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Effect of a logotherapy-based psychoeducational program on interpersonal guilt, self-efficacy, and resilience in patients with schizophrenia: a quasi-experimental study

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Abstract

Background Patients suffering from schizophrenia experience significant impairments in emotional, cognitive, and social functioning, leading to reduced resilience and self-efficacy along with increased feelings of interpersonal guilt. Although pharmacological interventions help in reducing the symptoms, the existential aspects of the healing process can go unattended. The aim of the current research was to understand the effectiveness of logotherapy-based psychoeducational program on interpersonal guilt, self-efficacy, and resilience in schizophrenia patients.

Methods In this quasi-experimental pretest-posttest study, the effectiveness of a logotherapy-based psychoeducational program was tested using a seven-week, 13-session program, administered to 45 stable patients diagnosed with schizophrenia. Arabic-validated instruments were used to measure resilience, self-efficacy, and interpersonal guilt.

Results The results showed that there were significant increases in the variables of resilience, t (44) = 4.956, $p < .001$, Cohen's d = 0.74, and self-efficacy, t (44) = 6.075, $p < .001$, Cohen's d = 0.91, after the completion of the intervention. The results also revealed that interpersonal guilt failed to achieve statistical significance, t (44) = 1.388, $p = .172$, Cohen's d = 0.21, after the completion of the intervention. There was a strong positive relationship between the variables of resiliency and self-efficacy, $r = .749$, $p < .001$. There were no significant relationships between the variables of resiliency and interpersonal guilt, or between the variables of self-efficacy and interpersonal guilt.

Conclusions Meaning-centered interventions seem to be a valuable tool in boosting adaptive psychological resources, such as resilience and self-efficacy, in people with schizophrenia. The failure to improve interpersonal guilt suggests that the problem could need a considerably different type of therapeutic approach that focuses on metacognitive issues. The integration of existentially oriented psychoeducation in the treatment appears potentially

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valuable in assisting the patient in finding their personal meaning, in conjunction with other treatments. The long-term stability and the combination with other treatments in order to approach the issue of interpersonal guilt could be the next step in researching these issues.

Clinical trial number Not applicable.

Keywords Logotherapy, Schizophrenia, Interpersonal guilt, Self-efficacy, Resilience

Introduction

Schizophrenia, is a chronic psychiatric disorder, affects 1% of the worldwide population [1]. Individuals diagnosed with this condition usually present symptoms, in a heterogeneous manner, that extensively influence their mental and social performances, and consequently their ability to recover, work, and enjoy a satisfactory quality of life [2, 3]. Furthermore, schizophrenia may adversely affect several psychological dimensions, including interpersonal guilt, self-efficacy, and resilience.

Schizophrenia could also impair other psychological aspects, such as interpersonal guilt, self-efficacy, and sense of mastery. People with schizophrenia usually experience personal internalization, because the condition could intensify personal guilt and make the patient feel worthless in the eyes of the others [4]. Studies investigating interpersonal guilt are prominent in mental illnesses such as depressive disorder [5]; however, in schizophrenia, they are very limited. Guilt feelings usually originates from the patients' belief that the have become a burden on their families, as schizophrenia can lead to significant problems in social, emotional, and economic aspects.

Interpersonal guilt reflects concern about other people's well-being and a preoccupation with assuming responsibility for their suffering. In comparison to shame that involves negative self-appraisal or self-blame focused upon events, interpersonal guilt revolves around relational patterns and moral responsibility. Currently, there is growing scholarship regarding its trans-diagnostic importance in people suffering from eating disorders. It relates to the universal psychological processes such as exaggerated responsibility, empathy, and morality that affect symptom severity and treatment course in any kind of psychopathology regardless of the exact disease [6].

In schizophrenia cases, deficits in perspective taking and metacognitive functioning could exacerbate or impair these emotional experiences [7]. Researching the role of logotherapy-based psychoeducational interventions regarding existential and relational emotional issues can help understand the effectiveness of such treatment in building resilience and self-efficacy in schizophrenia patients.

Self-efficacy can be considered as the subjective appraisal of personal ability and performance in undertaking various tasks. Patients with schizophrenia show significant lower levels of self-efficacy, especially when there are negative symptoms such as anhedonia, avolition, or apathy [8]. These patients consistently feel less confident about their personal ability to carry out specific tasks, resulting in behavioral avoidance and further accentuating doubts about self-efficacy. They appear to display increased susceptibility to stress in case they feel less confident about their personal ability.

According to the American Psychological Association, resilient people have the capability to adapt effectively when dealing with difficult situations such as adversity, trauma, or other challenging situations in life [9]. Still, conceptual definitions vary according to the disorder. For example, in schizophrenia, resilience refers to the ability to handle the manifestations of the illness while developing more self-awareness [10]. Furthermore, resilience has a great impact on different levels of life of patients with schizophrenia, including quality of life, functional ability, and physical health outcomes [11].

Logotherapy is a form of psychotherapy intended to help individuals find personal meaning in life, and is typified by future orientation and the development of the client's capacity to endure adversity by establishing purpose [12]. Logotherapy could support the attainment of resilience and cultivate some of the most relevant competencies underlying this ability, including acceptance, altruism, cognitive reappraisal, maintaining optimism in spite of adversity, personal responsibility, and value-based living [13]. Logotherapy is a method of treatment for patients dealing with various mental and physical problems, potentially serving a wide range of disorders through the regulation of the stress response, distress tolerance, resilience, and facilitating personal growth following stress or trauma [14]. On the other hand, according to Leontiev, logotherapy tends to oversimplify the complex contextual issues of mental illness [15].

Contemporary research increasingly stresses the function of psychological constructs like self-efficacy and resilience in encouraging recovery-oriented outcomes for people living with schizophrenia [16]. Traditional paradigms of treatment hardly address these important existential dimensions representing a notable gap in psychiatric care. Logotherapy emphases on existential meaning, volitional freedom, and personal responsibility may help patients reinterpret suffering as an opportunity for personal growth rather than a source of shame [17].

Frankl describes three main therapeutic techniques in logotherapy: Dereflection, Paradoxical Intention, and Socratic Dialogue. Dereflection is based on the concept of self-transcendence in that attention is shifted away from individual self-concerns and focused on the needs and interests of others. This intervention is theoretically based on the premise that individuals who are highly focused on personal problems may alleviate their situation through shifting their attention to the care and support of others. For example, when a patient expresses financial burdens, the mental health professional may encourage the individual to focus on those they support instead of personal consequences of financial limitations. Paradoxical Intention is used primarily to help address fear by consciously exposing and even anticipating the occurrence of what is feared. Patients intentionally wish for what they fear with humor and hyperbole, thus minimizing its power and control [12]. Further symptomatic expression may be minimized as well. Socratic Dialogue is a method of self-discovery in which patients identify that solutions to problems come from within themselves. The psychiatric nurse listens carefully to the narratives of patients while identifying common thematic threads to promote new meaning and insight.

While there is growing evidence to support psychosocial interventions for people with schizophrenia, studies on the practice of logotherapy among such patients remains limited. Logotherapy has shown positive effects in increasing resilience, fostering personal meaning, and providing emotional well-being across different clinical populations. Its effects on schizophrenic individuals are not known, particularly concerning interpersonal guilt, self-efficacy, and resilience, areas wherein support may be most critically needed.

Psychiatric nurses play an important role in the provision of numerous psychological interventions, which have also been widely studied in the literature [18]. For example, a study by Chien showed that a mindfulness-based psychoeducational program, delivered by trained psychiatric nurses, enhanced patient functioning and shortened the length of hospital stay at re-admission [19]. Thus, the present study was conducted to examine the effects of a logotherapy-based psychoeducational program on interpersonal guilt, self-efficacy, and resilience in patients with schizophrenia.

Methods

Design and participants

For this study, a quasi-experimental, one-group pretest-posttest design was used. Before starting data collection, an a priori power analysis was run with G*Power to figure out how many participants were needed to detect meaningful effects. Using parameters from previous studies—80% statistical power, a significance level of 0.05, and a medium effect size (Cohen's d = 0.5) [20, 21]. The analysis suggested that having at least 34 participants would give enough statistical confidence. Subsequently, consecutive sampling was employed to recruit all patients with schizophrenia meeting inclusion criteria from the psychiatric unit at Assiut university hospital in Egypt. During the data collection period, 64 patients were available within the unit, and were screened for eligibility.

Inclusion criteria demanded that patients must be aged between 18 and 55 years and display clinical stability at assessment. Exclusion criteria included current or historical diagnosis of pervasive developmental disorder or intellectual disability according to DSM-5-TR; current or historical medical or neurological conditions potentially influencing brain function (e.g., seizure disorders, brain tumors); sensory impairments including visual or auditory deficits that might compromise assessment validity; substance abuse within the preceding month (excluding nicotine or caffeine); and presence of language disorders.

Following medical record review and consultation with on-duty psychiatrists, the screening process identified 53 eligible patients deemed appropriate for study participation.

Instruments

Socio-demographic and medical data structured interview schedule

The researchers of this study developed this instrument to collect comprehensive information regarding patients with schizophrenia, including sociodemographic variables (age, marital status, educational attainment, employment status, residential location, income adequacy) as well as clinical variables (illness duration, hospitalization length, admission frequency).

Connor-Davidson Resilience Scale-10

The original Connor-Davidson Resilience Scale-10 (CD-RISC-10) scale, developed by Connor & Davidson [22], included 25 items, and was later shortened to 10 items by Campbell-Sills & Stein [23]. The short-form includes items 1, 4, 6, 7, 8, 11, 14, 16, 17, and 19 from the original scale. This unidimensional self-report scale measures an individual's feelings during the past month and aims to assess their present resilience capacity. The short-form scale involves 10 items, each of which is responded to on a five-point Likert scale ranging from 0 to 4, with 0 being ("not true at all") and 4 representing ("true nearly all the time"). The possible score range is between 0 and 40, greater score reflecting greater resilience. The CD-RISC-10 has demonstrated strong internal consistency (Cronbach's α = 0.85). Similarly, the Arabic version of the CD-RISC-10 showed excellent internal consistency with a McDonald's ω of 0.89. In addition, individuals with higher resilience showed greater post-traumatic growth,

more use of cognitive reappraisal, and less emotion suppression, supporting the measure's construct validity [24].

The General Self-Efficacy scale

The General Self-Efficacy (GSE) Scale, developed by Schwarzer and Jerusalem [25], was designed to measure people's perceived ability to effectively deal with everyday stressful events and complete tasks regardless of complexity. Being a single-dimensional scale, it consists of 10 items answered using a four-choice format with scores ranging from 1 ("Not at all true") through 4 ("Exactly true"), giving a total score ranging from 10 to 40. The scale was found to have high internal reliability with alpha ranging from 0.76 to 0.90 in the original test. Correspondingly, the translated Arabic scale, tested using Qatari breast cancer patients, had high internal reliability (α = 0.95). The instrument demonstrated satisfactory convergent validity through significant correlations with mental health literacy (r = .65, p < .01) and coping self-efficacy (r = .72, p < .01), while its weak, non-significant correlation with anxiety (r = .15, p > .05) supported divergent validity [26].

The Interpersonal Guilt Rating Scale-15

The Interpersonal Guilt Rating Scale-15 (IGRS-15) was tested as a brief self-report measure of guilt perceived using the Control-Mastery Theory. The scale was originally developed by O'Connor [27] and then simplified by Gazzillo [28]. It includes the fundamental aspects of guilt identified in Control-Mastery Theory in terms of survivor guilt, omnipotent responsibility guilt, and self-hate guilt. Some versions also reported Separation/disloyalty guilt as a fourth type that emerged from factor analysis. The IGRS-15 consists of 15 items with responses on a five-point Likert scale ranging from 1 ("not at all representatives") to 5 ("completely representative"), yielding a total score range of 15 to 75. Higher scores indicate greater levels of interpersonal guilt. The scale has demonstrated strong internal consistency across all factors (α ranging from 0.83 to 0.87).

Procedure

After obtaining the ethical clearance, the research team initiated the data collection process by informing the participants about the purpose and significance of the study in a language that was easily understood by them. The informed consent was requested in writing from all the eligible patients who expressed their interest in participating. Patients were informed about the study instruments and were guided on how to complete the questionnaires. Patients with difficulties were assisted by the researchers of the study. The information was kept confidential and used only for the purpose of the study. Participants were also told that they could withdraw at any time without any consequences. Small incentives in the form of snacks and drinks were provided during data collection as well as the sessions.

Because no Arabic version of the IGRS-15 existed, the team conducted a complete translation and cultural adaptation according to the guidelines on cross-cultural adaptation by Beaton [29]. Since the translation needed to be both accurate and relevant to the culture of the people for whom it was intended, two bilingual translators, native Arabic speakers of diverse academic backgrounds, independently translated the instrument from English to Arabic. One had a PhD in psychology while the other had a degree in arts. This ensured the capture of technical and cultural nuances. These two translations were reconciled into one preliminary draft through discussion. A third expert acted as an adjudicator to solve disagreements.

Next, two other bilingual people who were native English speakers and naïve to the instrument and its constructs did a back-translation into English. Justifications for the changes made during the back-translation process were closely examined and addressed. The pretest instrument was designed through a review process conducted by an evaluation committee comprised of experts in the field of psychiatry, translations, and the process of validating. Their role entailed ensuring conceptual and cultural equivalence between the Arabic version and the original instrument. Following consensus achievement, a pretest version was finalized for pilot testing.

Following pre-final version development, content validity was checked by five psychiatric specialists who rated the items in terms of their clarity, relevance, and representativeness. All item-level content validity indices (I-CVI) exceeded 0.82, and an overall scale-level content validity index (S-CVI) of 0.92. The pilot test was performed in 15 outpatients with schizophrenia, whose characteristics are similar to those of the main sample, and internal consistency was high with Cronbach alpha of 0.89, indicating the reliability and appropriateness of the tool in the population of Arabic-speaking schizophrenic patients.

Data were collected through pre-intervention, where the patients filled out research questionnaires. Subsequently, the logotherapy-based psychoeducational program was applied in the course of seven weeks. Finally, the post-intervention questionnaire was administered a week after the completion of the program. Data were collected in the period ranging from March 2025 to May 2025. Patients who failed to participate in at least 9 out of 13 research sessions were classified as incomplete and excluded from analysis. This per-protocol criterion ensured all participants experienced comparable intervention exposure, enabling more reliable and meaningful

effect assessment. Figure 1 presents the study CONSORT diagram.

Intervention

The aim of these interventions was to help the patients with schizophrenia uncover personal meanings, build knowledge, and explore skills that can help in building efficacy and reducing guilt. All patients were divided into three groups, with 15 members in every group. These sessions took place in a quiet and appropriately prepared room for 13 sessions, with every group meeting twice a week for one hour.

The logotherapy-based psychoeducational program included the following topics: introduction to the program; schizophrenia as a disorder; methods of management; introduction to logotherapy; basics of logotherapy; practicing logotherapy; applying logotherapy in real life; understanding and overcoming the issue of interpersonal guilt; strategies for enhancing self-efficacy; building resilience; and conclusion of the program. It is important to note that the program was constructed following other works in the literature [30, 31] and reviewed by an expert panel in the area of psychology, ensuring both theoretical rigor and practical relevance.

A lecture-based approach incorporating brief segments and interactive activities enhanced patient engagement and comprehension. To ensure treatment integrity, the same two PhD-prepared clinical nurse specialists, both of whom have significant clinical and educational expertise and have trained in logotherapy using specialized online platform, led all sessions in identical content with all groups.

The program was developed in line with the cognitive symptoms and challenges faced by people suffering from

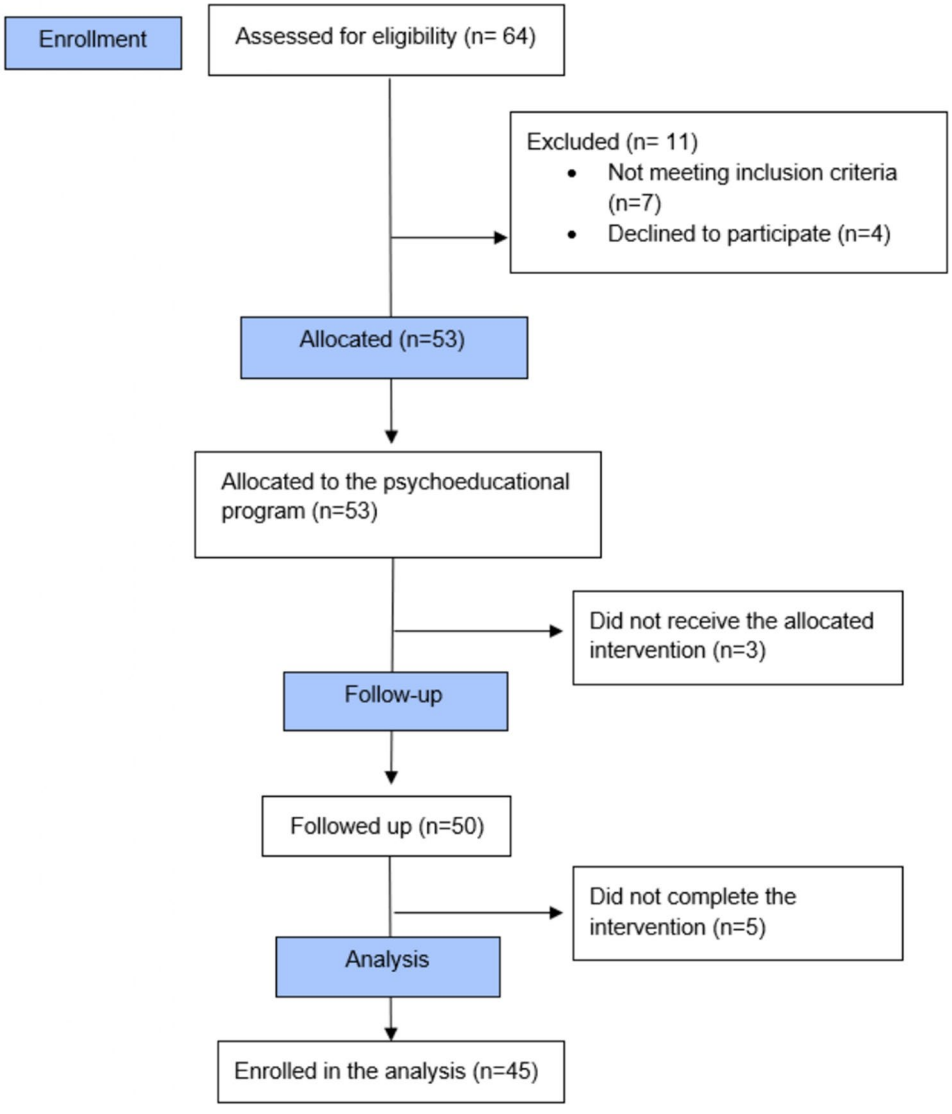

Fig. 1 Consort flow chart

schizophrenia. The discussion was conducted in an easily comprehensible manner using real-life examples, visuals, and repetition with review. The audience was closely observed for any adverse events related to the interventions; any such event would necessitate the withdrawal from the study immediately. No adverse events were reported or observed. Table 1 presents the components and objectives of the logotherapy-based psychoeducational program.

Statistical analysis

Descriptive statistics were used to summarize the characteristics of the subjects and the variables in the study. The relationships among the major variables was determined using Pearson's correlation. To examine relationships between participant characteristics and study variables, several statistical tests were utilized, including Pearson's correlation coefficient, analysis of variance (ANOVA), and point-biserial correlation. The effect of the program was determined using paired sample t-test. All the analyses were carried out using SPSS version 27, with a significance level of $\alpha = 0.05$.

Results

Participants' characteristics

Forty-five male patients diagnosed with schizophrenia completed the study. Data completeness was verified prior to analysis. No missing or incomplete responses were identified. Participants' mean age was 35.38 years (SD = 8.12). Approximately half of patients were unmarried (51.1%), and more than half (57.8%) had completed secondary education. Regarding employment status, 53.3% were employed. The majority of participants (71.1%) resided in rural areas, and 64.4% reported inadequate income. More than half (57.8%) received their diagnosis within the preceding two years and experienced hospitalization duration less than two months. Finally, approximately 38% of patients were admitted to hospital for the first time (see Table 2).

Correlation between study variables

Pearson's correlation analysis results revealed a strong positive correlation between resilience and self-efficacy ($r = .749$, $p < .001$). No significant correlation emerged between resilience and interpersonal guilt ($r = .173$, $p = .256$), nor between self-efficacy and interpersonal guilt ($r = .136$, $p = .373$).

Table 1 Contents of the logotherapy-based psychoeducational program

Session number	Session Title	Components	Objectives
1	Introduction to the program	Overview of program goals, structure, and expectations; establishing group rules; encouraging openness and participation.	Familiarize participants with program goals and structure; build trust and comfort within the group.
2	Schizophrenia as a disorder	Definition, causes, types, signs, and symptoms; addressing common misconceptions.	Increase understanding of schizophrenia; reduce misconceptions and stigma.
3	Methods of management	Overview of pharmacological treatments, psychotherapy, coping strategies, and lifestyle adjustments.	Equip participants with knowledge of effective management strategies; promote adherence to treatment plans.
4	Introduction to logotherapy	Concept and history of logotherapy; the role of meaning in mental health.	Introduce the idea of finding meaning in life as a therapeutic tool.
5	Fundamentals of logotherapy	Core principles such as freedom of will, will to meaning, and meaning in life.	Help participants understand the philosophical and psychological foundations of logotherapy.
6	Practicing logotherapy (Part 1)	Step-by-step approach to applying logotherapy techniques; identifying personal values.	Enable participants to begin applying logotherapy concepts to their own lives.
7	Practicing Logotherapy (Part 2)	Role-playing and exercises to apply logotherapy in daily situations.	Reinforce skills and provide support in practicing meaning-cantered thinking.
	Use of logotherapy in everyday life	Integrating meaning-oriented thinking into relationships, work, and personal challenges.	Enhance participants' ability to maintain a meaning-oriented mindset in real life.
9	Understanding and overcoming guilt	Definition, causes, and types of guilt; impact on mental health; recognizing guilt patterns.	Increase awareness of guilt and its effects; identify personal experiences of guilt.
10	Strategies to overcome guilt	Techniques for letting go of obsessive guilt, including cognitive reframing and self-forgiveness exercises.	Equip participants with tools to manage and reduce guilt in daily life.
11	Improving self-efficacy	Sources and concepts of self-efficacy; strategies to build confidence in managing illness and daily challenges.	Enhance participants' belief in their capacity to handle life challenges.
12	Building resilience	Definition, steps to develop resilience, benefits of resilience, and practical exercises to strengthen it.	Strengthen participants' ability to adapt and recover from adversity.
13	Program Closure and Reflection	Recap of key topics, sharing personal takeaways, setting future goals, and providing feedback.	Reinforce learning, celebrate progress, and encourage ongoing application of skills.

Table 2 Participants characteristics ($n=45$)

Variables	*n*	%
Age		
Mean: 35.38		
SD:8.116		
Marital status		
Single	23	51.1
Divorced	12	26.7
Married	10	22.2
Educational level		
Elementary	11	24.4
High school	26	57.8
Graduate education	7	15.6
Postgraduate education	1	2.2
Working status		
No	21	46.7
Yes	24	53.3
Residence		
Rural	32	71.1
Urban	13	28.9
Income adequacy		
Not enough	29	64.4
Enough	16	35.6
Duration of illness (years)		
< 2 years	26	57.8
2 and less than 5 years	7	15.6
5 and less than 10 years	7	15.6
> 10 years	5	11.1
Hospital stay (months)		
< 2 months	26	57.8
2 and less than 4 months	14	31.1
4 and less than 6 months	2	4.4
6 and less than 8 months	1	2.2
> 8 months	2	4.4
Admission frequency		
1	17	37.8
2	13	28.9
3	7	15.6
≥ 4	8	17.8

Table 3 Association between participants' characteristics and the study variables

Participants' characteristics	GSE	CD-RISC-10	IGRS-15
Age [a]	0.150	−0.071	−0.175
Marital status [b]	0.256	82.549	3.378
Educational level [C]	0.079	−0.101	−0.051
Working status [d]	0.150	0.037	−0.063
Residence [d]	−0.077	0.013	−0.193
Income adequacy [d]	0.148	0.038	0.036
Duration of illness (years) [C]	−0.053	−0.068	0.101
Hospital stay (months) [C]	0.115	0.086	−0.176
Admission frequency [C]	0.025	−0.005	0.058

* p-value < 0 0.05 level; a: Pearson correlation; b: ANOVA; c: Spearman Rank: d, Point-biserial correlation

Correlation between participants' characteristics and study variables

Bivariate analyses were conducted, and the results showed that there was no statistically significant correlation between any of the participants' characteristics and the study variables after the intervention, as presented in Table 3. Consequently, regression model was not pursued due to the non-significant bivariate findings and small sample size.

The effect of educational program on study variables

The mean total score was calculated for each of the study variables. The results show that the resilience score increased from M = 13.87 (SD = 10.09) before the intervention to M = 25.13 (SD = 9.81) after the intervention. The difference was statistically significant, t (44) = 4.956, $p < .001$, with a large effect size (Cohen's d = 0.74). Similarly, the mean total score of the GSE increased from M = 24.73 (SD = 6.11) before the intervention to M = 31.00 (SD = 4.86) after the intervention. This change was statistically significant, t (44) = 6.075, $p < .001$, with a large effect size (Cohen's d = 0.91). Although the mean IGRS score slightly increased after the intervention, the change was not statistically significant, t (44) = 1.388, $p = .172$, with a small effect size (Cohen's d = 0.21). This may reflect its deeply rooted nature, resistant to brief intervention. Alternatively, the slight post-intervention increase could signal greater awareness of guilt—a sign of emotional growth, not deterioration—fostered by the program's reflective components. (see Table 4).

Discussion

Discussing study findings

This study investigated the effectiveness of a logotherapy-based psychoeducational program in improving resilience and self-efficacy while lowering interpersonal guilt in schizophrenia patients. The results showed a significant improvement in resilience and self-efficacy post-intervention; however, no significant improvement was observed in interpersonal guilt scores. The current findings of this study contribute to the expanding body of knowledge, suggesting that meaning-based interventions could help persons with schizophrenia in their psychosocial rehabilitation.

According to this study's results, the clinical and demographic characteristics of the patients—mostly middle-aged men, more than half of whom were unmarried, lived in rural areas, had low levels of education, and had low incomes—indicate a higher risk of poor mental health outcomes and a slower rate of recovery in schizophrenia [32, 33]. They were relatively early in their illness-related trajectory, as evidenced by the fact that more than half had been diagnosed within two years of illness onset and had a brief hospital stay (less than two months), which

Table 4 The effect of educational program on the study variables

Variables	Pre-test	Post-test	95% Confidence Interval of the Difference		t	*p*	Cohen's d
	Mean (SD)		Lower	Upper			
CD-RISC-10	13.87 (10.09)	25.13 (9.81)	6.685	15.848	4.956	< 0.001	0.74
GSE	24.73 (6.11)	31.00 (4.86)	4.188	8.346	6.075	< 0.001	0.91
IGRS-15	33.84 (5.92)	36.20 (10.19)	-1.064	5.775	1.388	0.172	0.21

p-value < 0 0.05 level

may have heightened their receptivity to the logotherapy treatment, resulting in positive outcomes [34].

Moreover, more than one-third of participants were hospitalized for the first time, meaning that they were less chronic with a higher possibility of a positive response [35]. Interestingly, no significant correlations were found between the study's results and participant characteristics, showing that the intervention was appropriate and suitable for various subgroups and mostly consistent with prior psychological research [36–38].

There was a significant positive correlation between self-efficacy and resilience, which agrees with the increasing consensus that these constructs are closely related in patients with schizophrenia. For example, one study established that self-efficacy plays an important role in mediating the relationship between depression and resilience in patients who have experienced recurring episodes of schizophrenia [39]. Another study revealed that the effects of perceived social support on resilience are partly mediated by self-efficacy [40].

Previous research has pointed out the significant positive relationship between resilience and self-efficacy. However, empirical studies on the role of interpersonal guilt and the adaptability of these latter constructs in facilitating positive manifestations of guilt represent further evidence. From this perspective, the lack of correlation between interpersonal guilt and either resilience or self-efficacy in our study represents additional evidence that interpersonal guilt may trigger psychological processes different from those related to empowerment or recovery.

After the program, scores on resilience and self-efficacy improved significantly. The effect sizes were relatively substantial, which may indicate that the program considerably enhanced participants' ability to manage stress and regulate the demands of the illness. Such findings are in line with the results of earlier research suggesting that meaning-oriented interventions may foster recovery outcomes and psychological resilience [41]. This significant effect on self-efficacy is consistent with such findings, indicating interventions focused on personal agency and purpose may strengthen confidence and perceived control [39, 42].

Interpersonal guilt did not change after the intervention, although there were significant enhancements in resilience and self-efficacy. These findings show that short-term, meaning-centered psychoeducation is less effective in reducing guilt that is based on deep relational and moral frameworks. Logotherapy facilitates agency and coping, but may not diminish enduring guilt based on attachment or moral internalization in schizophrenia, because metacognitive impairments prevent emotional integration, belief reappraisal, and adaptive self-narration, making the feelings of guilt resistant to short-term modification [7]. To specifically address and reconfigure maladaptive guilt, upcoming interventions ought to combine logotherapy with metacognitive training, compassion-focused therapy, or schema therapy.

Lastly, the study's findings show that psychological interventions conducted by nurses improved outcomes for patients with schizophrenia, such as self-efficacy and resilience. This aligns with previous researches demonstrating that nurse-delivered intervention may enhance critical recovery-related outcomes [19, 43]. The skills and knowledge necessary to build therapeutic relationships and successfully administer a variety of psychological interventions are possessed by trained psychiatric nurses [44].

Implications of the study

This study revealed that short logotherapy-based psychoeducational programs could enhance some psychological outcomes in people with schizophrenia. No significant improvement was seen in interpersonal guilt, perhaps indicating diagnosis-related disparities or the shortness of the intervention. Subsequent studies need to investigate the impact of illness stage or severity on therapy response.

In clinical settings, logotherapy may serve as an alternative to conventional evidence-based treatment by facilitating meaning-making, enhancing coping mechanisms, and promoting involvement in the recovery process. Specialized mental health nurses trained in logotherapy may enhance non-pharmacological treatment strategies by using these interventions in various contexts, therefore helping patients in discovering meaning and restoring control. This requires continuous, organized training for mental health nurses via specialized courses.

Longitudinal studies with larger samples are needed for research explorations to determine if early benefits are sustained and if logotherapy is effective in improving functional outcomes and rehabilitation. It is also

necessary to investigate how logotherapy works with other focused therapies, making it more successful for complicated emotional processes such as guilt.

Strengths and limitations

To the best of our knowledge, the current study represents the first attempt to investigate the impact of a logotherapy-based psychoeducational program on guilt, resilience, and self-efficacy in psychiatric clinical settings, using standardized, well-validated, and reliable instruments. This enhances the reliability of the findings and provides a powerful basis for further research into meaning-centered interventions in Arabic-speaking clinical populations.

There are several limitations that have to be pointed out: the sample was restricted and only included male patients; therefore, the generalization of findings in wider schizophrenia populations is drawn into question, as possible gender disparities in emotional processing and recovery trajectories may exist. The absence of a control group means it is difficult to attribute the benefits observed to the intervention itself, rather than natural symptom fluctuations or unspecific therapeutic effects. Moreover, data were taken at only two points in time, so this does not enable the detection of long-term intervention effects. Interpersonal guilt did not show any significant temporal variations; this could imply ceiling effects or, alternatively, an intervention insufficiently potent to affect deeper emotional dimensions.

Conclusion

The logotherapy-based psychoeducational program significantly enhanced resilience and self-efficacy among patients with schizophrenia, proving that meaning-centered interventions provided by nurses may greatly enhance recovery-oriented care. Even with the lack of change of interpersonal guilt, the present study has brought to light that supplementary approaches could aim at more complex emotional and social dynamics. These results emphasize the importance, in psychiatric nursing, of integrating existentially informed, meaning-centered techniques into standard rehabilitation programs in order to enhance purpose, agency, and adaptive coping. Finally, this study supports wider incorporation of organized, nurse-delivered psychoeducation into complete recovery frameworks and helps develop prolonged, multimodal interventions.

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Author contributions

A. I. M. contributed to the conceptualization, methodology, statistical design, formal analysis, project administration, and writing of the original draft as well as review and editing. O. S. contributed to the conceptualization, data curation, investigation, validation, visualization, writing of the original draft, and review and editing. S. S. contributed to design refinements, investigation, project administration, supervision, and writing of the original draft and review and editing. G. K. A. contributed to data curation, methodology, supervision, and review and editing. S. R. E. contributed to data curation, supervision, and review and editing. N. F. contributed to conceptualization, and review and editing. All authors contributed substantially to the conception and design of the work, drafted or substantively revised the manuscript, approved the submitted version, and agreed to be personally accountable for their contributions.

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Data availability

The data supporting this study's findings are available from the corresponding author upon reasonable request.

Declarations

Ethical approval

All research procedures were conducted in accordance with the guidelines of Research Ethics Committee of the Faculty of Medicine at Assiut University, the Ministry of Health in Egypt (IRB No. 17300970), and the 1964 Helsinki Declaration. After the purpose and nature of the study were clearly explained, participants were asked to provide written informed consent. They were assured of the anonymity and confidentiality of their information, informed that participation was voluntary, and told that the study posed no risk or harm. Participants also retained the right to withdraw from the study at any time without any consequences.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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