

A comparison of two occupational therapy group programmes on the functioning of patients with major depressive disorders

Enos Ramano,^{1*} Marianne de Beer,² J. Louw Roos,³ Piet J Becker⁴

¹Faculty of Health Sciences, Department of Occupational Therapy, University of Pretoria, Pretoria, South Africa; ²Faculty of Health Sciences, Department of Occupational Therapy, University of Pretoria, Pretoria, South Africa; ³Faculty of Health Sciences, Department of Psychiatry, University of Pretoria, Pretoria, South Africa; ⁴Faculty of Health Sciences, Department of Biostatistics, University of Pretoria, Pretoria, South Africa

Enos M. Ramano, Faculty of Health Sciences, Department **of Occupational Therapy, University of Pretoria, Pretoria, South Africa; 28 Columbus Road, East village, Sunwardpark, 1491, Boksburg, South Africa.** E-mail: eramano@telkomsa.net

Title: Mr

ABSTRACT

BACKGROUND: Occupational therapists, as part of the multi-disciplinary psychiatric team, regularly include activities and or discussion groups to reduce symptoms of patients with major depressive disorders (MDD), and to improve their functional ability. This study set out to compare two occupational therapy group programmes. A Standard Care Plus (SC_O) programme, which includes tangible activities in each of the nine group sessions, was compared with the usual Standard Care (SC_N) programme, which excludes tangible activities in four of the nine group sessions.

METHODS: A comparative two-group parallel-study design was employed. One hundred participants, 50 from each occupational therapy group programme, were pre- and post-treatment tested by means of The Patient Health Questionnaire (PHQ-9). The study took place at the psychiatric wards of two private general hospitals in South Africa.

RESULTS: The SC_O had a significant improved total outcome ($p < 0.0071$) compared to the SC_N. Five items measured in the SC_O, showed a statistically significant improvement. These items were the following: Interest or pleasure in doing things ($p < 0.0145$), Trouble falling or staying asleep, or sleeping too much ($p < 0.0103$), Feeling tired or having little energy ($p < 0.0365$), Moving or speaking slowly or fidgeting and/or restless ($p < 0.0114$) and Thoughts that you would be better off dead, or of hurting yourself ($p < 0.0123$).

CONCLUSIONS: The results indicated that the SC_O, which included tangible activities in every occupational therapy group session in the treatment of patients with MDD, was superior to the SC_N which excluded tangible activities in four of the nine group sessions.

Key words: Major depressive disorder, occupational therapy, groups, tangible activities, occupation

Introduction

The lifetime prevalence of major depressive disorder (MDD) is almost 17%¹ and is one of the fastest growing diseases worldwide.² This disorder often occurs in people without close interpersonal relationships, leading to impairment in social and occupational functioning.¹ Major depressive disorder can therefore lead to poor quality of life³, decreased work productivity⁴, high socio-economic costs⁵, increased mortality from suicide⁶ and can also be classified as mild, moderate or severe.⁷

Although MDD can be chronic, recurrent, devastating and disabling³, people with this disorder often recover if consistently and appropriately treated.⁷ The acute phase of MDD requires in-hospital treatment when there is a risk of suicide or homicide and other types of self-endangerment.¹ The goal of acute therapy is to bring about complete or partial remission of depressive manifestations.⁷ It was found however, that patients with MDD do not show a complete response rate on symptom reduction and functional improvement when treated with medication, psychotherapy and or supportive measures alone.^{2,7,8} Hees, Koeter, de Vries, Ooteman and Schene⁴ support this notion as they believe that the inclusion of occupational therapy groups reduces MDD symptoms and improves functional ability. Research studies by Lim, Morris and Craik⁹ and Sundsteigen, Eklund and Dahlin-Ivanoff¹⁰, also found that occupational therapists have a valuable contribution to make by using groups as it gives patients with MDDs the opportunity to engage in occupations of daily life, in improved social interaction and in communication skills.

Occupational therapists have been using group therapy as their preferred treatment modality in mental health care practice since the origin of the profession.¹⁰ In a study by DeCarlo and Mann¹¹, as early as 1985, it was found that activity-based occupational therapy groups attained a higher level of interpersonal communication skills than groups that largely involved discussions. Their study however, has several limitations and “suggest, rather than

provide conclusive evidence that activity groups are more effective ...than are verbal groups".¹¹ However, it appears that there has been a shift in focus from traditional activity groups to psycho-educational or verbal groups, as the latter is perceived by occupational therapists as more challenging or prestigious.¹²

According to Gutman and Raphael-Greenfield¹³ the occupational therapy profession has not adequately addressed the evaluation and treatment of depression. Furthermore, research studies that were carried out on patients with MDDs focussed pre-dominantly on occupational therapy group intervention in outpatient settings.^{10,14}

The position statement on therapeutic group-work in occupational therapy also expressed its concern about the limited evidence based research on group-work by South African occupational therapists.¹⁵ Therefore, it seems that occupational therapy group interventions for patients with MDD have not been adequately researched in the field of occupational therapy.

This researcher has been offering a standard care occupational therapy group programme (SC_N) to patients with MDD since 1998. It separately entailed discussion groups and activity-based groups, which took place in different therapy sessions. However, as occupational therapists believe in the use of occupation as a means to achieve recovery¹⁶ the researcher decided to develop an alternative occupational therapy group programme, the standard care plus (SC_O) programme, whereby a tangible activity is inherent in each group therapy session.

A study was therefore undertaken with the aim to compare the two occupational therapy group programmes, the SC_N and the SC_O, on the symptom reduction and functioning of patients with MDD. This article reports on one part of the study only, viz. comparison of the effect of the SC_N and the SC_O on MDD symptoms reduction and functioning in patients as measured by the Patient Health Questionnaire (PHQ-9).

Materials and methods

Research design

A comparative two-group parallel pre-test-/post-test study design was used to seek for objectivity with a baseline (pre-test) and an end-line (post-test) after the intervention¹⁷ as indicated in Figure I.

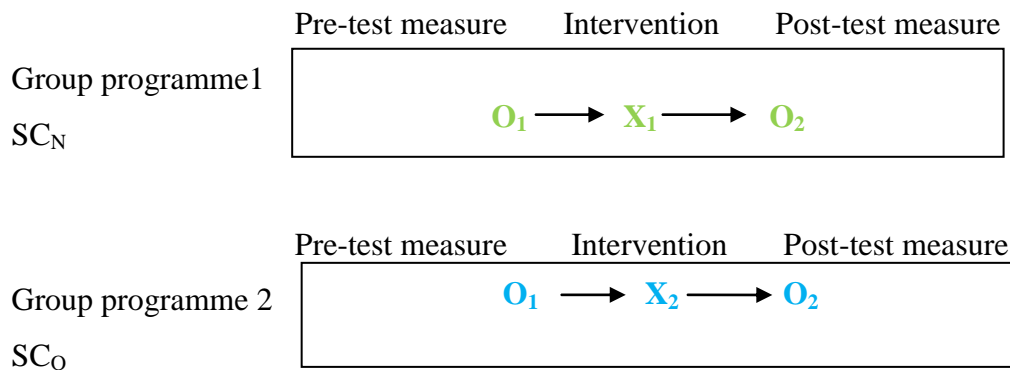


Figure I: Comparative two-group parallel study design

Research site

The study was conducted at the psychiatric wards of two private general hospitals in Gauteng, South Africa. Both psychiatric wards used a multi-professional psychiatric team approach in which all patients admitted to the psychiatric wards received treatment that was offered by psychiatrists, psychologists, social workers and occupational therapists. In addition to individual occupational therapy interventions, the patients followed a two-week occupational therapy group programme that was either the SC_N or the SC_O. The period is in line with the suggestion of a two to four weeks treatment⁷.

Study population and sampling strategy

A convenience sampling method was employed.¹⁸ All the participants who were admitted with the diagnosis of MDD and who consented to participate in the study were included. Each ward in the two private hospitals admitted a maximum of sixteen patients at a time. A

sample size of 100 (50 for each group) hospitalised voluntary patients with MDD were used.¹⁷ Some of the patients with MDD however did not complete the intervention as they were discharged in less than two weeks owing to either the depletion of their medical aid fund or because of speedier improvement than expected.

Inclusion criteria

Participants were eligible for the study if they were (1) admitted to the psychiatric ward with a psychiatric diagnosis of MDD (moderate to severe MDD) with single or recurrent episodes according to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) criteria^{1,19}, (2) voluntary patients who agreed to participate in the study as part of their hospital treatment and (3) the working age group that ranged between 23 to 60 years.

Exclusion criteria

Participants were excluded however if they were diagnosed with (1) other psychiatric diagnoses in the DSM-5, except MDD^{1,19}; if (2) MDD closely associated with comorbidity²⁰; and (3) MDD with psychosis, adjustment disorder with depressive mood and were receiving electro-convulsive therapy and antipsychotic medication.

Ethical considerations

Prior to implementation, permission for the study was granted by the hospital managers and the Ethics and Research Committee of the Faculty of Health Sciences at the University of Pretoria (226/2015). Ethical principles were adhered to as indicated by the following:

- All participants signed a written consent form before their enrolment for the study.
- Confidentiality was ensured by a coding system so that participants could not be identified.

- Participants' autonomy was respected at all times.

Data collection

Data was collected over a period of three months (March – June 2016). The study consisted of three phases: Phase I: Pre-testing of participants by means of the PHQ-9 Phase II: Occupational therapy group intervention of SC_N or SC_O, and Phase III: Post-testing of participants by means of the PHQ-9 questionnaire.

Phase I

Pre-testing

The data for this study was collected by means of the PHQ-9 questionnaire, which was completed by the participants themselves or with the assistance of either occupational therapists OT1 or OT2 who administered the questionnaire. The PHQ-9 questionnaire was developed in line with the diagnostic criteria for depression as set out by the DSM-5.²¹ It represents the threshold for mild, moderate, moderately severe, and severe depression respectively.^{21,22} It had been studied in different settings, including general hospitals, in patients²³ and depression of chronic care patients²¹. It was used as a suitable and valid measure for monitoring outcomes in the treatment of depression.²¹ A maximum time interval of two weeks or less during the administration of the questionnaire was required.²⁴ In the PHQ-9 questionnaire patients had to indicate how they had been troubled by the problems over the last two weeks.²⁵

The PHQ-9's sensitivity to change and specificity²³, internal reliability²¹, external validity²¹, internal consistency²⁵, as a criterion and construct validity^{21,22,25} and utility²⁴, and as a depression severity measure was established and confirmed with excellent psychometric

properties. Its psychometric properties were moreover established in a South African context.²⁵

The highest score of depression severity in the PHQ-9 was found in the major depression group as it was based on the diagnosis for MDD.²³ It had nine items, each of which was scored 0 to 3 (0 = not at all; 1 = several days; 2 = more than half the days and 3= nearly every day), providing a 0 to 27 severity score.²⁵ Scores of 10, 15 and 20 represented cut-points for mild, moderate and severe MDD respectively.²⁶ A score of 15 or more (moderately severe to severe depression), usually signified the presence of MDD and a score of less than 5 signified remission.²² The PHQ-9 was found to be useful and appropriate for use in this study as it gave a baseline (pre-test) of participants prior to their involvement in the intervention.

Phase II

Occupational therapy group programmes

The participants took part in either the SC_N or SC_O for a period of two weeks and each session lasted 90 minutes per day. The purpose and content of each group are depicted in Table 1.

Table 1: - *Standard Care (SC_N) and Standard Care Plus (SC_O) occupational therapy group programme presented by either occupational therapist A or occupational therapist B*

No	Group topic	Group purpose	SC _N	SC _O
1	Getting acquainted	Initiate interaction between members	Verbal interaction	Verbal interaction plus an adapted card game
2	Stress management	Share thoughts on stress management to acquire coping skills	Discussion on stress management	Discussion on stress management plus making a stress ball
3	Acquiring a skill in crafts	Share materials and tools to create a unique end product	Beadwork bracelet	Beadwork necklace
4	Assertiveness	Share thoughts on assertiveness methods to enhance self-control	Discussion on assertiveness	Discussion on assertiveness plus an assertiveness game
5	Relaxation therapy	Share thoughts on and learn relaxation methods	Jacobson's relaxation therapy	A balloon volleyball game followed by Jacobson relaxation therapy
6	Board games	Work as a team and stimulate positive emotional responses	Playing a game of finger board	Playing a game of finger board plus a game of blokus
7	Magazine paper collage	Encourage members to disclose their thoughts in a supportive group environment	Create a collage of memories with magazine pictures	Create a collage of memories with a variety of art and craft materials
8	Creative drawing	Encourage members to give general feedback on each other's drawings	Create a drawing of positive events in the past	Create a drawing of positive events in the past
9	Positive feedback	Give members the opportunity to give and receive positive feedback	Write a positive comment about each member on a piece of paper and place it in each member's envelope. Return the envelope to its owner. After reading comments discuss one or two comments	Write a positive comment about each member on a card they have created themselves. Return card to its owner. After reading comments discuss one or two comments

Standard Care (SC_N)

The SC_N occupational therapy group programme had a variety of occupational therapy sessions that were either activity based and/or discussion based groups as part of the intervention that was offered by occupational therapists OTA and OTB to the participants. A tangible activity was therefore not inherent in each group session. The sequence of the SC_N was graded in terms of interpersonal requirements that started in the first group session with the initiation of interaction in which superficial personal information was shared, up to the ninth session in which each one gave and received positive feedback to one another.

Standard Care Plus (SC_O)

In the SC_O, a tangible activity was inherent in each group session. The group objectives and interpersonal requirements were exactly the same as those for the SC_N.

In addition the researcher ensured that for each group therapy session in both programmes (1) interpersonal communication was facilitated throughout, (2) intervention was provided consistently in respect of the content, intensity and duration, and (3) the same structured group procedure¹⁸ was followed. The group procedure comprised an orientation phase which included a warm-up activity, a working phase with the main activity and a reflection and discussion phase.²⁷

Phase III

Post-testing

The PHQ-9 was used and found to be relevant for determining the end line (post-test) or progress of the participants at the end of the intervention.

Statistical analysis

Treatment groups were compared in respect of change, or improved difference, from baseline (pre-test) to end-line (post-test) scores for MDD variables (items in the PHQ-9) using an analysis of covariance (ANCOVA) with two factors, a programme (with levels SC_N and SC_O) and a hospital (with levels A and B), using pre-test scores as covariates, i.e. adjusting for baseline. The interaction term between the factors programme and hospital was also included when found to be significant. Testing was done at the 0.05 level of significance. Integrated in the ANCOVA was a null-hypothesis that there is no difference between the SC_N and SC_O programmes. A p-value of less than 0.05 therefore meant the null hypothesis is rejected and thus that there is indeed a significant difference in the results from the two programmes. The Data Summary in Table 2 reports a mean and standard deviation by treatment group of pre-test, post-test and change¹⁸ as well as predictive programme margins adjusted for the baseline and the hospital in the form of a mean and 95% confidence intervals for each programme.

The effect size (ES) estimates were derived using Cohen's *d*-statistics²⁸. The ES estimate for the two programmes in respect of the change from baseline (pre-testing) to end-line (post-testing) is determined as the difference in programme mean change divided by the pooled standard deviation (SD): $d = (\text{Mean change for SC}_O - \text{Mean change for SC}_N) / \text{SD}_{\text{pooled}}$, where $\text{SD}_{\text{pooled}} = [(\sqrt{\text{SD}_{\text{SCO}}^2 + \text{SD}_{\text{SCN}}^2}) / 2]$.²⁸ Thomas and Nelson²⁹, interpreted an ES of 0.8 as large, 0.5 as moderate and 0.2 as small.

Results

A sample size of 100 voluntary patients with MDD completed both the pre-test and post-test of the study. Their ages ranged from 23 to 60 years. The average age of participants in both

programmes was 39.4 years, which is in line with the mean age for patients with MDD of 40 years.¹ The sample consisted of 86% females and 14% males. There is thus a greater prevalence of MDD in females than in men.¹ In SC_N, most of the stressors were work related (24%), losses (22%), marriage (18%), relationships (16%), family problems (12%), finances (6%) and ill health (2%). In SC_O, most of the stressors were family problems (24%), relationships (18%), finances (18%), marriage (12%), work related (12%), losses (8%) and ill health (8%). The results of the two programmes as measured by the PHQ-9 are shown in Table 2.

As can be seen from Table 2, the overall treatment regime, which included either the SC_N or the SC_O programmes, invariably had a positive impact on the well-being of the patients. However, the SC_O programme had a significantly better outcome compared to the SC_N programme based on the total PHQ-9 items ($p < 0.0071$). In five of the nine individual items measured, the SC_O showed a statistically significant greater improvement than the SC_N. These items were (1) interest or pleasure in doing things ($p < 0.0145$), (3) trouble falling or staying asleep, or sleeping too much ($p < 0.0103$), (4) feeling tired or having little energy ($p < 0.0365$), (8) moving or speaking slowly or fidgeting or restless ($p < 0.0114$) and (9) thoughts that one would be better off dead, or of hurting oneself ($p < 0.0123$).

The p value of the remaining four items, numbers 2, 5, 6 and 7, indicated statistically there is not a significant difference between the programmes although the SC_O consistently performed slightly better, except in the case of “concentration” where the improvement brought about by the two programmes were the same.

The above is supported by the effect size (ES), or standardised mean difference between the improvements in the 9 items as brought about by SC_O and SC_N. A medium ES is in evidence for items 1, 3, 4, 8 and 9 but only a relatively small ES for items 2, 5, 6 and 7.

Table 2: - Data summary of the two programmes using PHQ-9 (n=100)

PhQ9 - Comparison of Improvement from SC _N and SC _O Programmes	Program	Pre-Intervention (n = 100)		Post-Intervention (n = 100)		Improvement Δ (Pre-Post)		Predictive programme margins adjusted for baseline and hospital			Effect Size (Cohen)** (SC _O > SC _N)	
		Mean	SD	Mean	SD	Mean	SD	P-value*	Mean	CI	d	
1. Little interest or pleasure in doing things	SC _N	2.440	0.760	1.100	1.074	1.340	1.022	0.0145	1.389	1.141	1.637	0.50
	SC _O	2.600	0.670	0.720	0.757	1.880	1.003		1.831	1.583	2.079	
2. Feeling down, depressed or hopeless	SC _N	2.740	0.527	0.940	0.935	1.800	1.125	0.1257	1.778	1.539	2.017	0.31
	SC _O	2.700	0.544	0.680	0.741	2.020	0.892		2.042	1.803	2.281	
3. Trouble falling or staying asleep, or sleeping too much	SC _N	2.740	0.527	0.980	0.958	1.760	1.021	0.0103	1.637	1.412	1.863	0.53
	SC _O	2.480	0.789	0.540	0.613	1.940	1.038		2.063	1.837	2.288	
4. Feeling tired or having little energy	SC _N	2.640	0.749	1.020	0.915	1.620	1.048	0.0365	1.531	1.283	1.780	0.43
	SC _O	2.420	0.731	0.600	0.904	1.820	1.082		1.909	1.660	2.157	
5. Poor appetite or overeating	SC _N	2.220	0.954	0.720	0.882	1.500	1.216	0.1498	1.480	1.249	1.712	0.29
	SC _O	2.180	0.896	0.480	0.762	1.700	1.249		1.720	1.488	1.951	
6. Feeling bad about yourself, that you are a failure, or having let yourself or your family down	SC _N	2.440	0.929	0.840	1.017	1.600	1.143	0.3729	1.578	1.320	1.835	0.18
	SC _O	2.380	0.855	0.660	0.872	1.720	1.107		1.742	1.485	2.000	
7. Trouble concentrating on things; reading newspaper or watching TV	SC _N	2.600	0.728	0.900	0.886	1.700	0.953	0.2763	1.608	1.374	1.842	0.22
	SC _O	2.360	0.851	0.660	0.798	1.700	1.093		1.792	1.558	2.026	
8. Moving or speaking slowly or being fidgety or restless	SC _N	2.160	0.997	0.780	0.910	1.380	1.067	0.0114	1.310	1.104	1.516	0.52
	SC _O	1.980	0.937	0.360	0.563	1.620	1.008		1.690	1.484	1.896	
9. Thoughts that you would be better off dead, or of hurting yourself	SC _N	1.780	1.266	0.580	0.992	1.200	1.414	0.0123	1.236	1.011	1.460	0.51
	SC _O	1.860	1.107	0.180	0.560	1.680	1.220		1.644	1.420	1.869	
Total	SC _N	21.760	3.159	7.860	5.617	13.900	5.152	0.0071	13.664	12.317	15.010	0.55
	SC _O	20.960	2.857	4.880	4.207	16.080	5.005		16.316	14.970	17.663	
10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home or get along with other people	SC _N	2.520	0.646	1.060	0.867	1.460	0.908	0.1125	1.322	1.104	1.541	0.33
	SC _O	2.120	0.689	0.680	0.713	1.440	0.884		1.578	1.359	1.796	

* P-value from ANCOVA; P<0.05 denotes significant differences between Δ SC_N and Δ SC_O.

** Effect Size = Standardised group mean difference between SC_N and SC_O

The p value of the last item viz. 10, which focused on functioning, showed statistically no significant difference in the improvement associated with the two programmes and, as could be expected, a concomitant small effect size.

Discussion

This study sought to compare two occupational therapy group programmes, the SC_N and SC_O, conducted at two general private hospitals in South Africa. The results of the study indicated that overall the SC_O had a statistically significant ($p < 0.0071$) better impact than the SC_N programme on improving the well-being of patients with MDD as measured by the PHQ-9. The individual items that had a significant difference will be discussed next.

Little pleasure or interest in doing things

Patients with acute psychiatric illness often do not engage in meaningful activity.³⁰ In this study, occupational therapy groups allowed the participants to spontaneously engage in meaningful activities during each group session of the SC_O programme. The latter was consequently found to result in a statistically significant difference in improving positively compared to that attained with the SC_N programme ($p < 0.0145$).

This finding compares favourably with that of literature reviewed on the relationship between activities and health. Fane, Ramugondo, Leshoele and Coker³¹ who engaged their patients in activities found that those activities sparked creativity, cohesion, sharing and support, thus eliciting the patients' interest in doing things. The nature of the activities was also commented on as eliciting interest in doing things.

Trouble falling or staying asleep, or sleeping too much

Eighty percent of hospitalised patients with MDD report trouble falling asleep or staying asleep.³² Active engagement in a daily occupational therapy group session, as included in the SC_O programme, discouraged MDDs from sleeping during the day. Participants were required to execute tasks which required concentration, physical energy and social interaction. The SC_O participants also took part in relaxation therapy, which they reported as

having reduced their stress level by calming them down. The SC_N, programme which did not include a physical activity, but relaxation therapy only, had a significantly lower impact.

Feeling tired or having little energy

Austin, Mitchell and Goodwin³³ emphasised that patients with MDD experienced difficulties exerting effort due to their low energy levels. It was interesting to note in this study that although participants in general experienced an improvement in their energy levels and were motivated to engage in more meaningful activities, there was a small to medium size effect in the difference between the two programmes in favour of SC_O. It was interesting to also note that there was spontaneous interaction elicited by activities throughout the groups of SC_O but that interaction in SC_N had to be facilitated by OTs A or B.

Moving or speaking slowly or being fidgeting or restless

In patients with MDD, psychomotor symptoms tend to partially or totally subside during remission.³⁴ There was generally an improvement in psychomotor activity as measured by the PHQ-9 which is in agreement with the literature. Furthermore, there was a statistically significant difference between the two programmes with SC_O being the more effective as evidenced by a medium SE of 0.52.

Thoughts that you would be better off dead or hurting yourself

The risk of suicide is associated with a poor response to MDD treatment.³⁵ A reduction in participants' risk of suicide was also observed. Literature state that about 10-15% of depressed patients' commit suicide and that 67% have suicidal ideations.^{1,7} There was a statistically significant difference between the effect in the two programmes with a concomitant medium effect size of 0.51. It would therefore seem that healing took place

where hope was instilled in SC_O as the participants realised their sense of purpose, competency and well-being.

Feeling down, depressed or hopeless

Crouch & Alers¹⁶ suggest that activity-based occupational therapy group interventions stimulate positive emotional responses and allow an experience of positive mood, which was confirmed in this study as the participants generally showed a small improvement. This agrees with the notion of Ikiugu, Hoyme, Mueller and Reinke³⁶ that activities are effective as a means for improving mood. In the meta-analysis and review of the empirical research by McDermut, Miller and Brown³⁷, they also reported that group participants showed a greater reduction in depressive symptoms than untreated controls. It was clear in this study that participants in both programmes showed an improved difference in their depressed mood, even though SC_O showed slightly better results as evidenced by a small ES of 0.31.

Feeling bad about yourself, that you are a failure, or having let yourself and your family down

Most of patients with MDD feel bad about themselves, that they are a failure or that they have let themselves or their families down, which has a negative impact on their self-esteem. Israel³⁵, asserted that patients consider optimism and self-confidence just as important as indicators of remission than that of symptom resolution. Although not statistically significant, patients with MDD who in this study showed only a small effect on their self-esteem. SC_O nevertheless, of the two programmes was still found to be superior.

Trouble concentrating on things, like reading newspaper or watching TV

Patients with MDD who attained remission, could still experience cognitive deficits³⁵ as MDD is known to cause impairment in the ability to shift the focus of attention.³³ Although not statistically significant ($p < 0.2763$) a small size effect difference pointed at the SC_O being slightly more effective than the SC_N on improving participants' concentration.

In summary, the activity based occupational therapy group programme (SC_O) showed a greater improvement difference than the SC_N. These comparisons confirmed that engagement in meaningful occupation as a core in occupational therapy had a positive effect on participants' mental health and sense of well-being³⁶ in relation to their symptomatology and functional improvement.

Conclusions

The findings of this study indicated that the SC_O which included tangible activities in every occupational therapy group session, was superior to the SC_N, which excluded tangible activities in four of the nine group sessions, at a statistically significant ($p < 0.0071$) level. It further confirmed in a comparison of the two programmes a small to medium effect size favouring the SC_O for the treatment of patients with MDD using the DSM-5 criteria within the PHQ-9.

The therapeutic use of tangible activities and participants' social interaction in occupational therapy groups were found to be curative and appropriate in reducing symptoms and improving functioning of patients with MDD since it enhanced their well-being. It further highlighted the effectiveness of including both occupational therapy group programmes in the treatment of patients with MDD in the hospital settings wherein the study was conducted. Even though both interventions were brief and delivered within two weeks,

they were both found to be relevant and effective for the treatment of patients with acute MDD, but with the SC_O being shown to be superior.

The benefit of using the PHQ-9 to monitor progress made on symptom reduction and functional improvement was highlighted. The relevance and usefulness of the accuracy of the PHQ-9 in the occupational therapy profession was also observed since it proved to be a responsive and reliable measure of depression treatment outcome for use in occupational therapy practices. It also highlighted the participants' responsiveness to the occupational therapy group intervention.

Limitation of the study

The PHQ-9 should be administered at concurrent stages for an estimated period of six months during the acute and maintenance phase. Moreover, the participants included in the study did not continue with outpatient occupational therapy group intervention after being discharged. Thus follow-up data to investigate maintenance of gains were not collected.

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Authors' contributions

Contributors . – Enos Ramano was responsible for the project design and performed the research. He assisted with the writing of the manuscript, Marianne de Beer supervised the entire project and assisted with the writing of the manuscript, J. Louw Roos assisted with the supervision and writing of the manuscript, P Becker assisted with the statistical analysis of the entire project. All four authors were involved in the compilation of the manuscript.

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