

Comparative Analysis of Traditional Music between 432Hz and 440Hz for Medical Purposes

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ABSTRACT

This study compares dhikr music tuned to 432Hz and 440Hz. It explores the integration of Javanese Muslim cultural practices into medical music applications. The research goal is to identify measurable differences in physical effects and emotional effects between the two tuning systems. Building upon existing studies in music therapy, psychoacoustics, and religious healing traditions, this study incorporates the Javanese concept of wirid (repetitive remembrance) and gamelan-based resonance to examine whether a culturally embedded approach enhances the healing potential of music. A group of 30 student participants was tested first on their burnout level, then exposed to 432Hz and 440Hz music in an experimental environment. Data analysis uses cross-tabulation to assess variations in concentration indicators. The Coefficient Contingency and Marginal Homogeneity Test is used to examine the hypothesis. On physical sensations, 432Hz is found to be softer than 440Hz. Also, 432Hz is found to be more convenient to listen to than 440Hz. On emotional sensations, the peacefulness of the dhikr part in 432Hz is better received. Also, the 432Hz music is considered better for self-soothing. Overall, the result indicates that 432Hz is preferred over 440Hz-tuned music. The findings are expected to contribute to both medically sound research and cross-cultural music therapy.

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INTRODUCTION

The idea of music as a therapeutic medium has emerged since the early 20th century, when physicians and psychologists began to explore the therapeutic effects of sound on human behavior and physiology. Not only serving as a form of entertainment, but music has also been understood as a medium of healing, in which specific frequencies can influence emotional and physical states. According to post-World War II studies by researchers such as Ira Altshuler and Juliette Alvin, musical vibration and rhythm were found to impact psychological recovery and neurological function significantly. A treatment process featured on the YouTube channel "Ganjars Ngaji Roso" is done in person, through photos, or remotely using the same process: sirasa, sabdo knowledge, and kasunyatan. The traditional treatment process described steps that reflect a combination of spiritual disease detection, prayer, and zikir as a method of healing.(Adibah, 2025).

Furthermore, some contemporary theories suggest that music tuned to 440 Hz—the modern concert pitch standardized in 1939—may stimulate a heightened or restless mental state, whereas the 432 Hz tuning, often referred to as a more “natural resonance” frequency, is believed to promote calmness and cognitive harmony.(Rasey et al., 1996). The purpose of this research is to test two different stimulations produced by music tuned to 440Hz and 432Hz. This research result is expected to demonstrate different effects of 432Hz and 440Hz when heard by a group of students (n=30). The statistical analysis used is the coefficient of contingency for nominal-scale data. Specifically, the comparison test is designed to measure every research

objective. In this research, the paired data are responses from music tuned to 432Hz and data from music tuned to 440Hz. Moreover, utilization of different frequencies can be known after the result is gathered and be useful for health and music studies.

Historical Foundations of Music in Healthcare

Early explorations of music as a therapeutic tool are well documented in medical and psychological literature. Edwards (2025), in *Voices: A World Forum for Music Therapy*, highlights how writings from the 1890s to the 1940s positioned music as a facilitator of emotional stability, neurological recovery, and behavioral modulation. These early models established music not merely as an art form but as a medically relevant stimulus capable of influencing psychological states, setting the foundation for modern music therapy practice.

Following World War II, clinicians such as Altshuler and Alvin advanced the idea that vibration, rhythm, and harmonic resonance could meaningfully impact healing, especially in populations undergoing trauma or cognitive impairment. Their work forms the conceptual basis for studies examining frequency-based intervention, such as 432 Hz and 440 Hz tuning comparisons.

Frequency-Based Studies: 432 Hz versus 440 Hz

Modern scientific interest in tuning standards has produced multiple empirical studies comparing 432 Hz and 440 Hz. Calamassi & Pomponi conducted one of the first double-blind crossover pilot studies, demonstrating measurable differences in participants' physiological markers when listening to music tuned to the two frequencies (Calamassi & Pomponi, 2020). Their follow-up study involving emergency nurses during the COVID-19 pandemic (Calamassi et al., 2022) further indicated that 432 Hz tuning may reduce stress and promote calmness more effectively than 440 Hz under high-pressure conditions (Calamassi et al., 2022).

Other studies target specific medical contexts. Similarly, Jebabli et al. explored athletic performance and psychological readiness among kickboxers, noting that preferred music tuned to 432 Hz created more favorable perceptual responses during warm-up sessions (Jebabli et al., 2025).

It is not a new phenomenon for the use of music as an agent of health promotion or healing. Some materials used in various research have resulted in robust debates. Across these studies, a pattern emerges: 432 Hz tuning may support lower anxiety levels, reduced physiological stress markers, and increased subjective comfort, though mechanisms remain under investigation. These empirical findings validate the scientific dimension of the present study's inquiry.

Music Therapy, Stress Reduction, and Psychological Outcomes

Music therapy research broadly supports the effectiveness of sound-based interventions for anxiety reduction. López-Valverde and Umbrello et al. both conducted systematic reviews demonstrating consistent improvements in stress and anxiety among patients exposed to therapeutic music before medical procedures. (López-Valverde et al., 2024) Similarly, Goldbeck & Ellerkamp showed that multimodal music therapy significantly reduces anxiety in children. (Novianti & Yudiarso, 2021). Music, from a technical and scientific point of view, is defined as a complex network of organized sounds. It is characterized by various features, such as rhythm, melody, harmony, and time, and it can be used as a therapeutic tool to interrupt stress response (Umbrello et al., 2019).

Javanese Muslim Spirituality in Therapeutic Practice

Beyond medical and psychoacoustic perspectives, Javanese Muslim traditions contribute a significant cultural foundation for music-based healing. The practices of *dhikr* and *wirid*, involving repetitive spiritual recitation, have long been associated with mental grounding, emotional cleansing, and spiritual presence.

A recent article, such as from Uyuni (2024), explores how Wali Songo's traditional approaches continue to influence contemporary Javanese Muslim practices, strengthening the relevance of culturally embedded sound rituals for modern audiences. (Uyuni et al., 2024). Together, these works support the

argument that integrating Javanese spiritual structures into therapeutic music may enhance user receptivity, emotional resonance, and cultural relevance.

Gamelan Resonance and Soundscape-Based Medicine

Javanese gamelan music offers another important theoretical lens. Studies on gamelan therapy for elderly populations (Meliyana et al., 2023) also reported reduced stress levels, reinforcing gamelan's potential as a culturally rooted sound therapy modality. (Rifka Alkhilyatul Ma'rifat, I Made Suraharta, 2024). Dzikir-based interventions also show measurable medical effects: Ragayasa et al. (2022) found that psychoreligious dzikir therapy improved self-efficacy and reduced blood pressure in patients with hypertension. (Adivtian Ragayasa et al., 2022). Its cyclical rhythm, layered timbre, and inharmonic tuning create a distinctive aesthetic that promotes meditative states. Sarr (2016) describes Javanese slawatan rituals as a form of Neo-Sufism emphasizing vibrational unity, communal resonance, and emotional purification. This spiritual resonance parallels modern therapeutic frameworks focusing on breath regulation and repetitive sound exposure. (Sarr, 2016). Yarman et al. (2024) demonstrated that gamelan exposure increased pain tolerance among university students, suggesting that Javanese acoustic aesthetics can influence physiological resilience (Yarman et al., 2024).

Translating this into modern electronic contexts, ambient music and synth pad-based soundscapes share functional similarities with gamelan's slow temporal movement, long decay, and resonant emotional character. This connection supports the integration of synth pad textures, 432 Hz tuning, and Javanese spiritual-philosophical tradition within a unified therapeutic model.

Research Problem

The research problem is how the 432Hz music and the 440Hz music differ in application for therapeutic purposes.

Research Objective

The objective of this research is to measure the differences between 432Hz and 440Hz in relation to physiological and emotional effects.

Physiological effects include:

- Cognitive clarity: softness or hardness
- Physical relaxation: convenience, likes to listen frequently

Emotional effects include:

- Soothing (self-soothing)
- Peacefulness from the dhikr part

Overall preference: acceptance from both physical and emotional effects

Summary Of Literature

Synthesis of Literature

The collective literature indicates that:

1. Music therapy reduces stress and anxiety across diverse populations.
2. 432 Hz tuning may offer enhanced calming effects compared to 440 Hz in controlled environment.
3. Javanese Muslim practices (dhikr, wirid, slawatan) contain rhythmic, repetitive, and vibrational qualities well-suited for therapeutic sound design.
4. Gamelan resonance provides a culturally meaningful acoustic framework with documented psychological effects.
5. Ambient and pad-based soundscapes function effectively in modern therapeutic settings due to their stability, warmth, and non-intrusive harmonic qualities.

This intersection positions the present study as a culturally grounded, psycho-acoustically informed investigation that bridges traditional and modern approaches to healing.

RESEARCH METHODOLOGY

This study employs a quantitative experimental design to compare the psychological and physiological effects of music tuned to 432 Hz and 440 Hz. In the first step, the respondents were tested on burnout levels using Maslach Burnout Inventory Student Survey (MBI SS) Test. (Morgan et al., 2014) The respondents who were at a moderate level of burnout were recruited for the second step. In the second step, respondents (n=30) were randomly assigned to two listening conditions in a controlled environment, with each condition featuring dhikr-based ambient music derived from Javanese Muslim traditions. By isolating frequency as the independent variable, the study seeks to evaluate whether tuning differences produce measurable variations in physical and emotional effects.

The design integrates both psychoacoustic and cultural approaches. The 432 Hz and 440 Hz audio stimuli were produced using identical musical material—dhikr recitations layered with synth pad harmonics and gamelan-inspired resonance—to ensure that only the tuning differed between conditions.

Statistical Test: Coefficient Contingency. P Value = 0,05

Hypothesis: Ho 1.0 = There is no difference between the convenience of listening to 432Hz and to 440Hz

Ha 1.0 = There is a difference between the convenience of listening to 432Hz and to 440Hz

Ho 2.0 = There is no difference between liking to listen to 432Hz and to listen to 440Hz

Ha 2.0 = There is a difference between liking to listen to 432Hz and to 440Hz

Participants

A total of 30 university students (n = 30) participated in the study. Participants were aged between 18–22 years and represented a range of cultural backgrounds, though all resided in Indonesia at the time of the study. Students with known hearing impairments, neurological disorders, or ongoing psychiatric treatment were excluded to maintain the validity of sensory and emotional responses. Participation was voluntary, and informed consent was obtained from all individuals.

Materials and Stimuli

Audio Stimuli Preparation

Two versions of the same musical composition with a 1.5-minute duration were created:

1. 432 Hz Version

2. 440 Hz Version

Both recordings featured:

- A slow, meditative istighfar dhikr recitation
- Ambient synth pad layers designed using soft-attack textures
- Gamelan-inspired resonance, including long decay and open tuning intervals
- Minimal rhythmic content to promote relaxation
- Identical production methods, mixing processes, and dynamic levels

The only manipulated variable was the global tuning: one set calibrated at 440 Hz (modern standard pitch) and the other recalibrated to 432 Hz using precise pitch adjustment.

Listening Environment

The listening experiment was conducted in a quiet, sound-treated room. The respondents were located in a sweet spot between speakers to ensure consistent audio delivery. Volume was standardized at a comfortable listening level between 55–60 dB SPL.

Procedure

The experiment consisted of the following steps:

1. Pre-Test Survey

Participants completed a baseline Maslach Burnout Inventory for Student Survey (MBI-SS) questionnaire assessing current burnout level and emotional state.

2. Listening Session

Each participant listened to a 1-minute 30-second audio clip. Counterbalancing was used to minimize order effects.

Firstly, the respondents received the 432 Hz version. Then, they fill a series of questions about:

- Feeling when listening to the music (open-ended)
- Specific imagination (open-ended)
- Convenience
- Liking to listen frequently

3. Washout Period

A brief 3-minute silent rest period separated the two conditions to minimize residual effects.

Secondly, the respondents were heard the 440 Hz version were also asked similar questions:

- Feeling when listening to the music (open-ended)
- Specific imagination (open-ended)
- Convenience
- Liking to listen frequently

4. Immediate comparison and preference test:

Participants completed comparison and preference questions measuring:

- Physiological Effects: cognitive clarity - softness or hardness
- Physical Relaxation: convenience, likes to listen frequently
- Emotional Effects: soothing (self-soothing), peacefulness from the dhikr
- Overall Preference from both physical and emotional effects

Data Collection Instruments

The data were collected using the Guttman scale, and the format is semi-structured questionnaires.

Statistical Analysis

Data were analyzed using a Coefficient of Contingency and Chi-Square Test for nominal scale data in the form of 2x2 and using Marginal Homogeneity for nominal scale data in the form of 3x3. Comparison of 432Hz and 440Hz music is by analysis of the data distribution, the descriptive statistics, and 2-tail significance test based on participants' responses to the questionnaire.

RESULTS AND DISCUSSION

Validity and Reliability

The r Tabel: for df (30-2 = 28) and 5% error estimate, is 0.3610. This means, all Pearson values have to be larger than 0.3610 to be valid. All Pearson values are > 0,3610, than all values are valid.

Table 1. Validity of Measurement Tools

No	Question	r Pearson Correlation (calculated)	Value r Table
1	Convenient to listen to 432Hz music	0.731	0.3610
2	Likeability to listen to 432Hz music frequently	0.708	0.3610
3	Convenient to listen to 440Hz music	0.627	0.3610
4	Likeability to listen to 440Hz music frequently	0.441	0.3610
5	Comparison Softer-Harder 432Hz vs 440Hz	0.406	0.3610
6	Comparison: Convenient to listen to 432Hz vs 440Hz	0.626	0.3610
7	Comparison 432Hz vs 440Hz for self-soothing	0.639	0.3610
8	Compare Peacefulness for Dhikr 432Hz vs 400Hz	0.411	0.3610
9	Overall Preference	0.414	0.3610

Reliability

Table 2. Reliability of Measurement Tools

Cronbach's Alpha	N of Items
.699	9

The reliability test is accepted, since the Cronbach's Alpha for all 9 items in the questionnaire, is higher than the minimum requirement (0.60).

A total of 30 participants completed both listening conditions. Self-reported measures included physiological and psychological effects. The physiological effects are: softness-hardness of each music tune, convenience, and liking to listen to the music more frequently. The psychological effects include: self-soothing and peacefulness of the dhikr part in 432Hz music and in 440Hz music. Descriptive statistics were calculated for each frequency condition.

1. Age

Table 3. Age of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-22 years	30	100.0	100.0	100.0

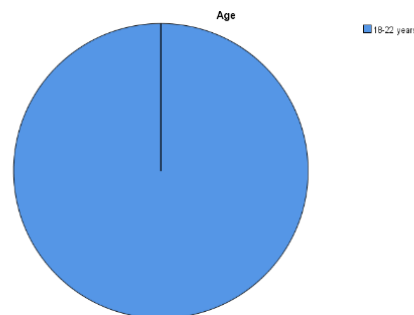


Figure 1. Age of Respondents

2. Occupation

Table 4. Occupation of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	College student	30	100.0	100.0	100.0

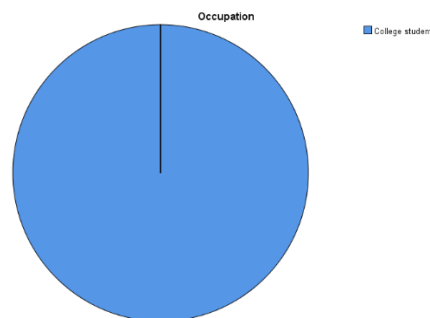


Figure 2. Occupation of Respondents

The respondents are in 18-22 years of age, and all are college students.

3. Usage of Hearing Aid

Table 5. Usage of Hearing Aid

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	30	100.0	100.0	100.0

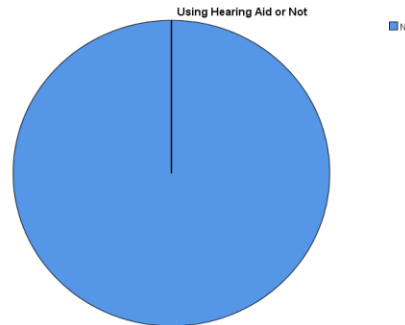


Figure 3. Usage of Hearing Aid

None of them was wearing a hearing aid during the test

Maslach Burnout Inventory Test Result

4. Total score of MBI SS (Maslach Burnout Inventory Student-Survey)

The Maslach Burnout Inventory Student-Survey is used to measure the frequency of their burnout condition. A series of 15 statements about their burnout experience was asked, and respondents provided answers categorized into three levels (low, moderate, and high).

Table 6. Maslach Burnout Inventory Student Survey Test Result

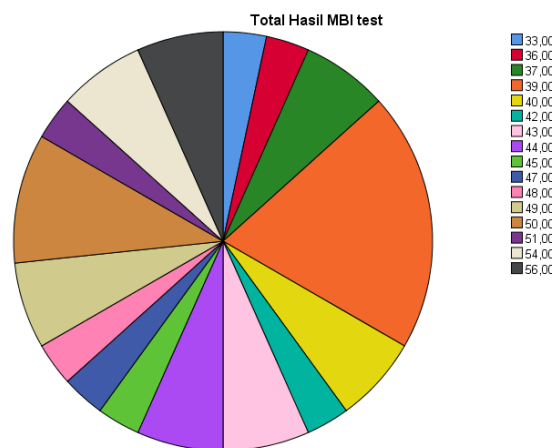


Figure 4a. MBI SS Inventory Test Result

All of the total respondents are at a moderate level of Burnout, as a result of MBI SS test. The scale used in MBI SS is as follows:

MBI total score, as developed by Schaufeli (2002), consists of 15 statements about exhaustion, cynicism, and reduced efficacy (Yavuz & Dogan, 2014), which are measured using a Likert scale from 0 to 6:

0 = Never

1 = Very rare (at least once in a year)

2 = Rare (at least once in six months)

3 = Sometimes (at least once a month)

4 = Rather frequent (at least once a week)

5 = Frequent (a few times a week)

6 = Always (every day)

The total score result is categorised as follows:

Table 7. MBI Test Result Category

Score	Level
0-30	Low
31-60	Moderate
61-90	High

Main Results

5. Types of daily activities (in the last 24 hours)

The majority of respondents have activities around campus, including attending lectures, working on assignments, and the rest are around home. Furthermore, their feeling and imagination when listening to each music tune were also asked.

Table 8. Types of Daily Activities (the last 24 hours)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Music, eating, games	1	3.3	3.3	3.3
	View movies, create content, and attend lectures	1	3.3	3.3	6.7
	Do the assignment, business	2	6.7	6.7	13.3
	Do assignment, eat, sleep	8	26.7	26.7	40.0
	Attend the lecture, assignment, and cleaning	8	26.7	26.7	66.7
	Study	5	16.7	16.7	83.3
	Rest, prayer	1	3.3	3.3	86.7
	Study, do assignment, prayer	2	6.7	6.7	93.3
	Attend a lecture, sport	1	3.3	3.3	96.7
	Sport, eat	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

Results for the 432Hz Music

6. Feeling When Listening to 432Hz Music

Table 9. Feeling When Listening to 432Hz music

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Surprised	1	3.3	3.3	3.3
	Scared	2	6.7	6.7	10.0
	Calm	11	36.7	36.7	46.7
	Convenient	2	6.7	6.7	53.3
	Fear at first, then like it	1	3.3	3.3	56.7
	Introspective	1	3.3	3.3	60.0
	Nothing special	3	10.0	10.0	70.0
	Scared of sin	5	16.7	16.7	86.7
	Agitated	2	6.7	6.7	93.3
	Touched	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The respondents mostly feel calm (36.7%), scared of sin (16.7%). Some respondents feel nothing special (10.0%).

7. Specific Imagination After Listening to 432Hz Music

Table 10. Specific Imagination after listening to 432Hz

	Frequency	Percent	Valid Percent	Cumulative Percent
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Valid	Nothing	7	23.3	23.3	23.3
	Scared	7	23.3	23.3	46.7
	Being in the grave	1	3.3	3.3	50.0
	Weird	1	3.3	3.3	53.3
	Calm	4	13.3	13.3	66.7
	Introspective	5	16.7	16.7	83.3
	Green trees	2	6.7	6.7	90.0
	Not convenient	1	3.3	3.3	93.3
	Patient	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

After listening to 440Hz music, the respondents imagined being scared (23.3%) and imagined nothing (23.3%). Some respondents felt introspective (16.7%) and calm (13.3%).

Results for the 440Hz Music

8. Feeling When Listening to 440Hz Music

Table 11. Feeling When Listening to 440Hz music

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Scared sad	1	3.3	3.3
	Scared	5	16.7	20.0
	Calm	8	26.7	46.7
	Do not like	2	6.7	53.3
	Louder irritating	2	6.7	60.0
	Introspective	1	3.3	63.3
	Less than before	2	6.7	70.0
	Good at heart	2	6.7	76.7
	Nothing	1	3.3	80.0
	Touched	4	13.3	93.3
	Nothing special	1	3.3	96.7
	Touched, scared	1	3.3	100.0
	Total	30	100.0	100.0

The respondents feel calm (26.7%), scared (16.7%), and touched (13.3%). Totally, those who felt scared accounted for 23.3% (scared sad, scared, and touched scared). The 440Hz music revealed a higher amount of fear than the 432Hz music.

9. Specific Imagination After Listening to 440Hz Music

Table 12. Specific Imagination after listening to 440Hz

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nothing	6	20.0	20.0
	Scared, horror	4	13.3	33.3
	In sins, grave	3	10.0	43.3
	Calm	3	10.0	53.3
	Introspective	3	10.0	63.3
	Convenient	2	6.7	70.0
	A railway	2	6.7	76.7
	Self talk	1	3.3	80.0
	In a trial	1	3.3	83.3
	Suspense	1	3.3	86.7
	Ghost	1	3.3	90.0
	Judgment day	1	3.3	93.3
	A prayer	1	3.3	96.7
	Spirited	1	3.3	100.0
	Total	30	100.0	100.0

After listening to 440Hz music, the respondents imagined nothing (20.0%), scared, horror (13.3%), being in sins, grave (10%), calm (10%), and introspective (10.0%). The 440Hz music generates a lower imagination of calmness and introspection than the 432Hz music.

Comparison

10. Sound Intensity (soft or hard)

Table 13. Sound Intensity 432Hz vs 440Hz (Soft or Hard)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	432Hz is softer than 440Hz	21	70.0	70.0	70.0
	432Hz is harder than 440Hz	9	30.0	30.0	100.0
	Total	30	100.0	100.0	

The proportion of respondents who mentioned that the 432Hz is softer than 440Hz music is much higher (70%) than those who mentioned the 432Hz is harder than 440Hz music. The result is related to the finding that the convenience of listening to 432Hz music is higher than that of 440Hz music.

11. Convenient to Listen to 432Hz vs 440Hz Music

Table 14. Convenient to Listen to 440Hz Music

		Convenient to listen to 440Hz		Total
		Yes	No	
Convenient to listen to 432Hz	Yes	14	3	17
	No	2	11	13
Total		16	14	30

14 respondents feel convenient when listening to both 432Hz and 440Hz; however, 3 respondents who feel convenient when listening to 432Hz but not to 440Hz music.

Moreover, 11 respondents find it inconvenient to listen to both 432Hz and 440Hz. However, there are 2 respondents who feel it is convenient when listening to 440Hz but feel inconvenient when listening to 432Hz.

Symmetric Measures

Table 15. Contingency Coefficient (Convenient to Listen to 432Hz vs 440Hz)

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.554	.000
N of Valid Cases		30	

The association between the convenience of listening to 432Hz music and the convenience of listening to 440Hz music is significant ($p\text{-value} = 0,001 < 0,05$). Thus, the null hypothesis (H_0 1.0) can be rejected, and the alternative hypothesis (H_a 1.0) can be accepted. The strength of correlation is 0,554 which means moderate. The direction of correlation is positive, meaning that when respondents feel convenient to listen to 432Hz music, they tend to also feel convenient to listen to the 440Hz music. Similarly, when they do not feel convenient to listen to the 432Hz music, they likely also do not feel convenient to listen to the 440Hz music.

12. Liking to listen to 432Hz frequently vs 440Hz frequently

Table 16. Liking to listen to 432Hz frequently vs 440Hz frequently

		Liking to listen to 440Hz frequently			Total
		Yes	No	Maybe	
Liking to listen to 432Hz frequently	Yes	8	2	4	14
	No	4	4	0	8
	Maybe	2	2	4	8
Total		14	8	8	30

There is almost a similar proportion of respondents who like to listen to each music frequently. Almost 50% ($n=14$ of 30) of each group agrees to like to listen to 432Hz and 440Hz, respectively. The distribution data from 432Hz to 440Hz is not different. Thus, the null hypothesis (H_0 2.0) cannot be rejected; H_a 2.0 is rejected.

Symmetric Measures

Table 16. Mean Score of Liking to Listen to 432Hz and 440Hz Frequently

	N	Mean	Std. Deviation	Minimum	Maximum
Like to listen to 432Hz frequently	30	1.8000	.84690	1.00	3.00
Like to listen to 440Hz frequently	30	1.8000	.84690	1.00	3.00

The respondents like to listen to each tune more frequently. The data shows no difference in the mean.

Marginal Homogeneity Test

The marginal homogeneity test is used because the nominal scale data distribution is in the form of a 3x3.

Table 17. Marginal Homogeneity Test – Liking to Listen to 432Hz and 440Hz Frequently

Distinct Values	3
Off-Diagonal Cases	14
Observed MH Statistic	26.000
Mean MH Statistic	26.000
Std. Deviation of MH Statistic	2.828
Std. MH Statistic	.000

When asked about the likeness to listen to the music frequently, there is no significant difference in the likeness of listening to 432Hz music and the likeness to listen to 440Hz music ($p\text{-value} = 1.000 > 0.05$). Thus, the null hypothesis (H_0 2.0) should be accepted, and H_a 2.0 rejected.

Comparison Test

Convenient to Listen to 432Hz vs 440Hz

Table 18. Convenient to listen to 432Hz vs 440Hz

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	432Hz is more convenient to listen to than 440Hz	18	60.0	60.0	60.0
	432Hz is less convenient to listen to than 440Hz	12	40.0	40.0	100.0
	Total	30	100.0	100.0	

The proportion who feel 432Hz is more convenient to listen to than 440Hz is higher.

Ability of 432Hz vs 440Hz to Soothe Oneself

Table 19. Comparison of the Ability of 432Hz vs 440Hz to Soothe Oneself

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	432Hz is more soothing than 440Hz	22	73.3	73.3	73.3
	432Hz is less soothing than 440Hz	8	26.7	26.7	100.0
	Total	30	100.0	100.0	

432Hz music is more effective at soothing respondents when they are in a burnout state. Based on the previous finding, the 440Hz music is deemed to generate fear more than the 432Hz music.

Peaceful feeling of the Dhikr Part

Table 20. Comparison of the Dhikr Part of 432Hz vs 440Hz to Give a Peaceful Feeling

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dhikr part 432Hz gives a more peaceful feeling than 440Hz	18	60.0	60.0	60.0
	Dhikr part 432Hz gives a less peaceful feeling than 440Hz	12	40.0	40.0	100.0
	Total	30	100.0	100.0	

The majority agrees that the dhikr part of 432Hz music gives more peacefulness than 440Hz music. There are 60% of the total respondents mentioned this. The findings are consistent with the ability to soothe oneself, the convenience, and the softness of 432Hz.

Overall preference

Table 21. Overall Preference of Music 432Hz vs 440Hz

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Prefer 432Hz to 440Hz	20	66.7	66.7	66.7
	Prefer 440Hz to 432Hz	10	33.3	33.3	100.0
	Total	30	100.0	100.0	

Discussion

The main findings show that dhikr is more effective at generating a sense of peacefulness. In the research, at the 432Hz tuning, the impact is higher (60%). 432Hz music is more effective in soothing respondents (73,3%) when they are in a burnout state. Also, 60% respondents are more convenient to listen to the 432Hz than to the 440Hz. Overall preference is for 432 Hz music.

This is in line with a quantitative research study among adolescents conducted by Dina Haya Sufya et. al (2025) found that Islamic dhikr therapy and contemporary sound healing/music therapy rely on rhythmic sensory inputs to regulate physiological functions, including slowing down heart rate, lowering cortisol, and encouraging relaxing alpha brainwave states. Moreover, daily dhikr therapy is effective in reducing stress levels. Dhikr, as a psychospiritual intervention, possesses strong efficacy within the context of adolescent stress management. This is complemented by qualitative data from in-depth interviews with participants in the experimental group, which also support the quantitative results. Thematic analysis revealed that dhikr not only reduced stress but also strengthened spiritual dimensions, helped manage negative emotions, and fostered a more positive mindset. The participants in the research reported feeling calmer, more patient, and better able to control their emotions following a consistent dhikr practice.

The study is also supported by findings among hypertensive patients conducted by Ragayasa et. Al (2022). The study used a method of psychoreligious therapy as a series of dhikr and prayer by saying the letter "Al-Fatihah" 7 times, then "Istighfar" 100 times, followed by solawat "Allahumma shall 'ala Muhammad wa Ali Muhammad" as much as 100 (Solawat "Ya sayyidi ya Rasulullah " as much as 1000 times), once every day. Psychoreligious therapy in remembrance can increase self-efficacy and reduce blood pressure in patients. Moreover, Sarr (2016) also found that slawatan rituals carried a spiritual resonance as a form of Neo-Sufism, emphasizing vibrational unity, communal resonance, and emotional purification, which parallels modern therapeutic frameworks focusing on breath regulation and repetitive sound exposure.

CONCLUSION

It can be concluded from the findings:

1. This research has indicated differences in effects between 432Hz and 440Hz. The main part, dhikr, is confirmed from the data to be more impactful through 432Hz than 440Hz. The majority agrees that the dhikr part of 432Hz music generates a more peaceful feeling than that of 440Hz music.
2. Although the tuning variance is minimal, the findings suggest that 432 Hz music produces a more relaxing and emotionally stabilizing experience compared to 440 Hz. Respondents reported greater calmness, introspection, and softness after listening to the 432 Hz stimulus.
3. Except for the liking of each tune, other findings, including the convenience of listening to each tune frequently and self-soothing, generate differences. The difference between listening to 432Hz music and 440 Hz music was found to be significant ($0,001 < 0,05$).

Research Implication

For composers, producers, and sound therapists, this research demonstrates the value of designing ambient soundscapes that incorporate:

- a. 432 Hz tuning
- b. Slow-attack synthesizer pads
- c. Repetitive structures inspired by dhikr
- d. Long-decay resonance modeled after gamelan
- e. A softer, non-intrusive harmonic texture

These sound design choices can intentionally promote calmness and emotional regulation, enabling new forms of therapeutic audio engineering.

Research Limitations

Several limitations must be acknowledged:

- Sample Size: With only 30 participants, results cannot be generalized to broader populations without additional studies.
- Subjective Measures: This study relied heavily on self-reported data, which may be influenced by expectation or cultural familiarity.
- Short-Term Exposure: Listening durations were brief; long-term therapeutic effects remain unknown.
- Cultural Influence: Respondents with a Javanese Muslim background may have amplified positive responses to dhikr-based music.

These limitations create opportunities for more nuanced future research.

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