

The Effects of Autonomous Sensory Meridian Response (ASMR) on Mood Regulation, Sleep Induction and Attention: An Experimental Research

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Abstract

This study examines how Autonomous Sensory Meridian Response (ASMR) affects moods control, attention span, and sleep induction. ASMR, characterized by tingling sensations and relaxing effects, has gained popularity as a phenomenon which helps to increase attention span, enhance sleep quality, and improve mood. This article contains 1 experiment with 3 independent studies. These studies are conducted using a control and experimental group method with pre and post measures involving 90 participants, 30 participants in each study who were exposed to ASMR stimuli in a single session. Mood was assessed using PANAS scale, Sleep quality was measured using Karolinska Sleepiness scale, and attention span was evaluated through Digit span. The results indicated that exposure to ASMR significantly enhanced Mood regulation also showed significant increase in positive effects, and decrease in negative effects as participants exposed to ASMR demonstrated improved emotional stability. sleep induction, with participants reporting faster onset of sleep compared to the control group. The effects on attention span were also profound in both forward digit and backward digit, the potential of ASMR as a non-pharmacological sleep induction strategy is discussed, with a focus on its usefulness in fostering mental health. Future studies should examine the processes by which ASMR affects cognitive and psychological outcomes, taking individual differences and long-term impacts into accounts.

Keywords:

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Mood regulation, Sleep Induction, ASMR, Attention span

1. Introduction

Autonomous Sensory Meridian Response (ASMR) is a phenomenon characterized by a tingling sensation that typically begins on the scalp and moves down the back of the neck and upper spine. This sensation is often triggered by specific auditory or visual stimuli, such as whispering, tapping, or slow movements, and relates to thoughts of calm and contentment (Barratt & Davis, 2015). The experience of ASMR is highly subjective and varies significantly among individuals, but it has garnered substantial attention both anecdotally and in scientific research for its potential therapeutic benefits. ASMR is often described as a tingling, static-like sensation that spreads across the skin, usually beginning at the scalp and progressing down the back of the neck and spine. According to Smith et al. (2017), Jennifer Allen invented the term "ASMR" in 2010. The calming effects of ASMR have been widely reported by those who experience it. Many individuals use ASMR videos or audio recordings as a form of relaxation, and even as a sleep aid. The experience of ASMR is highly subjective and varies significantly among individuals, but it has garnered substantial attention both anecdotally and in scientific research for its potential therapeutic benefits. ASMR is often described as a tingling, static-like sensation that spreads across the skin, usually beginning at the scalp and progressing down the back of the neck and spine. The sensations and feelings associated with ASMR can induce a state of relaxation similar to meditation or mindfulness, which may have several mental health benefits (Veltri et al. 2018).

By examining how ASMR affects mood, sleep induction, and attention in both males and females, this study seeks to close a gap in the scientific literature. By understanding these effects, we can better comprehend how ASMR can be utilized in therapeutic contexts and potentially develop new interventions for individuals struggling with these issues. (Barratt, et

al. 2015) ASMR has become increasingly popular over the past decade, particularly on online platforms such as YouTube, where creators produce ASMR content that can be accessed by millions of viewers worldwide. According to a study published in *PeerJ* in 2018, the ASMR community on YouTube had amassed millions of followers and billions of views, highlighting its widespread appeal and the significant interest in ASMR experience (Kornelsen, J. 2019).

The abilities of ASMR (Autonomous Sensory Meridian Response) movies to produce a tingling feeling that frequently starts on the scalp and travels down the back of the neck and spine, resulting in a calming and relaxing impact, sets them apart from other kinds of videos. Certain auditory and visual signs, such soft-spoken voices, quiet tapping, crinkling noises, or situations involving personal attention, usually cause this reaction. Unlike general relaxation or sleep-inducing videos that may feature music, nature sounds, or guided meditation, Standard videos, like entertainment, education, or music videos, do not focus on these specific triggers. They might involve faster-paced content, varied sounds, and broader themes that may not be designed to elicit a calming or tingling response.

ASMR content is specifically designed to activate the brain's reward centers associated with relaxation and comfort. According to research, the tingling sensation caused by ASMR may be connected to the release of neurotransmitters that promote emotions of relaxation and wellbeing, such as endorphins, oxytocin, and serotonin (Poerio et al., 2018). The immersive and personal nature of ASMR videos distinguishes them from other relaxation methods, as they often create a feeling of one-on-one interaction, further enhancing their effectiveness in promoting sleep and relaxation. (Veltri, T. 2018).

1.2. Objective of Research

The objective of conducting an experimental study on the results of ASMR (Autonomous Sensory Meridian Response) on sleep induction, mood regulation, and attention span is to investigate and enhance scientific knowledge of how ASMR stimuli impact these

psychological states. To explore potential therapeutic applications of ASMR, such as aiding sleep disorders, improving mood regulation, and enhancing attention span The primary objective for conducting research on ASMR is to understand its potential benefits and mechanisms of action more comprehensively. Despite the growing popularity of ASMR, scientific studies on its effects and underlying neural mechanisms are relatively sparse. Every ASMR trigger have a unique effect on different variables here we are going to assess 3 different kind of ASMR triggers on 3 different variables which are Mood, Sleep and Attention By investigating ASMR, researchers aim to:

- Validate the subjective reports of ASMR enthusiasts.
- Explore the psychological effects of ASMR.
- Determine how ASMR can be used therapeutically to help individuals with mood regulation, sleep induction and attention span.

1.3. Research question

Three different independent studies were conducted on ASMR with three different variables.

- Study 1 was on mood regulation. What are the effects of ASMR stimuli on mood regulation among those who are exposed to ASMR triggers in contrast to those who are not?
- Study II was on sleep induction among individuals compared to those who are not exposed to ASMR triggers?
- Study III was on attention, what are the effects of ASMR stimuli on attention span among individuals those who are exposed to ASMR triggers as opposed to those who are not?

The hypothesis is based on existing literature. Main Hypothesis was Exposure to ASMR will lead to sleep induction, mood enhancement, and increased attention span. Null Hypothesis was

there will be no significant difference between ASMR exposure and control conditions on the measured variables.

2. Literature Review

Recent studies continue to explore new dimensions of ASMR and its prospective benefits. For instance, research by (Koo et al. 2023) has begun to investigate the use of ASMR in clinical settings such as for patients to make them relax and improve their mood anxiety disorders. Preliminary findings suggest that ASMR could be integrated into therapeutic practices to enhance patient comfort and reduce symptoms. Furthermore, advancements in technology, such as virtual reality (VR), are being explored to create more immersive ASMR experiences. A study by (Park and Lee 2022) examined the effectiveness of VR-based ASMR in inducing relaxation and found that the immersive environment significantly enhanced the ASMR experience, leading to greater reductions in stress and improvements in mood.

The potential therapeutic benefits of Autonomous Sensory Meridian Response (ASMR) for stress, sleeplessness, and concentration have drawn a lot of interest. The goal of this review of the literature is to summarize the body of knowledge on these impacts, providing a comprehensive overview of the current understanding of ASMR and its implications for mental health and well-being. ASMR has been associated with both physiological and psychological responses that suggest a reduction in stress levels. One of the most significant studies in this area, conducted by (Poerio et al. 2018), examined the physiological changes in individuals experiencing ASMR. benefits of ASMR on relaxation and calming effects.

Mood: ASMR has also been investigated for its impact on mood regulation. Preliminary studies suggest that ASMR experiences can induce positive emotional states and feelings of relaxation (Chen & Miller, 2022). Such effects on mood enhancement highlight the potential of ASMR

as a self-regulatory tool for improving emotional well-being. Research into the effects of ASMR has shown that it benefits both males and females although individual experiences may vary. In terms of stress reduction, studies have generally found no significant difference between genders; both males and females report feeling more relaxed and less anxious after engaging with ASMR content.

The study involved a survey of individuals who regularly experienced ASMR. Participants completed questionnaires assessing their ASMR experiences, personality traits (using the Big Five Inventory), and measures of mood and emotional regulation. The findings suggest that ASMR can serve as an effective tool for mood enhancement and emotional regulation, especially for individuals with certain personality traits. This highlights the potential for ASMR to be used in therapeutic settings for mood regulation. (McErlean and Osborne 2020).

Sleep induction: Sleep issues are a common condition characterized by difficulty falling asleep, staying asleep, or both. ASMR has been proposed as a potential aid for individuals struggling with sleep issues. (Barratt and Davis 2015) conducted one of the foundational studies in this area, finding that a significant number of individuals who experience ASMR use it specifically to help them fall asleep. Their survey revealed that 82% of participants reported using ASMR videos to help with sleep-related issues, indicating a high prevalence of ASMR use as a sleep aid. Further research by (Cash et al. 2018) focused on the impact of ASMR on sleep quality. Their study involved participants listening to ASMR recordings before bed over a period of two weeks. The results showed significant improvements in sleep latency (the time it takes to fall asleep), sleep duration, and overall sleep quality. Participants also reported feeling more refreshed and less fatigued upon waking, suggesting that ASMR could be a beneficial intervention for improving sleep hygiene.

The study concluded that ASMR videos might help improve sleep quality and reduce insomnia symptoms, potentially making it a valuable non-pharmacological intervention for sleep

disorders. However, the study's pilot nature and small sample size indicate that more extensive research is needed to generalize these findings. (Lloyd and Henning 2021). The study supports the idea that ASMR videos can act as an effective sleep aid for those experiencing difficulty falling asleep. It highlights the potential of ASMR as a non-invasive, cost-effective method to improve sleep initiation and overall sleep quality. (Lopes and Jaspers 2020)

Attention: Attention is critical aspects of daily functioning that can be impacted by various factors, including stress and sleep quality. Recent studies have begun to explore the potential benefits of ASMR for enhancing attention and cognitive focus. A study by (Roberts et al. 2021) examined the effects of ASMR on attention in a controlled experimental setting. Participants were asked to complete attention-demanding tasks after listening to ASMR recordings. The results indicated that those exposed to ASMR content showed improved task performance and sustained attention compared to the control group. Another study by (Smith et al. 2021) focused on the neural mechanisms underlying the ASMR experience and its impact on cognitive functions. Using functional magnetic resonance imaging (fMRI), the researchers observed changes in brain activity in regions associated with attention and focus during ASMR experiences.

The study from Canada explored the relationship between ASMR and personality traits. The researchers conducted a survey with Canadian participants to examine how personality factors, such as openness to experience and neuroticism, are associated with ASMR responsiveness. The study found that people who are more open to new experiences are more likely to experience ASMR. This national-level research provided insights into how individual differences might influence the perception and effectiveness of ASMR as a therapeutic tool. (Fredborg, et al. 2017)

The study in Spain focused on the psychophysiological responses to ASMR stimuli. Conducted with a large national sample, the study measured physiological responses such as skin

conductance and heart rate while participants were exposed to ASMR videos. The results indicated significant reductions in heart rate and increased skin conductance among participants who experience ASMR, supporting the idea that ASMR can induce relaxation and reduce physiological markers. (Lopez et al.2020)

The study from Canada explored the relationship between ASMR and personality traits. The researchers conducted a survey with Canadian participants to examine how personality factors, such as openness to experience and neuroticism, are associated with ASMR responsiveness. The study found that people who are more open to new experiences are more likely to experience ASMR. This national-level research provided insights into how individual differences might influence the perception and effectiveness of ASMR as a therapeutic tool. (Fredborg et al. (2017). The findings suggested that ASMR could facilitate a state of relaxed alertness, enhancing the ability to concentrate and process information effectively. Attention and focus improvements through ASMR also appear to be consistent across genders, suggesting that the calming effects of ASMR can be universally applied to help individuals manage attention-related challenges. concentration and reduced mind-wandering. (Fredborg et al. 2017) observed that both males and females who experience ASMR report enhanced concentration and reduced mind-wandering.

ASMR (Autonomous Sensory Meridian Response) has gained significant attention for its potential therapeutic effects on mood, sleep induction, and attention, making it a compelling area for research. Investigating the effects of ASMR on these psychological outcomes is crucial as preliminary studies have shown that ASMR can induce relaxation and improve mood states, (Barratt and Davis, 2015). Additionally, research suggests that ASMR may promote better sleep by reducing heart rate and encouraging a state of calmness, thereby potentially serving as a non-pharmacological intervention for sleep issues (Poerio et al., 2018). Furthermore, ASMR has been reported to enhance focus and attention, which could have implications for

improving cognitive performance in both clinical and non-clinical populations (Fredborg et al., 2017). Investigating its impact on attention is also essential, as some studies indicate that ASMR triggers can help maintain focus and enhance cognitive performance, potentially benefiting individuals with attention deficits. Simple, repetitive sounds like tapping might induce a calming ASMR response in some, while more complex or less predictable sounds may not have the same effect. The brain's processing of these stimuli could differ, leading to varied ASMR experiences. (Janik and Banissy, 2018).

Understanding the different ASMR triggers is essential because these triggers can elicit varying responses in individuals, suggesting that ASMR is not a one-size-fits-all phenomenon. Studies have demonstrated that while some people respond strongly to auditory triggers like whispering, others may respond more to visual stimuli or tactile sensations, indicating a need for personalized ASMR experiences (López-Álvarez et al., 2020). Understanding the underlying mechanisms of ASMR and its potential therapeutic applications, which is crucial for developing effective interventions tailored to individual needs (Smith et al., 2019). Hence, comprehensively studying ASMR and its diverse triggers can lead to more nuanced insights into how these sensory experiences can be harnessed to improve mental health and cognitive function. The diverse effects of different ASMR triggers, such as whispering, tapping, or personal attention, are believed to stem from individual differences in sensory processing sensitivity, highlighting the need for further research to understand these variations and optimize ASMR content for therapeutic use (Barratt and Davis, 2015).

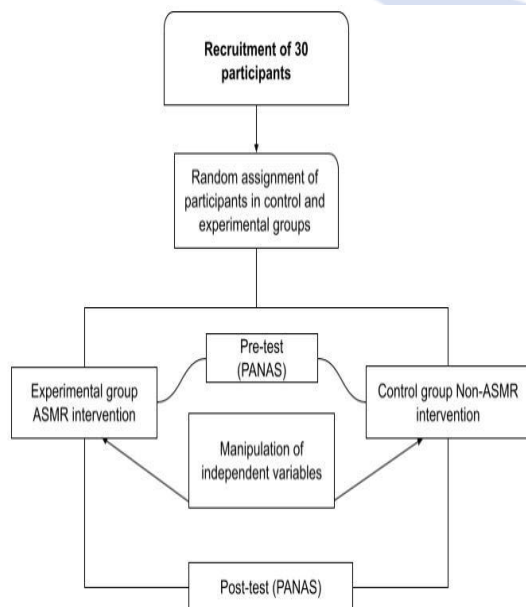
3. Methods

Study 1 (Mood) Research Design

True experimental design is a rigorous method used in research to determine cause-and-effect relationships between variables. This design is characterized by random assignment of

participants to different groups and the manipulation of an independent variable to observe its effect on a dependent variable. The common structure within true experimental design use of pre- and post-assessment with control and experimental groups is used in this research as a research design. Control Group have not received ASMR interventions; they receive placebo treatment to control for placebo effects. Experimental Group Participants have received ASMR interventions.

Independent Variable was Exposure to ASMR stimuli. Dependent variable was Mood. Convenience Sampling method was used. This method is chosen for practical reasons, as it involves selecting participants who are readily available and willing to participate. However, efforts should be made to ensure the sample is diverse enough to generalize findings to a broader population. Advertised the study through social media, or local announcements, emphasizing the voluntary nature of participation. Recruited 30 university students using convenience sampling undergo an inclusion and exclusion criteria using advertisement through social media local university announcements.



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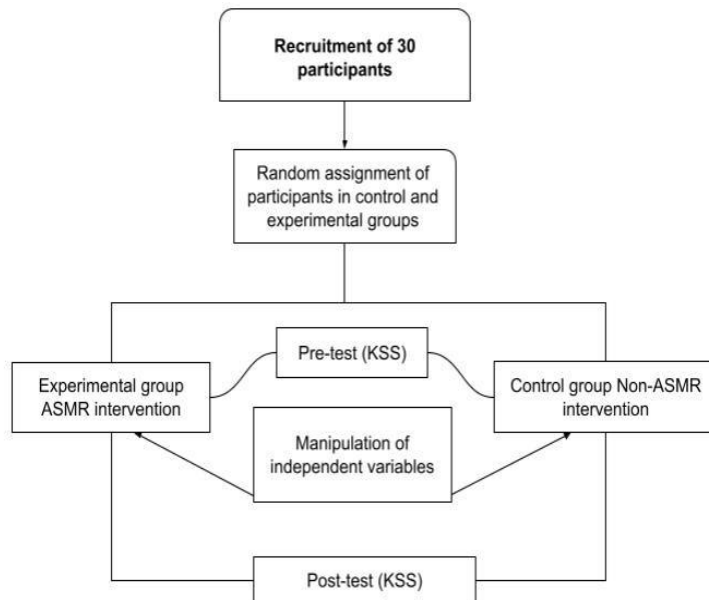
Procedure

Random Assignment participants were randomly assigned who either meet inclusion criteria to the experimental or control group. This minimizes bias and ensures groups are comparable in terms of characteristics that could influence outcomes. Experimental Procedure was based on Pre and post testing. Administer initial assessments to measure baseline levels of mood using validated scales (PANAS for mood) ASMR Intervention ASMR stimuli single session (e.g., videos with ASMR of crushing solid baking soda) to be delivered in a controlled environment. Standardize the delivery to ensure consistency across participants (same duration of 6 minutes, with high pitch volume). Alternatively, use headphones to deliver ASMR stimuli individually to participants. After the intervention period, administer post-test assessments to both groups to measure changes in mood. Control Group receives placebo (non-ASMR auditory stimuli or relaxation audio) or no intervention to the control group. Ensure conditions are as similar as possible to the experimental group, except for the absence of ASMR stimuli

Study II (Sleep induction) Research design

True experimental design is a rigorous method used in research to determine cause-and-effect relationships between variables. This design is characterized by random assignment of participants to different groups and the manipulation of an independent variable to observe its effect on a dependent variable. The common structure within true experimental design use of pre- and post-assessment with control and experimental groups is used in this research as a research design. Control Group have not received ASMR interventions; they receive placebo treatment to control for placebo effects. Experimental Group Participants have received ASMR interventions. Independent Variable was Exposure to ASMR stimuli. Dependent variable was sleep. Convenience Sampling method was used. This method is chosen for practical reasons, as it involves selecting participants who are readily available and willing to participate. However, efforts should be made to ensure the sample is diverse enough to generalize findings

to a broader population. Advertised the study through social media, or local announcements, emphasizing the voluntary nature of participation. Recruited 30 university students using convenience sampling undergo an inclusion and exclusion criteria using advertisement through social media local university announcement.



Procedure

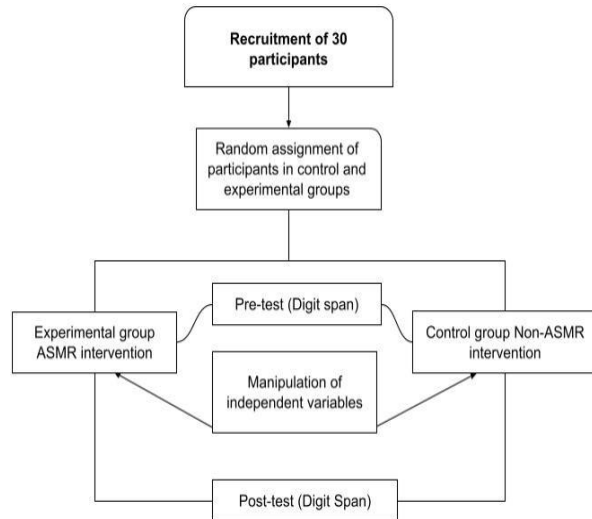
Random Assignment participants were randomly assigned who meet inclusion criteria to either the experimental or control group. This minimizes bias and ensures groups are comparable in terms of characteristics that could influence outcomes. Experimental Procedure was based on Pre-testing Administer initial assessments to measure baseline levels of sleep, using validated scales (Karolinska sleepiness scale KSS for sleep) ASMR Intervention was given to experimental group ASMR stimuli in a single session (e.g., videos with ASMR of Rainfall) to be delivered in a controlled environment. Standardize the delivery to ensure consistency across participants (same duration of 6 minutes, with high pitch volume). Alternatively, use headphones to deliver ASMR stimuli individually to participants. Post-testing After the intervention period, administer post-test assessments to both groups to measure changes in sleep level. Control Group receives placebo (non-ASMR auditory stimuli or relaxation audio)

or no intervention to the control group. Ensure conditions are as similar as possible to the experimental group, except for the absence of ASMR stimuli.

Study III (Attention) Research Design

True experimental design is a rigorous method used in research to determine cause-and-effect relationships between variables. This design is characterized by random assignment of participants to different groups and the manipulation of an independent variable to observe its effect on a dependent variable. The common structure within true experimental design use of pre- and post-assessment with control and experimental groups is used in this research as a research design. Control Group have not received ASMR interventions; they receive placebo treatment to control for placebo effects. Experimental Group Participants have received ASMR interventions. Independent Variable was Exposure to ASMR stimuli. Dependent variable was the attention span. Convenience Sampling method was used. This method is chosen for practical reasons, as it involves selecting participants who are readily available and willing to participate. However, efforts should be made to ensure the sample is diverse enough to generalize findings to a broader population. Advertised the study through social media, or local announcements, emphasizing the voluntary nature of participation. Recruited 30 university students using convenience sampling undergo an inclusion and exclusion criteria using advertisement through social media and local university announcements

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Procedure

Randomly assign participants who meet inclusion criteria to either the experimental or control group. This minimizes bias and ensures groups are comparable in terms of characteristics that could influence outcomes. Experimental Procedure is based on Pre-testing Administer initial assessments to measure baseline levels of sleep using validated scales (Digit span forward and backward for attention span) ASMR Intervention: ASMR stimuli single session (e.g., videos with ASMR triggers) to be delivered in a controlled environment. Standardize the delivery to ensure consistency across participants (same duration of 6 minutes, with high pitch volume). Alternatively, use headphones to deliver ASMR stimuli individually to participants. Post-testing: After the intervention period, administer post-test assessments to both groups.

Materials

All validated scales and videos were used for research purposes after the approval of their authors and makers.

PANAS, KSS and Digit span scales and ASMR video approvals were taken through mail.

ASMR for Mood Crushing Solid Baking Soda

This video was used to assess Mood regulation in participants after watching and listening to the tingling voice of ASMR for only the first 6 minutes of the video for research purposes. This video is a public domain video but to ensure the ethical considerations, approval to use this video for research was taken from the maker of this video. (ASMR RINA, 2023)

ASMR Rain drops video for Sleep Induction

This video was used to assess the sleep induction in participants. The ASMR rain drop video is about 10 hours long but only the first 6 minutes were used for the research purposes. This video is a public domain video but to ensure the ethical considerations, approval to use this video for research was taken from the maker of this video. (The Relaxed Guy, 2020)

ASMR Triggers video for Attention span This video is used to assess the increased attention span in participants after watching and listening to the tingling voice of ASMR for only the first 6 minutes of the video for research purposes. This video is a public domain video but to ensure the ethical considerations, approval to use this video for research was taken from the maker of this video. (ASMR Zeitgeist, 2025)

Measuring PANAS scale

The PANAS can be administered in different time frames depending on the research question (e.g., momentary, today, past few days, past week, past few weeks, past year, or in general). Participants are presented with a list of 20 adjectives (e.g., interested, excited, distressed, upset). Participants rate each adjective on a 5-point Likert scale based on how much they have felt this way during the specified time frame. Moderate PA and moderate NA. Participants have an average level of positive affect and some negative affect. High PA and low NA. The

intervention seems to have increased positive affect significantly while reducing negative affect. The PANAS scale has shown high internal consistency with cronbach's alpha

Measuring Karolinska Sleepiness Scale (KSS)

The KSS is a simple, self-report scale. It consists of a single item that asks participants to rate their current level of sleepiness. It can be administered multiple times throughout the day to track changes in sleepiness. The KSS has shown good reliability and validity in various studies. It is sensitive to changes in sleepiness levels and correlates well with objective measures of sleepiness such as EEG and performance tests. Comparing KSS scores before and after an intervention can help determine its impact on sleepiness levels.

Measuring the Digit Span Test

The Digit Span Test is usually part of the Wechsler Adult Intelligence Scale (WAIS) or the Wechsler Intelligence Scale for Children (WISC), but it can also be administered independently. The Digit Span Test has two parts: Digit Span Forward and Digit Span Backward. In research, the Digit Span Test is used to study the effects of ASMR on attention. Compare Digit Span scores (both Forward and Backward) before and after ASMR and non ASMR intervention.

Proposed Analysis

In our research, analysis is being used are t-test, Paired sample t-test, and Independent sample t-test. Our research design is based on pre and post testing that's why this analysis is most suitable for our research results. The primary purpose of the t-test is to compare the means of two groups to see if they are significantly different from each other. This is particularly useful in experimental studies where researchers determine if an intervention or a condition has an effect. The t-test is a fundamental tool for hypothesis testing. Researchers often use it to test

null hypotheses that state there is no difference between group means. The t-test helps in determining if the observed data provides sufficient evidence to reject the null hypothesis.

4. Results

Results of study I Mood (PANAS - Positive and Negative Affect Schedule)

Positive effect Pretest and posttest comparison

Participants who listened to ASMR experienced a significant increase in positive affect scores compared to the Non-ASMR group. The mean positive affect score in the ASMR group was significantly higher in post-test compared to pre-test. Pre-test (M = 30 ,SD = 9.16), Post-test (M = 34, SD = 7.4). Within the experimental group t-test showing $t(14) = -38.3, p < 0.01$. While the control non-ASMR group has less scores compared to the experimental group in both pre-test and post-test. Pre-test (M = 28, SD = 2.0), post-test (M = 28 , SD = 2.0) while in control group t-test showing $t(14) = 25.3, p < 0.08$

Negative effect Pretest and posttest comparison

Participants who listened to ASMR experienced a significant decrease in negative affect scores compared to the Non-ASMR group. The mean negative affect score in the ASMR group was significantly lower in post-test compared to pre-test. Pre-test (M = 25, SD = 6.49), Post-test (M = 21, SD = 4.7). Within the experimental group t-test showing $t(14) = -65.8, p < .00$. While the control group has relatively constant scores compared to the experimental group in both pre-test and post-test. Pre-test (M = 22, SD = 6.9), post-test (M =21, SD = 6.7) while in control group t-test showing $t(14) = 6.16, p = 0.6$ Results are shown below in Table no.1.

	<i>pre-test</i>	<i>post-test</i>		
<i>PANAS</i>			<i>t(14)</i>	<i>pCohen's</i>
<i>d</i>				

	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
<i>ASMR of crushing solid baking soda</i>							
Positive effect	30	9.1	34	7.4	-38.3	< 0.01	6.40
Negative effect	26	6.4	21	4.7	65.8	< 0.00	4.10
<i>Non-ASMR of towel folding</i>							
Positive effect	28	2.0	28	2.0	25.2	0.08	0.4
Negative effect	23	6.9	21	6.7	6.16	0.6	6.9

Table no.1 Paired sample statistics of Study 1 Mood.

Comparison of ASMR (Crushing baking soda ASMR) and Non-ASMR group

In this study, participants were divided into two groups: an ASMR group and a Non-ASMR group. Both groups underwent pre-test and post-test assessments to evaluate the impact of ASMR on Mood regulation. The pre-test scores indicated no significant difference in baseline Mood levels between the two groups, suggesting a comparable starting point for all participants. However, following the intervention, the post-test scores revealed a significant improvement in the ASMR group compared to the Non-ASMR group. Specifically, the mean score for the ASMR group (Positive Effect) increased from 30 (SD = 9.16) in the pre-test to 34 (SD = 7.01) in the post-test, indicating a mean difference of 4 points. And the mean score of ASMR group (Negative effect) decreased from 26 (SD = 6.49) in the pre-test to 23 (SD = 4.6) in the post-test, indicating a mean difference of 3 points. In contrast, the Non-ASMR group showed constant scores from a pre-test mean score of 28 (SD = 2.01) to a post-test mean score of 28 (SD = 2.01), with a mean difference of 0 points. The substantial mean difference observed in the ASMR group ($p < 0.001$) suggests that listening to ASMR in low mood significantly enhances positive effect of mood and decreases negative effect, unlike in the Non-ASMR group. As shown in Table no.2.

ASMR (Crushing baking Soda)

Non-

ASMR

SD

	Pre-test		Post-test		t(28)	Cohen's	
PANAS	M	SD	M	SD	p	d	
Positive	30	6.49	28	2.01	1.68	<.001	6.63
Negative	26.26		22.13	6.92	3.20	<.001	6.71
Positive	34	7.01	28	2.01	-	<.001	5.17
Negative	23.26	4.6	21.3	4.7	.031	<.001	5.83

Table no.2 independent sample statistics of ASMR and Non ASMR group.

Results of Study II Sleep Induction (KSS - Karolinska Sleepiness Scale)

Pretest and posttest comparison

Participants reported significantly higher sleepiness levels after listening to ASMR compared to the control group. The mean KSS score for the ASMR group was significantly higher in post-test as compared to pre-test. Pre-test (M = 2, SD = 0.9). Post-test (M = 5, SD = 1.7), with a t-test showing $t(14) = -112, p < 0.00$. While in the control group the sleepiness level of participants remains constant after placebo effect as compared to the experimental group. Within pre and post results sleepiness level also remains constant. Pre-test (M = 2, SD = 1.1). Post-test (M = 1.8, SD = 0.9), with a t-test showing $t(14) = 14.9, p < 0.30$

Results of Study II are shown above in Table no. 3

<i>Karolinska sleepiness scale KSS</i>	<i>pre-test</i>		<i>post-test</i>		<i>t(14)</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
<i>Rain drop ASMR</i>							
KSS	2	0.9	5	1.7	-112	< 0.00	1.75
<i>Glitchy sounds</i>							
KSS	2	1.1	1	.91	14.9	0.30	0.96

Table no.3 Paired Sample statistics of Study II Sleep Induction

Comparison of ASMR (Raindrops ASMR) and Non-ASMR group

In our study on the effects of ASMR on sleep induction. The pre-test scores were collected before the intervention to establish a baseline for each participant, and the post-test scores were gathered after the intervention to assess any changes in sleep patterns and quality. Participants in the ASMR group showed a significant improvement in sleep induction, as evidenced by their pre- and post-test scores. The mean pre-test score 2 (SD = .92) for the ASMR group was considerably low, indicating alertness and less sleep initially. After the intervention, the mean post-test 5 (SD = .91) score showed a notable increase, reflecting an improvement in sleep induction. The mean difference between the pre-test and post-test scores was statistically significant, suggesting that exposure to ASMR stimuli effectively facilitated quicker sleep induction among participants. The increase in mean scores indicates that participants experienced faster sleep induction after listening to ASMR content. In contrast, the Non-ASMR group, which did not receive any ASMR intervention, did not exhibit significant changes in their sleep induction scores between the pre- and post-tests. The mean pre-test score 1 (SD = .35) for this group was similar to the post-test score 1 (SD = .91). This lack of significant change suggests that, without ASMR stimuli, participants in the Non-ASMR group did not experience

a notable improvement in their ability to fall asleep or in their overall sleep quality over the study period.



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	ASMR (Rain drops)		Non-ASMR		<i>t</i> (28)	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Karolinska sleepiness							
			Pre-test		3.38	<.002	.700
scale KSS	<i>M</i>	<i>SD</i>	1	<i>SD</i>	7.42	<.001	1.47
KSS	2	.92	Post-test	.35			
KSS	5	1.7	1	.91			

Table no.4 Independent sample Statistics of ASMR and Non-ASMR group.

Results of Study III Attention (Digit Span Test)

Forward Digit Span Pretest and posttest comparison

Participants who listened to ASMR experienced a significant increase in forward digit span scores compared to the control group. The mean forward digit span scores in the ASMR group was significantly higher in post-test compared to pre-test. Pre-test ($M = 11.7$, $SD = 2.1$), Post-test ($M = 13$, $SD = 2.2$). Within the experimental group t-test showing $t(14) = -39.2$, $p < 0.01$. While the Non-ASMR group has less scores compared to the ASMR group in both pre-test and post-test. Pre-test ($M = 11$, $SD = 1.7$), post-test ($M = 10$, $SD = 2.0$) while in control group t-test showing $t(14) = 35$, $p < 0.2$.

Backward Digit Span Pretest and posttest comparison

Participants who listened to ASMR experienced a significant increase in backward attention span scores compared to the non-ASMR group. The mean backward digit span score in the ASMR group significantly increases in post-test compared to pre-test. Pre-test ($M = 7$, $SD = 1.3$), Post-test ($M = 10$, $SD = 1.9$). Within the experimental group t-test showing $t(14) = -85$,

improvement in the ASMR group compared to the Non-ASMR group. Specifically, the mean score for the ASMR group (Forward Digit) increased from 12 (SD = .99) in the pre-test to 13 (SD = 2.20) in the post-test, indicating a marginal difference of 1 point in forward digit span and in (Backward digit) of ASMR group mean score of pre test is 7 (SD = .51) and post test score 10 (SD = 1.93) . In contrast, the Non-ASMR group showed a marginal increase from a pre-test mean score of (Forward digit) is 11 (SD = 1.4) to a post-test mean score of 10 (SD = 2.02), while in post-test mean score (Backward digit) is 6 (SD =1.4) and post-test mean score 6 (SD = 1.4) . The substantial mean difference observed in the ASMR group ($p < 0.001$) suggests that listening to ASMR during attention-based tasks significantly enhances focus and reduces mind-wandering, unlike in the Non-ASMR group.

	ASMR specific triggers				$t(28)$	p	
	Non-ASMR		ASMR				
Digit span	M	SD	M	SD			
Cohen's d							
	<i>Pre-Test</i>						
Forward digit	12	.99	11	1.4	-39.2	< 0.02	1.2
Backward digit	7	.51	6	1.3	-85	<.00	1.9
	<i>Post-test</i>						
Forward digit	13	2.20	10	2.02	18.2	<.001	1.0
Backward digit	10	1.93	6	1.40	14	<.001	1.69

Table no.6 Independent sample statistics of ASMR and Non-ASMR group.

Discussion

Study I: Effects of ASMR on Mood

The findings of our experimental research indicate a statistically significant improvement in mood following exposure to ASMR stimuli. Participants who experienced ASMR reported higher levels of relaxation and positive affect compared to the Non-ASMR group. These results align with prior research suggesting that ASMR can induce a calming and pleasurable state. This enhancement in mood may be particularly beneficial for individuals experiencing stress or anxiety, as ASMR provides an accessible and non-pharmacological method for mood regulation. But prior research did not provide specific ASMR triggers or videos for Mood so in our research we prove with our significant results that crushing baking soda ASMR video can help to enhance positive effects of mood and reduce the level of negative effects of mood. However, while previous studies have broadly supported the notion that ASMR can improve mood (Barratt & Davis, 2015) (Poerio et al., 2018), they often did not specify the types of ASMR triggers or videos used to achieve these outcomes. This lack of specificity has made it difficult to identify which particular ASMR triggers might be most effective for mood enhancement. Our study addresses this gap by demonstrating that the specific ASMR trigger of crushing baking soda can significantly enhance positive mood effects and reduce negative mood effects. This finding provides a more detailed understanding of the types of ASMR stimuli that may be particularly effective for mood regulation. By identifying a specific trigger, our research contributes to a more nuanced understanding of how different ASMR experiences can be tailored to maximize therapeutic outcomes.

Study II: Effects of ASMR on Sleep Induction

Our study also demonstrated a significant effect of ASMR on sleep induction. Participants exposed to ASMR reported falling asleep faster compared to those in the Non-ASMR group.

These findings support the hypothesis that ASMR can serve as an effective tool for individuals struggling with sleep onset. The soothing and repetitive nature of ASMR sounds likely contributes to a reduction in pre-sleep arousal, facilitating a smoother transition to sleep. This highlights the potential of ASMR as a complementary approach to traditional sleep interventions, offering a cost-effective and easily implementable solution. Prior research did not provide specific ASMR triggers or videos for Sleep induction so in our research we prove with our significant results that the soothing sound of rainfall or rain drops ASMR video can help to induce sleep. Several studies have explored the calming effects of ASMR and its potential to aid in sleep induction. For example, Barratt and Davis (2015) conducted a large-scale survey revealing that many individuals use ASMR to relax before bedtime, suggesting its potential as a sleep aid. Participants in their study reported that ASMR helped them fall asleep faster and provided a sense of comfort that facilitated better sleep quality. Similarly, Poerio et al. (2018) found that ASMR could significantly reduce heart rate and increase feelings of relaxation, physiological changes that are conducive to sleep onset. Despite these promising findings, prior research did not focus specifically on identifying which ASMR triggers or videos are most effective for sleep induction. Most studies have broadly examined ASMR's general effects on relaxation without targeting particular stimuli that might optimize sleep-related outcomes. Your study advances this field by demonstrating that specific ASMR triggers, such as the sound of rainfall or raindrops, can effectively induce sleep. By showing that participants exposed to these sounds reported falling asleep faster than those in a Non-ASMR control group, your research provides concrete evidence supporting the use of ASMR as a tool for sleep induction. This aligns with the findings of (Lopez and Padilla 2020), who suggested that the repetitive and soothing nature of certain sounds, like rainfall, might help reduce pre-sleep arousal and facilitate a smoother transition to sleep. Your study thus fills a

crucial gap in the literature by pinpointing specific ASMR stimuli that can be employed to help individuals struggling with sleep onset. Furthermore, it offers a practical, cost-effective, and easily implementable solution that could complement traditional sleep interventions, expanding the utility of ASMR beyond general relaxation to a targeted application for sleep improvement

Study III: Effects of ASMR on Attention

Contrary to the initial hypothesis, our research revealed a significant impact of ASMR on attention. Participants who listened to ASMR during attention-based tasks showed improved focus and reduced mind-wandering compared to the non-ASMR population. According to this, ASMR may have a grounding effect, helping individuals maintain their concentration on tasks. The potential mechanisms underlying this effect could include the activation of attentional networks and the reduction of intrusive thoughts through the repetitive and predictable nature of ASMR stimuli. These findings open new avenues for utilizing ASMR in environments where sustained attention is critical, such as in educational or occupational settings. A study by Fredborg, Clark, and Smith (2018) investigated the ASMR's impact on cognitive activities and found that participants who experience ASMR reported enhanced focus and attentiveness when exposed to ASMR stimuli. The research suggested that the calming nature of ASMR could help reduce distractions and intrusive thoughts, which in turn improves task performance and cognitive engagement. This aligns with our findings that ASMR improves focus and reduces mind-wandering during attention-based tasks, potentially due to the activation of attentional networks and the predictable, repetitive nature of ASMR stimuli (Smith, S. D. 2018).

5. Conclusion

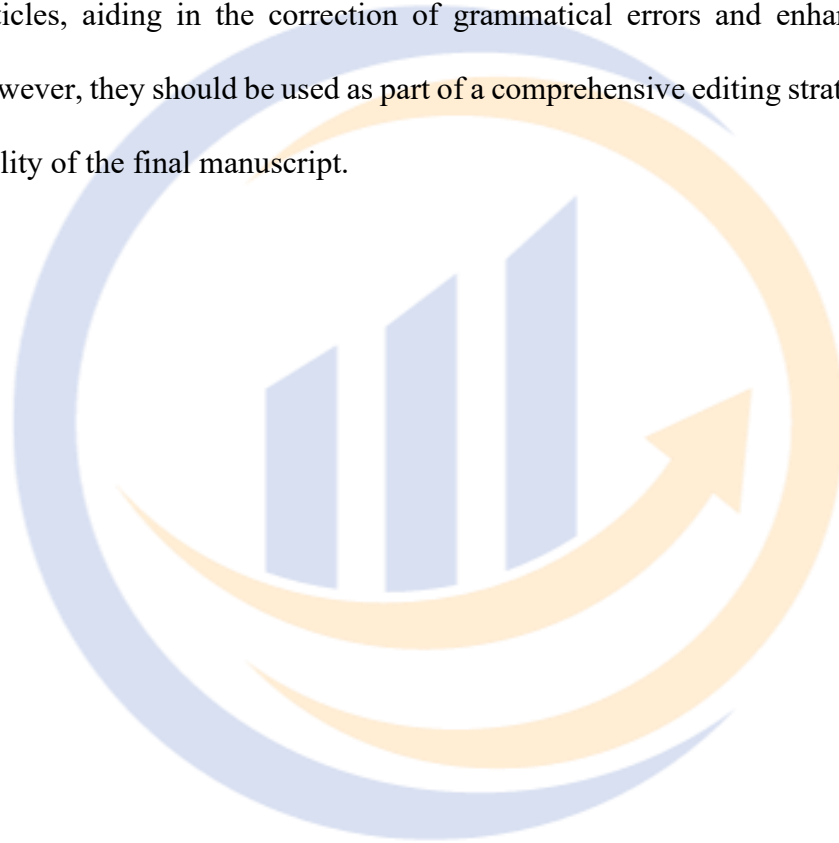
The significant effects of ASMR on mood, sleep induction, and attention observed in this study underscore its potential as a versatile and beneficial tool. While the mechanisms behind these effects need further investigation, the current findings provide a strong foundation for considering ASMR as a reliable intervention for mood enhancement, sleep improvement, and attentional focus. Future studies should examine ASMR's long-term consequences as well as its applicability across different populations and settings, to fully harness its therapeutic potential. Also in this research we find out different triggers of ASMR for different conditions, like triggers for Sleep induction are (ASMR rain drops), triggers for Mood are (ASMR of crushing solid baking soda), triggers for Attention are (different ASMR alert sounds) all the links of related triggers are mentioned above in ethical approval section.

5.1 Challenges and Future Directions

Considering the encouraging outcomes, a number of restrictions need to be noted. The research population might not be typical of the general population due to the limited sample size. The results of this study is based on a single session of treatment. Future studies should employ larger and more diverse samples and also do more than one session of treatment so the evidence will be more clear. Furthermore, exploring the neurobiological mechanisms underlying ASMR's effects will be crucial in understanding how and why it exerts such significant influences on these variables. In general, this study relates to the expanding literature of research on ASMR, providing robust evidence of its significant effects on mood, sleep induction, and attention. These findings support the integration of ASMR into therapeutic practices and daily routines to enhance mental well-being and cognitive functioning.

Artificial Intelligence (AI) in Research Articles for Grammar

This note provides guidance for the application of artificial intelligence (AI) tools for grammar checking and editing in research articles. The objective is to ensure that the final manuscript is clear, professional, and free of grammatical errors, thereby enhancing the readability and credibility of the research. AI grammar checking tools are valuable assets in the editing process of research articles, aiding in the correction of grammatical errors and enhancing overall readability. However, they should be used as part of a comprehensive editing strategy to ensure the highest quality of the final manuscript.



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