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Gender-Specific Outcomes of Musical Preferences and Interventions for High Blood Pressure among Selected Adults in Ago-Iwoye

ABSTRACT. Hypertension is a prevalent health issue among Adults, necessitating effective management strategies. Music therapy has shown promise in reducing blood pressure, but gender differences in its efficacy remain understudied. This study investigated gender-specific outcomes of musical interventions on high blood pressure among selected Adults in Ago-iwoye. It elucidates aptly on factors responsible for high blood pressure. This quasi-experimental study involved 20 adults (10 males, 10 females) with hypertension. Participants were randomly assigned to either a music intervention group (30 minutes of relaxing music, twice weekly, for 4 weeks). Blood pressure measurements were taken at baseline, 4 weeks. Results showed significant reductions in systolic and diastolic blood pressure in both males and females in the music intervention group. However, the preferred music genre for both male and female differ. Conversely, musical preferences are significant in the outcome of the musical intervention on participants. This study highlights the effectiveness of musical interventions in reducing high blood pressure among adults, with gender-specific differences in outcomes. These findings inform tailored hypertension management strategies for adults and recommended the development of personalized hypertension management programme, particularly in local settings, and underscore the importance of considering gender differences with individual musical genre preferences in the design of music-based interventions.

KEYWORDS: music therapy, hypertension, gender differences, adults

Introduction

Millions of people worldwide suffer with hypertension, also known as high blood pressure, a widespread public health issue that is particularly prevalent in Nigeria. The World Health Organization (WHO) estimates that 46% of adult Nigerians suffer from hypertension, which raises their risk of renal disease, stroke, and cardiovascular disease. High blood pressure

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(hypertension) is a significant public health concern globally, linked to increased risks of cardiovascular diseases, stroke, and kidney failure (World Health Organization, 2021). Urban and semi-urban areas like Ago-Iwoye have a notably high prevalence of hypertension, which is exacerbated by stress, lifestyle choices, and limited access to treatment. The rise of hypertension in the country is reflected in the semi-urban village of Ago-Iwoye in Ogun State, Nigeria. According to local surveys, 43.8% of people in Ago-Iwoye have hypertension (Ogunyemi et al., 2013). The prevalence is higher in females (46.5%) than in males (40.5%).

Recent research has shown how effective non-pharmacological treatments, like music therapy, may be in controlling high blood pressure. Stress and anxiety are known to be antecedents to hypertension, and music has been demonstrated to have a relaxing effect on the nervous system. Therapies such as musical interventions have gained attention for their potential benefits in managing hypertension (Thoma et al., 2013). Musical interventions, which encompass various forms of music therapy, listening, and participatory music-making, can influence physiological responses such as heart rate and blood pressure. Research suggests that music can reduce stress and anxiety, both of which are known contributors to hypertension (Bradt & Dileo, 2014).

However, current research has mostly ignored potential gender differences in favor of generic populations. The prevalence, symptoms, and results of therapy of hypertension are significantly influenced by gender. Research has consistently demonstrated that men and women react differently to stress on a physiological and psychological level, which could affect how well music therapy works. Furthermore, the ways that men and women suffer hypertension may differ depending on socio-cultural factors like caring duties and stress at work. Notably, gender differences in response to musical interventions have been highlighted, indicating that men and women may experience varying outcomes due to psychological and physiological factors (Gerra et al., 2000). Everyday human life involves music. Despite its apparent function as entertainment, music has many practical applications. Understanding and researching psychological concerns can be aided by music.

This study examines how musical therapies for hypertension in adults in Ago-Iwoye, Nigeria, differ by gender. This study attempts to offer insights that could improve customized interventions in the management of hypertension by analyzing the differences in responses between men and women to musical therapy. Understanding these gender disparities has

important ramifications for creating individualized, successful treatment programs that cater to each gender's particular demands.

Factors Contributing to High Blood Pressure

In many areas, including Ago-Iwoye, Nigeria, hypertension, a disorder characterized by consistently high blood pressure has become more common. This health problem is caused by a number of causes, which can be broadly divided into environmental, socioeconomic, and lifestyle impacts.

a. Dietary Practices:

Consuming a lot of sodium is a major cause of hypertension. According to Adewoye et al. (2018), a significant portion of the population consumes diets high in processed foods and excessive salt, which are well-known contributors to elevated blood pressure and increased risk of hypertension. These dietary patterns, combined with low intake of fruits and vegetables, which are essential for maintaining cardiovascular health, exacerbate the problem further. Ogunmola et al. (2020) emphasize that inadequate consumption of nutrient-rich fruits and vegetables leads to poor cardiovascular outcomes by limiting the intake of antioxidants, dietary fiber, and potassium, all of which play protective roles against hypertension and related cardiovascular diseases. This is a case with most participants when people hardly consume fruits and vegetables. Most people, especially in local areas, trade with vegetables and fruits instead of feeding on vegetables. The level of ignorance on the importance of the consumption of vegetables results into being victim of high blood pressure. The bush meat and other food such as locust beans are traditionally preserved with heavy salt and thus result into consumption of too much of salt if additional salt measurement is not well considered in food preparation.

b. Physical Inactivity:

Individuals who lead predominantly sedentary lifestyles are at a significantly higher risk of developing high blood pressure. Physical inactivity contributes to various physiological changes, including impaired vascular function, increased arterial stiffness, and unfavorable alterations in body weight, all of which can elevate blood pressure levels. Conversely, engaging in regular physical activity has been consistently demonstrated to have a protective effect by lowering both systolic and diastolic blood pressure.

Exercise promotes improved cardiovascular efficiency, enhances endothelial function, and aids in weight management, thereby reducing the risk of hypertension. The absence of such activity, therefore, stands as a major modifiable risk factor for the development and progression of high blood pressure (Ibrahim & Damisa, 2020).

c. Socio-Economic Factors:

Lower-income individuals experience financial stress, limiting their access to healthy food, healthcare, and other resources that can help manage high blood pressure. Health outcomes are strongly influenced by socioeconomic position. Individuals with limited social support experience increased stress levels, which contributes to the development of high blood pressure. In Ago-Iwoye, where the university is the major source of economic survival at closure of the university, indigenes live in poverty and the lack of financial support to access medical facilities leads to uncontrolled hypertension. In an attempt to break even of poverty, indigenes engage in lots of hard labour and experience increased stress levels, which contributes to the development of high blood pressure. (Adeyemo et al., 2017) Corroborates the view that those with lower incomes also have less access to preventive care and health education.

d. Stress and Mental Health:

Psychological stress is a well-recognized contributor to the development and persistence of high blood pressure. Chronic exposure to stress often has driven by social and economic challenges such as poverty, unemployment, social isolation, and discrimination can have a profound impact on cardiovascular health. When individuals are subjected to long-term stress, the body activates the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis, initiating the "fight-or-flight" response. This physiological reaction leads to the release of stress hormones, particularly cortisol and adrenaline, which increase heart rate, constrict blood vessels, and elevate blood pressure. According to Ogunyemi et al. (2019), sustained activation of this stress response can result in consistently high cortisol levels, which in turn contribute to vascular dysfunction and the eventual development of hypertension. The link between socioeconomic status and elevated stress levels further emphasizes the need for public health interventions that address both psychological well-being and social inequality as part of comprehensive hypertension prevention strategies.

e. Genetic Predisposition:

A known risk factor for developing hypertension is a family history of the condition. Genetic predisposition plays a significant role in determining an individual's vulnerability to high blood pressure. Numerous studies have demonstrated that individuals with hypertensive first-degree relatives are at a higher risk of developing hypertension themselves, even when accounting for environmental and lifestyle factors. This familial aggregation suggests a strong hereditary component to blood pressure regulation. According to Ekhator et al. (2021), genetic factors contribute notably to hypertension susceptibility across various population groups, underscoring the importance of early screening and preventive strategies in individuals with a positive family history.

f. Cultural Practices:

Hypertension may also be influenced by specific cultural norms and customs. For instance, using traditional herbal treatments without the right supervision can result in uncontrolled substance intake that could have an impact on blood pressure (Adewale et al., 2022).This is a case with Ago-iwoye as the culture encourages the use of uncontrolled herbal treatments. The uncontrolled or unmeasured herbal treatment consequently results into high blood pressure. The indigenous people believe so much in the use of herbal treatment for virtually all ailments due to the cultural practices.

Efficacy of Musical Intervention on Lowering Blood Pressure

Studies have demonstrated that music can successfully elicit and modulate moods and emotions in conjunction with variations in respiration, blood pressure, and heart rate. Lakshmi et al. (2015) carried out a pre-test, post-test investigation using a quasi-experimental methodology. The music therapy experiences of a few adults with hypertension were assessed. The results demonstrated a robust association between the advantages of music therapy and reduced blood pressure in older persons. Musical stimuli have the ability to activate specific brain circuits, such as the limbic system, which are connected to emotional behavior. Listening to music can help people unwind and activate their limbic system. This relaxed state lowers blood pressure. The use of music therapy as a therapeutic technique can help to preserve, enhance, and repair mental, physical, and emo-

tional health. Music can be utilized as a therapeutic tool to help patients with hypertension lower their blood pressure.

Musical Preferences

The enjoyment of particular music at a particular moment might be characterized as musical preference (Abeles, 1980). Numerous studies have defined musical preference as the degree to which one likes a certain musical style or genre and also has the behavioral propensity to listen to that style or genre instead of others. Such a desire could be a long-term or short-term mindset.

Nonetheless, musical preference is a long-term phenomenon according to music psychology (Schafer, 2008). A person's taste in music is shaped by a complex interplay of multiple factors, reflecting both internal dispositions and external circumstances. According to Müller (2000), these elements can be broadly categorized into four key domains: the music itself, the listener, the situation, and the use of music. The music includes intrinsic qualities such as melody, rhythm, harmony, tempo, and lyrics, which influence how appealing a piece is to a listener and then, individual characteristics like personality, age, cultural background, emotional state, and past experiences, all of which contribute to personal musical preferences. To note are also contextual variables such as the environment in which the music is heard (e.g., a party, during study, or in solitude), time of day, and social setting, all of which can alter the listener's perception and enjoyment of music. According to research, people mostly mention genres when discussing their musical preferences. Accordingly, musical genres offer the best research environment (Rentfrow & Gosling, 2003).

Data Presentation

Post-Musical Intervention (Males)

The table revealed improvement and change in the systolic and diastolic of male participants after the musical intervention. This finding is consistent with previous studies that have shown music to be an effective adjunctive therapy for reducing blood pressure (Hanna-Pladdy & Mackay, 2011; Koelsch, 2013). It is noteworthy that the diastolic blood pressure of male participants exhibited a more significant change following the musi-

Male Participants	Music Genre Preferences	Age	Before MI Systolic (mmHg)	After MI Systolic (mmHg)	Status	Before MI Diastolic (mmHg)	After MI Diastolic (mmHg)	Status
M1	Hip Pop	35	125	115	Normal	82	75	Normal
M2	Afrobeat	42	138	120	Normal	90	70	Normal
M3	Afro-beat	38	118	110	Normal	78	70	Normal
M4	High Life	50	142	115	Normal	95	85	Elevated
M5	High Life	60	122	118	Normal	80	75	Normal
M6	Fuji	45	130	120	Normal	85	78	Normal
M7	Afro-beat	38	128	120	Normal	84	80	Normal
M8	Hip-Pop	39	120	112	Normal	75	68	Normal
M9	Fuji	48	125	110	Normal	92	75	Normal
M10	High Life	60	132	115	Normal	88	82	Elevated

cal intervention when compared to their female counterparts. This observation highlights potential gender-based physiological differences in how individuals respond to music as a therapeutic tool. Supporting this, a study by Trappe (2012) found that men experienced a greater reduction in systolic blood pressure, averaging a decrease of 7.1 mmHg—compared to women, who showed a more modest reduction of 3.5 mmHg after participating in a music-making intervention. These findings suggest that men may have a more pronounced cardiovascular response to certain types of musical engagement, possibly due to differences in autonomic nervous system activity, hormonal influences, or emotional processing of music. Understanding such gender-specific responses is essential for tailoring music therapy interventions to maximize health benefits for diverse populations. However, the study also showed the differences in musical taste or preferences of male participants. Males, below the age of 50 preferred energetic music where they could exact their energy while the music is being played, whereas those above the age of (50), preferred a slow music genre such as high life.

Post-Musical Intervention (Females)

This study demonstrated that, following the musical intervention, the diastolic blood pressure of female participants returned to normal levels, indicating a more favorable response compared to male participants. These findings align with previous research highlighting gender differences in cardiovascular responses to music. For example, Lee (2012) reported that women exhibited a greater reduction in diastolic blood pressure, with an average decrease of 4.2 mmHg, whereas men showed a smaller reduction of 2.1 mmHg after listening to music. In contrast, Trappe (2012) found that men experienced a more pronounced reduction in systolic blood pressure, averaging 7.1 mmHg, compared to women, who showed a decrease of 3.5 mmHg following participation in a music-making intervention. Furthermore, the study revealed that female participants tended to prefer slower, more solemn genres of music, which may have contributed to their more substantial diastolic blood pressure improvement. These gender-specific preferences and physiological responses suggest that tailoring musical interventions to individual characteristics, including gender and music style preference, could enhance their effectiveness in managing blood pressure.

Female Participants	Music Genre Preferences	Age	Systolic (mmHg) Before MI	Systolic (mmHg) After MI	Status	Diastolic (mmHg) Before MI	Diastolic (mmHg) After MI	Status
F1	Hip-Pop	36	115	105	Normal	72	65	Normal
F2	Blues	41	135	120	Normal	89	78	Normal
F3	Juju	40	110	100	Normal	70	60	Normal
F4	High Life	55	145	125	Elevated	96	76	Normal
F5	Blues	36	125	115	Normal	82	75	Normal
F6	High Life	59	139	120	Normal	91	80	Normal
F7	Blues	33	118	110	Normal	77	70	Normal
F8	Blues	37	112	105	Normal	69	65	Normal
F9	High Life	60	148	130	Elevated	99	77	Normal
F10	Blues	44	138	128	Elevated	90	75	Normal

Conclusion

The study investigated the impact of musical interventions on high blood pressure among selected adults in Ago-Iwoye, with a focus on gender-specific outcomes. The results showed that Musical interventions were effective in reducing systolic and diastolic blood pressure in both male and female participants. Male participants showed a greater reduction in systolic blood pressure compared to male participants. Female participants showed a greater reduction in diastolic blood pressure compared to female participants. Several theories have been proposed that Hormonal fluctuations may play a role in the differing responses to musical intervention between men and women (Kirschbaum et al., 1999). Also, differences in brain structure and function between men and women may also contribute to the differing responses to musical intervention (Cosgrove et al., 2007). The differences in the preferences of participants in this study have consequently been significant to the reduction in the blood pressure after musical intervention.

The study also found that musical preference played a significant role in the effectiveness of the musical intervention, with participants who preferred the music showing greater reductions in blood pressure. The findings of this study have implications for the development of musical interventions for high blood pressure management. Specifically, musical interventions can be tailored to meet the specific needs of male and female participants. Musical preference should be taken into account when designing musical interventions. Musical interventions can be used as a complementary therapy for high blood pressure management. The study recommends that healthcare professionals should consider incorporating musical interventions into their treatment plans for high blood pressure management and also that Musical interventions should be tailored to meet the specific needs of different populations, including males and females.

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