

The Relationship Between Natural Music Listening Frequency and Well-being in Senior Living Facilities

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ABSTRACT

Listening to music is a common human activity and an enjoyable experience for many, offering numerous benefits. Specifically, many studies using music interventions have found that music can improve well-being, particularly in geriatric populations. However, less is known about how natural music-listening habits relate to emotional and mental well-being. Therefore, the present study aimed to examine how the frequency of natural music listening (i.e., the amount of time spent listening to music) relates to emotional and mental well-being among residents of senior living facilities. Fifty-five participants completed an original survey on their music listening habits and several questions on their emotional and mental well-being, measured using items from the Warwick–Edinburgh Mental Well-being Scale and Emotional Well-Being Scale. Results revealed an association between listening to more music and higher scores on the emotional and mental well-being survey. Additionally, non-musical activities such as TV use and socializing were not significantly associated with well-being, and music listening associations persisted after adjusting for confounders measured in the study. Overall, these findings support the notion that those who listen to more music, rather than other types of media (e.g., TV, radio), show greater positive mental and emotional well-being; however, follow-up studies will help better understand music listening’s potential relationship with well-being in this population. Ultimately, the present research helps set the stage for accessible, effective methods to improve the well-being of residents in senior living facilities.

INTRODUCTION

Positive well-being is the experience of prosperity, health, and happiness (Davis, 2024). This kind of well-being plays a vital role in everyday happiness. More than just feeling well, well-being involves achieving good mental health, a positive sense of purpose, life satisfaction, and effective management of stress and anxiety (Davis, 2024). The two major types of well-being focused on in this study are emotional and mental well-being.

Emotional well-being consists of the ability to experience emotions that foster positive feelings, practice self-love, and remain resilient in the face of anxiety and stress using any technique (Davis, 2024). Mental

well-being encompasses emotional balance, maintaining social connections, life satisfaction, and a sense of fulfillment (Nortje, 2021). Being proactive in expressing and feeling emotions, managing social relationships, and supporting mental health allows individuals to maintain healthy, productive, and purposeful lives. Because of these benefits, many individuals invariably seek this type of well-being.

Geriatric populations, however, especially those in senior living facilities, face unique psychological challenges to their emotional and mental well-being. Well-being has declined with a pronounced drop-off among geriatric and older adult populations, especially those aged 70 and older (Baird et al., 2010). A major cause of well-being decline in this population is the transition to a nursing home or an assisted living facility, which is full of stress and anxiety (Brandburg, 2007). For most, it is difficult to adjust to an unfamiliar, long-term environment, and this ultimately leads to psychological distress. One of the most common reasons for this is the loss of independence (Brownie et al., 2014). By losing choice in daily routines, personal care, living arrangements, and even food choices, many seniors view nursing homes as a loss of autonomy.

Additionally, the geriatric population faces separation from familiar environments. Moving away from home to senior living facilities can create uncertainty and disorientation, which have been associated with poorer quality of life, well-being, and health outcomes (*The Importance Of Mental Health In Seniors: An Overview*, 2023). Alongside these factors, many seniors feel lonely and isolated and have higher rates of depression (*The Importance Of Mental Health In Seniors: An Overview*, 2023). This also contributes to the decline in seniors' emotional and mental well-being. Taken together, these circumstances can be harmful for the older population, as both mental and emotional well-being are essential for healthy aging.

Studies have shown that higher well-being predicts improved health outcomes, lower mortality rates, and healthier lifestyles (Zaninotto & Steptoe, 2019). In fact, in that longitudinal 10-year study, the researchers reported that higher well-being was associated not only with longer life expectancy but also with better health, without disability or chronic disease, in those extra years of life (Zaninotto & Steptoe, 2019). Not only were positive emotional and mental well-being correlated with lower mortality rates, but participants in different studies also had better outcomes on physical health indicators, such as lower risk of pain (Kim et al., 2021). They also had more beneficial health behaviors, with lower risks of sleep problems and higher physical activity. In addition to improved physical function, higher levels of psychological well-being were associated with better cognitive functioning than lower levels of well-being (Llewellyn et al., 2008). These studies demonstrate the importance of both mental and emotional well-being, especially among older adults. More research is needed to identify methods that are particularly suited to these goals and are effective and accessible to both senior living facilities and their geriatric residents. Therefore, investigating how to enhance well-being in these settings is becoming a growing research priority.

In each civilization scientists have studied, music has been an important part of their cultures (“Exploring Music across Cultures,” 2024). Although musical styles vary greatly across cultures, music and its responses are universal aspects of human behavior. For instance, certain psychological responses, including emotional responses, are similar throughout different styles of music. In fact, across societies,

vastly different songs were still associated with similar functions, including social bonding, connection, love, and healing (Trehub et al., 2015). Additionally, after reflecting on their lives, older adults saw music as a means of constructing meaning and connecting with old memories (Hays & Minichiello, 2005). To them, music was something they had engaged with all their lives, whether through lullabies or songs. In fact, many older participants in another study found music particularly effective at eliciting autobiographical memories, creating another connection between the geriatric population and music (O'Shea et al., 2025). Thus, music is uniquely positioned to positively impact well-being, especially in older adults, by engaging emotional, cognitive, and even social systems.

There is a growing body of research on music and well-being in older adults. Most of these studies use structured music interventions as the experimental factor to assess changes in response to music exposure. Fewer studies, however, examine the naturally occurring music-listening patterns of geriatric populations, especially those in senior living facilities. There is limited research about whether differences in everyday music listening frequency, or how much time is spent listening to music, are associated with changes in both emotional and mental well-being of these senior living residents. Therefore, there is a great need for research on this topic.

In the present study, the primary aim was to investigate how the frequency of music listening among senior residents in senior living facilities was associated with their emotional and mental well-being. It is hypothesized that senior residents who listen to more music – that is, have a higher music-listening frequency – will score higher on emotional and mental well-being scales than older adults who listen to music less frequently.

MATERIALS AND METHODS

Participants

In total, 55 older adults aged 60 to 98 (*Mean* = 83.42 years, *SD* = 9.080, females *N* = 39) participated in this study. All participants currently live in Pennsylvania across three senior living facilities: Brookdale Senior Living, Legend at Silver Creek, and Country Meadows of West Shore, all in Mechanicsburg. All senior residents surveyed were able to listen to music; however, these data were self-reported, and no formal audiometric testing was administered for this study. Regarding cognitive status, all participants completed the survey themselves without assistance from a caregiver, but no cognitive tests were administered. Additionally, educational background and duration of residence within the nursing home were not collected for participants. The study was approved by the Journal of High School Science Institutional Review Board (IRB). All surveys were administered by staff in the nursing facilities, and all interactions with participants complied with the relevant guidelines and regulations implemented by the senior living facilities. After being informed of the study's procedures and the option to decline participation, informed consent was obtained from all participants.

Survey Design and Administration Procedure

To create the survey, multiple questions were taken from standardized well-being surveys, described below. However, additional questions were added to the survey for the researcher's general exploratory interest but were not used for statistical analyses. The survey was purposefully shortened from long standardized tests, given the age of the geriatric population of interest. Before distributing surveys, facility staff from each facility validity-checked the survey for question bias, appropriateness, and clarity. However, no pilot testing was conducted.

When administering the questionnaire, senior participants were given a paper version of the survey to complete to the best of their ability. All data obtained was anonymized and deidentified to remove their personal information. Total testing time took approximately 5-15 minutes. All raw data collected below were stored in a password-protected Excel Spreadsheet by the researcher, with the approval of the senior living managers. Consent forms with names and signatures were kept at their respective facilities. Lastly, completed paper surveys were kept in a locked cabinet to ensure the confidentiality of all participants' information. The paper survey was divided into multiple sections, but all questions were administered in a single session.

Afterward, internal consistency was assessed using Cronbach's alpha, calculated using the participants who answered all questions in the respective sections. For the mental well-being section, internal consistency was acceptable, but nearly good (4 questions; Cronbach's alpha = .79, N = 52), and excellent for the emotional well-being section (9 questions; Cronbach's alpha = .94, N = 51).

Demographics Section

The first task participants completed was the demographics portion of the survey. This section asked participants about their age, gender, and ethnicity. Results from this section were used to identify potential confounding variables.

Music Listening Background Section

Following the demographics section of the survey, participants completed 10 questions about their interactions and experiences with music. Questions about music listening frequency during the week (e.g., How much music have you listened to in the past week?) sought to address the primary aim of this study. This question was created for the study because it directly asked participants about their natural music listening frequency. These questions used a 5-point Likert scale for the number of hours they listened to music, with options: 0 hours, ½-1 hour, 1-2 hours, 3-4 hours, 5+ hours. Questions that asked participants about their past musical experiences (e.g., Have you had formal music training, such as lessons or classes? Was music an important part of your life when you were younger?) sought to understand participants' musical backgrounds and past experiences. Questions from this section were created to

identify potential confounding variables when performing statistical analyses. These questions consisted of 5-point Likert scales ranging from *Never*, *Rarely*, *Sometimes*, *Often*, and *Very Much*.

Mental Well-Being Section

Following the previous task, participants answered four questions about their mental well-being (e.g., "Have you felt good about yourself? Have you felt optimistic about the future?"). These questions used 5-point Likert scales, with response options ranging from *Never*, *Rarely*, *Sometimes*, *Often*, *Very Much*. A subset of questions was taken from the Warwick–Edinburgh Mental Well-being Scale (Tennant et al., 2007). Questions 1 and 8 from the Warwick-Edinburgh scale were used in the subsequent analysis.

Emotional Well-Being Section

After completing the mental well-being task, participants answered nine questions about their emotional well-being (e.g., Has music helped me cope with difficult emotions? Has listening to music improved my mood?) to address the study's primary aim. A subset of questions was adapted from the Emotional Well-Being Scale to assess music's impact on emotional well-being (Şimşek, 2011). The same 5-point Likert scales were used as in the mental well-being task.

TV Use and Social Interaction Section

In this part of the survey, participants answered two questions about how much TV and Media they use. Additionally, participants answered four questions about their social interactions with caregivers and other residents of the surveyed nursing homes (e.g., Do you socialize with other seniors or residents? I feel satisfied with how often I socialize with others). The purpose of these questions was to identify other factors that may impact well-being instead of music listening frequency.

Statistical Analysis

All statistical analyses were conducted using the statistical software JASP (JASP Team, 2026). Firstly, associations between music listening frequency, measured by Question 1, and well-being questions were measured using Spearman's correlation. This is because the data were ordinal and not normally distributed. In addition, 95% confidence intervals and Fisher's z-transformed effect sizes were calculated, with Spearman's rho being the primary effect size.

Secondly, the correlational nature of the study allows for the potential for confounding variables. In an attempt to limit their impact, two complementary analyses were conducted. First, partial Spearman correlations were calculated after adjusting for age, sex, prior musical experience, and social interactions. Prior musical experience was measured by question 4, which asked participants how long they had

practiced music, including voice or instruments. Social interactions were measured by question 32, which asked participants how often they interacted with others around them.

Alongside partial Spearman correlations, multivariable linear regression models were fitted with independent variables of music listening frequency, age, sex, prior musical experience, and social interactions. Dependent variables were measures of emotional and mental well-being. This analysis was used to determine which variables had significant associations with emotional and mental well-being. Though the variables were ordinal, multiple linear regression results performed adequately with the 5-point Likert scales. The partial correlations also verified the results, as both yielded consistent conclusions.

Lastly, the Benjamini-Hochberg procedure was run by hand because multiple Spearman correlation tests were used, where a q-value was calculated to control for the false discovery rate and to reduce false positives.

RESULTS

Overall, there is a moderately strong positive association between music listening frequency (how often senior residents listened to music) and scores on the positive emotions, mental well-being, and emotional well-being tasks. This means that higher scores on the Likert-scale question about music listening frequency (measured by question 1), which indicate that residents listened to music more often than not, are associated with higher levels of positive emotions, mental well-being, and emotional well-being. All associations between mental and emotional well-being and music listening are shown in Figure 1.

Spearman's Correlations ▼

			Spearman's rho	p
Question 1 Ans	-	Question 28 Ans	0.5351	< .001
Question 1 Ans	-	Question 23 Ans	0.4129	.002
Question 1 Ans	-	Question 17 Ans	0.4132	.002
Question 1 Ans	-	Question 19 Ans	0.4408	< .001

FIGURE 1: Shows Spearman's rho alongside the subsequent p-value for the associations between Question 1 and Questions 28, 23, 19, and 17. Each shows a positive relationship.

Emotional Well-Being

The association between emotional well-being scores and the amount of music listened to by senior residents was the strongest among all other sections. In an analysis of Question 1, which asked participants the amount of time they listened to music in the past week, and Question 28, which asked about their positive emotional well-being, defined to them as the ability to manage the emotions they felt while maintaining a sense of support, meaning, and purpose, an individual data plot was constructed as

seen in Figure 2. Using JASP, Spearman's rho for the correlation was 0.5351 ($p < .001$). There is also a moderately strong, linear, positive relationship, seen in Figure 3 ($\rho = .4129$, $p = .002$), between question 1 and question 23, which asked participants if they remembered positive memories, another strong indicator of emotional well-being established by the Emotional Well-Being Scale (JASP Team, 2026; Şimşek, 2011).

Figure 2

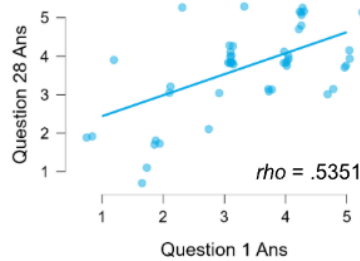


FIGURE 2: The relationship between Question 1 (x) and Question 28 (y). It plots of individual data points with a line of best fit. $p < .001$

Figure 3

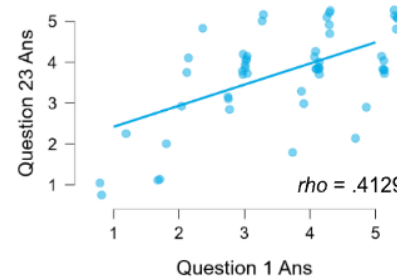


FIGURE 3: The relationship between Question 1 (x) and Question 23 (y). It is a plot of the individual data points with a line

Figure 4

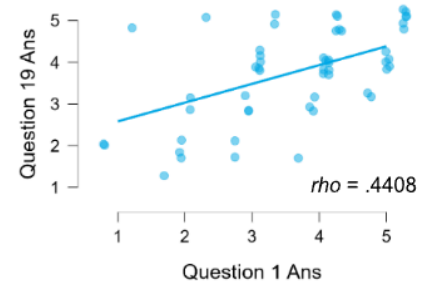


FIGURE 4: Shows the relationship between Question 1 (x) and Question 19 (y). It plots individual points with line of best fit. $p < .001$

The associations measured persisted after adjusting for potential confounding variables. The variables adjusted for included age, sex, past musical experience, and social interaction. After adjustment, the association between music listening frequency and question 28 remained significant, as seen in Figure 5. The association between remembering positive memories (question 23) and music listening frequency slightly decreased after adjustment, but also remained significant. Both passed the Benjamini-Hochberg test, and all additional statistics are shown in Figure 5. Confidence intervals are above zero and do not include zero, indicating a positive association.

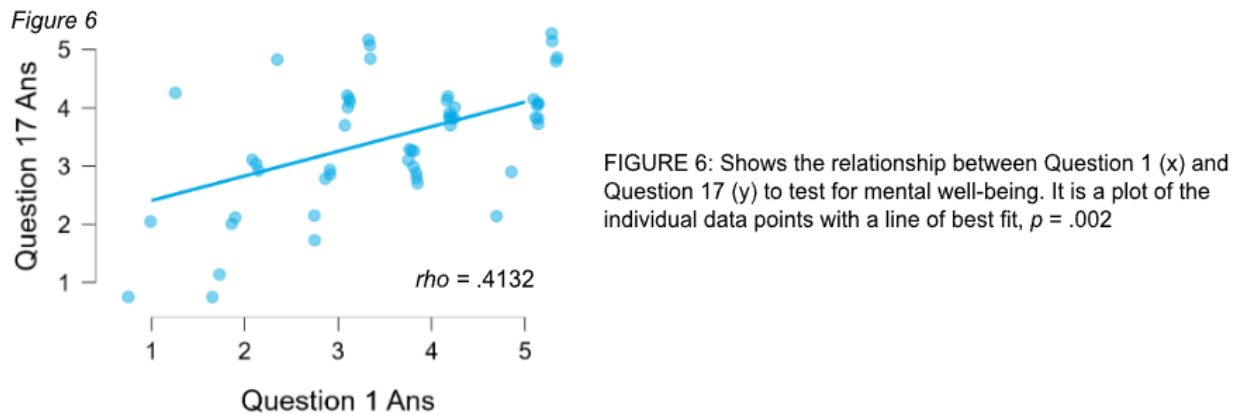
Spearman's Partial Correlations ▼

		n	Spearman's rho	p	Lower 95% CI	Upper 95% CI	Effect size (Fisher's z)	q
Question 1 Ans	- Question 28 Ans	47	0.5052	< .001	0.2415	0.6994	0.5562	.005
Question 1 Ans	- Question 23 Ans	46	0.4030	.008	0.1128	0.6298	0.4272	.012
Question 1 Ans	- Question 19 Ans	46	0.4042	.008	0.1143	0.6307	0.4287	.012
Question 1 Ans	- Question 17 Ans	47	0.4377	.003	0.1582	0.6523	0.4694	.008

FIGURE 5: All partial Spearman's correlations adjusted for age, sex, prior musical experience (Q4), and social interaction (Q32). Sample size (n), Spearman's rho, lower and upper 95% confidence intervals, effect size (Fisher's z), and q-values are listed.

Mental Well-Being

There is a moderately positive linear association ($\rho = .4408, p < .001$) between the amount of music senior residents listen to (measured by question 1) and their overall life satisfaction (measured by question 19), as shown in the trendline in Figure 4. Overall life satisfaction is a strong indicator of mental well-being, as corroborated by the Warwick Edinburgh Mental Well-being Scale (Tennant et al., 2007). Additionally, another measure of mental well-being, the prevalence of how often individuals feel good and positive feelings about themselves (Question 17), has a moderately strong, positive, linear association with question 1 (Fig 6; $\rho = .4132, p = .002$), seen by the line of best fit and relationship in Figure 6. Adjusting for the same potential confounders, associations between questions 1 & 19 and questions 1 & 17 also remained significant, with little change in correlation, as seen in Figure 5.



TV Usage and Social Interaction

Question 6, which measured how many days participants listened to music with or around other people in the past week (answers ranged from 0 to 7 days), had a moderately strong positive linear association with emotional well-being ($\rho = .4860, p < .001$), as measured by question 28. There was also a weak positive linear relationship between questions 6 and 19 ($\rho = .3036, p = .026$) and a moderately strong positive linear relationship between questions 6 and 17 ($\rho = .5171, p < .001$). As corroborated by the Warwick–Edinburgh Mental Well-being Scale, questions 17 and 19 are strong indicators of mental well-being (Tennant et al., 2007). Question 28 is a strong indicator of emotional well-being as well (Şimşek, 2011). Additionally, there was a non-significant association ($\rho = .004219, p = .977$) between question 19 (a measure of mental well-being) and question 29, which asked participants how much TV they watched in the past week. Choices ranged from 0 hrs, ½-1 hr, 1-2 hrs, 3-4 hrs, and 5+ hrs. There was also a non-significant association ($\rho = -.1569, p = .282$) between question 28 (a measure of emotional well-being) and question 29, all of which is shown in Figure 7.

			Spearman's rho	p
Question 6 Ans	-	Question 28 Ans	0.4860	< .001
Question 6 Ans	-	Question 19 Ans	0.3063	.026
Question 6 Ans	-	Question 17 Ans	0.5171	< .001
Question 29 Ans	-	Question 19 Ans	0.004219	.977
Question 29 Ans	-	Question 28 Ans	-0.1569	.282

FIGURE 7: Shows Spearman's rho alongside the subsequent p-value for associations between Q6 and Questions 28, 19, and 17. This figure also shows relationship between TV and well-being.

Multivariable Linear Regression Analysis

Questions 28 and 19 were further analyzed using linear regression for emotional and mental well-being, respectively, because they are strong identifiers of well-being (Şimşek, 2011; Tennant et al., 2007). Music listening frequency (question 1), age, sex, prior musical experience (question 4), and social interactions (question 32) were also entered into the model. Multicollinearity was also assessed; all VIF were below 1.3, suggesting no multicollinearity (Kutner et al., 2005). For emotional well-being, music listening frequency significantly predicted responses to question 28, as shown in Figure 8. The overall model was significant ($R^2 = .430$, $adj. R^2 = .360$, $p < .001$), and no other variables except music listening frequency were significant. These results are similar to mental well-being (Q19), where the overall model was also significant ($R^2 = .293$, $adj. R^2 = .204$, $p = .014$). Additionally, music listening frequency was the only significant indicator, seen below in Figure 9.

Model		Unstandardized	Standard Error	Standardized	t	p	95% CI		Collinearity Statistics	
							Lower	Upper	Tolerance	VIF
M ₀	(Intercept)	3.766	0.1616		23.31	< .001	3.441	4.091		
M ₁	(Intercept)	1.179	1.325		0.8894	.379	-1.498	3.855		
	Question 1 Ans	0.4947	0.1132	0.5421	4.371	< .001	0.2661	0.7233	0.904	1.107
	Age	-0.002012	0.01550	-0.01587	-0.1298	.897	-0.03331	0.02928	0.931	1.074
	Gender	-0.01448	0.3069	-0.005912	-0.04718	.963	-0.6344	0.6054	0.885	1.129
	Question 4 Ans	-0.02872	0.08472	-0.04307	-0.3391	.736	-0.1998	0.1424	0.862	1.161
	Question 32 Ans	0.2955	0.1473	0.2664	2.006	.052	-0.002026	0.5930	0.788	1.269

FIGURE 8: Question 28 linear regression with essential statistics. M1 is significant with $R^2 = 0.430$, $adj. R^2 = 0.360$, $p < .001$. Unstandardized & standardized coefficients, confidence interval with bounds, and collinearity statistics are included. p is significant at $>.05$

Model		Unstandardized	Standard Error	Standardized	t	p	95% CI		Collinearity Statistics	
							Lower	Upper	Tolerance	VIF
M ₀	(Intercept)	3.696	0.1611		22.94	< .001	3.371	4.020		
M ₁	(Intercept)	2.467	1.475		1.673	.102	-0.5130	5.447		
	Question 1 Ans	0.4250	0.1252	0.4689	3.395	.002	0.1720	0.6780	0.927	1.079
	Age	-0.01685	0.01706	-0.1361	-0.9877	.329	-0.05132	0.01763	0.931	1.074
	Gender	0.1469	0.3466	0.06119	0.4238	.674	-0.5536	0.8474	0.848	1.179
	Question 4 Ans	0.04606	0.09335	0.07000	0.4935	.624	-0.1426	0.2347	0.879	1.138
	Question 32 Ans	0.1957	0.1768	0.1645	1.107	.275	-0.1616	0.5531	0.801	1.248

FIGURE 9: Question 19 linear regression with essential statistics. M1 is significant with $R^2 = 0.293$, $adj. R^2 = 0.204$, $p = .014$. Unstandardized & standardized coefficients, confidence interval with bounds, and collinearity statistics are included. p is significant at $>.05$

DISCUSSION

The study attempted to answer how music listening frequency was related to well-being. The results demonstrated a positive association between the amount of music senior residents in nursing homes listened to and their emotional and mental well-being. Because the associations were mostly moderately strong, these results support the initial hypothesis that higher, more positive levels of emotional and mental well-being are associated with greater amounts of music listening. These results remained true even when potential confounding variables were accounted for in partial Spearman correlations, meaning that demographics did not influence the relationship found between musical listening frequency and well-being measures. Multivariable statistical results further strengthen the conclusions. Age, sex, past musical experience, and social interactions – shown to be important in the quality of life for senior residents – were all adjusted for (Siette et al., 2022). Ultimately, these adjusted variables may not have accounted for the associations shown between music and measures of emotional and mental well-being, due to their lack of statistical significance in the multiple linear regression. For this study's population, music was the only significant predictor.

The well-being results align with previous research indicating that seniors who listened to music, even involuntarily, experienced positive emotional and well-being outcomes (Krause & Davidson, 2021). However, many previous studies, including Krause and Davidson's (2021) research and a study by Akhtar and Buja (2026) that reviewed 13 additional studies, focused on musical interventions, in which researchers imposed a musical factor on participants and then measured changes in well-being, mood, emotions, and even cognitive function. In these studies, participants in the intervention group listened to music selected by the researchers for a specified duration, which differed from their natural listening habits. After reviewing 1,560 records, the researchers ultimately concluded that listening to music actually improved the regulation of emotions and psychological well-being while also reducing social stress and anxiety among the senior population (Akhtar & Buja, 2026). This is similar to the results discovered by Krause & Davidson (2021), though they focused exclusively on seniors in senior living facilities. While these studies analyzed the effects of imposed music treatments on senior residents' well-being, they did not examine the relationship between senior residents' well-being and their *everyday* music listening habits. Rather than determining whether music improves well-being through an experimental treatment, this research examines the relationship between individuals who already listen to a certain amount of music and their emotional and mental well-being scores. Therefore, these findings contribute to an area of research that is relatively unexplored by corroborating that a higher frequency of music listening in senior residents' daily routines is positively associated with their mental and emotional well-being. The time residents spend listening to music may matter for both types of well-being. This is an important idea that adds to existing research.

There are many possible explanations for these results. First, one possible explanation drawn from research is that senior residents who listen to more music more frequently may activate their dopaminergic mesolimbic reward pathways, including the ventral tegmental area, the nucleus accumbens,

and the amygdala (Koelsch, 2014). Dopamine release in many of these systems may lead to pleasure and positive emotions, which may contribute to the demonstrated association with greater well-being.

Second, music has also been shown to help reduce adverse feelings of stress and anxiety, especially in the geriatric population. In a study conducted by Sung et al. (2010), the researchers measured the difference in anxiety levels between a control group and an experimental group that received 30-minute music listening sessions of preferred music. From the results, they found that the experimental group of older adults, compared to the control group, showed lower scores on their anxiety tests. In older adults, lower levels of anxiety and depression are related to increased quality of life and overall well-being (Lopez et al., 2024).

Third, music may trigger the desire to engage in social situations through brain structures involved in social bonding, allowing for shared feelings and promoting interaction (Koelsch, 2014). Music is often listened to in groups or social settings, as seen in the senior living facilities where this study's participants were selected. Much research has demonstrated that spending time in group social situations improves health and well-being among older adults (Mikkelsen et al., 2019). These conclusions are partially reflected in the findings as well. As seen in the results section, there was a positive linear relationship between listening to music in social situations and measures of emotional and mental well-being. However, after adjustment with partial correlations and multiple linear regressions, social interaction was not significant. Thus, the association between social interaction and music listening frequency should be looked at more carefully, especially in future research.

It is important to note that because this was a correlational study, it is equally likely that the direction of the association is reversed. This may mean that residents with higher levels of emotional and mental well-being were more likely to seek out and listen to music. The current study's design cannot distinguish between the directions. Thus, the mechanisms above are only potential reasons, not proven explanations.

Additionally, the results showed no significant relationship between the amount of TV/Media watched and senior residents' emotional and mental well-being. However, for the present study's population, the lack of association between these variables ultimately indicates that TV/Media did not play as strong a role in the association, which may suggest that the observed association could be relatively specific to music.

By uncovering an association between music listening frequency and the emotional and mental well-being and health of senior residents, the present study's findings are meaningful. Firstly, they address a population at high risk of diminished emotional and mental well-being. The study presented results of a positive association between music and well-being. Thus, listening to music may help mitigate challenges to senior residents' well-being and emotional health, but only if there is a causal relationship between the variables. Additional research is needed to support this conclusion. Additionally, the potential association supports the notion that music can be an accessible, low-cost means of promoting healthy aging among seniors. For example, residential care facilities can incorporate music into residents' daily routines, play

music through overhead speakers throughout the day, and include it in group activities. These increase the time and frequency of seniors' music listening, the variable measured in the present study. Given that research shows higher levels of depressive symptoms and loneliness for senior residents of living facilities, consistent music engagement can be valuable in tandem with existing well-being and health initiatives.

Limitations and Future Directions

Given the survey-based nature of this study, there is potential for many confounding variables. Thus, statistics were adjusted for age, sex, past music experience, and social interactions. However, the survey was not able to measure all possible confounding variables, including facility of residence, physical activity, better hearing, or better cognitive abilities, all of which can influence seniors' well-being. Additionally, because the study population consisted specifically of residents of senior living homes, which typically cost a great deal of money, it can be reasoned that the residents came from backgrounds with greater financial support. Research suggests that this financial stability can reduce exposure to chronic stress and is associated with improved mental health and well-being (Bialowolski et al., 2021). Because these variables were not accounted for in this study, we cannot rule out their potential to influence the findings.

Additionally, regarding questions on music, this study did not ask residents about genres or which music they preferred to listen to. It only asked how much music residents listened to. These personal factors may have influenced residents' well-being, but they could not be accounted for in the study.

It is also important to note that seniors self-reported their frequency of music listening, which allows for self-report and recall bias. Because the population consists of seniors, recall bias may be more prevalent, making it less likely that they accurately recalled information about their habits. Furthermore, there may be some possibility of social desirability bias, where the participants altered some responses to avoid feeling negative emotions or to improve their self-image. This may be especially true for questionnaires regarding well-being (Reisinger, 2022).

In addition, because only selected questions were administered from the mental well-being and emotional well-being scales, results may not be generalizable to the full scales. In future work, it would be beneficial to conduct more rigorous testing and survey construction. This may help create a more generalizable survey that can be used with a wide population to capture both well-being and music listening information. Also, the study recruited participants from only three senior living facilities in Pennsylvania. Because of the limited sample size and the fact that participants were all senior residents within the same geographical area, the results may not be fully generalizable to all senior populations currently living in nursing homes.

Future research is still needed to investigate further the relationship between music listening frequency and emotional and mental well-being. Again, the findings can only demonstrate an association between

the two variables due to the correlational nature of the study. Thus, conducting a completely randomized study, particularly with blocks to control for natural sampling variability and potential confounding variables, is essential for determining a causal relationship. Additionally, researchers could investigate other variables, including the genre of music listened to, to better determine the effects of music on well-being. Furthermore, it may be beneficial to look at full emotional and mental well-being scales, instead of individual questions. Creating a composite score of responses may aid in understanding well-being, as it is a very multifaceted topic.

CONCLUSION

Both mental and emotional well-being are important topics in senior care. Positive changes in well-being can have a significant impact on senior residents who currently live in nursing homes. In response, this current study sought to examine how natural music listening frequency was related to both types of well-being through a correlational, survey-based method. The study included multiple statistical analyses, including unadjusted and adjusted partial Spearman correlations and multivariable linear regressions. The study found a positive association between music listening frequency and well-being. This highlights the possible implications of music for senior home residents, facility managers, and researchers. However, research gaps were discussed; further research in this direction is important.

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