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Effectiveness of Peer Support Intervention on Recovery Outcomes among Patients with Schizophrenia: A quasi-experimental Study

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Abstract:
Background: Peer support interventions seek to increase empowerment, minimize feelings of isolation, and develop a sense of belonging and optimism, all of which are important aspects of the recovery process. **Aim:** To evaluate the effectiveness of peer support intervention on recovery outcomes among patients with schizophrenia. **Methods:** A quasi-experimental design was employed, with 60 patients who were diagnosed with schizophrenia. Participants completed the Recovery Assessment Scale, General Self-Efficacy Scale, The revised Colorado Symptom Index, and Multidimensional Scale of Perceived Social Support. **Results:** The participants showed significant improvement in recovery evaluations for 60 patients using the Recovery Assessment Scale-Revised (RAS-R) from pre-test to post-test, signifying substantial progress. The mean score of the patient's self-efficacy measure before the intervention was 30.02 ± 3.82, compared to 31.82 ± 4.61 after the intervention, indicating a statistically significant change between pre- and post-intervention scores. 53.3% of the examined patients had moderate Colorado symptoms before the intervention, in contrast to 81.7% post-intervention, with statistically significant changes ($p < 0.001$). Significant changes were between the pre-intervention and post-intervention groups for the multidimensional measure of perceived social support. **Conclusion:** Peer Support Intervention positively affect Recovery Outcomes among patients with schizophrenia, by improving self-efficacy and social support and effectively mitigating Colorado symptoms. Future intervention designed to enhance the recovery journey of individuals with schizophrenia through innovative peer support approaches.

***Keywords**: Peer Support, Recovery Outcomes & Schizophrenia*

Introduction
Schizophrenia is a chronic mental health condition that often presents with a variety of symptoms **(Melo-Dias et al., 2014).** Approximately 30-40% of patients with schizophrenia experience negative symptoms that are resistant to treatment **(Remington et al., 2016)**. These symptoms, often referred to as "deficit syndrome," include a lack of initiative, interest, and social skills, as well as a loss of interpersonal functioning **(Marder & Galderisi, 2017)**. These functional impairments can severely affect psychosocial functioning, communication, and overall quality of life. In addition, there is a progressive decline in cognitive functions, which together can reduce the effectiveness of treatment and hinder recovery **(Henry et al., 2016)**.

Peer support is characterized as a framework wherein individuals provide and obtain assistance grounded in principles of respect, shared responsibility, and mutual consensus regarding beneficial practices **(Mead et al., 2001)**. In a health care environment, peer support entails offering emotional, evaluative and informational aid by to persons who possess comparable experiences or attributes comparable to those of the target population **(Dennis, 2003)**.

Unlike traditional mental health services, which typically involve a clear divide between trained professionals and patients, peer support encourages a collaborative relationship where participants share their experiences and expertise, fostering a sense of equality and mutual aid throughout the recovery process **(Repper & Carter, 2011)**.

Peer support programs for clients with schizophrenia can be categorized into two main types based on the services provided and the roles of facilitators **(Ahmed et al., 2012; Chien et al., 2019)**. These programs often involve interactive peer or social learning activities aimed at educating participants about managing schizophrenia, medication adherence, stress lessening, and coping mechanisms. They Prioritize the enhancement of family and community support structures, in addition to offering vocational and social skills training customized particular requirements **(Castelein et al., 2015; Harris & Panozzo, 2019).** By promoting connection and empowerment, peer support offers a valuable psychosocial intervention for individuals with

schizophrenia, encouraging participants to share their feelings and experiences in a safe and supportive environment. Studies have shown that people with schizophrenia who are involved in supportive social networks experience faster recovery **(Castelein et al., 2015 & Chien et al., 2019)**.

Significance of study:

In the context of recovery, peer support workers play a crucial role by fostering open communication, compassion, and understanding. Nurses and healthcare professionals can benefit from learning from peer support workers who have lived experience and can help guide others through the recovery process**(Harris & Panozzo, 2019; Tisdale et al., 2021)**. These peer support workers also play a significant role in helping individuals resume important life roles by modelling recovery behaviours and offering guidance within or outside of group settings **(Fisher et al., 2014)**.

While peer support has shown promise in enhancing social quality of life and reducing feelings of hopelessness among individuals with schizophrenia, evidence of its long-term effectiveness remains inconclusive. Although studies have demonstrated that peer support can improve recovery outcomes, including symptom reduction and empowerment, these effects do not always persist. For example, a randomized control trial comparing strength-based cognitive-behavioural therapy and peer-to-peer support showed mixed results, with the benefits of peer support not sustaining over time **(Wong et al., 2023)**. Similarly, systematic reviews and meta-analyses underscore the potential of peer support but also highlight the need for more rigorous, long-term studies to establish its lasting impact on recovery **(Jambawo et al., 2024).**

Innovative approaches, such as combining peer support with supportive text messaging, have shown improved recovery outcomes, suggesting that integrating multiple support modalities may enhance effectiveness **(Shalaby et al., 2021).** However, the Vet-to-Vet program, a quasi-experimental study, revealed that while peer support can improve empowerment and confidence, comprehensive evaluations are still needed to assess its efficacy across various dimensions of recovery **(Resnick & Rosenheck, 2008)**.

Consequently, a substantial study vacuum persists in comprehending the impact of peer support treatments for patients with schizophrenia. This research aims to evaluate the efficacy of peer support intervention on recovery outcomes among patients with schizophrenia. By addressing these deficiencies, the research may enhance the knowledge of the successful implementation and sustainability of peer support in mental health treatment for patients with schizophrenia.

Research hypothesis: -

Recovery outcomes for patients with schizophrenia are expected to improve after the implementation of a peer support intervention program.

Materials and Method:

Design:

A quasi-experimental design with pre-test, intervention, and post-test measures to evaluate the immediate effects of a Peer Support Intervention (PSI) on recovery outcomes among patients with schizophrenia. This design was chosen to provide a comprehensive understanding of the immediate effects of a peer support intervention on the recovery outcomes for these patients.

Setting

The study was conducted in outpatient clinics and inpatient wards for psychiatric medicine at Tanta Mental Health Hospital. This hospital operates under the supervision of the Ministry of Health, has a capacity of 150 beds and offers healthcare services to the populations of Gharabya, Menofia, and Kafr-Esheikh governorates.

Subjects, Sample Size and Sampling

The G*Power software (version 3.1.9.7) was used to calculate the sample size for the study. A one-tailed paired t-test, with an error probability of 0.05 and a power of 90%, required a minimum of 55 participants to identify an effect size of 0.3. The study methodology included the implementation of pre- and post-assessments for a singular cohort enhanced the statistical power and reliability of results by augmenting the sample size to 60 participants, accommodating a potential dropout rate of 10%.

A purposive sampling method was employed to include 60 patients diagnosed with schizophrenia according to the (DSM-5)(Tandon et al., 2013). Inclusion criteria required patients: 1) aged 18 years or older, both genders. 2) Have been admitted to a hospital for at least two weeks prior to participation. 3)Have a stable living situation and a referral for outpatient case management. 4)Be willing to participate voluntarily without affecting their ongoing treatment. Participants with intellectual impairments or substance use disorders were excluded. The minimum hospital stays of two weeks ensured that participants experienced sufficient stabilization, as transitional demands during shorter stays may differ. Stable housing and outpatient case management referrals were prerequisites to ensure continuity of care post-discharge.

Pilot Study

Before initiating data collection, a pilot study was conducted on ten percent of the study participants

(N=6) to ensure the clarity and applicability of the tools and anticipate any potential hurdles that may arise throughout the data collection period. Subsequently, such participants were eliminated from the primary research sample. Based on the pilot research findings, the tools were lucid and relevant, and no changes were made.

Study Tools

The study's data was collected using the following four measures and the clients' personal and Clinical Data. All measures were administered in Arabic.

Personal data assessment, including age, sex, marital status, level of education, location of living, cohabitation, and income. Client clinical data includes the age at which the disease started, the length of time the illness has been present, the number of prior mental hospitalizations, and the method of hospital admission.

Tool (I): The Recovery Assessment Scale (RAS-R), It is a self-report tool that assesses personal recovery. It was developed by (Corrigan et al, 2004). It is considered one of the most often used indicators of individual recuperation. The 24-item Recovery Assessment Scale (RAS-R) evaluates an individual's recovery from their viewpoint, focusing on optimism and self-determination. The tool includes the following domains: self-assurance, propensity to seek help, goal-focused, reliance on others, and resistance to feeling overwhelmed by symptoms. The response ranged from 1 = Strongly Disagree, to 5 = Strongly Agree. The RAS-R is assessed by calculating the total score based on the answer ranking for each of the 24 questions. The RAS-2 has a minimum score of 24 and a maximum score of 120. A score of 90 is frequently seen as indicative of exceptional recovery. Scores ranging from 75 to 90 may signify modest recovery, whilst scores below 75 indicate substantial difficulties in recovery(Biringer & Tjoflåt, 2018).

Tool (II): General Self-Efficacy Scale

The General Self-Efficacy Scale **(Schwarzer & Jerusalem, 1995),** was developed to measure an individual's overall perception of their self-efficacy. It aims to predict how well individuals cope with everyday challenges and adapt to stressful situations. The scale is tailored explicitly for the entire adult population, including adolescents. The concept of perceived self-efficacy represents positive self-confidence. This refers to the conviction that individuals can complete a new or challenging endeavor and effectively deal with tough circumstances. It might be considered a beneficial element that opposes or counteracts something. There are ten objects specifically created to measure this concept. Each item represents effective adaptation and suggests an internal and consistent explanation for the achievement. Perceived self-efficacy is a functional concept connected to future actions and is thus considered essential for treatment and behavior modification. However, it should be emphasized that the inventory cannot be used as a replacement for domain-specific self-efficacy. The total score is calculated by summing the values of all components. The General Self-Efficacy (GSE) scale quantifies self-efficacy on a range from 10 to 40, with scores of 30 or above suggesting strong self-efficacy, and scores below 25 indicating poor self-efficacy.

Tool (III): The revised Colorado Symptom Index (CSI) is a self-report scale comprising 14 items. It is specifically developed to measure the frequency of positive mood and cognitive symptoms, as outlined by (Conrad et al., 2001). The researchers used the Modified Colorado Symptom Index (MCSI) to assess the present extent of disease symptoms among the participants. The items are evaluated using a 5-point Likert-style scale, ranging from "Not at all" to "At least every day", with intermediate options such as "Once during the month", "Several times during the month", and "Several times a week". The scoring method for each item runs from 0 to 4, where 0 indicates no occurrence and 4 signifies everyday recurrence. The data are aggregated to get a score ranging from 0 to 56. A cut-off scores of 30 has been determined to be clinically meaningful for the CSI **(Boothroyd & Chen, 2008).**

Tool (IV): The Multidimensional Scale of Perceived Social Support ("MSPSS")

The MSPSS is a brief instrument designed to evaluate an individual's perception of support from three sources: family, friends, and a significant other **(Zimet et al., 1988).** This instrument consists of 12 questions and has been extensively used and verified. The scale ranging from 1 to 7. To determine the overall score, calculate the total of all 12 items. Alternatively, the total score may be computed as the average score by dividing it by 12 **(Fekih-Romdhane et al., 2022)**. Scores between 1 and 3 indicate low perceived support, scores from 4 to 5 reflect moderate support and Scores of 6 and 7 signify high perceived support. The original scale had robust psychometric qualities, with Cronbach's alpha values between 0.85 and 0.91 for the overall score and three sub-scores. In this research, we used the Arabic version previously translated by **(Merhi & Kazarian, 2021).**

Validity and Reliability of Measurements

The RAS, GSE, CSI, and MSPSS instruments were meticulously translated into Arabic. Bilingual experts proficient in English and Arabic were engaged to guarantee the accuracy and cultural relevance of the translations. The initial translations were conducted by two bilingual members of the research team. Subsequently, two independent bilingual experts, unaffiliated with the research team, conducted back-

translation of these translations into English to ensure linguistic consistency and address any discrepancies. Following the translation process, face validity assessments for each instrument were conducted with contributions from seven experts in nursing sciences. Experts provided feedback that included recommendations for rephrasing specific items to improve clarity and ensure comprehensibility for the target population. In response to this feedback, minor adjustments were implemented to enhance the clarity and relevance of the questionnaire items.

The Content Validity Index (CVI) was computed for the Arabic versions of the instruments to assess content validity. Experts assessed each item on a 4-point scale, with 1 indicating 'not relevant' and 4 indicating 'very relevant.' The item-level content validity index (I-CVI) is determined by the ratio of experts rating an item as 3 or 4 to the total number of experts. The scale-level content validity index (S-CVI) was calculated as the average of the item-level content validity indices (I-CVIs). The CVI scores demonstrated robust content validity, with values of 0.89 for the RAS, 0.87 for the GSE, 0.91 for the CSI, and 0.86 for the MSPSS. Cronbach's alpha values were computed for each scale: 0.89 for RAS, 0.88 for GSE, 0.89 for CSI, and 0.88 for MSPSS. The values demonstrate that all instruments employed exhibit high reliability.

Ethical considerations

The Research Ethical Committee of Tanta University in Egypt, specifically in the College of Nursing (Ref No. 289-8-2023), has approved this study. All clients who volunteered to participate in the research provided written informed consent. The participants who willingly chose to participate were provided with comprehensive details on the objective and substance of the study. They were also guaranteed that their answers would remain secret. Confidentiality of the participants was ensured by assigning a unique code number to each participant throughout the data collection and analysis phase.

The participants were notified of their entitlement to abstain from participation and could withdraw from the research at any moment. All patients were provided with an explanation of the data-collecting approach, including details on the projected duration and frequency of sessions. Furthermore, the trial did not damage the patients.

Data collection procedures

The chairman of the psychiatry department at Tanta University Hospital sent an official letter granting permission and cooperation for data collecting. The actual study was divided into three phases;

Phase one: Assessment phase

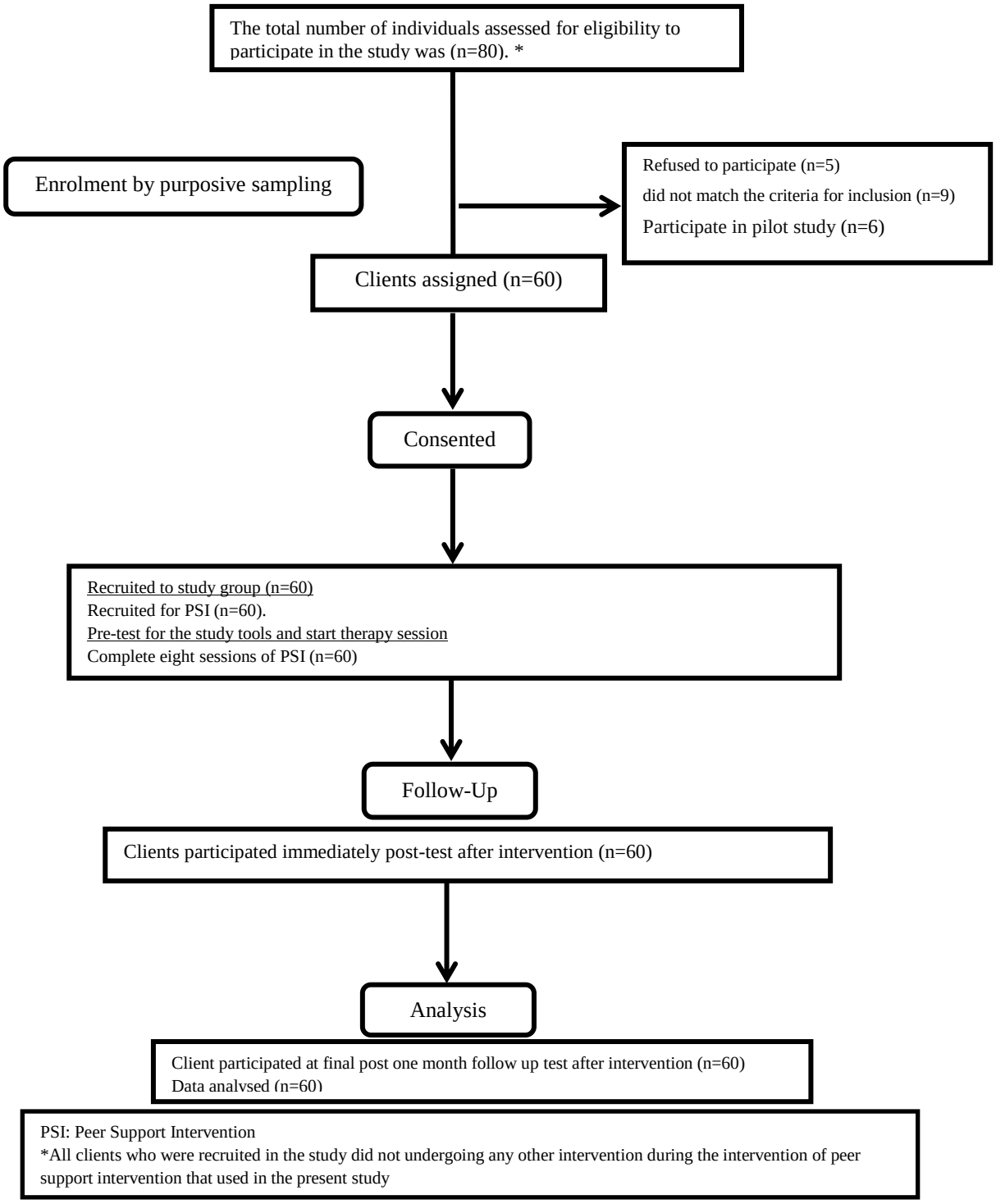
The researchers conducted a comprehensive review of the records of all 120 inpatients in order to identify individuals who satisfied the inclusion criteria and were diagnosed with schizophrenia. A total of 80 patients were assessed for eligibility to participate. Patients who fulfilled the inclusion criteria were invited to participate in the research after building a positive rapport and trust with them and clearly describing the purpose of the investigation. Out of them, nine patients were disqualified because they did not match the criteria for inclusion. In addition, the pilot trial included six individuals, whereas five patients declined to participate. Therefore, the data from 60 patients was processed and analyzed for this research, as shown in (**Fig.1).**

The chosen patients had a pre-test by using the instruments and were individually interviewed. Each semi–structured interview with patients varied between 30 and 45 minutes, depending on the patient's cognitive and verbal capabilities.

Figure (1) Flow Chart of Participant Enrollment for Quasi-Experimental Study

Phase two: intervention implementation phase:

- The PSI was established to investigate the impact of peer support intervention on recovery outcomes in patients with schizophrenia, based on the findings of pre-assessment of the subjects and a study of relevant literature **(Castelein et al., 2015; Chan et al., 2014; Nyanyiwa et al., 2022).** The researchers divided the study participants into five subgroups, each consisting of 14 patients. The program was executed via hour-and-a-half-long sessions. Each of the five subgroups attended a total of seven sessions, with one session planned each week. The initiative was implemented over two months, commencing in August and concluding in September 2023.



The primary objective was to facilitate peer-to-peer connection. Therefore, the researcher had to lead the groups with a hands-off approach and a minimum-directed attitude, providing structure, consistency, and safety without aggressively disrupting the group dynamics. The researchers played a facilitating role in preventing the groups from becoming too professionalized. Patients in the intervention engaged in these groups and received standard treatment, which included medication monitoring, psycho-education, and supportive counselling.

The intervention included the following items:

The preparation for sessions included establishing the appropriate ambient conditions for executing the program at Tanta Mental Health Hospital. Each session followed a consistent pattern, including discussing everyday life situations in pairs and as a group. A peer-based group utilizes individuals' prior experiences with recovery as a tool for learning, role modelling, and fostering hope in others. Each session followed a consistent format and focused on a particular theme related to recovery. These themes included the significance of recovery to participants, personal accounts of recovery, future aspirations, decision-making, setting goals, engagement in society, daily life roles, personal values, accessing social support, individual abilities and resources, and empowerment and assertiveness **(refer to table 1).**

The intervention was executed with high fidelity, ensuring that peer assistance is provided via education and training on the following subjects: Part 1: Personal Development—Self-awareness. This module covers several subjects, including healing, the influence of peer support, enhancing self-esteem and controlling self-talk, community, culture, and environment, finding meaning and purpose, and emotional intelligence. Part 2: pivotal moment. This course covers subjects such as self-preparation for employment, sharing personal narratives, and seeing work as a means of healing. Part 3: focuses on skill development, covering several themes like communication skills, conflict resolution, healing from trauma and building resilience, effectively engaging with others in difficult circumstances, and collaborating with experts via peer support. Individuals participating in role-playing exercises as part of their training may refer to the content of the sessions in **Table 1.**

Table (1): The Peer Support Intervention, spread over seven weeks and seven sessions, was delivered to people with schizophrenia

Session	Objectives	Content	Educational Method	Time (minutes)
Session 1: Introductory Session & Psychoeducation	- Build rapport among participants and with the facilitator. - Provide an overview of the program's purpose and sequence. - Introduce concepts of peer support, recovery, and empowerment	- Acquaintance with group members and researcher. - Introduction to PSI purpose and sequence. - Concepts and benefits of peer support. - Recovery principles, outcomes, and empowerment. - Peer-led discussions to foster self-understanding and problem-solving. - Pretest completion for all questionnaires.	- Group discussion. - Booklet and video about schizophrenia.	**90 min**
Session 2: Peer-led Mental Illness Education	- Enhance understanding of recovery principles. - Explore strategies for building support systems.	- Recovery principles and stages. - Building interpersonal and community support systems.	- Interactive group discussion. - Structured exercises applying recovery strategies to daily life.	**90 min**
Session 3: Understanding Psychiatric Medications & Coping Skills	- Increase awareness of psychiatric medications and symptom management. - Develop effective relapse prevention and coping strategies. - Challenge stigma and misconceptions about mental illness.	- Awareness of psychiatric medications and symptom complexes. - Traditional and non-traditional treatment methods. - Relapse prevention and coping skills. - Addressing stigma, myths, and misconceptions about mental illness.	- Group discussion. - Role-playing to challenge misconceptions.	**90 min**

Session	Objectives	Content	Educational Method	Time (minutes)
Session 4: Transitional Discharge Support	- Highlight the role of peer support post-discharge. - Emphasize family and social support systems.	- Importance of friendship, understanding, and encouragement post-discharge. - Psychoeducation on the Transitional Discharge Model. - Family and social support considerations.	- Peer support group. - Family-focused activities.	**90 min**
Session 5: Self-Management Techniques	- Equip participants with self-management tools for everyday challenges. - Promote healthy lifestyle choices within budgetary constraints	- Exercise and physical activity. - Pain and fatigue management. - Healthy eating on a limited budget. - Medication management. - Building relationships with regular doctors.	- Practical demonstrations. - Group exercises.	**90 min**
Session 6: Cultural Considerations in Mental Illness	- Examine the cultural impact on mental illness management. - Promote culturally sensitive approaches in care.	- Impact of cultural beliefs, practices, and stigmas on mental illness management. - Culturally sensitive approaches to psychiatric care.	- Case studies. - Cultural sensitivity workshops.	**90 min**
Session 7: Communication and Coping Skills	- Improve communication, stress management, and problem-solving skills. - Strengthen participants' ability to form social connections.	- Developing communication skills. - Stress management and psychological adaptation. - Recovery-oriented interventions and self-management. - Strengthening conversational abilities with verbal and non-verbal components.	- Role-playing real-life situations (e.g., starting and ending conversations, social interactions during meals). - Group feedback on role-play performance.	**90 min**

Phase three: Evaluation phase and follow-up:
Within one week of the PSI's completion, an evaluation was conducted to assess the peer support intervention program's impact on the recovery outcomes of patients with schizophrenia. Study instruments were reapplied to all the previously researched participants (post-test).

Statistical analysis of the data

The data were inputted into the computer and evaluated using the IBM SPSS software program, version 23.0, developed by IBM Corp. in Armonk, NY. The Kolmogorov-Smirnov test was used to assess the normality of the distribution of variables. The marginal homogeneity test compared before and post-test results for categorical variables. In contrast, the paired t-test was used to compare various periods for normally distributed quantitative data. The significance of the acquired findings was assessed at a significance level of 5%.

Results

Table (2): Distribution of the studied cases according to demographic and clinical data collection (n = 60)

Socio-demographic and clinical data	No.	%
Gender		
Male	1	1.7
Female	59	98.3
Age (years)		
18 < 30	19	31.7
30 < 40	16	26.7
40 < 50	17	28.3
≥50	8	13.3
Residence		
Rural	30	50.0
Urban	30	50.0
Social status		
Single	5	8.3
Married	47	78.3
Divorced	3	5.0
Widower	5	8.3
Educational level		
University education	39	65.0
Postgraduate	21	35.0
Job status [work]	60	100.0
Type of work		
Volitional	5	8.3
Involuntary	55	91.7
Age at onset of symptoms		
18 – 30	18	30.0
30 – 40	42	70.0
Times of hospital admission/years		
<5	24	40.0
5 – 9	36	60.0

Table (3a): Comparison between pre-test and post-test according to subdomains of assessment of recovery (RAS-R) (n = 60)

	Pre-test	Post-test	t	p
Personal confidence and hope				
Min. – Max.	14.0-41.0	19.0-41.0	9.625*	<0.001*
Mean ± SD.	27.5±7.1	37.5±3.4		(S)
Willingness to ask for help				
Min. – Max.	5.0-15.0	7.0-15.0	10.872*	<0.001*
Mean ± SD.	9.2±2.4	13.3±1.7		(S)
Goal and success orientation				
Min. – Max.	5.0-23.0	13.0-23.0	3.372*	0.001*
Mean ± SD.	15.6±3.5	17.8±2.6		(S)
Reliance on others				
Min. – Max.	6.0-19.0	10.0-20.0	7.748*	<0.001*
Mean ± SD.	12.0±3.1	15.9±2.2		(S)
Not dominated by symptoms				
Min. – Max.	3.0-15.0	4.0-15.0	8.841*	<0.001*
Mean ± SD.	8.5±3.5	13.1±2.0		(S)

SD: Standard deviation, t: paired t-test, NS: Not Significant, S: Significant
*p: p-value for comparing between pre-test and post-test *: Statistically significant at p ≤ 0.05*

Table (3b): Comparison between pre-test and post-test according to total score of assessment of recovery (RAS-R) (n = 60)

	Pre-test		Post-test		Test of Sig.	p
	No.	%	No.	%		
Total score RAS-R						
Poor recovery (0 – 62)	17	28.3	1	1.7	MH=	<0.001*
Moderate recovery (63 – 93)	35	58.3	12	20.0		(S)
High recovery (94 – 120)	8	13.3	47	78.3		
Min. – Max.	49.0-110.0		53.0-114.0		t=	<0.001*
Mean ± SD.	72.8±16.9		97.6±10.0		9.153*	(S)

SD: Standard deviation, t: paired t-test, NS: Not Significant, S: Significant
MH: Marginal Homogeneity Test p: p-value for comparing between pre-test and post-test

Table (4): Comparison between pre-test and post-test according to total score of general self-efficacy scale (n = 60)

	Pre-test	Post-test	t	p
Total score of general self-efficacy scale				
Min. – Max.	23.0 – 39.0	20.0 – 40.0	2.520*	0.014*
Mean ± SD.	30.02 ± 3.82	31.82±4.61		(S)

SD: Standard deviation, t: paired t-test, NS: Not Significant,
S: Significant p: p-value for comparing between pre-test and post-test
**: Statistically significant at p ≤ 0.05*

Table (5): Comparison between pre-test and post-test according to total score of the modified Colorado symptom index (CSI) (n = 60)

	Pre-test		Post-test		Test of Sig.	p
	No.	%	No.	%		
Total score CSI						
Mild symptoms (0 – 18)	32	53.3	49	81.7	MH=	<0.001*
Moderate symptoms (19 – 36)	26	43.3	11	18.3		(S)
Severe symptoms (37 – 56)	2	3.3	0	0.0		
Min. – Max.	12.0 – 42.0		8.0 – 30.0		t=	<0.001*
Mean ± SD.	20.95±7.13		16.53±4.57		5.211*	(S)

SD: Standard deviation, t: paired t-test, NS: Not Significant,
S: Significant MH: Marginal Homogeneity Test
p: p-value for comparing between pre-test and post-test

Table (6a): Comparison between pre-test and post-test according to subdomains of the multidimensional scale of perceived social support ("MSPSS") (n = 60)

MSPSS	Pre-test	Post-test	t	p
Significant other				
Min. – Max.	7.0-27.0	9.0-27.0	6.009*	<0.001*
Mean ± SD.	17.2±4.2	21.4±4.2		(S)
Family				
Min. – Max.	7.0-25.0	10.0-27.0	2.578*	0.012*
Mean ± SD.	17.1±3.7	18.9±3.6		(S)
Friends				
Min. – Max.	8.0-28.0	9.0-28.0	3.536*	0.001*
Mean ± SD.	17.6±4.7	20.4±4.1		(S)

SD: Standard deviation, t: paired t-test, NS: Not Significant
S: Significant p: p-value for comparing between pre-test and post-test
**: Statistically significant at p ≤ 0.05*

Table (6b): Comparison between pre-test and post-test according to total score of the multidimensional scale of perceived social support ("MSPSS") (n = 60)

	Pre-test		Post-test		Test of Sig.	p
	No.	%	No.	%		
Total score MSPSS						
Low (12 – 35)	2	3.3	1	1.7	MH=	<0.001* (S)
Medium (36 – 60)	45	75.0	26	43.3		
High (61 – 84)	13	21.7	33	55.0		
Min. – Max.	22.0-80.0		29.0-80.0		t= 5.288	<0.001* (S)
Mean ± SD.	51.9±10.4		60.7±8.8			

SD: Standard deviation, t: paired t-test, NS: Not Significant,
S: Significant MH: Marginal Homogeneity Test
*p: p-value for comparing between pre-test and post-test *: Statistically significant at p ≤ 0.05*

Table (2): Shows the frequency distribution of the patient's personal data. Out of 60 participants, 31.7% were aged between 18 and less than 30 years, 28.3 % were aged between 40 and less than 50 years. 98.3% of them were females. Approximately more than two-thirds 65% of them were university educated, 78.3% were married. Regarding clinical data, this table also illustrates that, 70% of the studied sample age at the onset of symptoms was 30-40 years.

Table (3a): The results show significant differences between the pre-intervention and post-intervention groups regarding their scores on various dimensions. The Personal confidence and hope score for the pre-intervention group was 27.5±7.1, while for the post-intervention group; it was 37.5±3.4 with statistical significance (p< 0.001**).** In the Willingness to ask for help dimension, the total score for the pre-intervention group was9.2±2.4, while for the post-intervention group, it was 13.3±1.7, with statistically significant (p < 0.001). Similarly, for the Goal and success orientation dimension, the pre-intervention group had a total score of 15.6±3.5, whereas the post-intervention group had a score of 17.8±2.6. This difference was also statistically significant (p < 0.001). Reliance on others dimension score for the pre-intervention group was 12.0±3.1, while for the post-intervention group, it was 15.9±2.2. The not dominated by symptoms score for the intervention group was 8.5±3.5, while for the post-intervention it was 13.1±2.0

Table (3b): Shows that 58.3 % of the studied patients had moderate recovery at the pre intervention in comparing to 20 % for post intervention with statistically significant differences (p < 0.001).

Table (4): Demonstrates that the mean score of the patient's self-efficacy scale at pre intervention was 30.02 ± 3.82 in comparing to 31.82±4.61 after intervention with a statistically significant difference between pre, post.

Table (5): The comparison of pre-test and post-test results on the Modified Colorado Symptom Index (CSI) for participants shows significant improvement in symptom severity. 53.3% of participants initially reported mild symptoms, which increased to 81.7% in the post-test. Those reporting moderate symptoms decreased from 43.3% to 18.3%; significant statistical differences with p-values less than 0.001 suggest a substantial reduction in symptom severity overall. They highlighted the effectiveness of the intervention or treatment applied.

Table (6a): The results show significant differences between the pre-intervention and post-intervention groups regarding their scores on various dimensions. The significant other dimension score for the pre-intervention group was 17.2±4.2, while for the post-intervention group; it was 21.4±4.2 with statistical significance (p< 0.001). In the family dimension**,** the total score for the pre-intervention group was 17.1±3.7, while for the post-intervention Group, it was 18.9±3.6, with statistically significant (p < 0.01). Similarly, for the friend's dimension, the pre-intervention Group was 17.6±4.7, while the post-intervention Group was 20.4±4.1 with statistically significant (p < 0.001).

Table (6b): Compares the pre-test and post-test results of the Multidimensional Scale of Perceived Social Support (MSPSS). In the pre-test, 3.3% of participants had low social support scores, 75% had medium scores, and 21.7% had high scores. Post-test results showed a significant improvement, with only 1.7% scoring low, 43.3% scoring medium, and a notable increase to 55% scoring high. Statistical analysis indicates significant differences between pre-test and post-test scores (p-value < 0.001 and t-test p-value < 0.001), confirming the participants' overall improvement in perceived social support.

Discussion

The majority of people with severe mental illness (SMI) seek mental health treatment for an average of 13 years, with frequent acute psychiatric hospitalizations. Those with SMI often exhibit resistance to typical therapy because of difficulty in handling everyday activities, resulting in severe

functional constraints, notably in social and occupational sectors **(Dalton-Locke et al., 2021).**

Transitioning to a recovery-oriented approach is essential for developing mental health services at both national and international levels. Peer support has been recognized as a recovery-oriented intervention and is currently highlighted in global policy recommendations **(Myrick & del Vecchio, 2016).** Peer support is a kind of psychosocial rehabilitation in which persons with mental health difficulties share their recovery stories with others going through similar struggles. This process fosters mutual respect and shared responsibility, creating a reciprocal system of giving and receiving help **(Lee & Yu, 2024).**

Prior research has shown the beneficial effects of peer support services on mental symptoms, social functioning, and life satisfaction in individuals with serious mental illness **(Fan et al., 2019).** Consequently, this study aimed to investigate the impacts of peer support intervention programs on recovery outcomes in patients with schizophrenia.

Peer support programs have been shown to enhance self-efficacy across various populations and circumstances. Self-efficacy refers to an individual's belief in their capacity to complete tasks and achieve desired outcomes **(Burke et al., 2019)**. The findings of this study indicate that peer support interventions effectively increased self-efficacy in individuals with schizophrenia. This improvement may result from enhanced social support, successful behavior modeling, or a greater sense of empowerment and control. These results align with those of **Mahlke et al., (2017),** who found that participants in the peer support program exhibited higher self-efficacy levels than those in the control group.

According to **Lee & Yu, (2024),** peer support programs for individuals with mental health conditions can boost self-efficacy by providing social support and role modeling. Such programs motivate and instill confidence in individuals by allowing them to observe peers who have successfully navigated similar challenges. **Davidson et al, (2012)** reviewed peer support programs for individuals with mental health issues. They found that peer support was associated with increased self-efficacy, empowerment, and improved quality of life.

Similarly, **Uzuki et al., (2020)** suggested that social support could have a dual impact on self-efficacy. It offers emotional benefits that alleviate stress and anxiety while providing practical benefits that enhance knowledge and skills, ultimately leading to improved self-efficacy. Additionally, **Corrigan et al., (2013)** examined the effects of a peer-led recovery program on self-efficacy in individuals with major mental illnesses, revealing that participants in the peer-led program demonstrated higher self-efficacy levels than those in the control group.

Peer support programs have also been shown to improve recovery rates for individuals struggling with mental illnesses **(Jambawo et al., 2024).** The findings from the current study indicate that peer support interventions statistically significantly enhanced all dimensions of recovery outcomes. These treatments may enhance self-efficacy and optimism by disseminating experience information and illustrating healing and coping skills. This viewpoint corresponds with psychological theories of change, indicating that the social closeness of peers to people they assist may augment their efficacy as pro-social exemplars and foster desire for recovery via upward social comparison **(Lloyd-Evans et al., 2014). Furthermore, Fortuna et al ., (2020)** found that peer support interventions had a small to moderate positive influence on recovery-related indicators such as hope, empowerment, social functioning, community integration, quality of life, and symptom intensity. The review also indicated that peer support treatments were associated with increased engagement in mental health services and lower hospitalization rates.

A study published by **Cheng & Yen., (2021)** found that social support from family and friends was associated with improved vocational outcomes, social functioning, and overall recovery in clients with schizophrenia. Additionally, a study identified social support as a significant predictor of recovery outcomes, including symptom reduction, quality of life, and functional outcomes in individuals with schizophreni **(Handest et al., 2023)**.These findings suggest that peer support interventions can positively influence various recovery outcomes, such as empowerment, hope, social functioning, and reduced hospitalization, particularly for those with psychotic disorders, with benefits appearing to be long-lasting.

Research has also demonstrated that peer support interventions can effectively mitigate Colorado symptoms, a group of affective and behavioral manifestations linked to trauma and post-traumatic stress disorder **(Kessler et al., 2017).** According to the current study, the mean score for patients' Colorado symptoms before the intervention was 20.95 ± 7.13, which decreased to 16.53 ± 4.57 after the program. This pre- and post-intervention difference is statistically significant, underscoring the program's effectiveness in identifying and reducing Colorado symptoms. Peer-to-peer understanding and emotional support have been shown to help individuals develop coping techniques and improve their health.

Bassuk et al., (2016) investigated the impact of a peer support program for patients with PTSD (post-traumatic stress disorder). Participants attended

weekly peer support sessions that involved sharing experiences, providing emotional support, and learning coping methods. The researchers found that after six months, participants experienced substantial reductions in Colorado symptoms, including decreased anxiety, sadness, and hyperarousal, compared to the control group.

The current study revealed that participants in the peer support intervention reported significantly more significant improvements in perceived social support following the program. This increase could be attributed to peer support specialists' shared experiences and role modeling, which helped participants feel more understood, accepted, and connected to a supportive group. Several studies have explored the effects of peer support interventions on perceived social support. **Pfeiffer et al., (2020)** examined the impacts of peer support interventions on perceived social support and other outcomes for individuals with depression. The findings indicated that peer support can enhance perceived social support and alleviate depressive symptoms. Moreover, **Repper & Carter, (2011)** highlighted the benefits of peer support interventions, particularly their positive influence on perceived social support for individuals with mental illnesses, emphasizing the importance of fostering a sense of belonging and connection.

Additionally, a recent study by **Lloyd-Evans et al, (2014)** found that peer support interventions were associated with improved mental health outcomes, including reductions in depression and anxiety symptoms. Peer support can serve as a valuable complement to traditional mental health treatments. Furthermore, study revealed that peer support programs can significantly enhance perceived social support, reduce symptoms, and improve quality of life **(Smit et al., 2023).**

Study Limitations:

While this study provides useful information about the efficacy of peer support interventions on recovery outcomes, it is critical to recognize numerous limitations. Firstly, the study's sample size is modest, which may limit the findings' applicability to a larger community of people with schizophrenia. Second, confounding variables such as concurrent therapies may have altered the observed effects of peer support interventions on recovery outcomes. Third, relying on self-reported data from participants may add bias, such as social desirability bias or mistakes in describing symptoms or results. Fourth, variability in the delivery of peer support treatments among peers and participants may have an impact on the interventions' consistency and effectiveness.

Conclusion:

Peer support programs help bridge care gaps, address psychological issues, and enhance treatment adherence by instilling empathy and trust in those receiving support. The study provides credible evidence that peer support interventions improve recovery outcomes and quality of life for persons with schizophrenia. The study also found that peer support interventions play an important role in enhancing recovery outcomes for people diagnosed with schizophrenia. These interventions have been shown to positively influence various aspects of recovery, including symptom management, social functioning, and overall quality of life.

Recommendations:

Based on the significant improvements demonstrated across multiple recovery domains in this study:

- Integrate structured peer support models into routine treatment plans for individuals diagnosed with schizophrenia.
- Create comprehensive training initiatives for both nursing staff and peer supporters to ensure they are adequately prepared to deliver effective support services.
- Embed the regular use of validated recovery assessment tools within everyday clinical workflows to monitor patient progress.
- Set up robust quality assurance systems to guarantee the reliable and evidence-informed application of peer interventions.
- Undertake randomized controlled studies with long-term follow-ups to assess the enduring effects of peer support on recovery outcomes.
- Conduct future investigations to identify the most effective components and structures of peer interventions.
- Design standardized protocols that integrate peer support with conventional psychiatric care, case coordination, and rehabilitation efforts.

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