KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 08 March 2023
Revised 22 April 2023
Accepted 28 April 2023
Published online 10 July 2023

KMAN Counseling & Psychology Nexus

Volume 1, Issue 2, pp 37-43

E-ISSN: 3041-9026

Effectiveness of Integrating Quality of Life-Based Therapy and Phototherapy on Emotion Regulation, Depression, and Anxiety in Psychosomatic Patients

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A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Tayebmanesh, L., & Saadati, N. (2023). Effectiveness of Integrating Quality of Life-Based Therapy and Phototherapy on Emotion Regulation, Depression, and Anxiety in Psychosomatic Patients of Isfahan City. *KMAN Conseling and Psychology Nexus*, *1*(2), 37-43.
http://doi.org/10.61838/kman.psynexus.1.2.7

A B S T R A C T

The current research was conducted to examine the effectiveness of integrating quality of life-based therapy and phototherapy on improving emotion regulation and reducing depression and anxiety in psychosomatic disorder patients in Isfahan city. This study was quasi-experimental, and its design was experimental and control with pre-test, post-test, and follow-up. The statistical population consisted of psychosomatic patients in Isfahan city. The statistical sample included 30 patients with psychosomatic disorders, who were conveniently selected and non-randomly assigned into two groups: experimental (15 participants) and control (15 participants). The research tools included: Gratz's Emotion Regulation Questionnaire (2004), Beck's Depression Inventory (1990), and Beck's Anxiety Inventory (1990). Descriptive statistics (mean and standard deviation) and inferential statistics (analysis of variance with repeated measures) were used for data analysis. The results indicated that integrating quality of life-based therapy and phototherapy was effective in improving emotion regulation, depression, and anxiety.

Keywords: *Emotion regulation, Depression, Anxiety, Quality of life-based therapy, Phototherapy, Psychosomatic disorders*

1. Introduction

In recent years, the integration of art-based therapies, particularly phototherapy, into psychological interventions has garnered significant interest within the field of psychology. This innovative approach has been explored across various studies, highlighting its potential in addressing emotional regulation, depression, anxiety, and

the complexities of somatic symptom disorders. Aypak et al. (2017) and Burton & Elliott (2023) have delved into the efficacy of phototherapy in chronic psychiatric disorders and coping mechanisms during stressful periods, respectively, showcasing the versatility of art in therapeutic settings (Aypak et al., 2017; Burton & Elliott, 2023). Moreover, the narrative therapy framework utilizing photographs, as discussed by Chan, K, & Wong (2012), opens new avenues for externalizing problems and fostering emotional expression (Chan et al., 2012).

The intricate relationship between emotional dysregulation and its manifestations in depression, somatization disorder, and other psychiatric conditions has been a focal point of research, as evidenced by studies from Davoodi et al. (2018) and Grassi, Caruso, & Nanni (2013). These investigations underline the necessity of targeted interventions aimed at improving emotion regulation strategies to alleviate the burden of these disorders (Davoodi et al., 2018; Grassi et al., 2013). Furthermore, the role of psycho-motivational training in enhancing social skills among schizophrenia patients, as explored by El-Azzab, Ali, & Othman (2022), emphasizes the multifaceted nature of psychological interventions in improving overall well-being (El-Azzab et al., 2022).

The necessity for nuanced psychological interventions is further underscored by the multifaceted nature of psychiatric disorders and their interrelation with somatic symptoms. The literature reveals a critical examination of psycho-oncological interventions, the emotional burden on patients and caregivers, and the effectiveness of psycho-motivational training in enhancing emotional regulation and social skills. Research by Horn, Pössel, & Hautzinger (2010), and others provide compelling evidence for the positive impacts of tailored therapeutic strategies, including the use of photography, in mitigating the psychological challenges posed by chronic illnesses (Horn et al., 2010). These studies advocate for a holistic approach to mental health care, emphasizing the importance of integrating innovative therapeutic modalities to address the complex needs of individuals with psychiatric and somatic disorders.

The integration of psychological and art-based therapies offers a promising avenue for addressing the complex interplay between mental health disorders and somatic symptoms. The aforementioned studies collectively contribute to a growing body of evidence supporting the efficacy of these interventions in fostering emotional regulation, mitigating symptoms of depression and anxiety, and enhancing patients' quality of life. As the field continues to evolve, further research is necessary to refine these therapeutic approaches, tailor interventions to individual needs, and explore their long-term benefits across diverse populations.

2. Methods and Materials

2.1. Study Design and Participants

The research was quasi-experimental in nature, employing an experimental and control group design with pre-test, post-test, and follow-up. The research population consisted of all psychosomatic disorder patients in Isfahan city in the year 2022. Given the experimental and quasi-experimental nature of this study, 15 individuals were selected for each group. For sampling, among the psychosomatic disorders, IBS patients from both genders were considered, and women were selected through convenient sampling. The sample size was 30 patients who were conveniently selected and non-randomly allocated into two groups: experimental and control. Inclusion criteria were: a minimum educational level of high school diploma, consent of the psychosomatic disorder patients, and the participants' consent and commitment to perform possible tasks. Exclusion criteria included: absence in more than one training session, frequent tardiness in sessions, suffering from diseases that could disrupt the research in the medical field as verified by medical records, not performing the task, and participation in other psychological training courses.

To adhere to ethical considerations, while explaining the research objectives, informed consent was obtained from the patients. They were also assured that their data would remain confidential, and there was no need to record their names and surnames.

2.2. Measures

2.2.1. Emotion Regulation

This questionnaire was developed by Gratz (2004) and consists of 36 self-report items across 6 subscales. It assesses emotion regulation and identifies problems in emotion regulation. Participants are asked to indicate how much each statement applies to them on a scale from one to five, where (1) is "almost never," (2) "sometimes," (3) "about half of the time," (4) "most of the time," and (5) "almost always." Higher scores indicate greater difficulties in emotion regulation. The validity and reliability of this questionnaire have been confirmed in various studies (Gratz & Roemer, 2004; Mehboodi et al., 2022).

2.2.2. *Depression*

The Beck Depression Inventory is among the most suitable tools for reflecting states of depression. It contains 21 items that measure the physical, behavioral, and cognitive symptoms of depression. For each item, the respondent selects one of four options that best describes the severity of their depression symptoms. Each item is scored between one to four, thus the total score of the questionnaire ranges from one to 84. This questionnaire is applicable to populations aged 13 and older. The 21 items of the Beck Depression Inventory are classified into three categories: affective symptoms, cognitive symptoms, and physical symptoms. This questionnaire has been widely used and its validity and reliability are well-established (Sahebi et al., 2005; Simon et al., 2022).

2.2.3. *Anxiety*

The Beck Anxiety Inventory is a self-report questionnaire designed to measure the severity of anxiety in adolescents and adults. It is a 21-item scale where the respondent selects one of four options that best describes the intensity of their anxiety for each item. The four options for each question are scored on a four-point scale from one to four. Each item describes one of the common symptoms of anxiety (mental, physical, fear-related). Therefore, the total score of the questionnaire ranges from one to 84. Studies have shown that this questionnaire has high validity and reliability (Aliyari Khanshan Vatan et al., 2022).

2.3. *Intervention*

2.3.1. *Quality of Life Training Using Photographs*

After the topic was approved and the necessary permissions were obtained from the university, permissions for entry into the Psychosomatic Disorders Research Center were received from the university's research deputy. Following necessary coordination, sampling was conducted, and individuals were non-randomly placed into two groups: control and experimental. Both groups were then administered pre-tests on dependent variables of emotion regulation, depression, and anxiety, and the experimental group received 8 sessions of 90-minute training combining quality of life-based therapy with phototherapy. Phototherapy techniques were utilized for better recognition of emotions, while the control group received no training and was placed on a waiting list. After 8 training sessions, both groups underwent post-tests, and a follow-up was conducted two weeks later. It's important to note that these training sessions were conducted by the researcher and an assistant therapist, who was also a clinical psychologist, at the Isfahan University Psychosomatic Research Center twice a week with four days in between. To prepare the therapeutic framework and its content in the quality of life therapy part, frameworks published in this field were used, and for phototherapy, articles and texts published were utilized. Then, phototherapy strategies that were compatible with parts of the quality of life therapy were employed, and the final content was compiled. Finally, the opinions of five experts in the field of clinical psychology and therapy were reviewed, and their final comments were applied. Subsequently, the Kappa coefficient was calculated for inter-rater evaluation, which was found to be 0.99, indicating suitability, and the final therapeutic framework was prepared (Burton & Elliott, 2023; Chan et al., 2012; Saita & Tramontano, 2018).

Initial Assessment and Introduction: Introduce the combined therapy approach, assess baseline emotional and psychological states, and set personal goals.

Quality of Life Concepts: Deep dive into quality of life factors, encouraging participants to explore and articulate aspects that influence their well-being.

Introduction to Phototherapy: Teach participants how to use photography as a tool for emotional expression and reflection.

Combining Therapies for Emotion Regulation: Engage in exercises that integrate quality of life insights with phototherapy to enhance emotion regulation skills.

Targeting Depression: Focus on identifying and addressing depressive symptoms through combined therapy exercises.

Managing Anxiety: Utilize both therapeutic approaches to develop strategies for managing and reducing anxiety.

Advanced Integration and Skill Enhancement: Implement more complex activities that fuse both therapies for deeper emotional insight and resilience building.

Review, Reflect, and Plan Forward: Consolidate skills learned, reflect on progress, and develop a plan for applying these strategies beyond therapy sessions.

2.4. *Data analysis*

Descriptive statistics (mean and standard deviation) and inferential statistics (analysis of variance with repeated measures) were used for data analysis.

3. Findings and Results

Results from Table 1 indicate that the post-test and follow-up scores for emotion regulation, depression, and anxiety of the experimental group have changed compared to the control group. To examine the significance of this difference, considering that each subject was tested three times for emotion regulation, depression, and anxiety and the data became correlated, repeated measures analysis of variance was used.

Table 1

Means and Standard Deviations of Emotion Regulation, Depression, and Anxiety by Group

Variable	Group	Pre-test Mean (SD)	Post-test Mean (SD)	Follow-up Mean (SD)
Emotion Regulation	Experimental	109.06 (18.17)	79.66 (11.61)	77.00 (16.45)
	Control	107.66 (15.46)	118.60 (18.83)	115.06 (16.32)
Depression	Experimental	49.20 (16.07)	29.66 (3.88)	30.60 (9.88)
	Control	50.13 (13.19)	49.26 (10.61)	48.46 (10.61)
Anxiety	Experimental	39.80 (15.14)	31.53 (4.71)	27.86 (6.90)
	Control	44.73 (9.23)	47.86 (9.06)	37.40 (5.12)

The Shapiro-Wilk test was utilized to check for the normality of the data scores, and the results showed that the data on emotion regulation, depression, and anxiety were normal across all three measures, thus fulfilling the prerequisite for the use of repeated measures analysis of variance. To examine the equality of variances for emotion regulation, depression, and anxiety between the two groups, the Levene's test was used. The results of this test for depression ($F = 8.11$, $P = 0.110$), for anxiety ($F = 7.35$, $P = 0.056$), and for emotion regulation ($F = 9.99$, $P = 0.620$).

The results of the Levene's test indicated that the variances for emotion regulation, depression, and anxiety do not significantly differ between the two groups, thus fulfilling the prerequisite for the use of repeated measures analysis of variance. To examine the equality of covariances for emotion regulation, depression, and anxiety between the two groups, Box's test was utilized. The results showed that the difference in covariance for emotion regulation, depression, and anxiety between the two groups across the three measurements was not significant, thus also fulfilling the prerequisite for the use of repeated measures analysis of variance. To examine the equality of variances for emotion regulation, depression, and anxiety across the three measurement stages in total, Mauchly's test was used. The results of Mauchly's test indicate that the variances of the dependent variables across the three stages do not significantly differ as a whole, thus fulfilling the prerequisite for the use of repeated measures analysis of variance ($p < 0.01$). Table 2 shows the results of the repeated measures analysis of variance for emotion regulation, depression, and anxiety by group.

Table 2

Results of Repeated Measures Analysis of Variance for Emotion Regulation, Depression, and Anxiety in Psychosomatic Patients by Group

Source of Variation	Variable	Sum of Squares	df	Mean Square	F	Significance	Eta Squared	Power
Within Subjects	Emotion Regulation	2376.267	2	1188.133	4.821	.012	.147	.777
		Time*Group	8026.756	2	4013.378	16.284	.001	.368
		Error	13801.644	56	246.458			
Between Subjects	Group	14414.678	1	14414.678	47.621	.000	.630	1.00
Within Subjects	Depression	2067.289	2	1033.644	10.596	.000	.275	.985
		Time*Group	1595.467	2	797.733	8.178	.001	.226
		Error	5462.578	56	97.546			
Between Subjects	Group	3686.400	1	3686.400	19.709	.000	.413	.990
Within Subjects	Anxiety	1493.267	2	746.633	9.761	.000	.259	.978
		Time*Group	493.400	2	246.700	3.225	.047	.103
		Error	4283.333	56	76.488			
Between Subjects	Group	2371.600	1	2371.600	25.338	.000		

According to the contents of Table 2, based on the scores obtained from "Integrated Quality of Life-Based Therapy with Phototherapy," the main effect of the time factor for all variables, namely emotion regulation, depression, and anxiety, is significant. This means that the estimated means of the scores for emotion regulation, depression, and anxiety

of psychosomatic disorder patients from the pre-test phase to the post-test and follow-up phase show a significant difference overall ($p < 0.05$).

The main effect of group membership for emotion regulation, depression, and anxiety was found to be significant. This means that the research groups show a significant difference in terms of scores for emotion regulation, depression, and anxiety of psychosomatic disorder patients overall ($p < 0.05$), and the training has been effective in improving the dependent variables. The interaction of the time factor and group membership (research conditions) was statistically significant. This means that the trend of changes in scores for emotion regulation, depression, and anxiety of psychosomatic disorder patients from pre-test to post-test among groups has been significantly different ($p < 0.05$). This finding implies that the effect of the training over time from pre-test to follow-up has been effective. The statistical power for emotion regulation is 0.999 and for depression is 0.951, indicating an appropriate sample size for such a conclusion. Additionally, the eta coefficient shows that 36.8% of the changes in emotion regulation and 22.6% of the changes in depression are related to the integrated therapy based on quality of life with phototherapy, and a statistical power less than the threshold of 0.8 (equivalent to 0.593) for anxiety in the work indicates a probability level of about 10.3% and a low effect size, suggesting that a larger sample size is needed for a more definitive conclusion.

4. Discussion and Conclusion

The aim of this study was to evaluate the effectiveness of integrating quality of life-based therapy with phototherapy in improving emotion regulation, depression, and anxiety among psychosomatic disorder patients. The results demonstrated significant improvements in emotion regulation, depression, and anxiety in the experimental group compared to the control group, indicating the efficacy of the combined therapeutic approach.

The results emphasize the significant role of innovative and integrative therapeutic approaches, such as phototherapy and psycho-motivational training, in enhancing emotional regulation, coping mechanisms, and overall psychological well-being. Studies like those by Aypak et al. (2017) and Burton & Elliott (2023) highlight the efficacy of art-based therapies in managing chronic psychiatric disorders and stress-related issues, respectively (Aypak et al., 2017; Burton & Elliott, 2023). Furthermore, the research underscores the importance of addressing the complex interplay between psychological disorders and somatic symptoms, advocating for a holistic approach to mental health treatment. The effectiveness of these interventions in diverse settings, including oncology and chronic pain management, as shown in studies by Javaloyes et al. (2022) and Romero-Godoy et al. (2022), suggests the need for continued exploration and application of these therapeutic modalities to improve patient outcomes (Javaloyes et al., 2022; Romero-Godoy et al., 2022).

The studies by Davoodi et al. (2018) and Grassi, Caruso, & Nanni (2013) further highlight the significance of targeting emotion regulation strategies to mitigate the burden of depression, somatization disorder, and other related conditions (Davoodi et al., 2018). The utilization of psycho-motivational training, as explored by El-Azzab, Ali, & Othman (2022), emphasizes the role of enhancing social skills in the broader context of improving mental health and well-being (El-Azzab et al., 2022). These interventions are crucial in fostering a holistic treatment paradigm that addresses both the psychological and somatic symptoms experienced by patients.

Moreover, the literature indicates a growing recognition of the need for personalized and innovative therapeutic modalities that cater to the diverse needs of individuals with psychiatric and somatic disorders. The positive outcomes associated with these interventions, as demonstrated in oncological settings and chronic pain management, suggest their applicability across a wide range of clinical contexts. This adaptability underscores the potential of integrated therapies in contributing significantly to the field of mental health care.

Furthermore, the statistical power and effect sizes reported in the referenced studies provide robust evidence for the efficacy of these therapeutic interventions. The considerable variance explained by the treatments in terms of improvements in emotion regulation, depression, and anxiety highlights the substantial impact of these approaches on patient outcomes. This evidence base supports the continued exploration and application of innovative therapeutic strategies in clinical practice.

In conclusion, the integration of quality of life-based therapy with phototherapy represents a significant advancement in the treatment of psychiatric disorders, offering new avenues for enhancing emotional regulation and alleviating depression and anxiety. The findings from the referenced studies advocate for a comprehensive approach to mental health care that incorporates innovative

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E-ISSN: 3041-9026

and personalized therapeutic modalities. As the field continues to evolve, further research is necessary to refine these interventions and fully understand their long-term benefits across diverse patient populations.

Limitations of this study include a relatively small sample size and the lack of long-term follow-up to assess the durability of treatment effects. Future research should consider larger, more diverse samples and extended follow-up periods to validate and expand upon these findings. Additionally, incorporating control groups receiving each therapy separately could help isolate the specific contributions of quality of life-based therapy and phototherapy to patient outcomes.

For future research, it would be beneficial to explore the mechanisms through which quality of life-based therapy and phototherapy exert their beneficial effects on emotion regulation, depression, and anxiety. Investigating patient characteristics that predict positive outcomes may also provide insights into tailoring treatments to individual needs.

In practice, the findings suggest that clinicians should consider integrating quality of life-based therapy with phototherapy as a holistic treatment approach for patients with psychosomatic disorders. Training and resources should be made available to healthcare professionals to implement these therapies effectively, ensuring that patients receive comprehensive care that addresses both their psychological and somatic symptoms.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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