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Clients' Preference For Cueing Instrument and Style in Music Therapy in Movement Disorders

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Abstract

Music therapists use different types of cueing instruments (piano, guitar, or autoharp) to facilitate functional outcomes. However, no research has been done to investigate client preference for the facilitation instrument. This study investigated clients' preference for cueing instrument and their perception of how well the music helped them move. The 15 participants were all adults aged 50 and older who participate in music therapy motor rehabilitation groups. Participants completed the responsive survey with some quasi-convenience sampling, and the researcher played six videos that demonstrated cueing with three different instruments (piano, guitar, and autoharp) in two different styles: patterned sensory enhancement (PSE) cueing and simple accompaniment cueing. Participants were asked to follow the movements and then answered questions about their instrument preference and their perception of how well the music helped them move. Based on the data collected, the researcher found that most participants indicated that they felt that the music helped them to move. Further recommendations include larger sample size, disrupt the order of the videos, and rigorous experimental data, for example, the specific the angle, distance, and the time of motion.

Keywords

Music therapy; Clients preference; Cueing instrument.

1. Introduction

The purpose of this research project was to determine individual preferences and perceived improvements for different music therapy accompaniment instruments and cueing styles.

Movement disorders occur as a result of neurological conditions and cause difficulties with movement processes including gait deficits, hand shaking/tremor, and/or muscle rigidity. These movement differences can occur due to Parkinson's disease, stroke, essential tremor, and other neurological diseases (American Association of Neurological Surgeons, n.d.). In the United States, an increasing number of people have movement disorders, and this population will increase from 46 million to more than 98 million by 2060, with the majority of individuals between the ages of 50 and 70 (Mather, 2016). This increased population requires services focused on rehabilitation training to regain or maintain motor abilities and independence.

Many people with movement disorders receive physical therapy (PT); however, less than half of patients with movement disorders receive PT and many patients report that they dislike PT or reject the treatment directly (Klepps, 2015). Research has demonstrated that music therapy may be an effective treatment to improve movement skills and can motivate people to engage in physical therapy, which may enhance outcomes (Rice & Johnson, 2013). Neurologic music therapy (NMT) features techniques specific to motor rehabilitation, including PSE and rhythmic auditory stimulation (RAS). These techniques can be used and to facilitate motor outcomes, including improved or maintained gait in people with Parkinson's disease (Arias & Cudeiro, 2008; Lee, Yoo, Ryu, Park, & Chung, 2012; Thaut et al., 1996), traumatic brain injury (TBI) (Hurt,

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McIntosh, and Thaut, 1998; Street, 2012), and cerebral palsy (Baram & Lenger, 2012). Researchers have also indicated that music therapy can have a positive influence on upper motor movement (Freeman, Cody, & Schady, 1993; Georgiou et al., 1993, Whitall & Waller, 2013). Additionally, NMT has been demonstrated to improve clients' positive experience, emotional control, and stress reduction during and after the sessions (Clark, Baker, & Taylor, 2012; Paul & Ramsey, 2000).

Although the literature indicates that music therapy can improve movement skills and emotional state in rehabilitation treatment, a lack of research exists on the accompaniment instrument and style of the music provided by the music therapist. No known studies have investigated individual preference of musical styles or facilitating instruments as well as the impact of preference on perceived benefit.

Research questions

The purpose of this research project was to determine individual preferences and perceived improvement for various music therapy accompaniment instruments and cueing styles. Specific research questions will include:

1: Do different instruments impact the individuals' musical preference and perceived improvement in music therapy?

2: Do different cueing styles impact the individuals' musical preference and perceived improvement in music therapy?

2. Methodology

2.1. Research Design

The purpose of this study was to survey the clients' preferences of various music cueing instruments and styles in their movement rehabilitation music therapy. Participants completed a survey by watching videos that illustrated cueing with three different instruments (piano, guitar, and autoharp) in two different styles (PSE cueing style and simple accompaniment cueing style). Participants were required to answer questions about their instrument preference and their perception about how well the music helped them move.

2.2. Participants

Participants were adults over the age of 50 who were participating in any music therapy motor rehabilitation groups. Inclusion criteria were adults with a motor disability or disease who were participating in music therapy motor rehabilitation groups. Fifteen participants started the survey and all of them completed the survey.

2.3. Measures

Survey. The survey was the first to investigate this phenomenon and was created by the researcher. Participants first responded to demographic questions, including age, gender, diagnosis, the length of illness, and involvement with music therapy rehabilitation groups. Participants were then shown six videos of the researcher leading a bicep curl exercise and were instructed to complete the exercise to the best of their ability. Each video featured a different music cueing style and instrument combination (autoharp, guitar, or piano in the style of simple accompaniment or PSE cueing). Six total videos were screened, each lasting 45 seconds. All participants then answered questions related to their preferences about musical instrumentation and style. With each question, the participant was provided with a Likert Scale ranging from "disagree" to "strongly agree" if they liked the music or if they believed the music helped them complete the movements. Table 1 and Table 2 represent different scores for different answers in two survey questions. All of the data were recorded by score, based on the group of different instruments and cueing styles.

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Table 1. Survey Question 1

Question	I liked the music in the video				
Answer	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
Rating	5	4	3	2	1

Table 2. Survey Question 2

Questions	I feel the music helped me complete the movement				
Answer	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
Rating	5	4	3	2	1

Video. The survey presented six embedded videos of equal length (45 seconds). In the videos, the researcher led the specific movement—bicep curl—and showed a combination of accompaniment style and instrumentation. All six videos combined three different instruments (guitar, piano, and autoharp) and two different cueing styles (simple accompaniment cueing and PSE cueing). In the videos, the researcher played the music in a slow tempo, approximating a natural speed for movement rehabilitation based on the researcher's clinical experience. Wilhelm and Cevasco-Trotter (2018) suggested that the natural tempo for the movement can be used in the older adults' music therapy movement rehabilitation groups.

After each video, the researcher asked participants to answer two questions. After all participants completed the questions, they continued to watch the next video. The survey was finished after six videos and the questions.

2.4. Procedure

The researcher attended some music therapy movement groups, after gaining permission from the group leader. The researcher introduced the entire survey with instructions and completed consenting procedures. The researcher then distributed paper-based consent forms and questionnaires to all participants, who indicated their consent to complete the study by entering the study. All of the participants were permitted to complete the survey with help if they needed assistance, such as having a research assistant read them the questions, enter their responses, or help them to do the movements (if they typically received help from the group leaders or volunteers). The researcher played six videos in order on the screen and directed all participants to answer two questions after each video. Therefore, the researcher controlled the decibel level to 75 dB in the survey. All of the questionnaires were collected by the researcher after all six videos were screened and questions were completed.All of the data were collected and analyzed by the researcher, who used descriptive statistics to illustrate the results of the survey.

3. Results and Discussion

Fifteen people (7 women and 8 men) participated in this survey. One of the participants was 52 years old, 3 were between 55 and 59, 2 were between 60 and 64, 1 was between 65 and 70, and 8 were 71 years or older. For the years of diagnosis, 5 people were diagnosed within the past 1 to 4 years, 6 were diagnosed in the past 5 to 9 years, and 4 were diagnosed more than 10 years ago. All of them were attending weekly music therapy groups.

3.1. Music Preference of Different Instruments

All participants were exposed to the same order of instruments, where guitar was presented first, piano second, and autoharp third. The mean ratings and frequency distribution of the 15

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participants' preference for each instrument (Question 1: "I liked the music in the video") were calculated using Excel (see Figure 1, and Figure 2). The median and mode for all instruments was 4 (agree). A visual analysis of the average guitar (M = 3.90, SD = 0.69), piano (M = 3.53, SD = 0.85), and autoharp (M = 3.57, SD = 0.86) ratings showed that participants rated guitar the highest. The guitar was rated 3 or higher by all participates, whereas one participant selected 2 (disagree) for the piano and autoharp (see Figure 2).

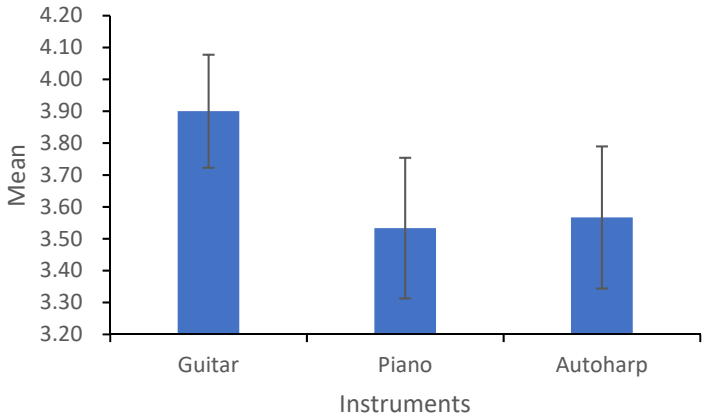

Figure 1. Means (and standard error) for musical preference for different instruments

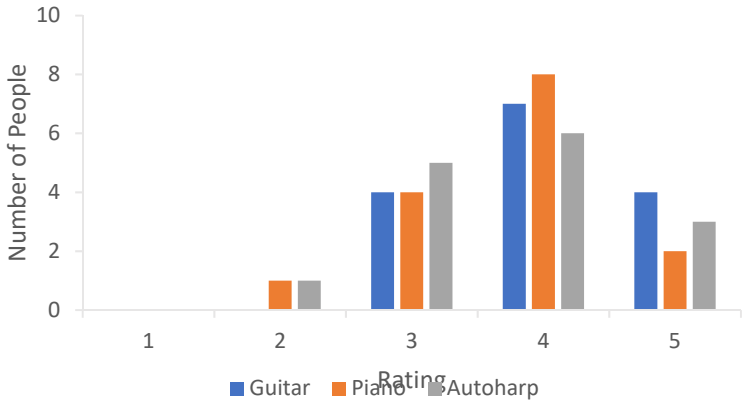

Figure 2. Frequency Distribution for Musical Preference for Different Instruments

3.2. Perceived Motor Improvement with Different Instrumentation

The means and frequency distribution of these participants' perceived motor improvement with different instrumentation (Question 2: "I feel the music helped me complete the movement") were calculated using Excel (see Figure 3, and Figure 4). Visual comparison of the means of guitar (M = 3.70, SD = 0.92), piano (M = 3.53, SD = 0.69), and autoharp (M = 3.53, SD = 1.04) revealed that participants rated the guitar slightly higher. The median rating for the piano was 3.5 and the autoharp was 4. The mode for the piano was the lowest, with six people indicating that they neither agreed nor disagreed that the piano helped them complete the movement. This is compared to the guitar and autoharp, which both had a mode of 4 (agree). One of the participants chose a rating of 2 (disagree) for guitar and autoharp (see Figure 4).

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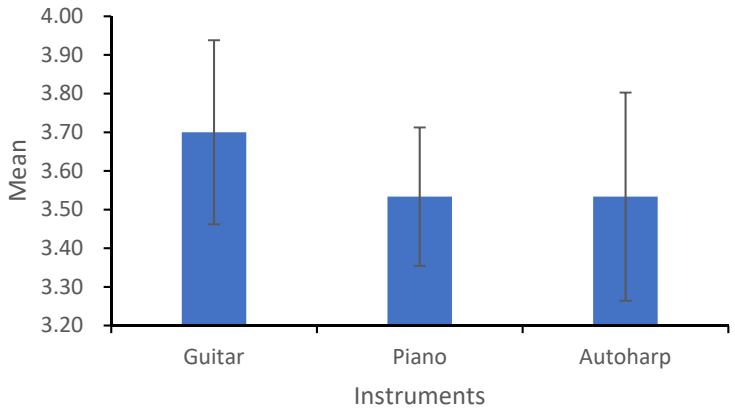

Figure 3. Means (and standard error) for the perceived improvement for different instruments

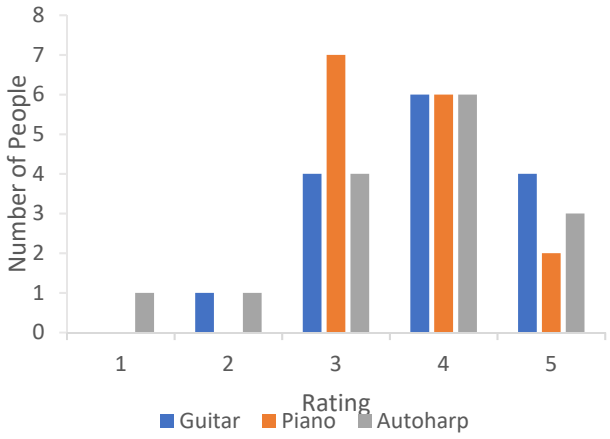

Figure 4. Frequency Distribution for the Perceived Improvement for Different Instruments

3.3. Music Preference of Different Cueing Styles

The composite scores of the 15 participants' preference for each cueing style (Question 1: "I liked the music in the video") were calculated using Excel (see Figure 5, and Figure 6). The median score for the two cueing styles for all instruments was 4. The mean and SD were higher for the simple cueing style for guitar (M = 4.00, SD= 0.76) and piano (M = 3.73, SD = 0.88) and the PSE score was higher for the autoharp (M = 3.60, SD= 0.91). The median and mode for all instruments for two cueing styles were all 4, with most of these participants indicating that they agreed that they liked the music in the six videos.

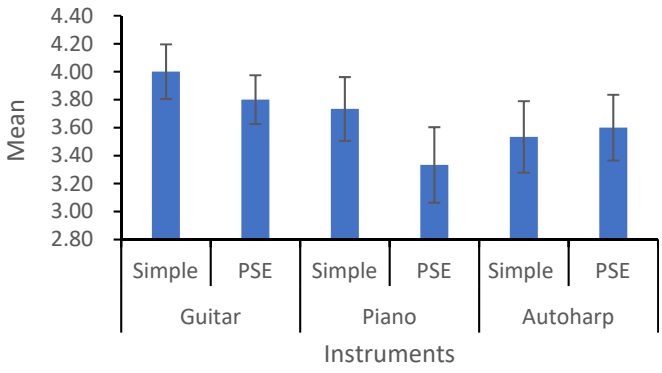

Figure 5. Means (and standard error) for musical preference for different cueing styles

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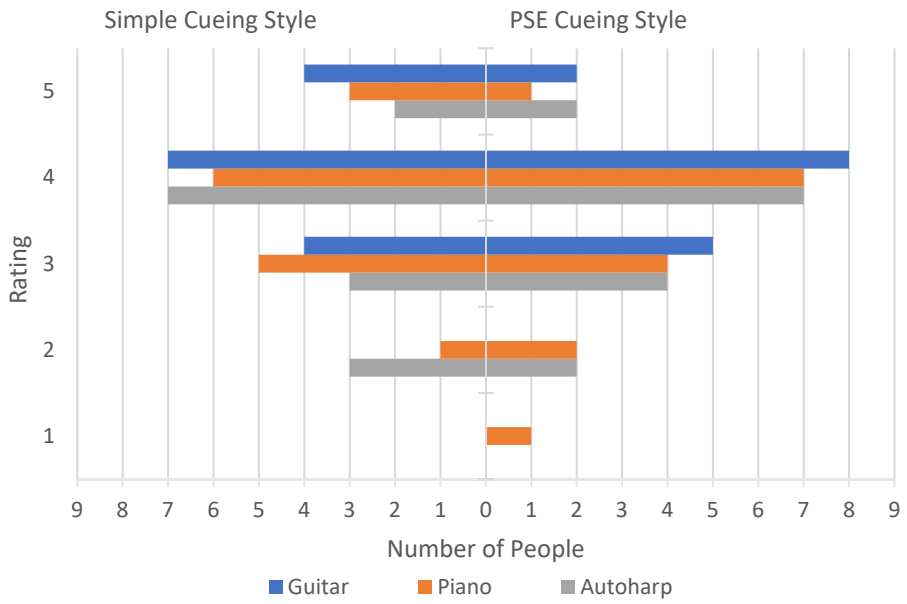

Figure 6. Frequency Distribution for Musical Preference for Different Cueing Styles

Furthermore, the overall mean and standard deviation values of people preferring two cueing styles were illustrated for three instruments (see Table 3). The means were compared for the simple cueing style of three instruments (M = 3.76, SD = 0.88) and for the PSE cueing style of three instruments (M = 3.58, SD = 0.89). The mean for participants in the simple cueing style was slightly higher than the mean rating in the PSE cueing style.

Table 3. Overall Mean and Standard Deviation of Musical Preference for Different Cueing Styles in Three Instruments

	Simple	PSE
Mean	3.76	3.58
SD	0.88	0.89

3.4. Perceived Motor Improvement with Different Cueing Styles

The ratings of the 15 participants' perceived motor improvement with different cueing styles (Question 2: "I feel the music helped me complete the movement") were calculated by Excel (see Figure 7, and Figure 8). The mean ratings for guitar in the simple cueing style (M = 3.73, SD = 1.03) can be compared with those in the PSE cueing style (M = 3.67, SD = 0.90). The mean ratings for piano in the simple cueing style (M = 3.67, SD = 0.72) can be compared with those in the PSE cueing style (M = 3.40, SD = 0.83). The mean ratings for the autoharp in the simple cueing style (M = 3.60, SD = 1.12) can be compared with those in the PSE cueing style (M = 3.47, SD = 1.06). From the means for these three instruments illustrated in the table, the 15 participants rated the sample cueing style higher than the PSE cueing style. For the simple cueing style, most of the participants chose a rating of 4 (agree) for guitar and autoharp and a rating of 3 (neutral) for piano (see Figure 8). For the PSE cueing style, most of the participants chose a rating of 3 (neutral) for guitar, 4 (agree) for the autoharp, and 3 and 4 (tied) for the piano.

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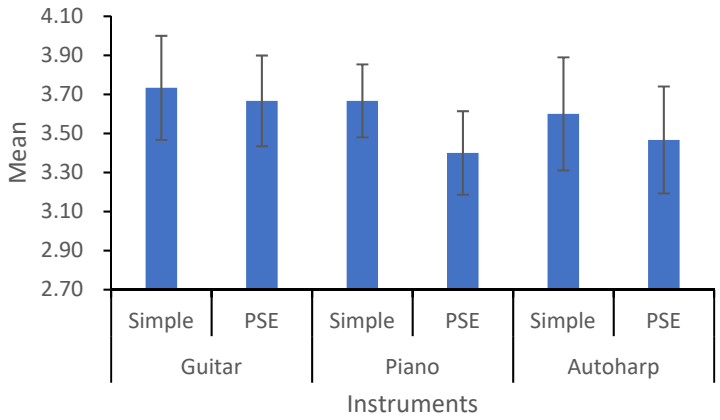

Figure 7. Mean (and standard error) for the perceived improvement for different cueing styles

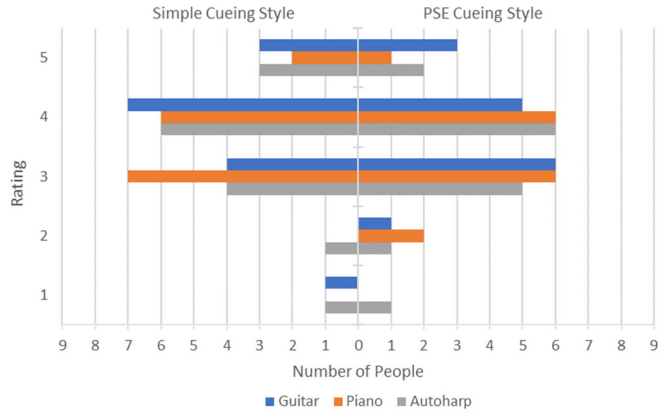

Figure 8. Frequency Distribution for the Perceived Improvement for Different Cueing Styles

The combined mean and standard deviation for perceived motor improvement for the two cueing styles (for all instruments) are illustrated in Table 4. The combined score for the simple cueing style (M = 3.67, SD = 0.95) and for the PSE cueing style (M = 3.51, SD = 0.92) indicated that participants scored simple cueing higher than PSE cueing.

Table 4. Overall Points of Perceived Improvement for Different Cueing Styles in Three Instruments

	Simple	PSE
Mean	3.67	3.51
SD	0.95	0.92

3.5. Discussion

The purpose of this research project was to determine individual preferences and perceived improvement for various music therapy accompaniment instruments and cueing styles among aging music therapy participants in the United States.

For the first research question, whether the instruments can impact the individuals' musical preference, the data indicated that participants may have a preference for some instruments over others. The result illustrated that participants scored the guitar higher than piano and autoharp, and Figure 4 revealed that no participant scored guitar below 3 (neutral). A higher score for the guitar may be due to the general familiarity of that instrument over the other two instruments, which was derived from the feedback from the participants.

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When comparing the medians and frequency distribution across all instruments, the data indicated that more than half of the participants chose ratings of 4 (agree) or 5 (strongly agree). A closer look at those data revealed that some participants' ratings were generally high and some participants' ratings were generally low. These data may indicate that all instruments were acceptable and that the participants, generally, liked or disliked the music no matter the instrument.

For perceived improvement, data revealed that the mean for the guitar was higher than the mean for the other two instruments, potentially indicating that these 15 participants believed the guitar could help them move better than the piano and autoharp. Although the means of piano and autoharp were the same, the standard deviation showed less variability across these participants for the piano. However, the mean and standard deviation of the guitar were both higher than those of the piano. The guitar and autoharp had a median and mode of 4 (agree). However, the median of the piano was 3.5, and the mode of the piano was 3, which were the lowest compared to the other instruments. Collectively, these data indicate that the guitar was likely to be perceived by these individuals to be the most helpful, followed by the autoharp, and then piano. Although there were differences, the data indicate that all of the instruments were perceived as helpful to their movement.

For the second research question, the first aim was to determine whether the cueing style could impact the individual's musical preference. The data indicated that different cueing styles were rated differently by individuals in this group. The result illustrated that the PSE cueing style was rated higher only when the music therapist was playing the autoharp. For the guitar and piano, participants gave higher ratings to the simple cueing style. However, the median scores for the preference of cueing style were the same across all instruments, which was 4 (agree). The frequency distribution indicated that most people chose the rating of 4 (agree) for both cueing styles for all instruments. Although there were some differences, the mean and median were all above the rating of 3, which may indicate that participants similarly liked both cueing styles. At the same time, some of these 15 participants chose ratings below 3 (neutral), so whether the cueing styles can impact musical preference should be considered individually.

The second aim of the second research question was to determine whether different cueing styles impact individuals' perceived improvement. The result illustrated that the mean of perceived improvement for the simple cueing style was higher than the PSE cueing style for the participants. However, these means were quite close. Comparing the medians across all instruments for the two cueing styles, more than half of these participants chose a rating of 4 (agree) with the exception of the PSE cueing for piano. The frequency distribution in Figure 8 illustrated that more than half of participants believed that the two cueing styles for the three instruments could help them complete the movement. As discussed before, some participants rated all of the choices the same, so the perceived improvement of cueing style varies from person to person. Therefore, the perceive helpfulness of each cueing style needs to be considered for each individual.

The simple cueing style is the use of harmonic and rhythmic cues by the therapist to help the clients during the treatment. Similarly, the therapist played simple cueing (Figure 3 and Figure 7) using different chords to accompany the melody of the song. The simple cueing style is most similar to typical accompaniment heard for music. Consequently, the PSE cueing style may be less familiar to these participants. Therefore, the familiarity of the music may be preferable to music that is created for movement patterns.

In the PSE cueing style, therapists provide temporal, spatial, and force cues for fundamental movements (Thaut & Hoemberg, 2016). Thaut (2016) suggested that, during the treatment, music therapists employing PSE give clients powerful and clear cues to facilitate movement. The music therapist would change rhythmic, melodic, harmonic, and dynamics/force cues based on the needs of clients (Thaut & Hoemberg, 2016). Therefore, the music played in PSE

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would be different than a typical music accompaniment. Since client populations may be more familiar with traditional accompaniment, the PSE cueing style would be unfamiliar or novel. This novelty in the PSE cueing may be the reason why the PSE cueing style ratings were lower than the simple cueing style.

From the data analysis of these 15 participants, it can be seen that some participants rated almost the same for each question. For example, one participant rated 5 (strongly agree) to one question, and rated the rest 4 (agree). Those results may indicate that the clients found the music similarly effective no matter the instrument or cueing style. Furthermore, when analyzing the survey data, the researcher saw that some participants chose the same ratings for all questions, which may indicate that they did not perceive any differences between the conditions. Taken together, these data may indicate that music was generally acceptable. However, the music therapist should consult with the individual clients to learn more about their perception of the music and how they believe it is helping to facilitate their outcomes.

4. Conclusion

This survey is an early exploration of music therapy participants' musical preferences and perceived improvements in movement with different instruments and cueing styles. From the collected data of the 15 participants in this survey project, it can be seen that personal musical preference may affect everyone's perception of the instrument and the cueing style. Some of these participants had different feelings about different instruments or cueing styles. In this case, music therapists need to determine the instrument and cueing style to be used according to individual's preference.

However, some of these participants felt similarly about the different instruments and cueing styles. These data indicate that more research is needed on patient perception of music in motor rehabilitation groups. Through the participants' language and physical feedback, as well as expanding the sample size, it is hoped that more effective experiments on the effectiveness of the two cueing styles will be conducted in the future.

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