

The Outcome of Two Occupational Therapy Group Programs on the Social Functioning of Individuals with Major Depressive Disorder

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Abstract

Individuals with major depressive disorder (MDD) frequently experience interpersonal difficulties. This study compared two occupational therapy group programs, an existing discussion/activity program and a new activity-based group program, on the social functioning of individuals with MDD. A concurrent embedded mixed methods intervention advanced design was employed. One hundred voluntary individuals, 50 in each group, were pre- and post-tested with the Social Interaction Scale and participants' experiences were documented with self-report questionnaires and focus group interviews. The new activity-based program showed significant ($p < 0.004$) improvement on the total outcome compared to the existing program. Participants of both programs experienced improved social interaction.

Keywords: Major depressive disorder; occupational therapy groups; social functioning; mixed methods

Introduction

Major depressive disorder (MDD) is recurrent in nature with a relapse rate that is estimated at about 50% to 85% (Grobler, 2013; Osuch & Marais, 2017). Major depressive disorder can be classified as mild, moderate or severe (Bschor & Adli, 2008). Individuals with MDD may experience single or recurrent episodes (American Psychiatric Associations [APA], 2013; Sadock, Sadock, & Ruiz, 2015). Globally, approximately one in 15 adults is affected by depression (Osuch & Marais, 2017). In South Africa, where this study was conducted, Tomlinson, Grimsrud, Stein, Williams, and Myer (2009) stated that one of ten South Africans might experience an episode of MDD in their lifetimes. Major depressive disorder affects approximately 8% to 15% of the total population in South Africa (Wolmarans & Brand, 2016) and the burden of MDD, estimated as years lived with disability (YLDs) in South Africa has increased by 58% since 1990 (Nglazi et al., 2016).

The major symptoms of individuals with MDD are (1) a depressed mood and (2) a decreased interest or pleasure in doing daily activities (Sadock et al., 2015). Sixty seven percent of individuals with MDD have suicidal ideations and about 10% to 15% of them may attempt suicide (Bschor & Adli, 2008; Sadock et al., 2015). On an occupational performance level,

these symptoms can have a negative impact on social functioning (Kupferberg, Bicks, & Hasler, 2016; Saris, Aghajani, van der Werff, van der Wee, & Penninx, 2017).

Several theories have been proposed to explain the psychological factors underpinning MDD. In the widely cited work of Yalom and Leszcz (2005), the point is made that “psychological symptomology emanates from disturbed interpersonal relationships” (p. 47). In line with this statement, Vorster (2011) also maintained that there is a correlation between a person’s interpersonal relationships and degree of mental health, while Lepine and Briley (2011) point out that mental disorders are associated with social interaction and problems with close relationships. Recently, Kupferberg et al. (2016) and Saris et al. (2017) stated that MDD has a negative impact on individuals’ social functioning.

The cause of interpersonal difficulties is explained in the work of Sullivan (1953) and in research conducted by Boyce et al. (1998) who found that individuals with MDD may have been negatively affected by rejection during childhood, insufficient care from a current partner, a vulnerable personality type, stressful life events and an unsatisfactory social support network. Recent reports show MDD being associated with (1) females, (2) lack of partnership, (3) loneliness, and (4) lack of social support (Maske et al., 2016; Saris et al., 2017).

The suggested standard treatment protocol for MDD includes pharmacotherapy (predominantly antidepressants), psychotherapy (cognitive behavioral therapy, psychoanalytic psychotherapy and interpersonal psychotherapy), supportive therapy and family therapy (Bschor & Adli, 2008; Sadock et al., 2015; Gautam, Jain, Gautam, Vahia, & Grover, 2017). Concerning psychotherapy, Kupferberg et al. (2016) suggested that this type of therapy has a small to medium positive effect on social functioning of individuals with MDD. The combination of the treatment modalities (pharmacotherapy, psychotherapy and supportive therapy) are seen as advantageous in acute settings (Bschor & Adli, 2008; Sadock et al., 2015; Gautam et al., 2017). Psychotherapy and pharmacotherapy trials appear to have focused on the reduction of depressive symptoms rather than on the improvement of social functioning (Kupferberg et al., 2016). It was found that social functioning in individuals with recurrent MDD continues to remain impaired (Saris et al., 2017).

Occupational therapists, as part of a multi-professional mental health team, frequently work with individuals with MDD employing one-on-one sessions and group therapy programs. However, evidence-based research on the impact of occupational therapy groups in the treatment of individuals with MDD in acute settings seems to be limited. Some studies appear to be dated (Borg & Bruce, 1991; Eklund, 1997; Finlay, 1993; Howe & Schwartzberg, 1995; Schindler, 1999), focus largely on mental health and psychiatric disabilities in general and in some cases, are not well documented and lack scientific rigor. The authors of this paper nevertheless reviewed studies by DeCarlo and Mann (1985); Falk-Kessler, Momich, and Perel (1990); Howe and Schwartzberg (1995); Eklund (1997); Schindler (1999); Cows and Hale (2005); Lim, Morris, and Craik (2007); Sundsteigen, Eklund, and Dahlin-Ivanoff (2009); Gibson, D’Amico, Jaffe, and Arbesman (2011); Bullock and Bannigan (2011), Higgins, Schwartzberg, Bedell, and Ducombe (2014), and Edel et al. (2017) all who highlighted the overall benefits of the occupational therapy groups in mental health. However, there is limited evidence in the literature regarding use of occupational therapy groups for the treatment of MDD in South African acute settings.

Even though the benefits of the occupational therapy groups in mental health have been highlighted, Bullock and Bannigan (2011) in their publication, “Effectiveness of activity-based group work in community mental health: A systematic review”, identified the lack of scientific rigor in occupational therapy research that supports the practice of activity-based groups for promoting social functioning. Despite the lack of scientific rigor, they still encouraged and recommended the continued use of activity-based groups in occupational therapy (Bullock & Bannigan, 2011). Some of the research studies that were conducted with individuals with MDD focused pre-dominantly on occupational therapy group intervention in outpatient settings (Bullock & Bannigan, 2011; Sundsteigen et al., 2009). Kupferberg et al. (2016) also advised that more studies are needed to develop interventions that target social impairments in MDD.

The first author, an occupational therapist, who has been working in acute psychiatric units in two private general hospitals, employed an occupational therapy group program, the existing SC_N, which entailed a combination of discussion groups (i.e. life skills groups and supportive groups) and activity-based groups (i.e. creative- and leisure activities) as part of the multi-professional mental health team. Reflecting on the effectiveness of the existing SC_N occupational therapy group program to treat the social functioning of individuals with MDD, the authors decided to take it to the next level in order to determine whether added activities in each activity-based group session would provide a more positive outcome on social interaction. Activities in the activity-based group required material handling or were operative and as such had a concrete end-product or practical tasks that were executed during a group session (Crouch & Alers, 2014). A new occupational therapy group program, the SC_O, which included activities in every occupational therapy group session was proposed as an activity-based group.

Considering the need for research on the benefit of activity-based occupational therapy group programs on the social functioning of individuals with MDD in acute settings in occupational therapy formed the basis of this paper.

Aim

The aim of the study was therefore to compare the outcomes of the proposed new occupational therapy (SC_O) group program, with the existing occupational therapy (SC_N) group program. The authors hypothesized that the proposed new SC_O group program, would lead to a better treatment outcome for individuals with MDD than the existing SC_N occupational therapy group program.

This study also aimed to explore how the participants experienced the occupational therapy group program they attended.

This article reports only on the participants’ social functioning, which formed one part of the larger study as measured by the Bay Area Functional Performance Evaluation-Revised (BaFPE-R), which was developed in 1978 and revised in 1987 to meet the need for a standardized assessment to measure broad aspects of functional performance in occupational therapy (Bloomer & Williams, 1987; Klyczek & Stanton, 2008).

Methodology

Research design

A concurrent embedded mixed methods intervention advanced design was implemented in this study as indicated in Figure 1 (Creswell, 2014; Guetterman, Fetters, & Creswell, 2015).

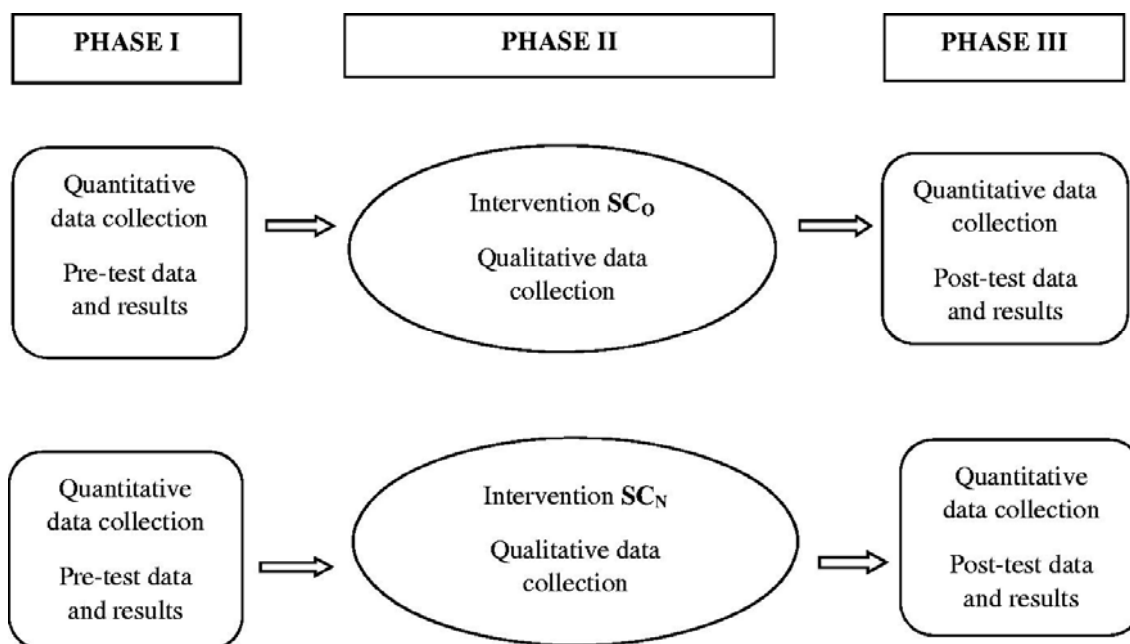


FIGURE 1 Concurrent embedded mixed method intervention design.

A qualitative inquiry was embedded in a pretest, post-test comparison group study. The authors drew on the strengths of both forms of inquiry by collecting data from “multiple perspectives” (Guetterman et al., 2015).

Research site

The study was conducted at the two acute psychiatric units of two private general hospitals in Gauteng, South Africa. A multi-professional health team consisting of psychiatrists, psychologists, professional nurses, social workers, and occupational therapists offered mental health care at both psychiatric units.

Occupational therapy interventions included individual treatment and either the existing SC_N group program or the new SC_O group program as a two-week group programs that were offered by two occupational therapists (OT_{P1} and OT_{P2}). The nine topics that were selected in the sessions for both group programs were; (1) Getting acquainted; (2) Stress management; (3) Making a beadwork product; (4) Assertiveness training; (5) Relaxation therapy (6) Playing a board game (7) Creating a paper collage (8) Creative drawing; and (9) Giving and receiving feedback.

Sessions 1, 2, 4 and 9 of the existing SC_N group program consisted of discussion-based groups only. Furthermore, session 3, making a beadwork bracelet required minimal planning and few steps, session 5, relaxation therapy comprised a relaxation exercise followed by a discussion on relaxation and session 6, playing a board game, included only a fingerboard game. The new SC_O group program in contrast was entirely activity-based as it included activities in each of the nine-group session. The content of the two group programs (existing SC_N and the new SC_O) is described in Table 1.

TABLE 1 Content of the SC_N and SC_O group program (Ramano et al., 2017).

Topic	Program	Stage I	Stage II
Getting acquainted	SC _N	Likes and dislikes game	Get into pairs to know each other. Members come back to the group to present each other.
	SC _O	Likes and dislikes game	A modified card game* was played to get to know each other more rapidly.
Stress Management	SC _N	Word search game	Discussion on symptoms of stress and coping skills.
	SC _O	Word search game.	A stress ball* was made by each member as they assisted one another to fill the balloon with flour and in closing the opening of the balloon. This was followed by a discussion on symptoms of stress and coping skills.
Making a beadwork	SC _N	Favorite colors game	The beadwork pattern was shortened with few steps to allow participants to create a bracelet.
	SC _O	Favorite colors game	The complexity of the beadwork pattern was increased with more steps* to allow participants to work together and create a necklace.*
Assertiveness training	SC _N	Convince your partner game	A discussion on assertiveness.
	SC _O	Convince your partner game	Playing an assertiveness board game* with some discussion during the game.
Relaxation Therapy	SC _N	Discussion on relaxation therapy	An adapted relaxation technique was performed followed by a discussion.
	SC _O	Balloon volley ball*	An adapted relaxation technique was performed followed by a discussion.
Recreation	SC _N	Musical chairs	Participants played fingerboard in pairs and were allowed to choose their own partners.
	SC _O	Fingerboard game	Participants played blokus* in pairs and were allowed to choose their own partners.
Creating a collage	SC _N	Musical chairs	Each participant was expected to draw a collage of good memories, which was followed by presentations and other participants' feedback.
	SC _O	Musical chairs.	Each participant made a collage using a drawing, art and craft materials,* which was followed by presentations and other participants feedback.
Decorating a gift box	SC _N	Complete a 50 pieces puzzle in five minutes	Each member created a drawing of his best times on an A3 piece of paper.
	SC _O	Complete a 50 pieces puzzle in five minutes	Various art materials (paper, acrylic paint, pastels, charcoal)* were used to create and decorate a gift box* of the best time of their lives.
Feedback	SC _N	Mirror activity	Group members to give and receive positive feedback from each other.
	SC _O	Mirror activity	Group members created a card* using a variety of art and craft materials. On completion of the card, members wrote feedback to each other.

*Indicates an addition in the program Indicates an addition in the program

Study population and sampling strategy

Convenience sampling was used in the study (Grove, Burns, & Gray, 2013). The participants recruited to participate in the study were admitted with the diagnosis of MDD (single or recurrent episode). The participants consented to be included in the study. Each acute psychiatric unit of the two private general hospitals admitted a maximum of sixteen individuals at a time. The study had a sample size of 100 (50 for each group) hospitalized voluntary participants who were diagnosed with MDD (Botma, Greef, Mulaudzi, & Wright, 2010).

Inclusion criteria

Participants were eligible for the study if they (1) were admitted to one of the two acute psychiatric units of the two private general hospitals and diagnosed with MDD (moderate to severe MDD) with single or recurrent episodes according to DSM-5 criteria (APA, 2013; Sadock et al., 2015), (2) voluntarily agreed to take part in the study during their hospitalization, and (3) were between 23 and 60 years.

Exclusion criteria

The exclusion criteria involved the individuals who (1) were not diagnosed with MDD in DSM-5 (APA, 2013; Sadock et al., 2015), (2) those who were diagnosed with a comorbidity (APA, 2013), (3) those MDDs with psychosis, adjustment disorder with depressive mood, and (4) those who were receiving electro-convulsive therapy and antipsychotics (Sadock et al., 2015).

Ethical considerations

Hospital managers from both acute psychiatric units of the two private general hospitals granted permission to conduct the study at their respective hospitals. The Ethics and Research Committee of the Faculty of Health Sciences at the University of Pretoria (226/2015) granted ethical approval. The researchers ensured that the ethical principles were adhered to as all participants voluntarily signed written consent prior to their enrollment in the study. The participants could not be identified and confidentiality was ensured.

Independent occupational therapists

Four occupational therapists participated in the research study. Two occupational therapists were situated at each of the two hospitals. At each hospital, one occupational therapist administered the pre- and post-tests and the second occupational therapist conducted the group intervention program. Testing and treatment were divided between the two occupational therapists at their respective hospitals in order to prevent personal bias. In the study, the two occupational therapists at Hospital A were collectively referred to as OT_{T1} and OT_{P1}, and those at Hospital B as OT_{T2} and OT_{P2}.

Data collection

It took a period of four months (March – June 2016) to collect the data. Phases I and III necessitated a quantitative inquiry in order to compare the effect of the two occupational therapy group programs on the social functioning of patients with MDD. The Social

Interaction Scale (SIS), which forms part of the Bay Area Functional Performance Evaluation-Revised (BaPFE-R), was used as a pre-and post-test. In Phase II self-report questionnaires (SRQ) and focus-group interviews were used to obtain an in-depth understanding of the participants' inter-subjective experiences in the study.

Phase I

Pretesting

The data for this study was collected by means of the BaPFE-R (SIS), which was administered by either OT_{T1} or OT_{T2}. The BaPFE-R consisted of two parts: The Task Oriented Assessment (TOA) and the Social Interaction Scale (SIS). The SIS was used to document clinical observation of participants' skills or deficits in their interaction with others in a social setting (Houston, Williams, Bloomer, & Mann, 1989). The participants were observed in different social situations (one-to-one, mealtime, unstructured group, structured activity group and structured verbal group) to establish the following functional areas evaluated: (1) Verbal communication, (2) Psychomotor behavior, (3) Socially appropriate behavior, (4) Response to authority figures, (5) Degree of independence or dependence, (6) Ability to work with others, and (7) Participation in group activities (Houston et al., 1989; Klyczek & Stanton, 2008).

Concurrent, discriminant, predictive and construct validity and interrater and internal reliability have been established for the BaPFE-R (SIS) (Houston et al., 1989; Klyczek & Stanton, 2008). The interrater reliability of .69 to .91 was established for the SIS (Houston et al., 1989; Klyczek & Mann, 1990; Klyczek & Stanton, 2008). The clinical use of BaPFE-R (SIS) in psychiatric inpatient settings to evaluate participants' progress in research studies was documented (Klyczek & Stanton, 2008). The BaPFE-R was previously used for pretest and post-test studies by Bloomer and Williams in 1987 (Klyczek & Stanton, 2008). The BaPFE-R showed clear indications of its sensitivity to culturally influenced functional performance components (Brockett, 1987). In this study, the BaPFE-R (SIS) was used to evaluate the participants' progress in relation to the outcome of the two intervention (new SC_O and existing SC_N) group programs. It was completed within two days of participants' observation by either OT_{T1} or OT_{T2}.

Phase II

Intervention

Two occupational therapy group programs were employed; the existing SC_N and the new SC_O group programs. The existing SC_N group program consisted of nine group sessions that lasted for 90 minutes per day for a period of two weeks and entailed a combination of activity-based groups (i.e. creativity and leisure activity groups) and discussion-based groups (i.e. stress management, social skills and interpersonal support) (Finlay, 1993). Reflecting on the philosophy of occupational therapy (Molineux, 2004) and the efficacy of the existing SC_N group program, which consisted of a discussion only during Stage I group session (5) relaxation therapy, and Stage II group session (1) getting acquainted, (2) stress management, (4) assertiveness training and (9) interpersonal feedback, the authors decided to develop an entirely activity-based occupational therapy intervention, the new SC_O group program, which included activities in Stage I and Stage II of each of the nine occupational therapy group session. The authors intended to take the existing SC_N group program to the next level and to

determine the benefits of added activities in each activity-based group session of the new SC_O group program. (See Table 1).

The participants took part in either the existing SC_N or the new SC_O group programs. The group programs were based on (1) *the theory of occupation in occupational therapy* (Kielhofner, 1992; Molineux, 2004; Reilly, 1962; Rogers, 1984; Wilcock, 1998; Yerxa, 1990), (2) *the clinical reasoning process in occupational therapy* (Mattingly & Fleming, 1994; Schell & Cervero, 1993); (3) *the therapeutic factors* as put forward by Yalom during the 1970s (Yalom & Leszcz, 2005), and (4) *the group process and procedures* (Beyers & Vorster, 1985; Bryant, Fieldhouse, & Bannigan, 2014; Creek & Lougher, 2008; Finlay, 1993; Yalom & Leszcz, 2005). The group procedure was followed in each session and consisted of Stage I, which included a warm-up exercise, Stage II which addressed the main objective by means of discussion- and or activity-based groups (existing SC_N group program) or activity-based groups (new SC_O group program) and Stage III which included reflections and discussions (Bryant et al., 2014; Creek & Lougher, 2008).

The sequence of both group programs was graded in terms of interpersonal requirements that started in the first group session with: (1) the initiation of interaction where there was a sharing of superficial personal information (getting acquainted); (2) sharing of ideas in order to acquire coping skills (stress management); (3) sharing of materials and tools to create a unique end product (beadwork); (4) sharing of ideas to enhance self-control (assertiveness skills); (5) learning a modified relaxation method based on Jacobson's Relaxation Therapy; (6) working as a team (playing table games); (7) encouraging members to disclose their thoughts and feelings (create a collage); (8) giving each other feedback (creative activity); and (9) giving and receiving positive feedback to each other (positive feedback) (Ramano, de Beer, Roos, & Becker, 2017).

The group objectives were exactly the same for the existing SC_N and new SC_O group program. In addition, the researchers ensured that for each group therapy session of both programs (1) interpersonal communication was facilitated throughout, (2) the same structured group procedure was followed (Grove et al., 2013). The two group programs therefore only differed with regards to the number of activities or complexity of activities employed to facilitate social interaction among participants in each group program (Table 1). At the end of each occupational therapy group session of the SC_O or SC_N group program, the participant completed a SRQ. After the participants completed either SC_O or SC_N group program, they attended a focus group session with the researcher, where they gave feedback regarding their experience of the whole program that they attended. The following seven questions were formulated for the focus group interview guide:

What are your comments about the occupational therapy groups you attended?

What helped you the most during the occupational therapy groups?

Which occupational therapy group came out the strongest for you and why?

Which group touched where it had to touch and why?

In your opinion which occupational therapy group is rated the lowest and should be removed from the program?

What do you think should be added to the occupational therapy group program?

Any other information you feel is important to comment about?

Phase III

Post-testing

At the end of the intervention, the BaPFE-R (SIS) was used and found to be relevant to determine the end line (post-test) or progress of the participants.

Data analysis

Phase I

Data summary included the observed mean (M) and standard deviation (SD) of pretest scores for each treatment group (SC_N and SC_O group program) (Grove et al., 2013). The clustering of data stemming from 12 treatment groupings was analyzed in Phase III.

Phase II

The qualitative data which were generated from the SRQ and the focus group interviews used two different approaches to analyze the data. Content analysis with a top-down approach was used to analyze the text of the SRQ (Terre Blanche, Durrheim, & Painter, 2006). For the focus group interviews, thematic analysis (Braun & Clarke, 2006) followed a bottom-up approach (Terre Blanche et al., 2006) to extrapolate the underlying meanings participants attached to the two programs (Geldenhuys, 2015). In this way themes were induced from the participants' inter-subjective experiences of the new SC_O and existing SC_N group programs (Shannon-Baker, 2015).

Strategies to ensure rigor

The first author conducted extensive discussions with the research supervisors and three external auditors (independent coders) in addition to consulting the literature to determine the themes. The three external auditors were requested to independently formulate their own themes related to the study. The first author then met with the external auditors to achieve consensus about their own perspectives of their themes in order to formulate the final themes and to ensure interpretive agreement (Bergman, 2008). Different perspectives about the themes assisted in ensuring that the themes were realistic and rich (Creswell, 2014). Interpretive distinctiveness was also achieved as the first author ensured that the results of the study were truthful and defensible (Bergman, 2008).

Phase III

Similar to Phase I, the data summary reported the mean and the standard deviation of the post-test scores and the resulting change or improvement (Δ) by either treatment group (existing SC_N and new SC_O group program).

Treatment groups were compared in respect of change from the pretest to post-test scores of *social interaction* (SIS) using a mixed-effects maximum likelihood regression analysis. This

described the relationship between the foregoing and the fixed effects programs (existing SC_N and new SC_O), as the hospitals (A and B), and the interaction using the baseline value as covariate. The P>|z| values derived for programs, hospitals and the interaction between them are included in Tables 2 and 3. The use of pretest scores as covariate eliminated systematic biases (Dimitrov & Rumrill, 2003). Participants' treatment groups were considered as 'clusters' and specified as the random component.

TABLE 2 Data summary of the two programs using SIS Functional Areas (n-100).

SIS - Comparison of improvement from SC _N and SC _O Programs	Program	Improvement Δ		Linear Predicted program margins adjusted for clusters			Effect Size (Cohen)** (SC _O > SC _N) d	
		Mean	SD	p-Value*	Margin	Confidence Interval		
Functional Area:								
Verbal Communication	SC _N	1.54	0.83	0.001	1.71	1.61	1.82	0.68
	SC _O	2.14	0.66		1.97	1.87	2.08	
Psychomotor Behavior	SC _N	1.56	0.61	0.000	1.71	1.61	1.82	0.77
	SC _O	2.17	0.71		2.01	1.90	2.11	
Socially Appropriate Behavior	SC _N	1.18	0.56	0.264	1.22	1.10	1.33	0.22
	SC _O	1.35	0.70		1.31	1.20	1.43	
Response to Authority	SC _N	0.93	0.73	0.225	0.87	0.79	0.95	0.24
	SC _O	0.89	0.77		0.94	0.86	1.02	
Degree Independence / Dependence	SC _N	0.86	0.58	0.383	0.90	0.78	1.02	0.17
	SC _O	1.02	0.60		0.98	0.86	1.10	
Ability to work with others	SC _N	1.25	0.75	0.175	1.31	1.19	1.44	0.27
	SC _O	1.50	0.65		1.43	1.31	1.56	
Participation in Group Activities	SC _N	1.25	0.52	0.683	1.29	1.19	1.39	0.08
	SC _O	1.37	0.60		1.32	1.22	1.43	

Improvement Δ = Difference between Post-Intervention and Pre-Intervention test results.

Linear predictions from Mixed-Effects ML Regression.

* p < 0.05 denotes significant differences between Δ SC_N and Δ SC_O.

** Effect Size = Standardized group mean difference between SC_N and SC_O.

TABLE 3 Data summary of the two programs using SIS Social Response by Situation (n-100).

SIS - Comparison of Improvement from SC _N and SC _O Programs	Program	Improvement Δ		Linear Predicted program margins adjusted for Clusters			Effect Size (Cohen)** (SC _O > SC _N) d	
		Mean	SD	p-Value*	Margin	Confidence Interval		
Clients' Social Responses by Situation:								
One-to One	SC _N	5.82	2.52	0.003	6.34	5.93	6.75	0.61
	SC _O	7.74	2.66		7.24	6.83	7.65	
Mealtime	SC _N	6.30	2.40	0.004	6.75	6.28	7.22	0.59
	SC _O	8.16	2.71		7.75	7.28	8.22	
Unstructured Group	SC _N	7.66	3.01	0.007	8.12	7.59	8.64	0.55
	SC _O	9.60	2.89		9.15	8.63	9.68	
Structured Task or Activity Group	SC _N	8.62	3.26	0.005	9.02	8.46	9.59	0.57
	SC _O	10.58	3.25		10.18	9.61	10.74	
Structured Verbal Group	SC _N	8.62	3.34	0.008	9.01	8.44	9.58	0.53
	SC _O	10.48	3.27		10.10	9.53	10.66	
Total	SC _N	37.02	13.91	0.004	39.23	36.71	41.75	0.58
	SC _O	46.56	14.32		44.47	41.96	46.98	

Improvement Δ = Difference between Post-Intervention and Pre-Intervention test results.

Linear predictions from Mixed-Effects ML Regression.

* p < 0.05 denotes significant differences between Δ SC_N and Δ SC_O.

** Effect Size = Standardized group mean difference between SC_N and SC_O.

From the mixed-effects Maximum Likelihood (ML) regression, the p-value for the linear prediction of the fixed portion by program, was reported (Creswell, 2014) along with the adjusted treatment improvement margin and the 95% confidence interval of the intervention for each treatment group of existing SC_N and new SC_O.

The effect sizes (ES) of the difference in improvement apparently realized by the two treatment programs was established using Cohen's d-value (Fritz, Morris, & Richler, 2012). The ES denotes the difference in improvement or change from baseline (pretesting) to end-line (post-testing) between programs. The magnitude of change (Δ) from one program to the other used the formula where the difference in means (M) is divided by the pooled standard deviation (SD): Cohen's $d = (M_{\Delta\text{Prog1}} - M_{\Delta\text{Prog2}}) / SD_{\text{pooled}}$, where $SD_{\text{pooled}} = \sqrt{[(SD_{\Delta\text{Prog1}})^2 + (SD_{\Delta\text{Prog2}})^2] / 2}$ (Fritz et al., 2012). Thomas, Nelson, and Silverman (2015), interpreted an ES of 0.8 as large, 0.5 as moderate, 0.2 as small and 0.01 as very small. The ES were included in the data summary tables.

Results

Quantitative results

The study had 100 voluntary participants. Their ages ranged from 23 to 60 years. Their average age was 39.4 years in both programs. The genders were 86% females and 14% males. In the SC_N, most of the participants stressors were work related (24%), losses (22%), marriage (18%), relationships (16%), family problems (12%), finances (6%) and ill health (2%). In the 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 occupational therapy group programs as measured by the BaFPE-R (SIS) are shown in Table 2 and Table 3. The Social Interaction Scale (SIS) measured a number of variables, which are divided into functional areas in Table 2 and the client's social responses by situation in Table 3.

In all the Functional Areas of SIS, the new SC_O group program seemed to facilitate larger improvement than the existing SC_N group program with an overall d-value of 0.58. The difference is statistically significant in the case of Verbal Communication ($p < 0.001$ and d-value 0.68) and Psychomotor Behavior ($p < 0.000$ and d-value 0.8) as indicated by a p-value of less than 0.05 and moderate to large ES d-values well in excess of 0.5 as illustrated in Table 2.

As can be seen from Table 3, the overall treatment regime, which included either the existing SC_N or the new SC_O group program is statistically significant with regard to overall Client's Social Response by Situation ($p < 0.004$) that includes one-to-one ($p < 0.003$), Mealtime ($p < 0.004$), unstructured group ($p < 0.007$), structured tasks or activity group ($p < 0.005$) and structured verbal group ($p < 0.008$). The new SC_O group program had a significantly better outcome compared to the existing SC_N group program based on the BaFPE-R (SIS) items in total ($p < 0.004$). This is supported by the p-value in all situations being statistically significant ($p < 0.05$) and a moderate to the large ES d-value of between 0.53 and 0.61 as illustrated in Table 3.

Qualitative findings

The qualitative data were generated from the SRQ and the focus group interviews. Content analysis with a top-down approach was followed to analyze the text of the SRQ (Terre Blanche et al., 2006). For the focus group interviews thematic analysis (Braun & Clarke, 2006) following a bottom-up approach (Terre Blanche et al., 2006) was used to extrapolate the underlying meanings participants attached to the two programs (Geldenhuys, 2015). In this way, themes were induced from the participants' inter-subjective experiences of the new SC_O and existing SC_N group programs (Shannon-Baker, 2015). Both sets of data were compared and after much discussion and deliberation combined to arrive at the final themes.

The results and findings of the two occupational therapy (existing SC_N and new SC_O) group programs as measured by the BaFPE-R (SIS), the SRQ and focus group interviews are shown in Table 4 *Joint display*.

TABLE 4 Joint display of the quantitative results and qualitative findings (Guetterman et al., 2015).

Program	BaFPE-R; SIS Improvement	SRQ Frequency	Focus group interviews (Participants' experiences)
SC _N	Verbal Communication ↑ 1.71 Socially Appropriate Behavior ↑ 1.22 Degree of Independence /Dependence ↑ 0.90 Ability to work with others ↑ 1.31 Participation in group activities ↑ 1.29	Social Interaction 78%	Theme: Enhanced social interaction "...we communicate a lot when we are here [in group sessions]" (Participant 14) Category: Belonging "It really brings the sense of belonging." [beadwork] (Participant 1) Category 2: Sharing while doing "We were able to express ourselves through the drawings." [creative drawing] (Participant 23) Category 3: Opening up relieved the pain "...the group helped me to release what was in my heart." [collage] (Participant 19)
SC _O	Verbal Communication ↑ 1.97 Socially Appropriate Behavior ↑ 2.01 Degree of Independence /Dependence ↑ 0.98 Ability to work with others ↑ 1.43 Participation in group activities ↑ 1.32	Social Interaction 88%	Theme: Enhanced social interaction "It makes you feel free through the activities itself. Talk about anything that you are exposed to while doing the activities..." (Participant 55) Category 1 Belonging "...the group brought us together to be one." (Participant 93) Category 2: Sharing while doing "It makes you feel free through the activities itself. Talk about anything that you are exposed to while doing the activities..." (Participant 55) Category 3: Opening up relieved the pain "I was able to talk about my problems in a safe space." (Participant 58)

This study reports only on the participants' social functioning which formed part of a larger study.

One theme comprising three categories emerged.

Theme: Enhanced social interaction

Eighty eight percent (88%) of the individuals with MDD who participated in the new SC_O group program reported that they valued the social interaction that took place. This was supported by one participant who said:

".....to work with others, I got a chance to talk freely and that brought healing.
(Participant 55)

Seventy eight percent (78%) of the individuals with MDD who participated in the existing SC_N group program reported that they valued the social interaction that took place as one participant explained:

“When you go out of that [therapy] room ... you go out happy. You still want to chat [interact with others] ... ” (Participant 23)

The theme comprised three categories (1) belonging, (2) sharing while doing and (3) opening up which relieved the pain.

Category 1: Belonging

Participant in the new SC_O was of the opinion that belonging to the group encouraged them to work together. One of the participants said:

“The group brought us together to be one, I felt free to discuss my problems” (Participant 93).

Participants in the existing SC_N group program also reported that they belonged as indicated by one participant below:

“We’re doing so much together you know. We [group participants] end up as friends at the end.” (Participant 33)

Category 2: Sharing while doing

The participants who participated in the new SC_O group program reported that while they were doing activities, they started sharing their challenges with others. This is supported by the following statement:

“It makes you feel free through the activities itself. Talk about anything that you are exposed to while doing the activities.” (Participant 55)

Participants in the existing SC_N group program also reported on the healing effect of sharing. As one participant put it:

“...we have people that we can share the problems with and sharing is the time when we actually start healing...” (Participant 48)

Category 3: Opening up relieved the emotional pain

The participants in the new SC_O reported that sharing as they opened-up helped them to relieve their inner emotional pain. This is supported by the participant statement as follows:

“...it [the group] helped me to open up more ... the more I talk about it [issues] the better it [the emotional pain] is...” (Participant 51)

Participants in the existing SC_N group program also reported on the healing effect of opening up. As one participant said:

“.....it did help me to open up... yes it would take time to heal but eventually whenyou spoke about it now and people know.” (Participant 38)

Discussion

In this study, participants were diagnosed with moderate to severe MDD and were mostly women (Ferrari et al., 2013; Kumar & Gupta, 2015; Sadock et al., 2015). They had an average age of 39.4 years, which is in line with the mean age of 40 years among individuals diagnosed with MDD (Sadock et al., 2015). The participants were treated at acute psychiatric units of the two general hospitals following two different types of occupational therapy (existing SC_N and new SC_O) group programs. The participants who followed the new SC_O occupational therapy group program, which is entirely activity-based, had better outcomes in terms of social interaction compared to participants who attended the existing SC_N occupational therapy group program with the use of either discussion or activity-based groups.

Individuals diagnosed with MDD commonly report interpersonal difficulties (Creek & Lougher, 2008; McFarquhar, Luyten, & Fonagy, 2018). This is supported by Yalom and Leszcz (2005) who assert, “Psychological symptomatology emanates from disturbed interpersonal relationships” (p. 47) and Vorster (2011) who believes that the degree of being mentally healthy correlates with a person’s interpersonal relationships. The Social Interaction Scale (SIS) that was used as a pre- and post-assessment in this study evaluated the participants’ social interaction in functional areas and their Social Response by Situation (Bloomer & Williams, 1987; Klyczek & Stanton, 2008).

From the results of the BaFPE-R (SIS) (Bloomer & Williams, 1987; Houston et al., 1989; Klyczek & Stanton, 2008) it would appear that there was some improvement (as indicated by a small to moderate ES d-value) on the social functioning of the participants in the new SC_O group program compared to that of those who participated in the existing SC_N group program. The overall treatment regime, which included the existing SC_N and new SC_O group programs, had in all situations that were measured, resulted in meaningful improvement in the social interaction of the participants in both programs. The ES d-values of the differences between the observations made and improvements achieved by the two programs in the Client’s Social Response by Situation may possibly be the result of the existing SC_N and new SC_O group program interventions. In addition, it was shown that the new SC_O group program might have brought about a statistically significant better improvement than the existing SC_N group program. Klyczek and Stanton (2008, p. 233) cited Staron (1992) who in his thesis compared a verbally oriented (18 patients) and an activity-oriented group (17 patients) with each other. Their results indicated that participants in activity-oriented group programs showed significant improvement in the SIS scores, which are in line with the finding of this study. Furthermore, this supports other findings in mental health that occupational therapy interventions had a moderate effect on improving occupational performance (Ikiugu, Nissen, Bellar, Maassen, & Van Peurse, 2017).

Moreover, the qualitative findings which were generated from the SRQ and focus group interviews seem to support the quantitative results. Eighty eight percent (88%) of the participants in the new SC_O group program indicated improved social functioning as one individual said “...we got to know each other, laugh together, do things together” (Participant 56), compared to 78% participants in the existing SC_N group program, as one participant reported “It was great because you get to be around people and laugh...” (Participant 11).

The results obtained from the SIS about the social functioning of participants in the new SC_O group program, seem to be superior to those of the participants who participated in the existing SC_N group program.

Gauthier et al. (1987), Finlay (2004) and Higgins et al. (2014) believe that occupational therapy groups provide a supportive environment that could facilitate social interaction among group members. The findings in a study by Schindler (1999) also suggest that activity groups rather than verbal groups improve social interactional skills and according to Moll and Cook (1997), their participants reported on the benefit of social interaction as it promoted healthy and balanced routines.

In this study, participants showed small improvement in their ability to work with others ($p < 0.175$ and d-value 0.27) and their participation in-group activities ($p < 0.68$ and d-value 0.08). It would appear that all the activities presented to the participants in the new SC_O group program and existing SC_N group program, stimulated spontaneous social interaction, more so than the discussion groups in which the discussion was primarily facilitated by the occupational therapist.

The need to belong, and to be accepted by others, seem to be a fundamental need of human beings. As early as 1953, Sullivan (1953) stated in this respect that humans have a “need for acceptance” and a fear “of being excluded” (p. 291). Sullivan (1953) further opined, “Loneliness in itself is more terrible than anxiety” (p. 261). The importance of unity and social interaction in society, from an African philosophical point of view, were extensively discussed by Gade (2017), Jolley (2010), and Tutu (2008), who highlighted the important notion of “*a person is a person through other persons*”.

Participants in both group programs (existing SC_N and new SC_O) reported that they felt they belonged to the group as they were accepted for who they are. The sense of belonging and trust seemed to have encouraged them to commit to the group as they felt valued, accepted and supported by other group members. This finding is also in line with findings of Falk-Kessler et al. (1990) and Yalom and Leszcz (2005). In addition, Yalom and Leszcz (2005) point out that the feeling of belonging (cohesion) is a prerequisite for other therapeutic factors to take effect. Sundsteigen et al. (2009) stated in this respect that groups conducted in a secure environment could contribute to the participants’ strength [self-esteem], inspiration [hope] and joy [happiness]. It would therefore seem that in order to combat the feelings of loneliness, activity groups might facilitate a sense of belonging (Rebeiro & Cook, 1999). Steger and Kashdan (2009) also found that individuals with depression experience greater satisfaction and meaning in their lives when they meet their need to belong.

Group interaction is believed to be central to any therapeutic group (Yalom & Leszcz, 2005). Because individuals with MDD often experience interpersonal difficulties, occupational therapy groups might promote interaction by means of sharing while engaging in meaningful activities (Crouch & Alers, 2014). In this study, participants from both groups reported that they started to share on different levels when engaged in activities - alluding to both creative drawing and the collage activity. In this study, participants from proposed new SC_O group program improved in their ability to work with others ($p < 0.175$ and d-value 0.27) and their participation in group activities ($p < 0.68$ and d-value 0.08). Participants in the new SC_O group program showed a larger degree of improvement in verbal communication ($p < 0.001$ and d-value 0.68) and structured verbal group ($p < 0.008$ and d-value 0.53) compared to participants in the existing SC_N group program.

Denton (1987) in her workbook of practical skills suggests that activity groups are more effective than verbal groups for the development of interpersonal skills. Because the interpersonal demands were carefully graded for each group session in this study, it could perhaps lead to the participants' willingness to share their challenges with each other on a superficial level followed by sharing of deeper feelings as they opened up.

Engagement in activities seemed to give participants the opportunity to voice their feelings if they found it difficult to do so. Therefore, findings suggest that "doing" activities, such as crafts and games, could be a catalyst for spontaneous social interaction that encourages self-expression of both the problems they encountered and of their personal problems (Sundsteigen et al., 2009; Perruzza & Kinsella, 2010).

Creek and Lougher (2008) believe that creative activities could be used as a means to express strong feelings during therapy. This seems to be in line with the qualitative findings of this study as participants reported that they felt relieved after opening up and sharing their emotional pain.

In the South African context where the study took place, the philosophy of Ubuntu viz. that "*a person is a person through other persons*" (Gade, 2017; Khoza, 2004), was considered throughout. Engaging in activities seems to have encouraged the participants to work together because they felt that they belonged. Group cohesion seems to have given them a sense of acceptance, of being valued, and of trust in the group (Yalom & Leszcz, 2005) which are needed for the healing process to take effect in the group (Yalom & Leszcz, 2005; Yalom, 1970, 1983). Moreover, engaging in occupational therapy groups with an activity referred to as a "collective occupation" (Ramugondo & Kronenberg, 2010) seems to have allowed the participants' to change for the better as universality, instilling hope and catharsis facilitated enhancement of their mental health and improvement in their own situation (Higgins et al., 2014). This allowed the participants to continue interacting, sharing and opening up in the ward as they continued to support each other, which improved their communication and social performance (Higgins et al., 2014).

Limitation of the study

The study focused on the data that was collected for two weeks during the acute phase of hospitalization of participants with MDD. The hospitals where the study took place offer inpatient group program only. Follow-up data to investigate maintenance of gains was therefore not collected. Although the sample size (100 participants), as suggested by the statistician, was adhered to, there was no control group so the results of this study cannot be generalized. This study focused on individuals with MDD only. It would be interesting to consider inclusion of other diagnoses in a similar group program and to measure the influence of the intervention on them.

Conclusion

The findings of this study indicated that the new SC_O group program (which was entirely activity-based) was superior to the existing SC_N group program (which excluded activities in four of the nine group sessions) at a statistically significant ($p < 0.004$) level upon discharge. It further confirmed a moderate to large ES in comparison to the overall outcome of the two programs, which favored SC_O group program for the improvement of social functioning.

Although all occupational therapy group sessions stimulated social interaction, the interpersonal demands varied in intensity in order that group trust could be gradually established. This led to catharsis, which was established and therapeutic in this study, because, as participants developed trust and started to bond with each other they seemed to feel comfortable to freely express and share their feelings in a group. It is assumed that once members developed feelings of warmth, trust and care (belonging) they might feel safe enough to open up resulting in improved interpersonal relations. Their learned interpersonal behavior in groups might be carried over to the outside world, which could have a positive effect on their future relationships, occupational performance and social functional well-being (Yalom & Leszcz, 2005).

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