total
18 - 25	0	5	4	0	9
26 - 35	1	9	4	1	15
36 - 45	0	4	6	1	11
46 - 55	0	2	3	2	7
55+	0	2	4	0	6
Total	1	22	21	4	48

In the 36-to-45-year-old group, more than half (54.55%, n = 6) of them reported feeling safe, followed by 36.36% (n = 4) of them reported feeling somewhat concerned, and 9.09% (n = 1) of them reported feeling highly secure. In the 46-to-55-year-old group, 42.86% (n = 3) of them reported feeling safe, followed by an equal percentage (28.57%, n = 2) of them reporting feeling somewhat concerned and feeling highly secure. In the 56-year-old-or-above group, 66.67% (n = 4) of them felt safe and 33.33% (n = 2) of them felt somewhat concerned (Table 17).

4) Acceptability towards the Use of AI Regarding Personal Data Privacy by Three Sensory Modality Groups

The tactile group mirrored the overall pattern, with equal proportions of participants reporting that they were somewhat concerned or felt safe (41.67%, n = 5 each). Similarly, the remaining participants were evenly split between those who felt highly secure and those who felt anxious (8.33%, n = 1 each) (Table 18).

The visual group, unlike the overall trends, peaked at feeling safe (52.94%, n = 9), followed by feeling somewhat concerned (35.29%, n = 6), and feeling highly secure (11.76%, n = 2) (Table 18).

The auditory group, in contrast, peaked at feeling somewhat concerned (57.89%, n = 11), followed by feeling safe (36.84%, n = 7), and feeling highly secure (5.26%, n =1) (Table 18).

Table 18. Acceptability towards the use of AI regarding personal data privacy by three sensory modality groups (n = 48).

Acceptability towards the Use of AI and Personal Data Privacy by Sensory Modality					
	Anxious	Somewhat Concern	Safe	Highly Secure	Total
Auditory	0	11	7	1	19
Visual	0	6	9	2	17
Tactile	1	5	5	1	12
Total	1	22	21	4	48

3.2.4. Preference between the Two Hypnosis Experiences

1) Overall Preference between the Two Hypnosis Experiences

When being asked for their preference between the two hypnosis experiences, 62.50% (n = 30) of the 48 participants preferred the AI-led hypnosis, compared with 37.50% (n = 18) of them who reported preferring the human therapist (Table 19 and Figure 1). The majority (72.91%, n = 35) of participants preferred the second hypnosis session they experienced (Table 19 and Figure 1).

2) Preference between the Two Hypnosis Experiences by Gender

When dividing the participants into male and female groups, more participants in the female group (68.42%, n = 26) preferred the AI-led hypnosis session compared with the male counterparts (40.00%, n = 4) (Table 20 and Figure 2).

Table 19. Overall preference between the two hypnosis experiences (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Hypnosis Sequence			
Preference	1st Hypnosis	2nd Hypnosis	Total
AI	7	23	30
Human	6	12	18
Total	13	35	48

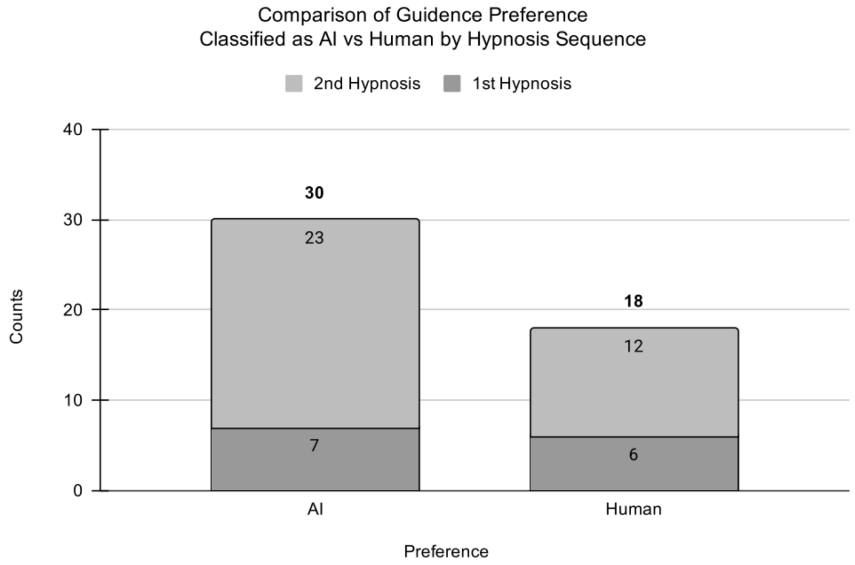


Figure 1. Overall preference between the two hypnosis experiences (n = 48).

Table 20. Preference between the two hypnosis experiences by gender (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Gender			
Preference	Female	Male	Total
AI	26	4	30
Human	12	6	18
Total	38	10	48

3) Preference between the Two Hypnosis Experiences by Age Group

When comparing across age groups, all age groups demonstrated the same phenomenon: preferring the AI-led hypnosis experience over the human-led one. Among the five groups, the 56-year-old-or-above group got the highest percentage preferring AI-led hypnosis (83.33%, n = 5), followed by the 18-to-25-year-old group (66.67%, n = 6), the 26-to-35-year-old group (60.00%, n = 9), the 46-to-55-year-old group (57.14%, n = 4), and finally the 36-to-45-year-old group (54.55%, n = 6) (Table 21 and Figure 3).

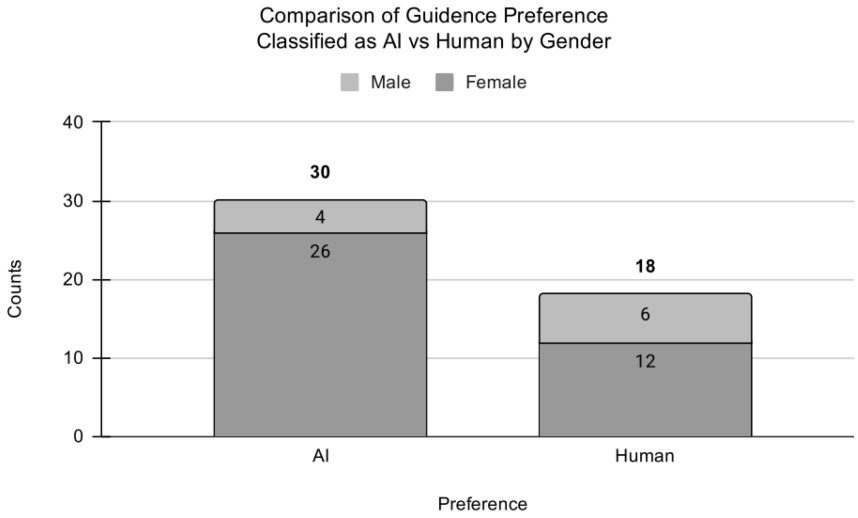


Figure 2. Preference between the two hypnosis experiences by gender (n = 48).

Table 21. Preference between the two hypnosis experiences by age group (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Age Group						
Preference	18 - 25	26 - 35	36 - 45	46 - 55	55+	Total
AI	6	9	6	4	5	30
Human	3	6	5	3	1	18
Total	9	15	11	7	6	48

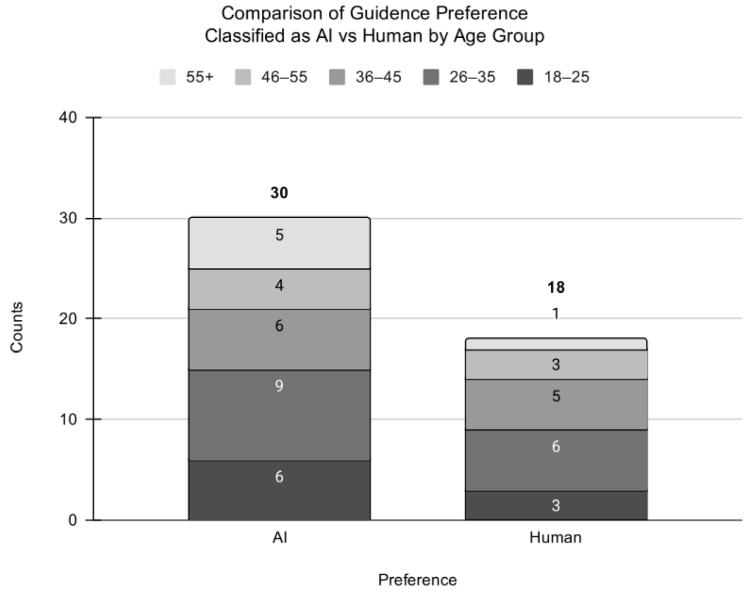


Figure 3. Preference between the two hypnosis experiences by age group (n = 48).

4) Preference between the Two Hypnosis Experiences by Three Sensory Modality Groups

When comparing across the three sensory modality groups, both the visual group and the auditory group demonstrated similar composition as the overall data: 64.71% (n = 11) of the visual group and 68.42% (n = 13) of the auditory group preferred AI. The tactile group, on the other hand, demonstrated a half-half (50%, n = 6) composition in both preferring AI and preferring humans for leading the hypnosis session (Table 22 and Figure 4).

Table 22. Preference between the two hypnosis experiences by three sensory modality groups (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Sensory Modality				
Preference	Auditory	Visual	Tactile	Total
AI	13	11	6	30
Human	6	6	6	18
Total	19	17	12	48

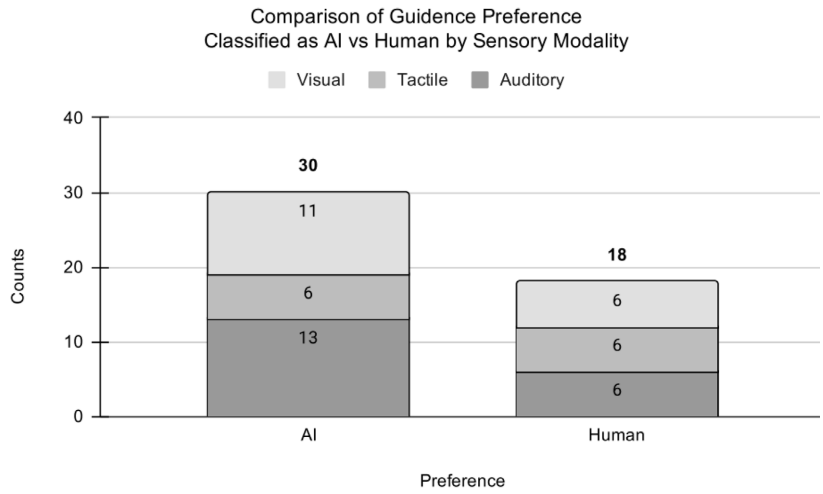


Figure 4. Preference between the two hypnosis experiences by three sensory modality groups (n = 48).

5) Preference between the Two Hypnosis Experiences by Acceptability towards the Use of AI in Hypnosis

When comparing their preference towards the hypnosis session experienced across their previous choice in acceptability towards use of AI in hypnosis, the "somewhat doubtful" group showed the greatest preference towards the AI-led hypnosis (92.86%, n = 13), followed by the neutral group (51.72%, n = 15), and the least in the "highly acceptable" group (40%, n = 2) (Table 23 and Figure 5).

6) Preference between the Two Hypnosis Experiences by Acceptability towards the Use of AI in Expressing Emotions

When comparing across their previous choice of method to express emotions, all three groups presented higher preference towards the AI-led session regardless

of their previous choice. The group preferring AI for expressing emotions presented the highest preference towards AI-led hypnosis (83.33%, n = 10), followed by the group preferring human therapist in expressing emotions (60.00%, n = 9), and the group reporting "same" for both AI and human therapist in expressing emotions (52.38%, n = 11) (Table 24 and Figure 6).

Table 23. Preference between the two hypnosis experiences by acceptability towards the use of AI in hypnosis (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Acceptability towards the Use of AI in Hypnosis				
Preference	Highly Acceptable	Neutral	Somewhat Doubtful	Total
AI	2	15	13	30
Human	3	14	1	18
Total	5	29	14	48

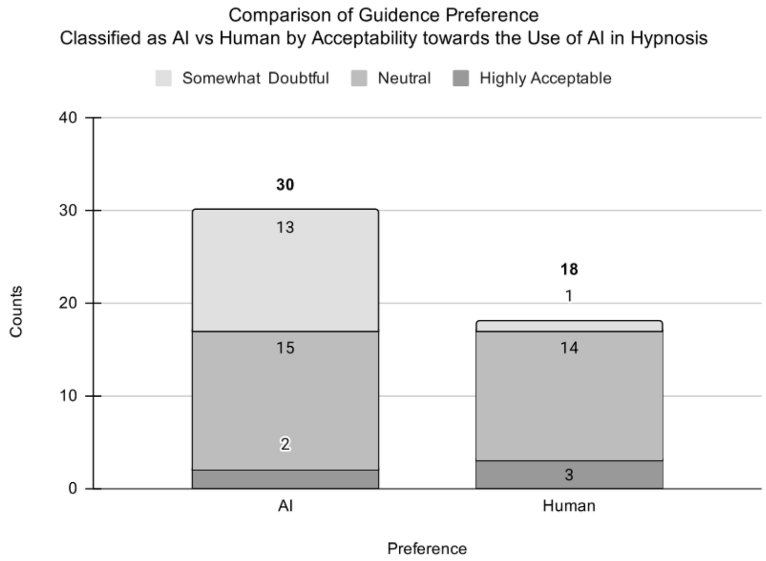


Figure 5. Preference between the two hypnosis experiences by acceptability towards the use of AI in hypnosis (n = 48).

Table 24. Preference between the two hypnosis experiences by acceptability towards the use of AI in expressing emotions (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Acceptability towards the Use of AI on Expressing Emotions				
Preference	Prefer AI	Equal Comfort	Prefer Professional Hypnotist	Total
AI	10	11	9	30
Human	2	10	6	18
Total	12	21	15	48

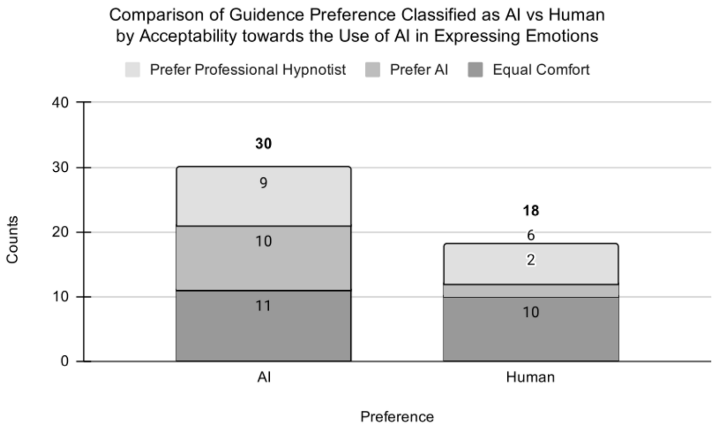


Figure 6. Preference between the two hypnosis experiences by acceptability towards the use of AI in expressing emotions (n = 48).

7) Preference between the Two Hypnosis Experiences by Acceptability towards the Use of AI and Personal Data Privacy

When dividing the participants according to their previous response regarding use of AI and personal data privacy, only the group that reported feeling safe in personal data privacy presented a lower preference towards AI-led hypnosis (47.62%, n = 10 preferring AI-led hypnosis and 52.38%, n = 11 preferred human-led hypnosis) (Table 25).

Table 25. Preference between the two hypnosis experiences by acceptability towards the use of AI and personal data privacy (n = 48).

Comparison of Guidance Preference Classified as AI vs Human by Acceptability towards the Use of AI and Personal Data Privacy					
Preference	Anxious	Somewhat Concern	Safe	Highly Secure	Total
AI	1	16	10	3	30
Human	0	6	11	1	18
Total	1	22	21	4	48

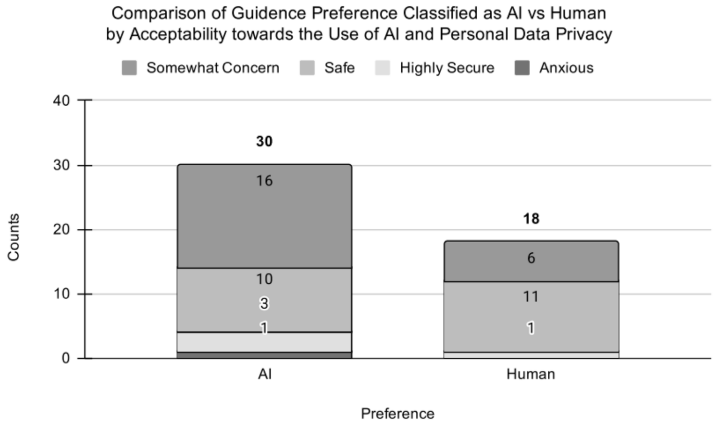


Figure 7. Preference between the two hypnosis experiences by acceptability towards the use of AI and personal data privacy (n = 48).

Other groups presented a higher preference towards AI-led sessions compared with the human-led ones: 100.00% (n = 1) for the group feeling uncomfortable, followed by the group feeling highly secured (75.00%, n = 3) and the group feeling somewhat concerned (72.73%, n = 16) (Table 25 and Figure 7).

3.3. Stress Relieving Effect

3.3.1. Overall Stress Relieving Effect

The present analysis examined the stress-relieving effects of two pre-recorded audio hypnosis soundtracks—one designed and recorded by a human hypnotist and the other designed and recorded by AI—among 48 Hong Kong adults experiencing family-related psychological pressure. Each participant completed pre-hypnosis and post-hypnosis questionnaires, including a single-item 0 - 5 Likert-type scale measuring current psychological pressure related to family situations (0 = no pressure at all, 5 = extreme pressure). Pre-hypnosis and post-hypnosis questionnaires were completed by all participants to measure changes in self-reported stress levels. The pre-hypnosis measurement was taken before the first hypnosis experience, while the post-hypnosis measurement was collected immediately after completion of the second hypnosis experience.

The results demonstrated an overall stress-relieving effect from the two audio hypnosis experiences. The pre-hypnosis mean score across the 48 participants was 2.52 (SD = 1.38), with a median of 3, indicating a moderate baseline level of family-related psychological pressure. After experiencing both the human-recorded and AI-generated hypnosis experiences, the mean score decreased to 1.79 (SD = 1.11). This represented an absolute reduction of 0.729 ($p_{\text{diff}} < 0.001$, Cohen's d = 0.776, $r_c = 0.811$) with statistical significance confirmed by a paired Student's t-test and Wilcoxon signed-rank test with relative reduction of 28.93%. The median dropped from 3 to 2, corresponding to a 33.33% improvement in central tendency.

The data showed a substantial leftward shift in the distribution. The proportion of participants reporting minimal or mild stress (ratings 0 - 2) increased dramatically from 45.83% pre-hypnosis to 75.00% post-hypnosis. Conversely, the percentage endorsing high stress levels (ratings 4 - 5) fell from 29.17% to only 8.33%, with no participant selecting the highest category of 5 after experiencing the 2 hypnosis sessions. The reduction in standard deviation (from 1.38 to 1.11) further indicated that responses became more clustered around lower stress levels, suggesting not only a lowering of average stress but also greater consistency in participants' perception of lower-stress following the hypnosis experiences (Table 26).

These overall outcomes were particularly meaningful when considered alongside the supplementary findings from a question, which measured participants' subjective feeling of entering "another level of consciousness different from usual" on the same 0 - 5 scale. The sample reported an overall mean of 2.63, indicating mild-to-moderate self-perceived hypnotic depth across the group. The fact that a moderate altered state of consciousness, induced through audio soundtracks, was

associated with a nearly 29% reduction in family-related stress reinforces the idea that even mild-to-moderate hypnotic depth can produce tangible stress-relieving benefits in the context of family-related stress (Figure 8).

Table 26. Overall pre- and post-hypnosis self-reported rating of stress (n = 48).

Overall Pre- and Post-Exercise Rating of Stress						
Rating	Pre Count	Pre %	Post Count	Post %	Count Change	% Change
0	4	8.3	5	10	+1	+2.1
1	9	19	16	33	+7	+14.5
2	9	19	15	31	+6	+12.5
3	12	25	8	17	-4	-8.3
4	12	25	4	8.3	-8	-16.7
5	2	4.2	0	0	-2	-4.2
Total	48	100	48	100	-	-

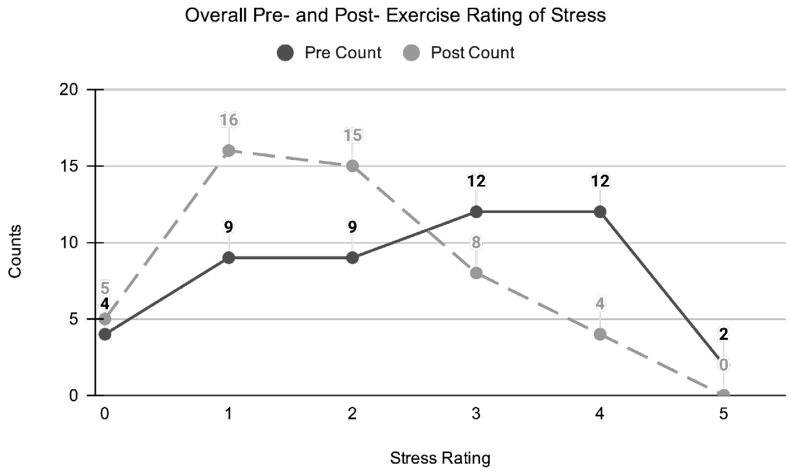


Figure 8. Overall pre- and post- hypnosis self-reported rating of stress (n = 48).

3.3.2. Stress Relieving Effect by Gender

Female participants (n = 38, 79.17% of the sample) entered the study with a slightly higher mean stress level (2.55) than male participants (n = 10, 2.40). After the two audio hypnosis experiences, females achieved a larger absolute reduction (0.79 points, 30.98% relative reduction) compared with males (0.50 points, 20.83% relative reduction) (Table 27).

3.3.3. Stress Relieving Effect by Age Group

The stress-relieving effect was observed across all age groups, although the magnitude differed in patterns that appear related to life-stage variations in baseline pressure and responsiveness to audio hypnosis. It was observed that the 26 - 35 age group (n = 15) achieved the largest relative reduction (37.14%), followed by the 36 - 45 group (n = 11) at 35.48%. Younger participants (18 - 25, n = 9) recorded a respectable 30.43% reduction. Older groups (46 - 55 and 55+) showed smaller

percentage improvements (Table 28).

Table 27. Stress reduction by gender (n = 48).

Stress Reduction by Gender					
	n	Pre Mean	Post Mean	Reduct. (points)	Reduct. (%)
Female	38	2.55	1.76	0.79	30.98
Male	10	2.40	1.90	0.50	20.83
Overall	48	2.52	1.79	0.73	28.93

Table 28. Stress reduction by age group (n = 48).

Stress Reduction by Age Group					
	n	Pre Mean	Post Mean	Reduct. (points)	Reduct. (%)
18 - 25	9	2.56	1.78	0.78	30.43
26 - 35	15	2.33	1.47	0.87	37.14
36 - 45	11	2.82	1.82	1.00	35.48
46 - 55	7	2.29	2.14	0.14	6.25
55+	6	2.67	2.17	0.5	18.75
Overall	48	2.52	1.79	0.73	28.93

3.3.4. Stress Relieving Effect by Three Sensory Modality Groups

Hypnotic scripts were tailored according to each participant's preferred sensory modality: visual (n = 17, 35.42%), auditory (n = 19, 39.58%), or tactile (n = 12, 25.00%). All three modalities contributed to stress reduction, although the magnitude of improvement varied (Table 29).

Table 29. Stress reduction by three sensory modality groups (n = 48).

Stress Reduction by Sensory Modality								
	n	Pre Mean (SD)	Post Mean (SD)	Reduct. (points)	Reduct. (%)	Pre Median	Post Median	Median Reduct. (%)
Auditory	19	2.95 (1.08)	1.89 (0.88)	1.1	36	3	2	33
Visual	17	2.47 (1.55)	1.76 (1.09)	0.7	29	3	2	33
Tactile	12	1.92 (1.44)	1.67 (1.50)	0.3	13	1.5	1	33
Overall	48	2.52 (1.38)	1.79 (1.11)	0.7	29	3	2	33

Frequency analysis showed the auditory group had the most pronounced movement of participants away from moderate-to-high stress ratings (3 and 4). The auditory group recorded the largest mean reduction (35.93%), followed by the visual group (28.74%). The tactile group, despite having the lowest baseline stress

level, showed a more modest percentage change. All modality groups achieved an identical 33.33% reduction in median score. The visual group additionally yielded the highest post-hypnosis mean on willingness to view family issues from multiple perspectives (3.53) (Figure 9).

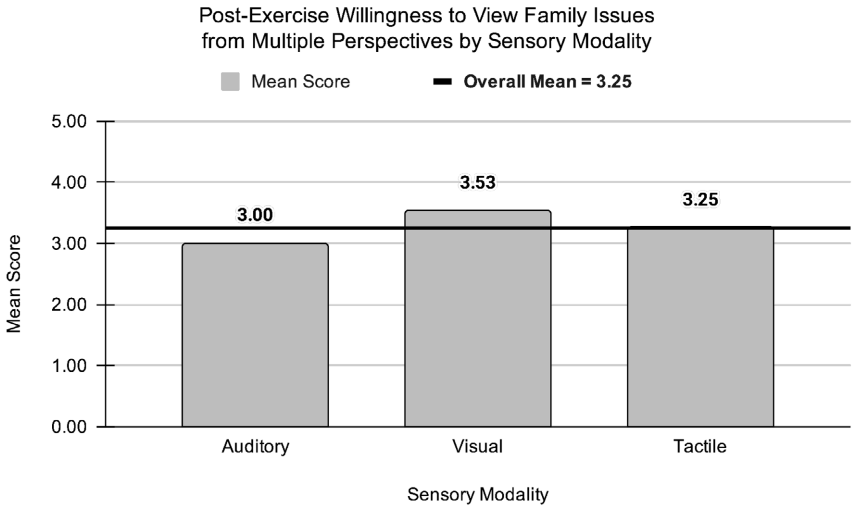


Figure 9. Post-hypnosis willingness to view family issues from multiple perspectives.

3.3.5. Stress Relieving Effect by Hypnotic Susceptibility and Hypnotic Depth

To better understand the mechanisms underlying these outcomes, hypnotic susceptibility and perceived hypnotic depth were examined by modality. Hypnotic susceptibility was assessed using the Arm Rising and Falling Susceptibility Test, which asked participants to rate five items on a 0 - 5 scale: 1) feeling of physical relaxation, 2) clear image of dictionaries, 3) clear image of balloons, 4) falling of the left arm, and 5) rising of the right arm. The total susceptibility score ranged from 0 to 25, with higher scores indicating greater hypnotic susceptibility. The overall mean susceptibility score was 13.31 (SD = 5.67). The tactile group recorded the highest susceptibility (15.33), followed by visual (14.24) and auditory (11.21).

Perceived hypnotic depth was measured using six self-report items on a 0 - 5 scale: 1) level of physical relaxation, 2) distance from reality, 3) ability to form images or feelings as guided, 4) level of response towards the hypnotic wordings, 5) degree of automatic connection to thoughts or images, and 6) difference in levels of consciousness. The total depth score ranged from 0 to 30, with higher scores indicating greater perceived hypnotic depth. The overall mean depth score was 17.44 (SD = 6.75). The visual group reported the highest depth (19.35), followed by tactile (18.67) and auditory (14.95) (Table 30).

The Pearson correlation between susceptibility and depth across all participants was r = 0.594 ($p < 0.001$), showing a moderate correlation between hypnotic susceptibility and level of depth.

However, there was no statistical relationship between hypnotic susceptibility (r = 0.144, $p = 0.329$; ρ = 0.074, $p = 0.615$) or the level of depth (r = 0.006, $p =$

0.970; ρ = 0.023, p = 0.879) with the level of stress reduction after hypnosis (Figure 10 and Figure 11).

Table 30. Hypnotic susceptibility and depth by sensory modality groups (n = 48).

Hypnotic Susceptibility and Depth by Sensory Modality			
	n	Susceptibility Mean (SD)/25	Depth Mean (SD)/30
Auditory	19	11.21 (4.64)	14.95 (6.63)
Visual	17	14.24 (6.09)	19.35 (6.60)
Tactile	12	15.33 (5.90)	18.67 (6.43)
Overall	48	13.31 (5.67)	17.44 (6.75)

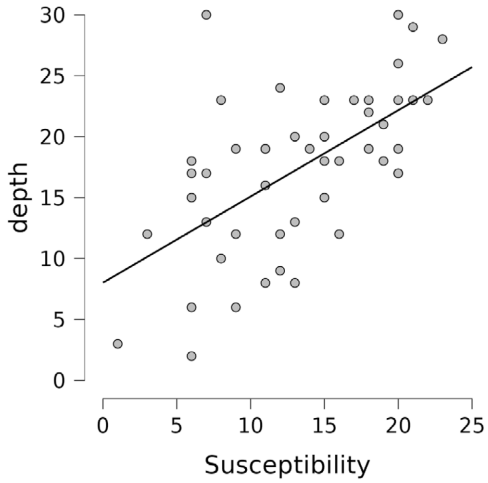


Figure 10. Correlation between hypnotic susceptibility and depth (n = 48).

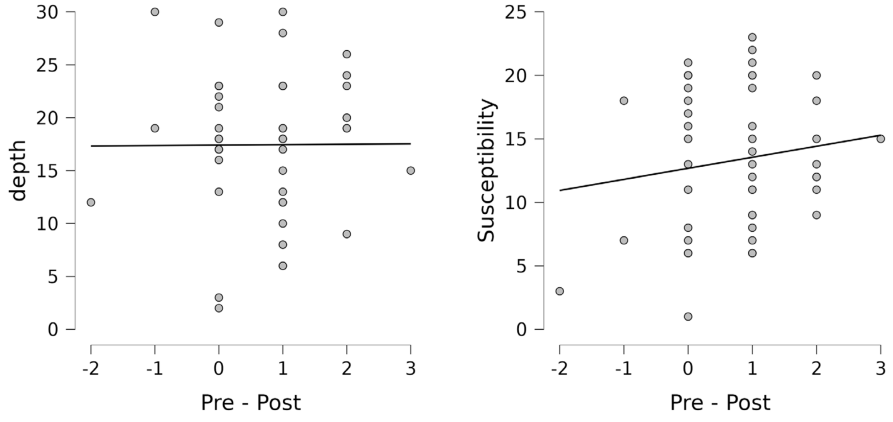


Figure 11. Relationship between stress relieving effect and hypnotic depth/hypnotic susceptibility.

3.3.6. Comparative Analysis of Stress-Relieving Effect: AI-Led vs Human-Led Hypnosis Experiences

1) Overall Difference of Stress-Relieving Effect between AI-Led and Human-Led Hypnosis Experiences

A key objective of this study was to compare the perceived stress-relieving effectiveness of the human-designed/human-recorded audio soundtrack versus the AI-designed/AI-recorded audio soundtrack. Participants rated the helpfulness of each session separately on a 0 - 5 scale. Overall, the AI-led hypnosis session received a higher mean helpfulness rating (2.92) than the human-led session (2.58), representing a 12.90% advantage in AI when session order was ignored.

2) Difference of Stress-Relieving Effect between AI-Led and Human-Led Hypnosis Experiences by Gender

Because female participants constituted 79.17% of the sample, the overall result is closely the same as the female pattern. Male participants showed a slight preference for the human-led sessions (Table 31).

Table 31. Perceived helpfulness of human-led vs AI-led hypnosis experiences by gender (Sequence ignored) (n = 48).

Perceived Helpfulness of AI-led vs Human-led Hypnosis Experiences by Gender (Sequence Ignored)					
	n	AI Mean	Human Mean	AI Advantage Trend	Observation
Female	38	2.92	2.47	+18.07%	Moderate AI advantage
Male	10	2.90	3.00	−3.33%	Slight Human advantage
Overall	48	2.92	2.58	+12.90%	Moderate AI advantage

3) Difference of Stress-Relieving Effect between AI-Led and Human-Led Hypnosis Experiences by Age Group

Older participants (46+) showed the strongest preference for the AI-led sessions, with advantages ranging from +20.02% to +30.73%. In contrast, the 36 - 45 age group was the only one in which the human-led session performed better (-13.17%). Younger adults (18 - 25) also showed a relatively strong AI advantage (+27.29%) (Table 32).

Table 32. Summary of AI vs human helpfulness trends by age group (Derived from order subgroups and overall patterns) (n = 48).

Summary of AI vs Human Helpfulness Trends by Age Group (Derived from Order Subgroups and Overall Patterns)					
	n	AI Mean	Human Mean	AI Advantage Trend	Observation
18 - 25	9	3.11	2.44	27.29%	Strong AI preference
26 - 35	15	2.53	2.07	22.55%	Strong AI preference
36 - 45	11	3.00	3.46	−13.17%	Human performed better
46 - 55	7	3.43	2.86	20.02%	Strong AI preference
55+	6	2.83	2.17	30.73%	Strongest AI preference
Overall		2.92	2.58	12.90%	Moderate AI advantage

4) Difference of Stress-Relieving Effect between AI-Led and Human-Led Hypnosis Experiences by Three Sensory Modality Groups

The most pronounced differences between AI-led and human-led hypnosis experiences emerged when examined by sensory modality. While the overall AI advantage was 12.90%, the magnitude varied dramatically across visual, auditory, and tactile groups, revealing clear modality-specific strengths of AI-generated content.

When examined by sensory modality, clear patterns emerged. In the visual group (n = 17), the difference between AI and human was minimal (AI advantage of only 1.92%). However, in the auditory group (n = 19), AI showed a 16.67% higher helpfulness rating. The most striking difference appeared in the tactile group (n = 12), where AI outperformed humans by 26.67% (Table 33).

The tactile group produced the largest AI advantage (+26.67%) regarding perceived helpfulness of the hypnosis session experienced. In the "human first, then AI" subgroup, tactile participants rated the second (AI) session 90.91% higher in perceived helpfulness. These patterns indicated that the AI-designed script was particularly effective at generating tactile-specific suggestions that resonated with the tactile-dominated participants (Table 33 and Figure 12).

Table 33. Perceived helpfulness of human-led vs AI-led hypnosis experiences by three sensory modality groups (Sequence ignored) (n = 48).

Perceived Helpfulness of AI vs Human Audio Soundtrack by Sensory Modality (Order Ignored)					
	n	AI Mean (SD)	Human Mean (SD)	AI-Human Difference	AI Advantage (%)
Auditory	19	2.58 (1.50)	2.21 (1.23)	+0.37	+16.67%
Visual	17	3.12 (1.36)	3.06 (1.48)	+0.06	+1.92%
Tactile	12	3.17 (1.40)	2.50 (1.31)	+0.67	+26.67%
Overall	48	2.92 (1.43)	2.58 (1.37)	+0.34	+12.90%

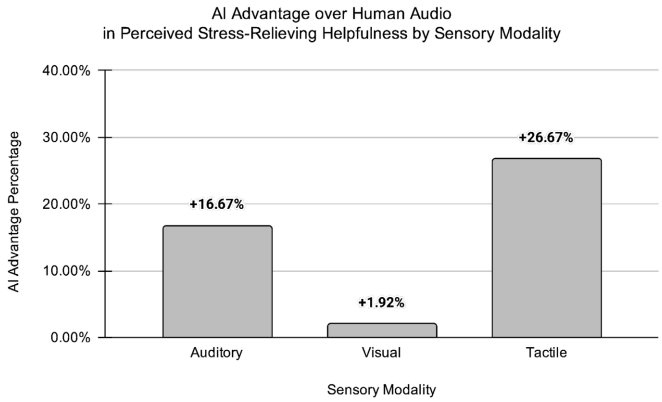


Figure 12. AI advantage (%) over human-led hypnosis experience by three sensory modality groups (n = 48).

3.3.7. Stress Relieving Effect by Acceptability towards Use of AI in Hypnosis

When comparing the pre- and post-hypnosis stress reduction in different groups of initial acceptability towards the use of AI in hypnosis, the result showed that the highly acceptable group had the lowest stress reduction level (0.20), while the neutral and somewhat doubtful group had similar levels of stress reduction (0.76 and 0.86 representatively) (Table 34). However, the further result showed that there was no statistical relationship between initial acceptability toward use of AI and level of stress reduction (Kruskal-Wallis Test statistic = 1.91, p = 0.384) (Table 35).

Table 34. Stress-relieving effect by acceptability towards use of AI in hypnosis (n = 48).

Difference by Acceptability towards Use of AI in Hypnosis							
		Valid	Missing	Mean	SD	Min.	Max.
Pre-Post	Highly Acceptable	5	0	0.20	0.84	−1	1
Pre-Post	Neutral	29	0	0.76	1.02	−2	3
Pre-Post	Somewhat Doubtful	14	0	0.86	0.77	0	2

Table 35. Kruskal-Wallis test statistic regarding stress-relieving effect by acceptability towards use of AI in hypnosis (n = 48).

Kruskal-Wallis Test			
Factor	Ststistic	df	p
What's your feeling about using AI in Hypnosis?	1.912	2	0.384

3.4. AI-Assisted Audio Psycholinguistic Analysis

The participants were asked to provide their responses of 7 questions verbally for analysis of emotional status, stress level, and trigger level of the Four-level Stepped Care Model using an AI model for qualitative and quantitative analysis. The number of participants enrolled in this part of the analysis was 47. One participant was excluded due to incomplete audio recording.

3.4.1. AI Identification of Necessity of Intervention Using Stepped Care Model

There were 19 participants identified as Step 1—Low Risk, 12 participants for Step 2—Mild Risk, 15 participants for Step 3—Moderate Risk, and 1 participant identified as Step 4—High Risk/Crisis (Figure 13).

3.4.2. AI Classification of Level of Stress

There were 20 participants identified as low stress level, 15 participants identified as medium stress level, and 12 participants identified as high stress level (Figure 14).

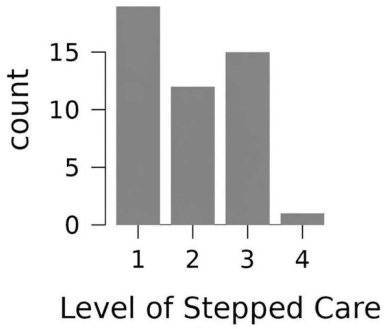


Figure 13. Level of stepped care required by participants as identified by AI (n = 47).

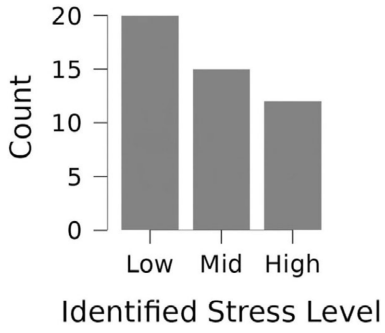


Figure 14. Level of stress as classified by AI (n = 47).

3.4.3. Self-Rated Mood Score

The mean and standard deviation of participants' self-rated mood scores were 6.21 and 1.64, respectively (**Figure 15**).

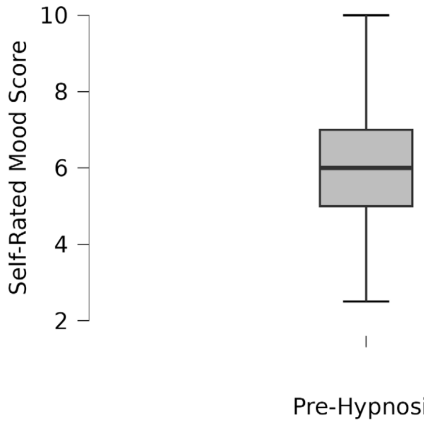


Figure 15. Self-reported mood scores of participants (n = 47).

3.4.4. Ekman Effect in Different Stress Levels

When grouping the participants based on pre-hypnosis level of stress, the primary emotions (drivers) in the low stress level group were Joy (n = 5), Happiness (n = 5), and Acceptance (n = 3). The primary emotion (driver) in the medium stress level group was sadness (n = 5). The primary emotions (drivers) in the high stress level group were various emotions, with sadness (n = 6), fatigue (n = 2), and mixed fatigue with anxiety (n = 2) (**Table 36**).

Table 36. Primary emotions detected by AI by pre-hypnosis level of stress (n = 47).

Primary Emotions detected from the Participants' Response				
Ekman Affect	Stress Level Detected			
	Low	Mid	High	n
Acceptance	2	0	0	2
Acceptance/Neutral	1	1	0	2
Ambivalence/Relief	0	1	0	1
Anticipation	0	1	0	1
Anxiety/Irritation	0	0	1	1
Calm	1	1	0	2
Calm/Gloomy	0	1	0	1
Calm/Lonesome	1	0	0	1
Fatigue	0	0	2	2
Fatigue/Anxiety	0	0	2	2
Fear/Anxiety	0	1	0	1
Happiness	4	0	0	4
Happiness/Joy	1	0	0	1
Helplessness	0	0	1	1
Joy	5	0	0	5
Joy/Anxiety	0	1	0	1
Joy/Melancholy	0	1	0	1
Neutral	1	1	0	2
Neutral/Serious	1	0	0	1
Pensive	2	0	0	2
Sadness	0	3	0	3
Sadness/Anxiety	0	0	1	1
Sadness/Boredom	0	0	1	1
Sadness/Disgust	0	1	1	2
Sadness/Fatigue	0	1	1	2
Sadness/Grief	0	0	2	2
Serenity	1	0	0	1
Tired/Resigned	0	1	0	1
Total	20	15	12	47

3.4.5. Self-Reported Mood Score in AI Classified Level of Stress

The self-rated mood score showed a falling trend while the level of stress increased. The mean and standard deviation of the self-reported mood scores in low, medium, and high stress level groups were 7.25 (1.32), 5.77 (1.49), and 5.00 (1.28), respectively (Figures 16-18). Both parametric (ANOVA) and non-parametric tests showed the existence of a statistically significant relationship between the Self-reported Mood Score and the Level of Stress, with p-value less than 0.05 (Table 37 and Table 38).

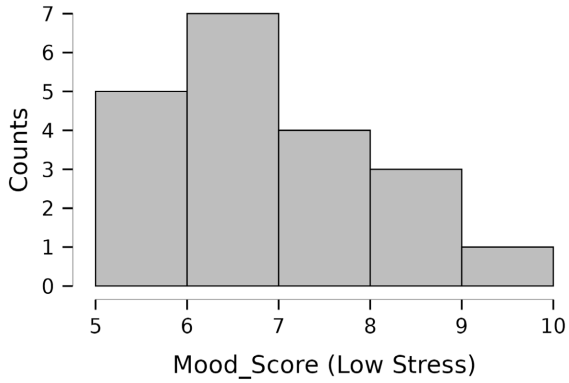


Figure 16. Distribution of self-reported mood scores in participants of low AI-classified stress level (n = 47).

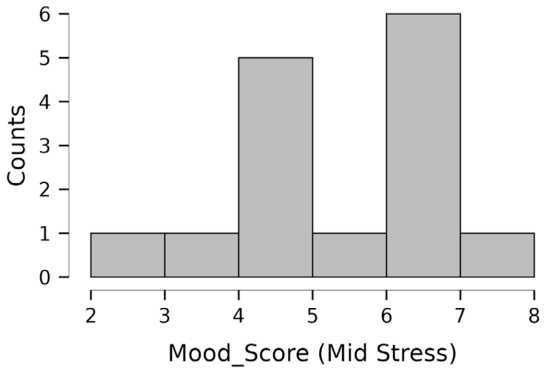


Figure 17. Distribution of self-reported mood scores in participants of median AI-classified stress level (n = 47).

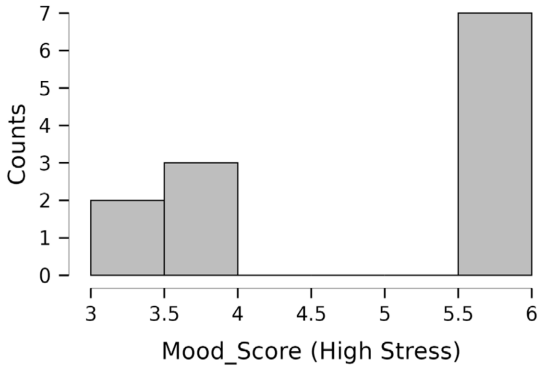


Figure 18. Distribution of self-reported mood scores in participants of high AI-classified stress level (n = 47).

Table 37. Variance between self-reported mood scores and AI-classified stress levels (n = 47).

Analysis of Variance—Self Reported Mood Score					
Cases	Sum of Cases	df	Mean Square	F	*p*
Stress Level	42.15	2	21.07	11.28	<0.001
Residuals	82.18	44	1.868		

Table 38. Kruskal-Wallis test statistics regarding variance between self-reported mood scores and AI-classified stress levels (n = 47).

Kruskal-Wallis Test						
Factor	Statistic	df	*p*	Rank ε^2	95% CI for Rankε^2	
					Lower	Upper
Stress Level	16.68	2	<0.001	0.363	0.224	0.619

3.4.6. Psycholinguistic Characteristics of Participants' Responses

Vocal Prosody. The group of participants classified as low stress level expressed steadily or low speech level, while participants falling into the group of high stress level showed either tonal flattening participants with sadness or hopelessness and pressured speech for anxious participants.

Coping Mechanism. Avoidance and withdrawal were the strategies used for participants in high stress level groups in coping with stress. For low stress groups, they tended to cope in positive ways like mindful breathing.

Family Dynamics. The participants in the low stress group were willing to talk about their daily life with family members, while high stress group members avoided having conversations with family members.

4. Discussion

4.1. Acceptability of AI-Led Hypnosis among Hong Kong Population

The results showed that AI-led hypnosis was widely acceptable among the Hong Kong population—over 70% of the participants did not doubt the use of AI in hypnosis, nearly 70% of the participants felt comfortable expressing emotions to AI systems, less than half of the participants felt concerned about personal data privacy with the use of AI, and over 60% of the participants voted for the AI-led hypnosis sessions when being blinded in the study.

When comparing the sex difference, the male group showed higher acceptance towards the use of AI in hypnosis and perceived the use of AI as safer regarding personal data privacy, whereas the female group showed a higher preference for using AI for expressing emotions. Also, a higher percentage of the female participants voted for AI-led hypnosis when being blinded in the study.

When comparing across age groups, the younger groups tended to prefer AI in

expressing emotions. On the other hand, the older groups tended to show higher acceptance towards use of AI in hypnosis, perceive the use of AI safer regarding personal data privacy, and vote for AI-led hypnosis sessions when being blinded during the study. In other words, the hypothesis four was proved untrue.

When comparing across the three sensory modality groups, the auditory group showed the lowest acceptability in AI-led hypnosis sessions and highest concern regarding personal data privacy. Different from the other two groups, the auditory group showed higher preference for using AI for expressing emotions compared with human therapists. When being asked to choose their preferred hypnosis experience blindly, the auditory group showed similar preference (preferred the AI-led hypnosis experience) as the visual group, which demonstrated higher acceptability in AI-led hypnosis sessions and perceived the use of AI safer regarding personal data privacy before the hypnosis sessions.

When evaluating participants' blinded preference towards the two hypnosis sessions experienced across their pre-hypnosis acceptability towards the use of AI in hypnosis, the group reporting "somewhat concerned" eventually became the group most favorable towards the AI-led hypnosis session when being blinded. When comparing across their pre-hypnosis preference of means to express emotions and pre-hypnosis perceived personal data safety towards the use of AI, the result showed that neither factor affected participants' final preference of hypnosis sessions when being blinded. The result also showed that there was no connection between acceptability towards the use of AI in hypnosis and preference of means to express emotions.

4.2. Performance of AI-Led Hypnosis in Terms of Stress Relieving Effect

The results provide strong support for hypothesis one that hypnosis will significantly reduce family-associated stress. The two-session pre-recorded audio hypnosis experience led to a statistically and practically meaningful reduction in self-reported family-related stress which confirms that hypnosis was effective in alleviating family-associated stress among Hong Kong adults. The hypothesis two is also proved to be true according to participants' self-rated helpfulness score. The findings supported the claim that "AI and Human have a similar Stress Relieving Effect", with AI performing at least as well as, and in several cases slightly better than, the human version.

4.2.1. Implications of the Sensory Modality Findings (with Focus on Tactile Group)

The pronounced +26.67% advantage for the AI-led hypnosis session in the tactile modality, together with the 90.91% higher rating when AI followed humans, represents one of the most significant observations in the study. Since both sessions were pre-recorded, this difference likely stemmed from the superior quality of the AI-generated script in crafting precise and immersive tactile-specific suggestions.

The susceptibility and hypnotic depth data provided important context. The

tactile group recorded the highest susceptibility score (15.33 out of 25) and the second-highest hypnotic depth score (18.67 out of 30). The moderate correlation between susceptibility and depth (r = 0.594) suggested that participants with higher susceptibility experienced deeper hypnotic depth states overall. The AI script appeared particularly effective at capitalising on this susceptibility in the tactile domain, producing a stronger sensory immersion even when delivered through audio alone.

For current hypnosis practice, this trend suggests that hypnotists can strategically incorporate AI-designed tactile audio tracks to enhance body-focused relaxation. In Hong Kong, chronic physical tension is prevalent due to long working hours and high-density living. Hypnotists can use human-recorded audio for initial rapport-building and assign AI-generated tactile-specific soundtracks for home practice, thereby maintaining the service potency between sessions and extending the service accessibility. At the industry level, the development of specialised AI tactile audio libraries could become a valuable service extension, improving stress-relieving outcomes for clients experiencing psychosomatic symptoms linked to family pressure.

4.2.2. Implications of the Age Group Trend

The data revealed that older participants (46+) consistently showed the strongest preference for the AI-generated audio (+20.02% to +30.73%). This pattern indicated that mature adults respond favourably to the calm, structured, and predictable language style characteristic of AI-led hypnosis. In contrast, the 36 - 45 age group was the only one in which the human-designed hypnosis experience performed better (−13.17%).

Hypnotists can apply this finding by offering AI-generated audio as a low-stigma, convenient entry point for older clients who may be reluctant to attend traditional sessions due to mobility or cultural barriers. Hypnotists could develop dedicated "Senior Calm" AI audio series tailored for caregiving fatigue, enabling older adults to engage privately at home. As the median age of the Hong Kong population is ever increasing, this approach scales service delivery to meet growing demand of the ageing society of Hong Kong (Worldometer, 2026). For the industry, it strengthened the role of hypnosis as a modern, inclusive modality suitable for all age groups and helped address the growing demand in geriatric mental health support.

4.2.3. Implications of the Gender Trend

Male participants showed a slight preference for the human-led hypnosis sessions (−3.33%), while females favoured AI-led sessions (+18.07%). Because the sample was heavily female (79.17%), the overall advantage for AI largely reflects the female response.

In Hong Kong, the slight human advantage among males suggests that human-led audio may serve as a useful entry point for this group. Hypnotists can consider using human-designed audio initially with male clients before transitioning to AI

tracks if appropriate. This approach may help improve engagement among male clients experiencing family-related pressure.

At the industry level, this finding highlights an opportunity to develop gender-sensitive service models. Hypnosis services providers and digital mental health platforms could create tiered or hybrid audio programmes specifically designed for male users—beginning with human-led sessions to build trust and rapport, followed by AI-led tracks for scalability and repeated practice.

4.2.4. Implications of the Trends of Hypnotic Susceptibility and Hypnotic Depth

The pattern shown earlier in **Figure 10** and **Figure 11** suggested that while hypnotic susceptibility is moderately associated with the subjective experience of hypnotic depth, neither susceptibility nor perceived depth directly predicts the magnitude of stress reduction achieved in this study. Whereas this disproved the hypothesis five, it is worth noticing that other factors—particularly sensory modality and the quality of script design (human-designed versus AI-designed)—appeared to exert a stronger influence on stress reduction outcome. The substantial AI advantage observed in the tactile group (+26.67%), despite the lack of direct correlation with susceptibility or depth, further supported the importance of script tailoring over individual hypnotic susceptibility alone.

4.2.5. Implications of the Acceptability towards Use of AI in Hypnosis

This was a common belief that higher initial acceptability toward use of AI in hypnosis leads to a greater effect in hypnosis like stress reduction in this study. However, our result showed the opposite results, the participants who were highly acceptable showed the least stress reduction, and participants who belonged to neutral and somewhat doubtful groups had higher levels of stress reduction. Further analysis confirmed that the differences between groups were no statistical significant differences between them. Our result suggested that the research hypothesis three of higher AI acceptability predicts greater stress reduction in AI-led hypnosis sessions was not correct.

4.2.6. Overall Integration and Practical Applications for Hypnosis in Hong Kong

The integration of susceptibility and depth data with the modality findings revealed that while individual hypnotic susceptibility plays a moderate role in determining hypnotic depth, script design and sensory tailoring exert considerable additional influence. The standout strength of AI-generated scripts in the tactile modality group, combined with favourable responses among older adults and male participants, supported a hybrid human-AI model of hypnosis delivery.

In Hong Kong's high-pressure environment, where family stress is widespread, this hybrid approach offers hypnotists a practical way to enhance both the depth and accessibility of hypnosis. By matching clients to appropriate modalities and leveraging AI's strengths in kinesthetic scripting, hypnotist can deliver more personalised, efficient, and scalable services. At the industry level, the results encour-

age the development of specialised AI audio libraries, creation of new service offerings, and broader adoption of hypnosis as an accessible, evidence-informed mental health tool.

In conclusion, the study provided empirical support for the cooperative potential of AI in hypnosis. The moderate relationship between susceptibility and depth, together with modality-specific advantages, suggests that thoughtfully combining human and AI elements can optimize stress-relieving outcomes for diverse client groups in Hong Kong.

4.3. Possibilities of Human-AI Collaboration

4.3.1. Artificial Intelligence-Assisted in Case Conceptualization

The study results showed that a customized Large Language Model (LLM) was able to extract and analyze the contents from the source (audio recordings in this study) in a short period of time. The analysis included text-based content analysis, which identified the pattern of frequently used wording during the interview, interpretation of contextual meaning of what the participant spoke in the interview. For example, the customized LLM was able to stratify the participants to different groups of stress level based on the text and verbal cues, which showed statistically significant relationship with the participants' mood score. The abilities of analyzing the contents in a short time are a huge advantage for the hypnotist in the assessment stage and capturing the important information during the interview session.

The ability of AI models is not limited to text-based content. The AI model used in this study was a multimodal AI model, a dedicated AI to handle different types of source (text, images, audio, video) simultaneously. In our study, the skill of Speech Emotion Recognition (SER) which analysed pitch, rhythm, and speed to detect stress, hesitation, or excitement, separate from words spoken, was applied for analyzing the emotions of the participants in answering the delicate questions.

Thanks to the Live Application Programming Interface (API) in LLM, a real-time interaction using WebSocket-based technology, it is possible to achieve real-time analysis in multimodal analysis likes facial emotion recognition, speech emotion recognition with contextual understanding of the story of the participant, and provide instant feedback to the hypnotist during the interview and hypnosis session.

4.3.2. Artificial Intelligence-Assisted in Tailoring the Hypnosis Scripts and Audio Track

In the design of a hypnosis script, the content within the scripts represents the hypnotist's masterful balance between scientific principle and artistic execution. Each word chosen by the hypnotist, the modulation of pacing, and the precise placement and duration of silence within the script are meticulously intended and selected. The AI model can assist the hypnotist in enriching the hypnosis script by rephrasing the script, suggesting different wording for similar content, changing the hypnotic style like active suggestion or passive suggestion, and revising the

wording that fits for clients from different cultures and religions.

Utilizing the framework of Retrieval-Augmented Generation (RAG), LLM is capable of assisting the hypnotist in generating a personalized hypnosis script for each client by assimilating the body of hypnosis scripts previously designed by that hypnotist. Based on study results, participants were not resistant to the script generated by AI and were able to achieve similar effects in stress reduction. For practical recommendations, hypnotists can adopt AI technology to provide more comprehensive services to clients by creating individualized self-hypnosis audio tracks for each client rather than only providing the standardized self-hypnosis script. A personalized self-hypnosis audio track including details such as the client's name, key elements that are relevant to the client's history, needs and hypnotic suggestions based on the client's needs could be generated by AI with supervision from hypnotists.

4.4. Limitations

4.4.1. Limitation in Subgroup Analysis

The valid number of cases in this study was 48, with the majority of participants being female (N_{female} = 38, 79.17%). According to the Census and Statistics Department, the sex ratio (excluding foreign domestic helpers) in Hong Kong was 905 males per 1000 females in 2025 (Census and Statistics Department, 2025). It was notable that the sex proportion between population ($\%_{Female}$ ~ 52.49) and sampled ($\%_{Female}$ = 79.17) did not match. Although the female-dominant phenomenon may lower the transferability of the research findings, it was predictable because a previous study has shown that females were in general more interested in hypnosis than males (Montgomery et al., 2018). With our target audience being Hong Kong adults interested in hypnosis, it was reasonable that more females volunteered to participate in the study.

The other factors for subgroup analysis, such as age group (6 levels), the AI and human (2 levels), the minimum required sample size for a factor could be calculated by the number of levels in a factor multiplied by the estimated sample sizes stated in the sample size calculation. Therefore, in any statistical estimation in the subgroup analysis, the estimation might be biased and not truly estimate the population parameters.

4.4.2. Limitation in Excluding Participants Who Refuse to Undergo AI-Led Hypnosis

From a research ethics point of view, it is unethical to enroll any participant who clearly stated unwillingness to be hypnotized by AI. Therefore, all the research results would not include the opinions of the people who refuse or are unwilling to be hypnotized by AI. The analyzed results, especially related to the opinion of comparison between AI and human performance, might be favorable to AI due to the exclusion of the group of people mentioned above.

4.4.3. Implication for Further Study

The present study provides preliminary evidence for the effectiveness of pre-recorded audio hypnosis in reducing family-associated stress and demonstrates the

cooperative potential of AI-designed scripts. The findings created insights for important directions for future research.

Hong Kong workers report some of the longest working hours globally, with average weekly hours exceeding many advanced economies, and long hours (≥72 h/week) associated with significantly higher anxiety risk (Chan et al., 2021). Recent data also show that 49% of the workforce experienced burnout in 2024, more than double the previous year, with work-related stress interfering in daily life for 84% of employees (AXA, 2024). While the current study focused on family-associated stress, many participants could potentially experience overlapping work and family pressures. Future research could investigate the effectiveness of AI-assisted hypnosis in reducing work stress as well as combined work-family stress, particularly among middle-aged adults who often bear dual responsibilities. Comparative studies examining AI versus human audio in workplace wellness programmes or corporate settings would also be valuable.

Further studies could also address the limitations of the current sample, including its gender imbalance and relatively small size. Larger-scale research with more balanced gender representation and diverse socioeconomic backgrounds would strengthen the generalisability of the findings.

Funding Statement

This research received no specific grant from any external funding agency. Support was entirely provisioned through the internal resources of the Hypnosis Institute and the AIM Greater China Psychology Research Group.

Data Availability Statement

Participant confidentiality is paramount. Consequently, the datasets generated are restricted. All collected information underwent complete anonymization via unique identification numbers. Data handling aligns strictly with the privacy laws of the Hong Kong Special Administrative Region. Aggregated summaries are available from the corresponding author upon reasonable academic request, provided such sharing preserves established privacy boundaries. Notably, data processed by the artificial intelligence model remains completely isolated; it is neither retained nor utilized to train the service provider's commercial models.

Informed Consent Statement

Written informed consent was secured from all participants prior to study enrollment. Each was comprehensively briefed on the protocols. Furthermore, they retained the unconditional right to withdraw at any time. Separate, explicit consent was also obtained directly from the voice owner before executing the AI voice cloning procedures.

Ethical Approval Statement

Study procedures strictly adhered to institutional ethical standards and local leg-

islative requirements in Hong Kong. The integration of generative AI carried stringent ethical guardrails. Cloned voice audio served research purposes exclusively. Post-collection, all such files were permanently destroyed. Prior to any participant exposure, the certified hypnotists thoroughly vetted all machine-generated content to guarantee safety and appropriateness.

Author Contributions

The research framework and clinical protocols were developed collaboratively. The research team, consisting of certified hypnotists, collectively designed the targeted scripts for family-related stress reduction. Execution—encompassing the rigorous review of AI outputs, participant interventions, and subsequent analyses—was a shared effort among all named fellows (C. Leung, C. H. Choi, C. Y. P. Hui, P. S. Lai, M. M. P. Lau, S. S. So, S. C. Tai, M. Y. J. Tsui). All authors reviewed and approved the final manuscript.

Conflicts of Interest

The authors declare no competing financial or personal interests. The research team operates under the AIM Greater China Psychology Research Group at the Hypnosis Institute. All authors, as certified hypnotists, maintain a shared professional commitment to advancing evidence-based clinical applications without commercial bias.

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