JOURNAL FOR SOCIAL SCIENCE STUDIES
An International Peer-Reviewed Open Access Journal

ISSN (Online): 3006-2071 | ISSN (Print): 3006-2063
Volume 4 • Issue 6 • October 2026

EFFICACY OF AUDITORY SUBLIMINAL MESSAGES AND SURAH REHMAN ON PSYCHOLOGICAL DISTRESS AND EMOTIONAL REGULATION AMONG YOUNG ADULTS

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DOI: https://doi.org/10.5281/zenodo.23594506

Keywords
Auditory subliminal messages, Surah Rehman, psychological distress, emotional regulation, auditory interventions, Quranic recitation

Article History
Received: *25 June 2026*
Accepted: *16 September 2026*
Published: *23 October 2026*

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Abstract

The study aimed to examine the effectiveness of Auditory Subliminal Messages and Quranic recitation of Surah Rehman, as well as their impact on reducing psychological distress and improving emotional regulation among young adults. By utilizing the quasi-experimental pretest–posttest design, a total of twenty participants were recruited and equally assigned to two separate intervention groups. Each of the two groups comprised five Muslim and five non-Muslim participants. One group was given affirmation-based auditory subliminal messages, while the other was exposed to the audio of the recitation of Surah Rehman. The interventions were administered during a period of six weeks, in which two sessions were conducted weekly for each group. Psychological distress and emotional regulation were the key focus of the assessment before and after the interventions, and it was done using the Kessler Psychological Distress Scale (K10) and the Difficulties in Emotion Regulation Scale (DERS-16). The participants receiving auditory subliminal messages were unaware of the embedded affirmations, which were beneath the auditory stimulating sensors. The results indicated significant reductions in psychological distress and significant improvements in emotional regulation in both intervention groups after the completion of each intervention. The comparative analyses unearthed greater effect sizes for the Surah Rehman recitation group on both psychological distress and emotional regulation outcomes. These findings read that both auditory subliminal messages and Surah Rehman recitation have the capacity to serve as an effective complementary intervention for improving psychological well-being among the young adults.

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INTRODUCTION

Efficacy of Auditory Subliminal Messages and Surah Rehman on Psychological Distress and Emotional Regulation among Young Adults

Even though a majority of young adults rate their mental health as comforting, a significant proportion report experiencing cycles of psychological and emotional distress. According to the World Health Organization (WHO, 2001), approximately one in four individuals across the globe experiences a mental disorder during their lifetime, with anxiety and depression among the leading causes of disability. Psychological distress has a capacity to hamper daily functioning and quality of life, emphasizing the importance of emotional regulation in managing life stressors (Aldao et al., 2010; Gross, 2014). Effective regulation of emotions is largely associated with improved mental well-being, while maladaptive strategies such as avoidance and suppression can exacerbate anxiety, depression, and stress-related disorders (Aldao et al., 2010; Gross & John, 2003). Complementary and alternative interventions have been increasingly explored to support mental health. Mindfulness-based practices, yoga, and spiritual activities such as prayer and meditation have shown positive effects on emotional regulation and stress reduction (Brandão, 2025; Goyal et al., 2014; Koenig, 2012; Pargament et al., 2000).

Subliminal, sub-threshold verbal affirmation messages have been investigated for their potential to influence cognition, mood, and behavior. This research shows that these messages can produce and reproduce measurable physiological and behavioral changes, including alterations in cardiovascular activity (Capa, 2011), mood (Monahan et al., 2000), motivation (Aarts et al., 2008), and even political preferences (Hassin et al., 2007; Weinberger & Westen, 2008). Neuroimaging studies confirm that subliminal stimuli activate key brain regions, such as the amygdala, fusiform gyrus, anterior cingulate, insular cortex, and hippocampus, demonstrating their influence on both conscious and unconscious processing (Brooks et al., 2012; Grotegerd et al., 2013; Phillips et al., 2004). The mechanisms of action likely involve rapid, unconscious neural processing followed by integration into long-term memory, allowing subliminal information to shape behavior and decision-making (Damasio, 2010; LeDoux, 1996; Ruch et al., 2016).

In a parallel setting, listening to the recitation of Surah Rehman, the 55th chapter of the Holy Quran, has been shown to provide both psychological and physiological benefits. The rhythmic and expressive nature of this Surah has a gratifying effect on hearing and can strengthen emotional well-being (Ismail et al., 2019; Vaghefi et al., 2015). The research at hand highlights that listening to Surah Rehman can reduce symptoms of depression, stress, and anxiety (Rafique et al., 2019; Bakar et al., 2014) and can facilitate a sense of divine relaxation (Zulkarnain et al., 2015). The Surah also encourages reflection on blessings and fosters coping with life stressors by providing cognitive and emotional guidance (Seiffge-Krenke, 2013; Khan et al., 2013). Interventional studies report that integrating Quranic recitation and religious practices, such as prayer, leads to notable improvements in psychological well-being and reductions in depressive symptoms (Rafique et al., 2019; James & Wells, 2003; Smith et al., 2003).

The present study examines these two interventions separately in a non-clinical population, irrespective of their religious affiliations. One group received subliminal verbal affirmation messages, while the other group received Surah Rehman recitation. Not only to examine whether these interventions could reduce emotional distress and improve symptoms of anxiety and depression but also to explore their relative efficacy in promoting psychological well-being across diverse participants was the prime aim of the study.

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Materials and Method

Participants

A total of 60 young adults (Aged 18–35 years) were recruited through convenience sampling from a university setting. Participants were screened for eligibility based on inclusion and exclusion criteria, including age, psychological distress, and willingness to complete the intervention. After the screening, 20 participants were selected to participate in the interventions, with 10 participants per condition: Auditory Subliminal Messages (ASM) and Surah Rehman Recitation, with equal representation of Muslims and non-Muslims (5 each), and equal numbers of males and females to control for potential demographic confounds.

The inclusion criteria were as follows: (a) age between 18–35 years, (b) proficiency in English and/or Urdu, (c) moderate-to-severe psychological distress based on self-report, and (d) willingness to attend a three-week intervention and complete pre- and post-assessment. Exclusion criteria included: (a) severe psychological distress, (b) ongoing psychotherapy or psychotropic medication, (c) hearing impairments, and (d) physical conditions preventing participation

Instruments

Demographic Information Form

Collected information on age, gender, education, and religion, helping control for demographic confounds.

Kessler Psychological Distress Scale (K10)

A 10-item scale assessing general psychological distress over the past 30 days. Responses are rated on a 5-point Likert scale, with higher scores indicating greater distress (Kessler et al., 2002). The scale demonstrates strong internal consistency (α = 0.84–0.92).

Difficulties in Emotion Regulation Scale – 16 (DERS-16)

Assesses core aspects of emotional dysregulation across impulse control, clarity of emotion, and access to coping strategies. The items are rated on a 5-point Likert scale, with higher scores reflecting greater difficulties (Bjureberg et al., 2016). The scale demonstrates strong internal consistency (α = 0.92).

Interventions

Auditory Subliminal Messages

The customized individual audio messages were developed in Audacity software, embedding affirmations below conscious perception to target emotional regulation and psychological distress. Examples included: "I am stronger than my worries" and "I acknowledge my emotions and allow myself to feel them." The vocal intonations were adjusted to align with emotional expression, and messages were combined with a 20-minute background of gentle rain. The subliminal track was set 7–10 dB below the audible track.

Surah Rehman Recitation

A 20-minute recitation of Surah Rehman was used for its calming, spiritual, and psychological effects (Ismail et al., 2019; Rafique et al., 2019; Vaghefi et al., 2015). The informed sessions about it were delivered in a controlled university lab, using individual headphones to ensure focused listening.

Procedure

Screening and Baseline Assessment

Participants were asked to complete an online screening using Google Forms to assess their eligibility based on inclusion/exclusion criteria. Following informed consent, baseline data on psychological distress (K10) and emotion regulation (DERS-16) were collected.

Intervention Phase

The intervention spanned six weeks, with two 50-minute sessions per week, totaling 12 sessions. Sessions were conducted in small groups of participants from the same homogenous condition (ASM or Surah Rehman), each group

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comprising 10 participants (5 Muslims, 5 non-Muslims).

ASM Group. Participants listened to 20-minute subliminal audio recordings designed to elevate emotional regulation and reduce distress.

Surah Rehman Group. Participants listened to the Surah recitation for 20 minutes in a single session.

During the study sessions, researchers observed participants' engagement, with a view to note that some participants appeared deeply relaxed or asleep, particularly in the Surah Rehman group. Compliance was encouraged through written guidelines and periodic reminders.

Post-Assessment

Following the intervention, the study participants completed the same standardized questionnaires (K10 and DERS-16) online. The data were exported from Google Forms to Excel and analyzed using SPSS to evaluate pre- and post-intervention differences.

Data Analysis

Descriptive statistics were used to summarize demographic variables. Pre- and post-intervention scores on K10 and DERS-16 were compared using paired-samples t-tests within each group and independent-samples t-tests to assess differences between groups. The effect sizes were calculated to assess the magnitude of intervention effects.

Ethical Considerations

Ethics-based approval was obtained prior to the study. Participants were provided with the written informed consent and were informed of their right to withdraw on their own. The confidentiality of the responders was maintained by storing data securely. Risks were tried to be minimized, and debriefing sessions were conducted at the study's conclusion to discuss outcomes and address participant questions.

Results

Sociodemographic Characteristics

Table 1 of the study has presented the sociodemographic information of the participants. The sample consisted of 20 young adults Aged 18 to 35 years, evenly distributed by gender (50% men, 50% women) and literacy level (50% undergraduate, 50% graduate). Most participants were employed (60%), and half of the participants identified as Muslim, with the remaining half being non-Muslim.

Table 1 Sociodemographic information of participants

Characteristics of variable	f	%
Age Range		
18-35	20	100
Gender		
Men	10	50
Women	10	50
Education		
Undergraduate	10	50
Graduate	10	50
Current Employment Status		
Employed	12	60
Unemployed	08	40
Religion		
Muslim	10	50
Non-Muslim	10	50

Note. f = frequency. % = percentage

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Psychometric Properties of Instruments

The reliability and descriptive statistical data of the measures brought under consideration in the study are shown in Tables 2 and 3. Both pre- and post-intervention scores indicated good internal consistency for the Kessler Psychological Distress Scale (K10; α = .84–.86) and the Difficulties in Emotion Regulation Scale (DERS-16; α = .88–.89), affirming the very notion of the study that the instruments were suitable for assessing psychological distress and emotional regulation in this sample.

Table 2 Psychometric Properties of Research Instruments Pre-Intervention (N=20)

Scale	M	SD	Range	Cronbach's a
K-10	24.75	7.60	10-50	.84
Ders-16	43.20	13.13	16-80	.89

Note. K-10 = Kessler Psychological Distress Scale 10 item version. DERS = Difficulties in Emotion Regulation Scale - 16 item version. M = Mean. SD = Standard Deviation.

Table 3 Psychometric Properties of Research Instruments Post-Intervention (N=20)

Scale	M	SD	Range	Cronbach's a
K-10	22.70	6.60	10-50	.86
Ders-16	40.20	11.23	16-80	.88

Note: K-10 = Kessler Psychological Distress Scale 10 item version. DERS = Difficulties in Emotion Regulation Scale - 16 item version. M = Mean. SD = Standard Deviation.

Effects of Interventions on Psychological Distress

Paired-samples t-tests were conducted to assess alterations in psychological distress within each group (Table 4). Participants in the ASM group showed a significant reduction in psychological distress from pre-intervention (M = 27.70, SD = 1.41) to post-intervention (M = 23.50, SD = 1.50), t (9) = 21.00, p < .001, Cohen's d = 6.65. Similarly, the Surah Rehman group exhibited a significant decrease from pre-intervention (M = 26.50, SD = 1.26) to post-intervention (M = 21.30, SD = 1.41), t (9) = 26.00, p < .001, Cohen's d = 8.23.

Table 4 Paired-Sample t-test for Comparison of Psychological Distress before and after the Intervention program (N=20)

Variable	Pre-Intervention		Post-Intervention		t	p	Cohen's d
	M	SD	M	SD			
ASM	27.70	1.41	23.50	1.50	21.0	.000	6.65
Surah Rehman	26.50	1.26	21.30	1.41	26.0	.000	8.23

Note. ASM = Auditory subliminal Message. M = Mean. SD = Standard Deviation.

Effects of Interventions on Emotional Regulation

Paired-samples t-tests also examined changes in emotional regulation (Table 5). Participants in the ASM group improved significantly from pre-intervention (M = 46.80, SD = 5.92) to post-intervention (M = 37.60, SD = 5.91), t (9) = 4.00, p < .001, Cohen's d = 1.46. The responders in the Surah Rehman group showed an even larger improvement from pre-intervention (M = 41.30,

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SD = 4.73) to post-intervention (M = 29.40, SD = 4.67), t (9) = 119.00, p < .001, Cohen's d = 37.66.

Table 5 Paired-Sample t-test for Comparison of Difficulty in Emotional Regulation before and after the Intervention Program (N=20)

Variable	Pre-Intervention		Post-Intervention		t	p	Cohen's d
	M	SD	M	SD			
ASM	46.80	5.92	37.60	5.91	46.00	.000	14.56
Surah Rehman	41.30	4.73	29.40	4.67	119.00	.000	37.66

Note. ASM = Auditory subliminal Message. M = Mean. SD = Standard Deviation.

Comparison Between Interventions

Independent-samples t-tests were conducted to compare the effectiveness of ASM and Surah Rehman on psychological distress and emotional regulation (Table 6). Participants in the Surah Rehman group showed a significantly greater reduction in psychological distress (M = 5.20, SD = 0.63) compared to the ASM group (M = 4.20, SD = 0.63), t (18) = -3.50, p < .005, Cohen's d = 1.95. Similarly, emotional regulation improvements were significantly higher in the Surah Rehman group (M = 11.90, SD = 0.31) than in the ASM group (M = 9.20, SD = 0.63), t (18) = -12.07, p < .001, Cohen's d = 6.02.

Table 6 Independent Sample t-test for Comparison of Psychological Distress and Emotional Regulation between Auditory Subliminal Messages and Surah Rehman.

Variables	ASM (n=10)		Surah Rehman (n=10)		t	p	Cohen's d
	M	SD	M	SD			
PD	4.20	.63	5.20	.63	-3.5	<.005	1.95
ER	9.20	.63	11.90	.31	12.07	<.001	6.02

Note. PD = psychological distress. ER = emotional regulation. M = Mean. SD = Standard Deviation.

Discussion

The present study, with its findings, has examined the effectiveness of auditory subliminal messages (ASM) and Surah Rehman recitation in decreasing psychological distress and enhancing emotional regulation among young adults. Consistent with the first hypothesis, both ASM and Surah Rehman significantly reduced psychological distress. Paired-samples t-tests indicated reductions for ASM (pre: M = 27.70, SD = 1.41; post: M = 23.50, SD = 1.50; p < .001, Cohen's d = 6.65) and Surah Rehman (pre: M = 26.50, SD = 1.26; post: M = 21.30, SD = 1.41; p < .001, Cohen's d = 8.23). These results align with prior findings demonstrating the efficacy of subliminal auditory interventions in reducing stress (Murphy & Zajonc, 1993; Winkielman et al., 2005) and the calming effects of Quranic recitation on both physiological and psychological markers of stress (Koenig, 2012; Khan et al., 2016). Essentially, these effects were witnessed in both Muslim and non-Muslim responders, suggesting that the therapeutic benefits of Surah Rehman are not limited by religious or cultural affiliation.

Consistent with the second hypothesis, both interventions significantly improved emotional regulation. Paired-samples t-tests revealed reductions in DERS scores for ASM (pre: M = 46.80, SD = 5.92; post: M = 37.60, SD = 5.91; p < .001, Cohen's d = 14.56) and Surah Rehman (pre: M = 41.30, SD = 4.73; post: M = 29.40, SD = 4.67; p < .001, Cohen's d = 37.66). These readings

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support erstwhile researches showing that subliminal auditory interventions enhance emotion regulation by modulating automatic affective responses (Murphy & Zajonc, 1993; Winkielman et al., 2005), and that Quranic recitation promotes mindfulness, emotional awareness, and parasympathetic activation, facilitating better emotional control (Alsubaie et al., 2019; Asadi et al., 2019; Khan et al., 2023).

The third hypothesis, comparing the efficacy of ASM and Surah Rehman, was also supported. The independent-samples t-tests indicated promising reductions in psychological distress for Surah Rehman ($M = 5.20$, $SD = 0.63$) than ASM ($M = 4.20$, $SD = 0.63$; $t(18) = -3.50$, $p < .005$, Cohen's $d = 1.94$), and greater improvements in emotive regulation (Surah: $M = 11.90$, $SD = 0.31$; ASM: $M = 9.20$, $SD = 0.63$; $t(18) = -12.07$, $p < .001$, Cohen's $d = 6.02$). During comparing participants based on their religious affiliation, both Muslim and non-Muslim participants in the Surah Rehman group showed healthier reductions in distress and greater surge in emotional regulation than their counterparts in the ASM group, which of course indicate that the recitation's prospects extend ahead the spiritual or cultural familiarity. The stronger effect of Surah Rehman might be affiliated with its multi-dimensional implications, integrating auditory, cognitive, emotional, and, for believers, spiritual processing (Koenig, 2012; Wachholtz & Pargament, 2005). Neurophysiological studies support that listening to the Quran enhances alpha and theta brainwave activity linked to relaxation and emotion regulation, effects observed across participants regardless of religious affiliation (Majidi & Rajabi-Tavakkol, 2025). These findings highlight the broader and potentially universal therapeutic value of structured rhythmic auditory interventions.

Limitations

Even though the results of the study are promising, a few limitations should be kept in mind. The study has employed a smaller and homogeneous sample size of university students, which obviously has a limited generalization capacity to broader populations. Along with that, the cultural and spiritual diversity outside the sample can influence responsiveness to Surah Rehman.

Future Directions

Future research should consider incorporating larger and more pluralistic sample sizes, including longitudinal designs for assessing sustained effects. Mixed-methodological approaches could explore participants' subjective experiences and assertions, particularly regarding spiritual resonance or neutrality while responding to Quranic recitations. Most of the neuroimaging studies might also help elucidate the underlying neural mechanisms of auditory interventions.

Conclusion

The ASM beside Surah Rehman was effective in decreasing psychological distress and enhancing emotional regulation within the young adults. On one hand, both interventions demonstrated robust effects; Surah Rehman showed superior outcomes, largely because of its multi-modal influence on conscious, unconscious, physiological, and spiritual dimensions. These readings underscore the therapeutic potential of auditory-based interventions that take into account both subconscious and meditative processes, having repercussions for culturally inclusive mental health strategies.

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