Investigating the Impact of the Strengths-Based Service Delivery Model on Adults diagnosed with Severe Mental Illness in Egypt

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Abstract: Introduction: Egyptian service users are struggling with the notion of mental health stigma which is enhanced by focusing on their diagnostic labels and deficits. **Aim:** In this study we evaluated the effectiveness of the strengths-based service delivery model plus treatment as usual (TAU) versus TAU in improving levels of social and adaptive functioning and reducing levels of psychopathology in individuals diagnosed with a psychotic disorder in Egypt. **Methods:** this study used a quasi-experimental research design where sixty adult patients admitted to Abbasia hospital, Egypt were allocated to a strengths-based service delivery and TAU experimental group and a TAU control group. **Results:** Participants receiving strengths-based service delivery and TAU reported statistically significant improvements in social and adaptive functioning and reductions in psychopathology compared to the TAU control group. **Conclusion:** Working with people diagnosed with severe mental illness from a strengths perspective is likely to be associated with improvements in their levels of social and adaptive functioning and reduced levels of psychopathology. **Accessible summary: (1)** People living with severe mental illness need service delivery models which work on their abilities. (2) The strengths-based service delivery is associated with improvements in social and adaptive functioning and reduction in psychopathology level. (3) Robust randomized controlled trials are required to investigate the efficacy of this service delivery.
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1. Introduction

Schizophrenia and bipolar disorders are considered to be among the top 10 causes of disability worldwide (Xie, 2012). In The World Health Organization (WHO) aims report on mental health system in Egypt, schizophrenia and other psychotic disorders accounted for 73% of admissions to mental hospitals in Egypt (Ghanem, Taghi, & Saxena, 2006). People living with psychotic disorders suffer a lack of social and occupational skills; the ability to cope with the effects of psychotic illness is largely undermined by relapse and symptom exacerbation.

Planning and implementing a service delivery model for people with severe mental illness needs to consider the complexity of these disorders and the optimum model of care delivery (Jablensky, Herrman, & Gureje, 2006). The strengths-based service delivery model emerged from the philosophical perspective that all individuals have the potential for growth and self-determination, which could be attained through focusing on their capabilities and disregarding (or re-conceptualising) their deficits (Pollio, McDonald, & North, 1997).

Defining strengths-based interventions is challenging due to the lack of a clear description of the model. However, studies that evaluated strengths-based interventions share certain characteristics which could help in deciphering the nature of the intervention, such as: an emphasis on service users' potential; providing service in the community with individualised treatment plans; service users' participating in treatment planning; and the service being provided by a single case manager with emphasis on engagement and collaboration between the case manager and the service user (Staudt, Howardw, & Drake, 2001).

A systematic review with meta-analysis examining the strengths-based service delivery with people living with severe mental illness and showed no significant difference between the strengths-based service delivery and other delivery models on service users' level of functioning and quality of life, and a significant difference favouring other delivery models on service users' symptoms (Ibrahim, Michail & Callaghan, 2014). It is difficult, however, to generalize these results to other settings or populations due to the methodological drawbacks in the included primary

studies; the differences between the strengths-based service delivery model and others were not clearly delineated in most of the primary studies; additionally, the strengths-based model was not described with sufficient detail in the included studies.

Coker (2005) reported that the issue of stigma of mental illness is cited as one of the reasons for the underutilization and sometimes refusal of mental health services by service users in Egypt. Additionally, according to Graybeal (2001), approaching service users from their deficits, problems, and needs is the way through which the medically oriented deficits-focused delivery models operate which in turn magnifies the notion of stigma. In the current study, we investigated the effect of the strengths-based model on service user outcomes in Egypt.

2. Aim

The aim of this study was to evaluate the effectiveness of the strengths-based service delivery model plus treatment as usual (TAU) versus TAU in improving levels of social and adaptive functioning and reducing levels of psychopathology in individuals diagnosed with a psychotic disorder in Egypt.

We hypothesised that;

1- Participants receiving care using a strengths-based service delivery model plus TAU would report greater levels of social and adaptive functioning at post-test than those receiving TAU.

2- Participants receiving care using a strengths-based service delivery model plus TAU would report greater reduction in levels of psychopathology at post-test than those receiving TAU.

3. Methods

3.1 Setting

The study took place in Abbasia Mental Hospital, Cairo, Egypt which is affiliated to the General Secretariat of Mental Health that reports to the Ministry of Health and Population. According to Jenkins, Heshmat, Loza, Siekkonen, and Sorour (2010), Abbasia Hospital is designed as a mental health institution with large wards, comprising a total of almost 2,000 beds.

This hospital was chosen as the study setting for two reasons; to give the researchers an opportunity to select a study sample representative of all diagnoses, genders, religious backgrounds, and ages from this metropolitan hospital, which would be difficult to obtain from a regional hospital in the governorates; Additionally, the turnover rate in regional hospitals is high as the primary aim of these institutions is to manage the acute phase of the disease which would make the provision of the intervention difficult at that time.

3.2 Study design

This study used a non-equivalent pre-test- post-test quasi-experimental control group design Kenny (1975) where participants meeting the inclusion criteria were allocated non-randomly based on their choice to either the strengths-based service delivery plus TAU (experimental group) or TAU only (control group).

3.3 Inclusion criteria

▪ Inpatient adults diagnosed with a DSM-IV psychotic disorder **(**295.20, 295.10, 295.30, 295.90, 295.60, 295.40, 295.70, 297.1, 298.8, and 297.3) by a registered psychiatrist at Abbasia Mental Health Hospital.

▪ Aged 18 to 60 years
▪ Both sexes were included
▪With capacity to provide informed consent

3.4 Exclusion criteria

▪ A primary diagnosis of substance induced psychotic disorder

▪ Learning/intellectual difficulties
▪ Organic causes of psychotic disorders
▪ Dementia

3.5 Data Collection measures

3.5.1 Demographic and clinical data sheet

This instrument was developed by the researcher and included the following:

Code (as a substitute for participants' names to preserve their anonymity), gender, age, marital status, religious background, educational level, diagnosis, residence, history of co-morbid physical illness, date of admission, smoking status, family history of psychiatric disorders, and duration of illness.

3.5.2 Social Adaptive Functioning Evaluation (SAFE)

A 19-item observational scale originally designed to be rated by caregivers or observers to assess social, instrumental, and life skills. This tool was adopted from Harvey et al. (1997) which was reprinted in Bellack (2004). The SAFE assesses social and adaptive functioning of patients diagnosed with chronic schizophrenia where higher scores indicated higher levels of impairment in social and adaptive functioning. Individual items are summed up to obtain a total score (Harvey et al., 1997).

The Cronbach's alpha for the total score was 0.90, the intra-class correlation (ICC) 0.99, and the retest ICC is0.99 (Harvey et al., 1997).

3.5.3 Brief Psychiatric Rating Scale expanded version 4.0 (BPRS-E)

The scale was developed by Overall and Gorham (1962) with 18 items, then was expanded by Lukoff, Nuechterlein, and Ventura (1986) to a 24-item scale with six additional items: bizarre behaviour, self-neglect, suicidality, elevated mood, distractibility, and motor hyperactivity. Rating this scale is based on both

patients' reports, which were obtained through semi-structured interviews, and practitioners' observations of the patient. Each item is rated from 1 (not present), to 7 (extremely severe) (Ventura, Nuechterlein, Subotnik, Gutkind, & Gilbert, 2000).

The BPRS-E has good psychometric properties with inter-rater reliability ranging between 0.67 and 0.88 (Burlingame et al., 2006).

The scoring of the BPRS is achieved by summing the scores of all individual items (Overall & Gorham, 1988). According to Lachar, Bailley, Rhoades, and Varner (1999) clinical improvement could be evaluated by measuring the percent change score (PCS) by subtracting the treatment score from the baseline score, dividing this by the baseline score, and multiplying the value by 100. (Leucht et al. (2005); 20%:50% reduction of the total BPRS total score from the initial scores has been used as a cut-off to determine response.

Both scales (SAFE and BPRS) were translated by the researcher from English into Arabic. This translation was checked by five professionals (four psychiatrists and one lecturer of Mental Health Nursing) to determine content validity; no discrepancies were detected. Additionally, blind back-translation was carried out by a professional English language teacher for both scales which were compared with the original English language version where minimal discrepancies were detected e.g. using some slang Egyptian-Arabic expressions which did not really reflect the meaning of those in the original English scale.

Cronbach's alpha was computed for the translated Arabic versions of both SAFE and BPRS; for the SAFE scale it was 0.90 which means according to Helms, Henze, Sass, and Mifsud (2006) that measurement error (random error) equals to 0.19; and for the BPRS was 0.72; the random error was 0.49.

A pilot study of 10% of the sample size (six patients) based on Brink and Wood (1997) suggestion was conducted prior to the launching of the intervention to test the adequacy of the scales. No changes were applied to the translated Arabic versions of both scales.

3.6 Implementation and intervention
3.6.1 Ethical and administrative procedures
Ethical approval was obtained from the ethical committee of the Faculty of Nursing, Mansoura University, Egypt and the General Secretariat of Mental Health at Abbasia Mental Health Hospital, Egypt. Additionally, administrative approval was obtained from the General Director of Abbasia Mental Health Hospital.

3.6.2 Recruitment and allocation
Resident psychiatrists and nurses at inpatient departments of the hospital were approached by the researcher to introduce the study and its aims and obtain their support throughout the data collection process. Participants were approached by the researcher who was accompanied by either a nurse or a resident doctor to introduce herself and explain the study to potential participants.

Participants were invited to take part in the study with assurance of confidentiality of all data they provided, and given the right to withdraw from the study at any time with impunity. Participants who consented to take part in the study and were willing to receive the intervention were assigned to the strengths-based service delivery plus TAU (experimental group); participants who were willing to participate in the study but refused to receive the additional intervention were assigned to TAU.. Some patients agreed to take part in the strengths-based service delivery plus TAU experimental group provided they receive some monetary incentives from the researcher which was not possible due to financial constraints therefore they decided to join the control arm -

Literate participants provided written informed consent. For participants unable to read, the researcher went through the consent form with them and explained all procedures in the presence of a nurse, psychiatrist, psychologist, or social worker.

3.6.3 Baseline assessments
Following participants' consent, the researcher met with each participant to complete baseline assessments. Additionally, their medical records were screened by the researcher to complete missing information on socio-demographic and clinical characteristics. Interviews lasted approximately one hour with short breaks. In order to complete the observational items of the BPRS and the SAFE, the researcher spent three days in the inpatient department prior to the intervention observing participants in performing their activity of daily living (ADL) as well as their interactions with each other's, health care professional, and their relatives during the visit. Additionally, the researcher stayed with participants during their participation of recreational activities in the inpatient.

3.6.4 General rules governing the intervention
The intervention was conducted in a group format in a room within the ward where chairs were arranged in a circle. Fifteen minutes warm-up and ice breaking exercises were conducted before each session took place, wherein participants and the researcher played simple games which focused on promoting sociability. Each session lasted for approximately 60 minutes and depending on participants' tolerance they were given short breaks where they had candies and soft drinks with the researcher. The researcher reflected on participants'

strengths, potentials, and capabilities that were elicited during the sessions by the help of the group members. The intervention was delivered to three groups of ten participants once per week for nine weeks.

3.6.5 The intervention

According to Rapp and Goscha (2012) the strengths-based approach is considered a service delivery model where interventions and services following the principles of the strengths-approach are delivered to the service users.

3.6.5.1 First four sessions (an exploration of service users' utilisation of their personal strengths during adversity)

This part of the service delivery was based on two theoretical perspectives; *the theory of coping and transactional model* by Lazarus and Folkman (1987) which comprises two main constructs; cognitive appraisal and coping. Cognitive appraisal involves human beings' evaluation of a particular encounter with the environment and whether this encounter is relevant to their well-being (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). The second construct is coping which could be either an emotion-focused coping or problem-focused coping to stress (Hatfield & Lefley, 1993); The second theoretical construct is The theory of *learned resourcefulness* Zauszniewski (1995), which entails cognitive behavioural skills and strategies adopted by the person to cope with adversity. Learned resourcefulness involves three constructs; *self-control skills* which involve the delay of immediate gratification and personal strategies to achieve control on thought, mood, and impulse; self-direction which involves problem solving skills; the third construct is the self or personal efficacy which involves belief in one's ability to control adversity.

• Sessions started as explained earlier with ice breaking and warming up exercises.

• The researcher facilitated the discussion by helping patients to discuss how they used/use coping strategies and resources during adversity.

• Some patients talked about managing adversity through utilizing their personal hobbies, talents, and spirituality.

• Patients reported using some coping strategies while experiencing psychotic symptoms such as wrapping self in the blanket, putting the headphones on and listening to the radio, and talking to their peers or to the staff members.

• Patients talked about formal support from the mental health professional or the informal support from their peers in the inpatient unit while being hospitalised and from family members or friends while being in the community.

• Accordingly, some patients were encouraged to practice their hobbies in the inpatient unit by being provided with any necessary equipment, while other patients were supported in joining the occupational and recreational units in the hospital with the aid of the department staff.

3.6.5.2 Sessions 4:10 (Social and independent living skills' training)

Social and independent living skills' training was conducted by utilising two teaching strategies; modelling, whereby the researcher explained then demonstrated how each skill will be role played; and role-play rehearsal where participants repeated the modelled skill until they gained mastery over it. Skills' training is manualized in (Bellack, 2004).

Four sessions involved training participants on **conversation skills**, by starting conversations with someone unfamiliar; asking questions during conversation; refusing requests; making complaints; and asking for help. Sometimes homework was assigned to some participants; for example, those who were socially isolated and inclined to spend more time in bed were asked to have at least one meal per day with someone they felt comfortable with in the ward. The implementation of this homework was confirmed with the responsible shift nurse in the ward.

Two sessions were dedicated to training participants on **health maintenance skills:** making an appointment with the doctor through the phone; asking questions about medication; complaining about medication side-effects; and reporting physical symptoms to the doctor.

Positive reinforcement was implemented and rewards (candies and simple gifts) were given to participants who were able to model and role-play the skills.

Treatment as usual in this study included psychiatric monitoring, administration of psychotropic drugs and electro convulsive therapy. Participants in the control group did not receive any psychosocial interventions.

3.6.6 Post test

After the implementation of the intervention, post-test for both the experimental and the control group was conducted the day after the completion of the interventional program with the same pre-intervention scales (BPRS and SAFE).

3.6.7 Statistical analysis

The Statistical Package for the Social Sciences (IBM SPSS Statistics 21) was used for data management and analysis. Descriptive statistics were performed to summarise socio-demographic and clinical characteristics of both experimental and control group. Differences in socio-demographic and clinical data between the two groups were detected using Chi square test.

Data was checked for normality using Shapiro Wilk test and for homogeneity of variance using

Levene's test (Sedgwick, 2012). In order to solve the controversy about the analysis of ordinal level of measurement; both parametric independent sample t-test and non-parametric Mann Whitney U were used before and after the provision of the intervention to compare the means of the experimental and control group to check if both measures produce similar results as suggested by (Fife-Schaw, 2006).

The p value was set at 0.05. Effect size measures (clinical significance) were used alongside the Null Hypothesis Statistical Testing (NHST).

4. Results

4.1 The Sample

Sixty participants completed the study, Chi-squared test was used to examine if statistically significant differences existed between the strengths-based service delivery and TAU experimental group and TAU control group on socio-demographic and clinical data; there were no differences in clinical and socio-demographic characteristics between the two groups with the exception of age (p=0.01) where participants in the control group were slightly older than those in the strengths-based plus TAU experimental group. Most of our participants were single (77.33% in the strengths-based service delivery plus TAU experimental group, 56.66% in the control group). Additionally the percentage of participants who have positive family history of a psychotic disorder in the control group is higher than those in the experimental group (40% compared to 26.66%). Table 1 shows socio-demographic and clinical characteristics of both experimental and control group.

INSERT TABLE 1

4.2 Normality test and checking for homogeneity of variances

Although some authors oppose using parametric measures with ordinal level of measurements, some other authors defend checking ordinal data for normality distribution and homogeneity of variance as they consider the individual items of the Likert scale as ordinal, while the sum score of individual items of the scale as interval which make the latter suitable for checking for parametric assumptions (Norman, 2010).

Data of this study met the assumptions of parametric measures; results of Shapiro Wilk test indicated normally distributed data (non-significant findings); SAFE (p=0.8, df= 60) and the BPRS (p=0.9, df= 60); Levene's test of homogeneity of variance indicated homogenous variances as p level was not statistically significant (SAFE Leven's, t_{obt} = (58) = -1.20, p=0.2; BPRS t_{obt} = (58) = 1.46, p= 0.14.

4.3 Baseline difference in means between the experimental and control group in SAFE and BPRS

As explained earlier both parametric independent sample t-test and non-parametric Mann Whitney U were used to compare the means between the experimental and control group at baseline in order to check if both measures produce similar results.

Mann Whitney U showed no significant differences for social and adaptive functioning as assessed by SAFE at baseline (U= 356.5, n1=n2 =30, p= 0.167 two tailed). Additionally, Mann Whitney U showed no statistical differences in means between the experimental and control group in levels of psychopathology as assessed by BPRS (U=369.0, n1=n2, p=0.23 two tailed).

Results showed (Table 2) that there were no statistically significant differences between the two groups at baseline using an independent samples t-test in levels of social and adaptive functioning as assessed by the SAFE (t (58) = 1.4, p= 0.14). Results also showed (Table 2) no significant differences at baseline between the two groups in levels of psychopathology as assessed by the BPRS (t (58) = -1.2, p= 0.2).

4.5 Post-intervention difference in means between the experimental and control group for SAFE and BPRS

Mann Whitney U showed that participants in the experimental group significantly reported improved social and adaptive functioning as assessed by SAFE compared to the control group (U=223.0, n1=n2= 30, p= 0.001 two tailed); additionally, participants in the experimental group reported significant reduction in levels of psychopathology compared to the control group (U= 142.5, n1=n2=30, p= 0.000 two tailed) respectively.

An independent sample t-test showed (Table 3) a significant statistical difference favouring the experimental group at post-test in levels of social and adaptive functioning as assessed by SAFE, t (58) = -3.701, p= 0.000

Result of Glass's Δ effect size for the post intervention independent sample t-test of the SAFE scores was conducted based on the following formula; M_i-M_c/σ_c =18.5-30.7/13.90= -0.9 which is according to Ellis (2010) is considered large effect size.

Results also showed (Table 3) that the experimental group reported significant reduction in BPRS scores (M= 41.9, SD=6.08) compared to the control group; (M=54.5, SD=11.34); t (44.4) = -5.376, p= 0.000.

Glass's Δ effect size for the BPRS was used and was -1.1 which means large effect size with negative magnitude.

Cohen's d effect size confirmed the above findings for both SAFE and BPRS at post-test.

5. Discussion

The aim of this study was to evaluate the effectiveness of the strengths-based service delivery model plus TAU versus TAU only in improving levels

of social and adaptive functioning and reducing levels of psychopathology in individuals with psychotic disorders.

Findings of this study showed that the experimental group reported significant improvement in their social and adaptive functioning at post-test compared to the control group. This result corresponds with the findings from Glover (1995), Macias, Kinney, Farley, Jackson, and Vos (1994), and Modrcin, Rapp, and Portner (1988). However, no significant difference was found between the strengths-based service delivery experimental group and other service delivery models control group regarding level of functioning in the systematic review by Ibrahim, Michail, and Callaghan (2014).

The reported improvement in social and adaptive functioning in the current study would appear to be related to; first, the provision of social and adaptive skills' training in a group format, wherein participants socialised and interacted with each other during both role play and ice breaking games and warming-up exercises. Second, using role play rehearsal which is described by Bellack (2004) as an overlearning activity where participants repeat the role play until they gain control over it. Role playing according to Hersen and Bellack (1976) positively affects participants' behaviour (92% compared to 44%) in direct advice. Third, researcher's assignment of tasks targeting social deficits between sessions to the experimental group (e.g. having dinner with another patient in the unit) especially for those who were socially isolated; however, this was described by Davidson et al. (2004) as "forced togetherness", which was reported negatively by some patients who had prolonged hospital stays. Finally, the provision of rewards after successful role playing might have affected participants' motivation to learn and engage in social skills. According to Medalia and Brekke (2010), motivating people with schizophrenia through either tangible or intangible rewards is one of the factors linked to positive outcomes in achieving goal directed tasks. Silverstein et al. (2009) reported that using tangible rewards with people diagnosed with schizophrenia have improved their performance on cognitive tests.

Results of this study showed that the experimental group had a significantly reduced level of psychopathology at post-test compared to the control group, however the systematic review by Ibrahim et al. (2014) which compared the strengths-based approach with other service delivery models reported significant results favouring other service delivery models on participants' level of psychopathology. The significant reduction in levels of psychopathology in the experimental group in the current study would seem to be related to; the

exploration of how service users used/are using their personal strengths during adversity in the first four sessions, which might have provided the group members with tools (from each other) to manage symptoms of severe mental illness. Moreover, participants' engagement in the group activity could be a factor in reducing their level of psychopathology by reducing the time they immerse themselves in symptoms. According to Reininghaus et al. (2008), social isolation was reported as one of the risk factors for psychosis. Additionally, Hansen et al. (2013) reported that distortion in reality testing in psychotic disorders (accurate perception and interpretation of internal and external reality) expressed in psychotic symptoms could be linked to social isolation.

6. Limitations of the study

The following limitations are evident. Firstly, the violation of the random assignment of the study groups is a threat to external validity as participants self-selected themselves. However, no statistical significance was found between the experimental and control group at baseline in both social and adaptive functioning and levels of psychopathology, but we cannot rule out the possibility of a type 2 error; accepting the null hypothesis when it is correct.

Secondly, lack of measuring some variables which could be of particular importance to the strengths-based service delivery (e.g. quality of life, goal attainment or wellbeing) as dependent variables in this study; Thirdly, It would have been better to explore service users' use of their strengths during adversity qualitatively; Fourthly, it would appear to be better if this service was delivered in the community than in the mental health institution which corresponds to the principles of the strengths-based approach, however the lack of community residential facilities in Egypt as reported in the WHO aims report on mental health system in Egypt by Ghanem et al. (2006) justifies the delivery of the service at the mental health institution; and finally, The lack of following-up patients after discharge to test if they transferred the acquired skills to their natural environments is another drawback in this study and could be justified by the poor understanding of the concept of follow up by Egyptian service users after the initial improvement as reported in Okasha (2004).

7. Conclusions

Although the design of this study poses threats to external validity due to the violation of random assignment of the study groups, the statistically significant results favouring the strengths-based service delivery arm of the study suggest that working with people diagnosed with severe mental illness from a strengths perspective is likely to be associated with

improvements in their levels of social and adaptive functioning and reduced levels of psychopathology.

8. Implications

8.1 Implications for practice

In order to implement the strengths-based service delivery model in clinical practice in Egypt wherein the medically oriented approach to caring is dominant; the difference between the strengths-based approach and other service delivery models should be explained to mental health practitioners particularly because some service delivery models could adopt and operate from similar perspectives of the strengths-based practices. The uniqueness of the strengths-based service delivery lies in its principles which were explained earlier in the introduction section of this paper. Additionally, practitioners should be trained on how they will adhere to the fidelity of the strengths-based interventions.

8.2 Implications for research

The limitations of this study alongside those expressed in the systematic review by Ibrahim et al. (2014) suggest caution in applying this service delivery as further research is still needed. Well-designed randomised controlled trials should be implemented in Egypt investigating the strengths-based service delivery on service users' outcomes to draw robust conclusions about this service delivery, additionally, both service users' and practitioners' perception about the strengths-based approach should be investigated qualitatively.

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Appendices

Table 1. Socio-demographic and Clinical Variables

Socio-demographic and clinical variables	Control group (n=30)		Study group (n=30)		X^2	P
	No	%	No	%		
Age						
▪ 20-30	2	6.66%	10	33.3%	11.43	0.01*
▪ 30-40	9	30%	8	26.6%		
▪ 40-50	13	43.33%	12	40%		
▪ 50-60	6	20%	0	0%		
Gender						
▪ Males	15	50%	15	50%	0.000	1.0
▪ Females	15	50%	15	50%		
Religion ▪Muslim ▪Christian	26 4	86.66% 13.33%	27 3	90% 10%	0.162	0.68
Marital status						
▪ single	17	56.66%	22	73.33%	2.78	0.42
▪ Married	3	10%	3	10%		
▪ Divorced	9	30%	5	16.66%		
▪ Widow	1	3.33%	0	0%		
Occupation						
▪ Employed	9	30%	8	26.66%	0.082	0.77
▪ Unemployed	21	70%	22	73.33%		
Smoking status						
▪ Smoker	18	60%	15	50%	0.60	0.43
▪ Non smoker	12	40%	15	50%		
Educational level						
▪ Illiterate	7	23.33%	5	16.66%	1.5	0.81
▪ Primary education	5	16.66%	8	26.66%		
▪ Preparatory education	5	16.66%	3	10%		
▪ Sec./diploma degree	9	30%	10	33.3%		
▪ University degree	4	13.33%	4	13.33%		
Past medical history						
▪ Past medical History	2	6.66%	7	23.33%	3.26	0.07
▪ No past medical history	28	93.33%	23	76.66%		
Family history						
▪ Positive family history	12	40%	8	26.66%	1.2	0.27
▪ No family history	18	60%	22	73.33%		
Mode of admission ▪ Voluntary	10	33.3%	10	33.3%	0.00	1.00
▪ Involuntary	20	66.6%	20	66.6%		

Diagnosis						
▪ Schizophrenia	23	76.66%	20	66.6%		
▪ Paranoid disorder	4	13.3%	2	6.66%		
▪ Mood disorder Mania with psychotic features	1	3.33%	4	13.33%	9.20	0.16
▪ Mood disorder depression with psychotic features	0	0%	2	6.66%		
▪ Schizoaffective disorder	2	6.66%	2	6.66%		
Duration of illness						
▪1:5 years	1	3.33%	5	16.66%	6.10	0.10
▪5:10 years	7	23.33%	10	33.3%		
▪more than 10 years	22	73.33%	15	50%		

Table (2) baseline Independent sample t-test for SAFE and BPRS

	Groups						95% CI for Mean Difference		
	Experimental group			control group					
	M	SD	N	M	SD	N		t	df
SAFE	37.4	14.6	30	42.3	17.02	30	-13, 3.2	-1.2	58
BPRS	75.6	13.25	30	70.26	14.90	30	-1.9, 12.6	1.4	58

Table (3) post-test Independent sample t-test for SAFE and BPRS, where * indicates statistically significant results at ≤ 0.05

	Groups						95% CI for Mean Difference		
	Experimental group			control group					
	M	SD	N	M	SD	N		t	df
SAFE	18.56	11.51	30	30.7	13.90	30	-18.79, -5.60	-3.70*	58
BPRS	41.90	6.08	30	54.53	11.34	30	-17.33, -7.92	-5.37*	58

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