

# Occupational therapy and the use of music tempo in the treatment of the mental health care user with psychosis

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## ABSTRACT

The mental health care user (MHCU) with psychosis has restrictions in occupational performance components and occupational performance areas, causing impaired activity participation, compromising the achievement of Occupational Therapy (OT) goals with this population. The effect of slow versus fast tempo music during OT treatment of the MHCU with psychosis was investigated by means of a quantitative, experimental study. One hundred and sixty MHCUs with either inhibited or agitated symptoms of psychosis were included. The activity participation of the MHCUs, in terms of attention, following of instructions, directedness towards activity and willingness to participate were evaluated by three assessors through a pre- and post-test. The study indicated that music tempo, together with activity, has the ability to improve attention, following of instructions and directedness towards activity in the inhibited MHCU and attention and following of instructions in the agitated MHCU. Occupational therapy with music elements might be useful when working with the MHCU with psychosis.

**Key words:** Mental Health care user (MHCU), Psychosis, Occupational Therapy, music tempo, occupational performance component (OPC), occupational performance area (OPA)

## INTRODUCTION

Occupational therapy intervention with the client with psychosis poses a challenge to the occupational therapist and often requires both expert knowledge and an intervention strategy<sup>1</sup>. The mental health care user (MHCU) with psychosis is often treated by occupational therapists in psychiatric institutions, the location of this study. Social anxiety, attentional difficulties, impaired information processing with regard to memory and thought processes, lack of motivation (avolition), low energy and willingness to participate (anergia) and the inability to find pleasure in activities (anhedonia) are some of the symptoms that have a major impact on the occupational performance components (OPCs) of the MHCUs<sup>2</sup>. These factors also influence the occupational performance areas (OPAs) of the MHCU, like self-care and interpersonal relationships<sup>3</sup>. This is of great concern to the occupational therapist as these symptoms directly affect the reaching of occupational therapy goals. The MHCU struggles to engage in the treatment activity in such a way that all focus is limited to the stimulus at hand, thus not reaching a state of flow during the treatment session<sup>4</sup>.

Furthermore, the occupational therapist is concerned about the client who is in danger of *occupational deprivation* where the symptoms of the psychosis keep the MHCU from using current skills and acquiring new skills in an effective way, as well as preventing the MHCU from enjoying life and activities at this stage of their illness<sup>2</sup>. In short, psychosis is a debilitating state of being that can include unwelcome additions or subtractions to life experiences<sup>2</sup>. The literature suggests that music could relieve the symptoms of psychosis<sup>5,6</sup> and is already being used by music therapists to treat MHCUs with psychosis<sup>7</sup>.

The question was raised: Could occupational therapists use this modality to treat MHCUs in an effective manner? Very limited literature exists on the use of music in occupational therapy with the treatment of patients with psychosis, setting the stage for research

in this specific field of interest. Music consists of a variety of elements, including tempo, volume and rhythm, which could all have an impact on a MHCU's reaction towards the music<sup>5</sup>.

This study was conducted to investigate whether the tempo of music, together with participation in an occupational therapy activity, could increase the MHCU's activity participation with regard to attention, following of instructions, directedness towards activity and willingness to participate during an occupational therapy session. The aim of this article is to indicate the effect of music tempo on the activity participation of inhibited versus agitated MHCUs with psychosis, during occupational therapy group treatment. The article provides literature about the role of the occupational therapist in the treatment of MHCUs with psychosis and the use of music in the treatment of this population. The results obtained from pre-and post-tests related to the effect of music tempo on the activity participation of the MHCUs with psychosis will be discussed. Recommendations for clinical practice and further research will also be made.

## LITERATURE REVIEW

### The MHCU with psychosis

Psychosis is defined as the inability to distinguish between reality and fantasy and is characterised by symptoms like hallucinations and delusions, as well as bizarre motor functioning, such as psycho-motor agitation (physical and psychological over-activity, mostly unproductive) or psycho-motor inhibition (general slow or inhibited speed of activity performance in terms of movement, speech and reaction)<sup>8</sup>. Disorders, like Schizophrenia, that present with psychosis, cause an inability to adapt to the demands of daily living<sup>9</sup>. The medical treatment of psychosis takes place in two phases. Firstly, during the psychotic phase, the MHCU is admitted into an acute psychiatric ward and anti-psychotic medication is



administered. When the MHCU reaches the a-psychotic phase, the aim is to maintain this state and to prepare the patient for discharge, through monitoring of medication and treatment by different team members. Factors like poor insight still cause 40% of these patients to be re-admitted<sup>10</sup>. During this study the focus is on the MHCU within the acute psychotic phase.

### Occupational Therapy and psychosis

De Luca<sup>10</sup> states that the MHCU with psychosis experiences impairment in the following OPCs: concentration, memory, thought processes, insight, judgement, decision making, reality orientation, pathological pleasant and unpleasant emotions, perceptual disorders, motivation and psycho-motor activity. Impairment in these OPCs leads to dysfunction in OPAs like personal care, social skills, recreation and work skills. This is of concern to the occupational therapist, as these impairments have a big impact on the occupational performance of the MHCU with psychosis<sup>1</sup>. The MHCU presenting with acute psychosis is mostly evaluated and treated by the occupational therapist within a group setting, and treatment aims usually focus on relieving and handling of the symptoms of psychosis<sup>10</sup>. Sue, Sue and Sue<sup>11</sup> suggest that the reaching of these goals is difficult as the MHCU with psychosis shows poor constructive participation and directedness towards activity. Sadock and Sadock<sup>7</sup> consider group therapy as the most effective way to treat MHCUs with psychosis as it facilitates social interaction and reality orientation. A disadvantage of treating MHCUs with psychosis in groups, is that it is difficult to work in a totally client centred manner in order to address individual needs<sup>1</sup>.

### Music and the Body

Different parts of the brain, as well as different senses, are involved in the complex process of listening to and processing music<sup>7</sup>. Pavlicevic<sup>12</sup> explains that when a person listens to a piece of music, the brain's natural perceptual mechanisms group and organise the sound and form a certain pattern. Eventually, these patterns form the *music* that one hears. Familiar music has the ability to stimulate emotions and memories. In a study by O'Donnell,<sup>13</sup> it was found that Baroque music of 60 beats per minute (Bpm), activates the left and right side of the brain, optimising learning potential as well as memory retention. Music also has the ability to facilitate positive or negative emotions in the listener. Craig<sup>14</sup> is of the opinion that this is the main reason why music has therapeutic power and is also the most important reason why people are involved in music activities. Wigram, Pederson and Bonde<sup>6</sup> state that even though some studies show that music of choice especially, seems to have an effect on emotions, there is still uncertainty about the reasons why music affects certain listeners in certain ways.

### Music therapy and psychosis

Wigram, Pederson and Bonde<sup>6</sup> state that the MHCU with psychosis, needs a feeling of security and stability, which can be provided by the structure and predictability of music with regard to tempo, rhythm, volume and harmony. A study by Silberman and Marcionetti<sup>15</sup> showed that after one music therapy session, where a group of MHCUs with psychosis were exposed to a variety of music activities, the MHCUs experienced an immediate improvement in self-image, emotional expression, adaptation, aggression, mood and symptoms of psychosis. Tang, as described by Talwar, Crawford and Maratos,<sup>5</sup> investigated the effect of music listening and singing on 76 MHCUs with Schizophrenia. A statistically significant improvement in both positive and negative symptoms was experienced by the study population. Further studies by Talwar *et al.*<sup>4</sup>, Ulrich *et al.*<sup>5</sup> and Silberman & Marcionetti<sup>15</sup> showed that music therapists use music effectively in the treatment of psychosis.

### Tempo of music

The element of music that was explored during this study is *tempo*. Music tempo refers to the speed at which music is performed and indicates the speed at which the notes are played as well as the speed at which the harmony changes<sup>16</sup>. For the purpose of this study,

*slow tempo music* is defined as music with a tempo of 60 Bpm and *fast tempo music* as music with a tempo of 140Bpm. Thayer and Faith<sup>17</sup> found that tempo of music could also influence the emotional experience of music.

### Occupational Therapy and the use of music

Very limited literature exists about the use of music in occupational therapy, especially with MHCUs with psychosis. Stein and Cutler<sup>18</sup> note that music can be used by the occupational therapist to relieve a depressed mood, decrease anxiety, increase contact with reality as well as facilitate relaxation. Craig<sup>14</sup> suggests that occupational therapists could use music in one of the following ways:

- ❖ Music-assisted occupation where music can be used together with occupation in order to enhance the outcome e.g. listening to music while painting a picture
- ❖ Music as *preparation* for activity where music can be listened to *before* the activity commences, in order to prepare the patient for participation, e.g. relaxing music in order to relieve anxiety before activity commences
- ❖ Music as occupation where the activity itself is a music activity, e.g. writing the lyrics of a song.

In this study, the focus will be on music-assisted occupation.

## METHOD

### Study design

A quantitative study design with an experimental approach was used to determine the effect of the tempo of music on the activity participation of the inhibited and agitated MHCU with acute psychosis. This study design made it possible to compare the effect of slow versus fast tempo music on the different groups of MHCUs with psychosis<sup>19</sup>. The aim of this specific study covered a broader spectrum of aspects, but only the information relevant to this article will be discussed.

### Study population

The study population consisted of 160 MHCUs, who were admitted to the acute psychiatric wards in a mental health hospital in the Free State within a period of a year. All newly admitted MHCUs (agitated and/or inhibited), older than 18 years old, were screened by the occupational therapist working in the acute wards by means of an inclusion criteria checklist. All cultures and both genders were included. The MHCU had to be in an acute psychotic stage. Mental Health Care Users with an axis II diagnosis and hearing defects were excluded from the study, as well as MHCUs who were previously admitted in the ward during the time of the study, so as to prevent double exposure.

As soon as eight new MHCUs who suited the inclusion criteria were admitted in one (female or male) ward, two experimental groups were allocated according to a randomisation list provided by the Department of Biostatistics of the University of the Free State (UFS). The group could include both inhibited and agitated MHCUs. Men and women were screened and randomised separately as they are admitted in separate locked wards and not treated together. They were also in separate intervention groups. In other words, there were two intervention groups executed at the same time: one group with four participants, exposed to fast tempo music and one group with four participants, exposed to slow tempo music. Each of the two intervention groups could contain inhibited and/or agitated MHCUs.

After the complete execution of the study, the final study population presented as followed, and divided into these four categories for data analysis:

- ❖ Forty MHCUs with psycho-motor *agitation* were exposed to *slow (60 Bpm)* music
- ❖ Forty MHCUs with psycho-motor *inhibition* were exposed to *slow (60 Bpm)* music
- ❖ Forty MHCUs with psycho-motor *agitation* were exposed to





- ❖ *fast (140 Bpm) music*
- ❖ Forty MHCUs with psycho-motor *inhibition* were exposed to *fast (140 Bpm) music*

## Measuring Instrument

The measuring instrument that was used in the pre- and post-test to assess the MHCUs' activity participation was created by the researcher, as no standardised measurement tool for specific aspects for activity participation were available at the time of execution. The instrument measured four aspects on a scale from one (1) to five (5), each level describing the MHCUs' actions and functioning on that level. Each level indicated a detailed description of small changes in the manifestations of each OPC. A difference of *one* on a level was seen as an improvement. The aspects assessed were:

- ❖ Attention and focus were measured by observing the time duration of attention, as well as internal and external distractibility. Level 1: No focus during activity or roaming around and/or constantly pre-occupied with own thoughts – Level 5: Focus on activity for whole duration of the activity.
- ❖ Following of instructions was measured in the number of steps (indicated by the activity) that the MHCUs could complete successfully. Level 1: MHCUs not able to follow any instructions – Level 5: MHCUs follows all steps with good quality execution.
- ❖ Directedness towards activity was measured by the observed engagement of the MHCUs in the activity. Level 1: No directedness towards activity and/or limited awareness of self – Level 5: Constructive participation
- ❖ Willingness to participate was measured by observing the motivation of the client to take part in the activity. Level 1: Not willing to take part in activity or isolates self – Level 5: MHCUs positive about participation or experience positive emotions or shows initiative at times.

Validity and reliability of the measurement were assured in the following ways:

- ❖ The assessors were “blind” to which group was exposed to which music
- ❖ Before the pre-test commenced, the MHCUs played a practice round of “memory game”, in order to limit the Hawthorne effect<sup>20</sup>
- ❖ An inclusion criteria checklist was completed in order to ensure that all MHCUs met the inclusion criteria
- ❖ A pilot study was done on two groups to assess the clarity and effectiveness of the measuring instrument and adaptations were made accordingly
- ❖ All the levels of the measurement described the function and participation of the MHCUs in the specific aspect in detail and were designed specifically for the population, from literature and with the assistance of an experienced occupational therapist

The measurement instrument was administered by three qualified occupational therapists who acted as assessors during each session. These assessors were all experienced in the field of acute psychosis and well versed in the assessment of MHCUs with psychosis.

## Music Intervention

Music has different meanings to different people and also has many variables. To limit this as far as possible, two pieces of music were composed by the researcher on a computer program. Both pieces of music were exactly ten minutes long, and were electronically programmed to be respectively 60Bpm and 140Bpm in tempo. Basic instruments like piano, drum and guitar were used in the composition. Both pieces were original and unknown to any participants. Music was played at the same volume during each session.

## Data Collection

Data were collected by means of a pre- and post-test done by three qualified occupational therapists. Data collection took place over

a period of 11 months.

The pre- and post-tests were executed in one experimental session that lasted for a maximum of 40 minutes and consisted of the following three phases:

*Phase 1 (pre-test):* The group members (4 per group) played one round of a memory game, presented by the researcher, while the three assessors used the measuring instrument to evaluate the MHCUs' participation.

*Phase 2 (intervention):* The three assessors left the treatment room, in order to be “blind” with regard to which music the group was exposed to. The researcher facilitated a creative leatherwork activity while the group listened to either a piece of *fast* or *slow* music, thus the group were only exposed to one modality of tempo during the execution of the activity. A leatherwork activity was chosen due to number of steps, adaptability, and availability of materials in the ward. This specific activity was not included in the standard occupational therapy ward programme during the intervention period.

*Phase 3 (post-test):* The three assessors returned to the treatment room. The group played the memory game again and the assessors evaluated the MHCUs by using the same measuring instrument.

## Ethics

As this is a vulnerable population, consent for the participation in the research was given by the research committee of the Free State Psychiatric Complex<sup>21</sup>, and ethical clearance was given by the Ethics committee of the Faculty of Health Science (UFS) (Ecufs 23/9). What did you tell the participants as they must have wondered why they were doing a memory game twice over. I am not sure how I should describe that in article? Even though participants could not give consent, they were orientated towards the activity and participation was still voluntary? Do you maybe have a suggestion? Thank you

## Data Analysis

Data analysis was done by the Department of Biostatistics, UFS. Numerical information was summarised by using medians and standard deviations or percentiles. Differences between pre- and post-tests were summarised accordingly and compared for the two groups through 95% confidentiality intervals for differences between percentages, averages and medians. Percentages were also compared through chi-square tests and averages through paired t-tests (within groups) and unpaired t-tests (between groups). In this study, an improvement in 50% or more of the participants in a group was seen as an *improvement* in the component. If the scope of the percentages in the 95% confidence interval was also above 50%, the improvement was seen as *clinically significant*. In the analysis of the pre-test and post-test completed by the evaluators, improvement or deterioration was determined if two of the assessors had consensus over the change. If two or more evaluators indicated that there was no change in the component, it was processed as *no consensus*.

## RESULTS

Results will be discussed in terms of the following four categories of diagnostic criteria:

- ❖ MHCUs with psycho-motor *agitation* exposed to *fast* music
- ❖ MHCUs with psycho-motor *agitation* exposed to *slow* music
- ❖ MHCUs with psycho-motor *inhibition* exposed to *fast* music
- ❖ MHCUs with psycho-motor *inhibition* exposed to *slow* music

## Demographic results

One hundred and sixty mental health care users with acute psychosis were included in this study and randomly allocated into experimental groups. The median age of all four groups varied between 27.5 and 30.5 years and 72% of the participants were male. The majority of the participants (80%) were diagnosed with Schizophrenia and 26.0% with Bipolar mood disorder. Poor concentration (99.3%), poor insight (99.3%), disorientation (85.0%),



delusions (79.4%), social isolation (41.3%), avolition (22.5%) and anhedonia (8.8%) were some of the symptoms experienced by the population.

### Attention

Table I indicates that the inhibited group exposed to fast music, showed a clinically significant improvement. Both the agitated group and the inhibited group exposed to slow music showed an improvement. Even though only 47.5% of the agitated MHCUs exposed to fast music showed an improvement, it is still the category where the most change took place, so it could be deduced that there is an inclination for improvement in this group.

### Following of Instructions

'Following of instructions' showed an improvement in all four groups of patients (Table II). According to the 95% confidence interval, a clinically significant improvement was seen in the agitated group exposed to slow music and the inhibited group exposed to fast music. A total of 61.3% of the MHCUs showed an improvement in the following of instructions.

### Directedness towards activity

Table III illustrates that the agitated MHCUs mostly experienced no change (57.5% & 50.0%) in directedness towards activity after the intervention. The two inhibited groups both experienced an improvement in following of instruction, even though no clinically significant results were found.

### Willingness to participate

Table IV on page 25 indicates the change in the MHCUs' willingness to participate in the activity. All four groups mainly experienced no change (52.5%, 57.5%, 62.5% and 52.5%). Only 32.5% of the MHCUs showed an increased willingness to participate, which is not classified as an improvement in this component.

## DISCUSSION

The demographic results of the study indicate that the target population was of a relatively young age. Sadock and Sadock<sup>7</sup> state that more than 50% of men and a third of women diagnosed with Schizophrenia are admitted to hospital with psychotic symptoms for the first time before the age of 25 years. The earlier this diagnosis is made, the worse the prognosis. This fact highlights the importance of early and effective occupational therapy intervention with this client group, as early intervention and rehabilitation could increase insight and coping skills, in order to prevent a relapse. Treatment should focus on relieving of symptoms and maintenance and improvement of current skills<sup>22</sup>.

### Attention

Table I indicates that all four groups showed an improvement in attention after being exposed to the music, but a clinically significant improvement was seen only in the inhibited group that listened to fast tempo music. A possible reason for this could be that the fast tempo music stimulated movement in the inhibited MHCUs, facilitating attention. Shih et al.<sup>23</sup> suggest that music listening within an occupational therapy session - if well planned by the therapist - has the potential to increase the attention of the client. Craig<sup>14</sup> and Koelsch<sup>24</sup> support this statement. It could therefore be deduced that music listening, (fast and slow tempo), has the potential to improve attention in the MHCUs with psychosis.

### Following of Instructions

As with attention, the inhibited group exposed to the fast tempo

**Table I: Activity participation component: Attention**

| Attention             | Agitated/<br>Fast<br>n=40 | Agitated/<br>Slow<br>n=40 | Inhibited/<br>Fast<br>n=40 | Inhibited/<br>Slow<br>n=40 | Total<br>n= 160 |
|-----------------------|---------------------------|---------------------------|----------------------------|----------------------------|-----------------|
| Deterioration         | 0<br>(0.0%)               | 1<br>(2.5%)               | 0<br>(0.0%)                | 1<br>(2.5%)                | 2<br>(1.3%)     |
| No change             | 16<br>(40.0%)             | 14<br>(52.5%)             | 11<br>(70.0%)              | 16<br>(57.5%)              | 57<br>(56.9%)   |
| <b>95% Confidence</b> |                           |                           |                            |                            |                 |
| Interval              | 31.5%,<br>63.9%           | 36.1%,<br>68.5%           | 53.5%,<br>83.4%            | 40.9%,<br>75.1%            |                 |
| No consensus          | 5<br>(12.5%)              | 4<br>(10.0%)              | 1<br>(2.5%)                | 0<br>(0.0%)                | 10<br>(6.3%)    |

**Table II: Following of instructions**

| Following of instructions | Agitated/<br>Fast<br>n=40 | Agitated/<br>Slow<br>n=40 | Inhibited/<br>Fast<br>n=40 | Inhibited/<br>Slow<br>n=40 | Total<br>n= 160 |
|---------------------------|---------------------------|---------------------------|----------------------------|----------------------------|-----------------|
| Deterioration             | 0<br>(0.05%)              | 1<br>(2.5%)               | 0<br>(0.0%)                | 1<br>(2.5%)                | 2<br>(1.3%)     |
| No change                 | 15<br>(37.5%)             | 11<br>(27.5%)             | 12<br>(30.0%)              | 16<br>(40.0%)              | 54<br>(33.8%)   |
| Improvement               | 23<br>(57.5%)             | 27<br>(67.5%)             | 27<br>(67.5%)              | 21<br>(52.5%)              | 98<br>(61.3%)   |
| <b>95% Confidence</b>     |                           |                           |                            |                            |                 |
| Interval                  | 40.9%,<br>73%             | 50.9%,<br>81.4%           | 50.9%,<br>81.4%            | 36.1%,<br>68.5%            |                 |
| No consensus              | 2<br>(5.0%)               | 1<br>(2.5%)               | 1<br>(2.5%)                | 2<br>(5.0%)                | 6<br>(3.8%)     |

**Table III: Directedness towards activity**

| Directedness towards activity | Agitated/<br>Fast<br>n=40 | Agitated/<br>Slow<br>n=40 | Inhibited/<br>Fast<br>n=40 | Inhibited/<br>Slow<br>n=40 | Total<br>n= 160 |
|-------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|-----------------|
| Deterioration                 | 2<br>(5.0%)               | 0<br>(0.0%)               | 1<br>(2.5%)                | 0<br>(0.0%)                | 3<br>(1.2%)     |
| No change                     | 23<br>(57.5%)             | 20<br>(50.0%)             | 15<br>(37.5%)              | 16<br>(40.0%)              | 74<br>(46.3%)   |
| Improvement                   | 13<br>(32.5%)             | 18<br>(45.0%)             | 23<br>(57.5%)              | 22<br>(55.0%)              | 76<br>(47.5%)   |
| <b>95% Confidence</b>         |                           |                           |                            |                            |                 |
| Interval                      | 18.6%,<br>49.1%           | 29.3%,<br>61.5%           | 40.9%,<br>73.0%            | 38.5%,<br>70.7%            |                 |
| No consensus                  | 2<br>(5.0%)               | 2<br>(5.0%)               | 1<br>(2.5%)                | 2<br>(5.0%)                | 7<br>(4.4%)     |

music experienced a clinically significant improvement in the following of instructions. The agitated group exposed to the slow music, also showed a clinically significant improvement. This could be due to the fact that the slow music inhibited the motor activity levels of the agitated group, resulting in better following of instructions, whilst fast music stimulated the inhibited group. Stein and Cutler<sup>18</sup> found that the correct use of music during occupational therapy could enhance motor functioning. No literature could be found on the effect of music on the following of instructions, but the potential of music to facilitate memory<sup>2</sup> could enhance the following of instructions. As all four groups showed an improvement in following of instructions it can be deduced that listening to fast or slow music during occupational therapy could facilitate the following of instructions.



**Table IV: Willingness to participate**

| Willingness to participate | Agitated/<br>Fast<br>n=40 | Agitated/<br>Slow<br>n=40 | Inhibited/<br>Fast<br>n=40 | Inhibited/<br>Slow<br>n=40 | Total<br>n= 160 |
|----------------------------|---------------------------|---------------------------|----------------------------|----------------------------|-----------------|
| Deterioration              | 3<br>(7.5%)               | 1<br>(2.5%)               | 0<br>(0.0%)                | 0<br>(0.0%)                | 4<br>(4.0%)     |
| No change                  | 21<br>(52.5%)             | 23<br>(57.5%)             | 25<br>(62.5%)              | 21<br>(52.5%)              | 90<br>(56.3%)   |
| Improvement                | 12<br>(30.0%)             | 12<br>(30.0%)             | 14<br>(35.0%)              | 14<br>(35.0%)              | 52<br>(32.5%)   |
| <b>95% Confidence</b>      |                           |                           |                            |                            |                 |
| Interval                   | 16.6%,<br>46.5%           | 16.6%,<br>46.5%           | 20.6%,<br>51.7%            | 20.6%,<br>51.7%            |                 |
| No consensus               | 4<br>(10.0%)              | 4<br>(10.0%)              | 1<br>(2.5%)                | 5<br>(12.5%)               | 14<br>(8.8%)    |

### Directedness towards activity

It was unexpected to see that even though attention and following of instructions improved in most of the groups, the two agitated groups experienced *no change* in directedness towards activity (Table III on page ?). Reed<sup>3</sup> suggests that MHCUs with psychosis struggle to get directedness towards activity and Sadock and Sadock<sup>7</sup> support this, as poor contact with reality directly influences directedness towards activity. Even though an improvement in directedness was seen in the two inhibited groups, no clinically significant improvements were measured. It could therefore be deduced that fast and slow tempo music has the potential to improve directedness towards activity in the inhibited groups, but not necessarily in the agitated groups.

### Willingness to participate

The results displayed in Table IV communicate that in 56.3% of the MHCUs, the willingness to participate in the activity did not increase with music listening during occupational therapy. Furthermore it could be derived that even if the attention and following of instructions of a MHCU improves, the willingness to participate in the activity does not necessarily increase. Symptoms like avolition (22.5%) and anhedonia (8.8%) experienced by the MHCUs, could directly influence this aspect. Other symptoms like poor insight (96.6%), poor reality orientation (85.0%) and social isolation (41.3%) could also have an effect<sup>7</sup> and highlights the influence of the symptoms of psychosis on the activity participation of the MHCU with psychosis. Wigram, Pederson and Bonde<sup>6</sup> defend this by stating that music has the potential to motivate the MHCU with psychosis to take part in activity. Blood and Zatorre<sup>25</sup> described that music of choice could improve participation in activity as it plays a big role in emotion and motivation. Therefore it could be derived that music of choice might have had more positive results.

### LIMITATIONS

The researchers are of the opinion that the inclusion of a control group could have add value to the study. In some of the pre- and post-tests the three assessors did not reach consensus (see Tables I-IV). This could possibly have had a negative influence on the results. The measurement instrument itself could have influenced the results as it was developed by the researcher herself from indicators in literature. In retrospect, the activity participation and volition descriptors of the Vona du Toit Model of Creative Ability could have been used as valuable indicators in the measurement instrument. In this population a small change in behaviour is significant and the measurement instrument might not have been sensitive enough to pick up all those changes. Linking to this, another limitation is that the levels of creative ability of the MHCUs were never indicated. The level of creative ability of the client could play a distinctive role in the engagement of the

MHCUs in activity and could thus have influenced the results. Due to ethical considerations, (MHCUs) still took their prescribed medication, which in itself had an influence on the patients' reactions, symptoms and motor abilities. The duration of each session was 40 minutes. As this population already presented with cognitive difficulties, the length of this session could have influenced their participation. In order to follow all steps and procedures of the research process correctly, the session could not be done in a shorter time.

### CONCLUSION

MHCUs with psychosis struggle to engage in activity due to the symptoms of psychosis, compromising occupational therapy outcomes. Even though the expected enhancement of activity participation was not reflected in the results, valuable improvements and inclination

to improvement were found. The following can be concluded with regard to the four groups:

- ❖ For agitated patients, *fast* music has the potential to improve attention and the following of instructions. *Slow* music can also improve attention but could lead to significant improvements in the following of instructions during occupational therapy.
- ❖ For inhibited patients, *fast* music can facilitate significant improvement in attention and following of instructions, and can also improve directedness towards activity, during occupational therapy. *Slow* music could also lead to improvements in the same components.

Results indicated that neither fast nor slow music enhanced the willingness to participate in activity, in any of the groups.

From a practitioner's perspective it could be noted that, especially in MHCUs with inhibited symptoms, the use of music, especially fast tempo music, could increase activity participation with regard to attention and following of instructions during occupational therapy. This could facilitate the occupational therapist in reaching her treatment goals with the MHCU with psychosis, especially when treating cognitive components. Even though an inclination of improvement was seen in the agitated group, further research should be done to investigate the use of music in this group. Furthermore it was found that even though the fast and slow tempo music had the potential to improve attention and the following of instructions - which are cognitive aspects - it had no effect on willingness to participate, which includes an element of motivation.

Music is a powerful tool with a unique meaning to the listener. Music also has a variety of variables that should be taken into account when conducting music-related occupational therapy research. Limited current literature exists on the use of music during occupational therapy of the MHCU with psychosis. This article contributes to addressing that gap. Further research to consider, would be on the effect of *music of choice* on the four aspects of activity participation addressed, as well as other elements. The use of music as a preparation technique before a treatment activity commences could also be investigated, as well as the activity participation of the MHCU during music listening.

In conclusion, this article makes valuable suggestions for application of results in the clinical field, as well as provoking thought on the value of music in occupational therapy with the MHCU with psychosis. Treatment of this unique group of patients remains a challenge. This research study is a step in getting closer to assisting these clients to engage in meaningful occupation.

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