INSANIAH: Online Journal of Language, Communication, and Humanities
Volume 6 (1), April 2023

The Effect of Mozart Music in Reducing Depression Levels among Hospital Nurses in Malaysia

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ABSTRACT

This research aims to determine the effectiveness of Mozart's music in reducing depression among nurses in order to increase the quality of healthcare services in Malaysia. The research method that was used for this research was quasi-experimental and an Aura machine was used to collect data. A significant difference in aura colour before and after a 14-day treatment of Mozart Music was also observed. In order to help the nurses to reduce depression; minimise disturbance during working hours; and have a more proactive and productive environment, treatment sessions were set up for those who scored a moderate depression level using Beck Depression Inventory (BDI). There were two experiment groups; the Mozart Music group and the non-treatment group of which, each group consisted of 15 participants. Treatment session was conducted daily for 14 days with each session taking approximately 10 minutes. After 14 days, participants were given the same questionnaires from before to answer once again. This research contributes a new treatment plan to alleviate the burden that nurses are facing in reducing depression by giving them more options of alternative treatments that suit themselves apart from the current treatments such as meditation and social support. In conclusion, Mozart's music shows significant results in reducing depression among nurses.

Keywords: traditional music instrument, Psychology treatment, Depression, Nurse, BDI

INTRODUCTION

The world is still grieving from the pandemic as a lot of people around the world have lost jobs. Many companies have to lay off their talented employees to recover their economies and restructure their companies after inflation. Nurses are also included in this group and it is negatively affecting their stress levels. Music has been used in various cultures around the world for various purposes, including reducing stress and as therapy.

In Canada, due to an extensive public requirement on the health of nursing personnel, Ohler et al., 2010; Shields & Wilkins, 2006 found that nurses were twice as likely to suffer from depression than the general population. According to Samson (2010) five nurses employed at a Quebec University Hospital in 2010 were reported to be suicidal within a few months, from prolonged and untreated depression.

Additionally, in 2013, as reported by Radio-Canada Nouvelles, two nurses at a regional Quebec Hospital, had their lives taken within a few days of each other.

According to Faremi et al. (2019) intense daily activity is the cause of a nurse's occupational stress. The study's finding from this research shows that major aspects of a nurses' job result in the highest frequency of stress. Healthcare institutions in Malaysia can get affected by untreated depression among nurses in Malaysia. A previous study by Siti Hajar and Huda (2018) recommended that the hospital management address the issues of depression among nurses by conducting a prevention program through modification of burnout-associated factors, by organizing a stress-reduction program to deal with the issue.

A shortage of nurses due to an increasing number of patients leads to work overload and causes burnout among hospital nurses. Nurses tend to have poor job performance and a negative response to the quality of patient care, according to Mardani & Mardani (2014); burnout among healthcare providers is an important issue since they affect turnover rates, staff retention with a severe negative impact on patient care, physical-psychological health of staff and health care costs. High demand for healthcare services placing the nurses on high responsibility to ensure the demand is satisfied. Lee (2012) stated the factor that causes anxiety is due to heavy workloads, significantly related to poor work motivation, which obviously affects individual performance.

Loo and Leap (2012) in their studies of Job Stress and Coping Mechanisms among Nursing Staff in Public Health Services in a Public Hospital, in Selangor, consisting of female nurses, found three major effects of job stress on nurses. They were that 86.2% of the respondents encountered psychological problems at least once every month, and it was followed by physical health problems at 74.2% and behavioral problems at 20.1%. During the interview for this research, the researchers gathered nurses' data to figure out if they could easily get angry when depressed from work. Uncooperative patients, insufficient staff, heavy workloads, office politics, crowding in the workplace and much more contributed to the bad-tempered. Nurses also experienced fatigue from stressful workloads and high demands of physical movement. Furthermore, they experienced mental depression as they were treated as "second-class workers".

Loo and Leap (2012) said the issue of nurse shortages in Malaysia has caused nurses to be affected by depression in trying to cope with heavy workloads. which required them to perform nursing and non-nursing work under a great deal of depression. The nursing profession needs an abundance of human interaction and patience when caring for the sick. This means they need to have good communication skills and a friendly approach. It was reported that 80% of premier public health services are handled by nurses, Hatijah Yusoff (2000) from her research concluded that "stress too high" was a significant factor for nurses leaving their nursing jobs in Malaysia.

The problem with this research is there is not much research on the treatment for reducing depression among nurses in Malaysia. The previous studies of depression among nurses in Malaysia focused on resources for depression and problem-solving skills (Choi et al., 2013; Sharifah Zainiyah et al. 2011). The effectiveness of music treatment in reducing depression among nurses has not been studied widely. The previous research regarding music focused on increasing attention span (Yohan and Hishamuddin, 2013) increasing happiness (Yamamoto et al., 2003), and spatial reasoning skills (Rauscher et al., 1993). There is evidence of emotional responses when

listening to music in everyday life (Juslin & Sloboda., 2001). Music can do more than alter emotions and elevate mood; it can also improve focus on a task by providing motivation and is often used to motivate performances during an event. Lower-pitched sounds come from slow vibrations of instruments to produce it, while even lower-pitched noise is called infrasound. It cannot be detected by human ears, while very high-pitched noise is called ultrasound. In research by Prajnananda (1980), it is stated that the listener will get absorbed by the music which can create a meditative state of mind by promoting concentration while listening to the music. Another review by Prajnananda (1980) asserts that music not only facilitates the acquisition of "bliss and divine knowledge in the individual but also promotes in them a state of eternal peace and tranquility.

Mardani (2014) stressed that burnout among healthcare providers was an important issue since it affected turnover rates, staff retention, patient care, physical care, physical-psychological health of staff, and healthcare costs. The researcher agrees that action toward this has to be taken while considering the cost.

As quoted by Seaward (1999), the classical composer Beethoven reported 'Music is the one incorporeal entrance into the higher world'. Studies of music regarding physiology supporting the inducement of emotion have been done by previous researchers who also investigated profound effects on levels of relaxation and contentment (Gupta & Gupta, 2005). Music preferences or social attitudes are also known to affect a listener's emotional response (Livingstone & Thompsom 2000).

The objective of this research is to use Malay instrumental music to develop into a new treatment for reducing depression among nurses. Giving nurses more choice to choose any alternative treatment that suits them besides current ones, such as meditation, and social support, either problem-focused or emotion-focused.

RESEARCH METHODS

The method used in this research is quasi-experimental. According to Cook & Campbell (1979), quasi-experimental research is research that resembles experimental research but is not true experimental research. Quasi-experiments are most likely to be conducted in field settings in which random assignment is difficult or impossible. Plus, between subjects in which participants have not been randomly assigned to conditions.

According to the Hospital Nursing Department, there are 1811 nurses working at the Hospital University Sciences Malaysia and 135 nurses currently working at the outpatient department. This experiment used purposive sampling where the sampling form enables the selection of sample members that conform to certain criteria. Samples for this study have been selected randomly among female staff that have no chronic illnesses from the Hospital University of Sciences of Malaysia which were staff nurses, trained assistant nurses, and nurse aids working at Outpatient clinics because they were handling multi-disciplinary issues. In order to get accurate results, the researcher only chose one specific gender, that being female because the majority of the nurses in the research area are women. The target samples were 30 which were divided into three experimental groups; 15 respondents for the Mozart Music therapy group, and 15 respondents for the control group which is the non-therapy group.

The researcher determined mild mood disturbance/depression among the respondents by using the Beck Depression Inventory (BDI). During the BDI test, only female staff nurses scored mild depression on the BDI test in this study. The age group selected was below 54 years old, as the majority of nurses retired at age 55.

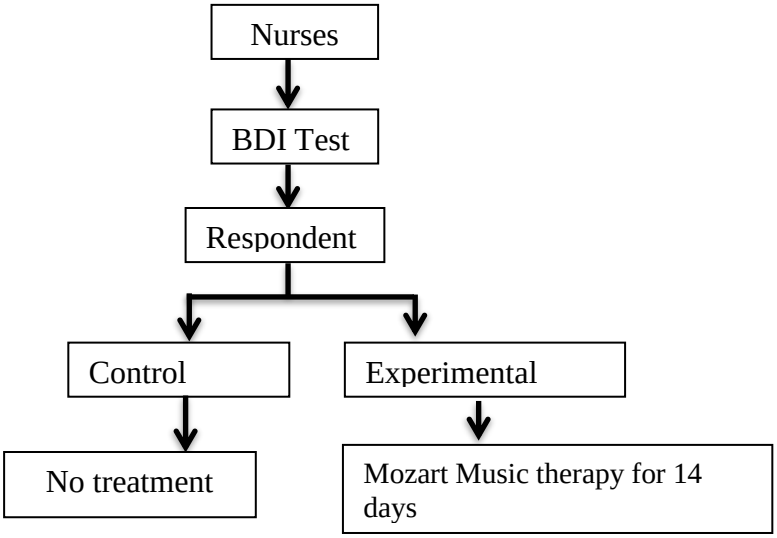

Figure 1. Method of Survey Respondent Selection

The place of this research is Multidisciplinary Outpatient Clinic in Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.

The experiment was conducted between 2 pm- 5 pm, as the depression level during these hours was considered high according to their schedules when compared to the morning (when nurses just started to work and felt energetic).

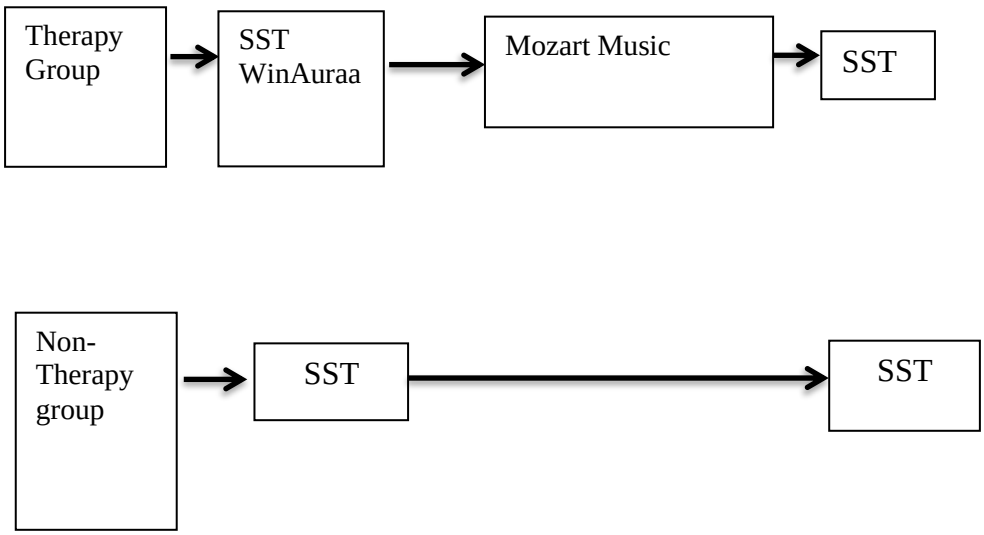

Figure 2. Research Session Design

The SST is a Subjective Score Test. SST is a numeric rating scale that was used in this research to assess respondents' level of comfort before and after listening to the music (0 score indicated uncomfortable/ and 10 highly comfortable). SST is adopted from Likert Scale where the independent variable is the group of nurses and dependent variable is the level of comfortable.

This research used a WinAura machine. WinAura is a Windows program that allows one to see aura colors on the program screen by placing the hand on the aura

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sensor bio hand plate. The aura analyzes the result into three categories which are Body, Mind, and Spirit depending on the activity of chakra involved. Body referring to energy connected to physical, mind referring to energy connected to thought, and spirit referring to energy connected to spiritual.

The data analyzed by Wilcoxon Test using SPSS Program version 22.0 was sophisticated and user-friendly. The steps to analyze data required managing and organizing raw data, systematically coding and entering data, analyzing the min data, engaging in reflective statistical analysis, interpreting meaning, discovering findings, and finally drawing relevant conclusions. The Wilcoxon Signed-Ranks Test and T-test are used in this study to analyze the data.

FINDINGS

There were 22.22% between 25-35 years old, 66.67% between 36-45 years old, and 11.11% between 46-55 years old. The work experience of participants tested ranged from 22.22% (less than 10 years, 66.67% between 10 to 20 years, 11.11% between 21 to 30 years, and 0% for more than 31 years). All of them were Malay (100%), and married (100%) with the highest level of education being a diploma (100%).

Table 1. Wilcoxon Signed-Ranks test for Mozart Music according to aura color

Color	Before Malay Instrument Music Therapy		After Malay Instrument Music Therapy	
	Frequency	Percentage	Frequency	Percentage
Blue	8	53.3	18	53.3
Green	6	40.0	6	40.0
Yellow	1	6.7	1	6.7
Total	15	100	15	100

Based on table 1, there are colors appearing differently by the WinAura on Mozart Music therapy depending on an individual's aura color before and after each the therapy session. Before the Mozart Music therapy, eight participants which are 53.3% appeared as a blue color, six participants which are 40% appeared as a green color, and only one participant which is 6.7% appeared as a violet color. After 14 days of the Mozart Music therapy, no changes of the color were seen from the previous record.

Table 2. Wilcoxon Signed-Ranks test results for Mozart Music according to BDI test

BDI	Before Malay Instrument Music Therapy		After Malay Instrument Music Therapy	
	Frequency	Percentage	Frequency	Percentage
Mild	15	100	0	0
Normal	0	0	15	100
Total	15	100	15	100

Table 2, it shows that all the participants scored a mild depression level in their BDI test before the Mozart Music therapy, while after the therapy it shows all the participants scored normal depression levels in their BDI test.

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Table 3. Wilcoxon Signed-Ranks test results for Mozart Music according to Subjective Score Test (SST)

SST	Before Malay Instrument Music Therapy		After Malay Instrument Music Therapy	
	Frequency	Percentage	Frequency	Percentage
1.00-3.33	0	0	0	0
3.34-6.66	11	73.3	0	0
6.67-10.0	4	26.7	15	100
Total	15	100	15	100

Based on Table 3, shows the Subjective Score Test with scores from 1 to 10, with 1 for uncomfortable and up to 10 for comfortable. These scores have been divided into three rankings from 1.00 – 3.33, 3.34 – 6.66, and 6.67 – 10. Before the Mozart Music therapy, 11 (73.3%) participants scored the SST in range of 3.34-6.66, while 4 (26.7%) participants in the range of 6.67 – 10, and no participant scored the SST in the range of 1.00 – 3.33. After 14 days of the Mozart Music therapy, all of the scores ranked from 6.67 to 10.

Table 4. Wilcoxon Signed-Ranks test for Non-Music Therapy according to SST

SST (After 14 days – Before 14 days)	Non-Therapy
N	15
Negative Ranks	0
Positive Ranks	0
Ties	15
Mean Rank	
Negative Ranks	0
Positive Ranks	0
Sum of Ranks	
Negative Ranks	0
Positive Ranks	0
Z-value	0.000
p-value	1.000

Table 4shows the Wilcoxon Signed-Ranks test results for non-music therapy in reducing depression level among hospital nurses according to SST. The table provides some unique data on the comparison of participants' before and after the 14 days of the non-music therapy to reduce depression according to SST. Referring to the table for non-music therapy, it shows that no participant scored a lower depression score before the non-music therapy, and there were no participants that scored a lower depression score after the non-music therapy. The table also shows 15 participants showed no changes in their depression score. After 14 days of the non-music therapy, a Wilcoxon Signed-Ranks test shows no participants had a higher SST value (mean rank = 0). The results also indicated that after 14 days of the non-music therapy, it did not elicit a statistically significant change in reducing depression among hospital nurses with Z-value = 0.000 and p-value = 1.000 which is more than 0.05. Therefore, the non-music therapy music was not statistically significant in reducing depression scores among hospital nurses, according to SST.

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Table 5. Wilcoxon Signed-Ranks test for Non-Music Therapy according to BDI

SST (After 14 days – Before 14 days)	Non-Therapy
N	15
Negative Ranks	0
Positive Ranks	0
Ties	15
Mean Rank	
Negative Ranks	0
Positive Ranks	0
Sum of Ranks	
Negative Ranks	0
Positive Ranks	0
Z-value	0.000
p-value	1.000

Table 5 shows the Wilcoxon Signed-Ranks test results for non-music therapy in reducing depression among hospital nurses according to BDI. The table provides some unique data on the comparison of participants' before and after the 14 days of the non-music therapy to reduce depression according to BDI.

Referring to the table for non-music therapy, it shows that no participant scored a lower depression score before the non-music therapy and there are no participants scored a lower depression score after the non-music therapy. The table also shows 15 participants shows no change in their depression score. After 14 days of the non-music therapy, a Wilcoxon Signed-Ranks test shows no participants had a lower BDI value (mean rank = 0). The results also indicated that after 14 days of the non-music therapy, it did not elicit a statistically significant change in reducing depression among hospital nurses with Z-value = 0.000 and p-value = 1.000 which is more than 0.05.

Therefore, the non-music therapy music was not statistically significant in reducing depression score among hospital nurses according to BDI.

Table 6. Mean of Aura Data for Mozart Music

RES	WIN AURA MEASUREMENT							
	BEFORE				AFTER			
	COLOR	BODY %	MIND %	SPIRIT %	COLOR	BODY %	MIND %	SPIRIT %
1	BLUE	1.9	2.08	3.16	BLUE	2.03	2.23	2.89
2	GREEN	2	4.1	1.1	GREEN	1.84	3.47	1.77
3	BLUE	2.67	1.89	2.58	BLUE	2.43	1.87	2.83
4	GREEN	2.26	2.52	1.71	BLUE	1.83	2.57	2.74
5	GREEN	2.07	3.34	1.73	GREEN	1.52	4.45	1.18
6	BLUE	1.24	3.81	2.1	GREEN	1.71	3.29	2.17
7	BLUE	0.83	2.64	2.07	BLUE	2.12	2.52	2.74
8	BLUE	1.33	3.58	2.24	BLUE	1.51	2.69	2.95
9	GREEN	0.84	4.91	1.38	BLUE	2.21	1.18	2.64
10	BLUE	1.31	2.79	3.04	BLUE	1.37	2.19	3.59

11	BLUE	2.1	0.94	2.84	BLUE	1.96	2.39	2.79
12	GREEN	1.73	4.3	1.11	GREEN	1.67	3.37	1.27
13	VIOLET	0.7	3.2	3.24	VIOLET	0.98	2.91	3.25
14	BLUE	0.33	4.44	2.38	GREEN	1.16	3.87	2.11
15	GREEN	1.43	4.02	1.7	GREEN	1.71	3.07	2.36
TOTAL MEAN	BLUE	1.52	1.88	2.04	BLUE	1.74	2.80	2.49

Table 6 shows the mean data result for Mozart Music therapy in reducing depression among hospital nurses. The table provides a mean data comparison of before and after of body, mind, spirit, and color of the 14 days of Mozart Music therapy.

Referring to the table, it shows that after 14 days of the Mozart Music therapy, the mean for color is blue, with body 1.74, mind 2.80, and spirit 2.49. The table also provides the mean data for Subjective Score Test, the scores increased from 6.03 to 7.38 indicating positive improvement to respondents during the therapy. The BDI test shows a reduced score from 11.93 to 2.26; this data indicates that Mozart Music therapy is significant in reducing depression among hospital nurses.

DISCUSSION

This study's findings that the use of Mozart Music in reducing depression brought different outcomes that can be used in reducing depression among hospital nurses. As the researcher observed during the therapy, the respondents responded happier after listening to their music of choices. This interest leads to positive results. Previous studies were also stated regarding this finding happiness', 'sadness', 'tenderness', 'fear' and 'anger' are often communicated by specific patterns of acoustic cues (Juslin & Sloboda. (2001). Mc Craty et al. (1998) stated that music can induce emotional states in the listener or change the mood. Therefore, this study is beneficial in helping hospital nurses in reducing their depression with minimal disturbances during working hours, thus creating harmony and a productive environment. The use of music in this research will develop into a new treatment in reducing depression among nurses. Giving nurses more choices to choose any alternative treatment that suits them besides those present, such as meditation, and social support, either problem-focused or emotion-focused.

The researcher reported that all respondents were comfortable and relaxed when listening to their own music of choice and showed interest in it. The respondents also listened to the music therapy outside of the therapy room depending on their preferences every day during the 14 days of the therapy. All of the respondents were able to commit by listening at least once per day to their music. Previous studies were proved by health psychology researcher.

The Mozart Music Therapy can influence the mind. Yamamoto et al. (2003) stated that the level of norepinephrine which is a neurotransmitter that regulates arousal decreased when listening to slow music. Will and Berg (2007) in their review stated that external stimuli drive the brain towards relaxed activity. The researcher sees these results synchronize with the previous studies on how it has been proved that music can impact the human mind. Chemically pleasant music releases dopamine in the nucleus accumbens. Nucleus accumbens is found in the area of the brain called basal forebrain; it operates on two essential neurotransmitters which are dopamine that promotes desire and serotonin that effects satiety and inhibition. Pleasant music increases the release of serotonin which is responsible for a good mood in the brain, while unpleasant music

reduced the level of serotonin (Rajadurai, Rajeesh Kumar, Payal., 2012). Yohan, K., Hishamuddin, M. S. (2013) proved that music was indicative of an increased attention span, promotes learning interest, and reduces tiredness during the learning process. All the respondents showed changes from mild depression to normal depression level according to BDI scores.

CONCLUSION

Mozart Music show significant results in reducing depression among hospital nurses. According to Nechama Yehuda (2011), interrelated with music-induced relaxation is the reduction of anxiety. Prolong untreated depression and anxiety can lead to poor health outcomes. However, the researcher strongly believes that nurses also need rest to recharge after work from being tired. Nursing, by its nature, is a stressful profession (Malun, 2011).

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