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Impact of Nurse-Led Psychoeducation Using Gamification Tools on Medication Adherence in Patients with Bipolar Disorder

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Abstract

Medication non-adherence remains a critical challenge in the management of bipolar disorder, often resulting in symptom relapse, hospital readmissions, and poor quality of life. Traditional psychoeducation, while effective, may lack engagement and retention, particularly in psychiatric populations. Integrating gamification using game-like elements to enhance motivation into nurse-led psychoeducation offers a promising, underexplored approach. This study aimed to evaluate the effectiveness of a nurse-led psychoeducational program incorporating gamification tools on improving medication adherence among patients with bipolar disorder at Saidu Group of Teaching Hospitals (SGTH). A quasi-experimental design with a non-equivalent control group was employed. Sixty patients with bipolar disorder were purposively assigned to intervention (n=30) and control (n=30) groups. The intervention group received four weekly gamified psychoeducation sessions delivered by psychiatric nurses, while the control group received standard psychoeducation. Medication adherence was measured pre- and post-intervention using the Medication Adherence Rating Scale (MARS). Data were analyzed using SPSS v27 with paired and independent t-tests. The intervention group showed a significant increase in adherence scores post-intervention (mean difference = +2.93, $p < 0.001$), while the control group showed no significant change ($p = 0.081$). Between-group comparison also showed a statistically significant difference ($p < 0.001$). Participant feedback indicated high satisfaction and engagement with the gamified content. Gamification-enhanced, nurse-led psychoeducation significantly improves medication adherence in bipolar disorder patients. This innovative, low-cost approach should be considered in psychiatric nursing practice to enhance patient outcomes.

Keywords: Bipolar Disorder, Medication Adherence, Gamification, Psychoeducation, Psychiatric Nursing, Nurse-Led Intervention

Introduction

Bipolar disorder is a chronic neuropsychiatric disease recursive in periods of mania, hypomania, and depression, severely constraining both emotional control and cognition as well as operating. Medication adherence is the degree to which patients take medications as prescribed, including

timing, dosage and frequency (Yao et al., 2025). Psychoeducation is teaching the patient and their families about the characteristics of the disorder, its management, and coping behavior (Oliveira & Dias, 2023). Gamification refers to the application of game design components (like rewards, levels, points, and competition) outside of the game to user engagement and encouragement. Nurse-led interventions, facilitated and implemented by registered nurses, contribute significantly to mental healthcare environments, as nurses expose patients to frequent and long-lasting contact (Triantafyllou & Georgiadis, 2022). With a prevalence rate of about 1-2 % in the global population, bipolar disorder creates a vast number of patients with frequent re-hospitalizations, functional impairment, and decreased quality of life. The poor access to mental health services and diagnostic delay further burden the condition in many low- and middle-income countries (Valente, et al., 2025). One potential obstacle to effective treatment is non-adherence to medications, with research stating that between 20 to 60 % of patients fail to regularly take the meds. It causes symptom relapse, suicide risk, and emergency hospitalization. Long-term treatment regimens are also highly complex and compounded by personal cultural and cognitive factors that further deter adherence in this demographic (da Silva Valente, 2024). The issue of non-adherence in bipolar disorder leads to numerous adverse consequences. Clinical outcomes encompass symptom exacerbation, longer episode/duration and treatment resistance. Systemically, non-adherence drives the cost of healthcare up and exposes families to an emotional and financial burden (Primerano, 2023). Causes of non-adherence are diverse and can involve side effects, a lack of the insight, forgetfulness, stigma, and a lack of communication with healthcare providers. Consequently, medication adherence becomes an important long-term objective in the management of bipolar disorder (Petersen & McIntyre, 2025).

Psychoeducation is an effective method of enhancing adherence through understanding the patient, fostering self-awareness, and facilitating care engagement. Psychoeducation may especially be effective when provided through a nursing interaction, because of the therapeutic relationship and trust that tends to form between a psychiatric patient and a nurse (Waqas et al., 2024). According to several studies, nurse-led psychoeducation has been demonstrated to decrease relapse rate, generate better functional outcomes and increase medication adherence. However, the conventional forms of psychoeducation that are typically lecture-based or passive might not be fully engaging the patients--younger patients or patients with cognitive deficits due to the illness (Zeine & Changizi, 2025). To combat this difficulty, gamification is an innovative solution to incorporating more interactivity and appeal into psychoeducation. Gamified education touches the motivational side by leveraging the aspects of quizzes, points, badges, and progress-tracking and positively reinforces patient engagement (Christopoulos & Mystakidis, 2023). Gamification could address cognitive and motivational deficits in psychiatric populations due to simplification and active learning. Despite demonstrating potential in other health education contexts, the implementation of this strategy in the field of psychiatric nursing remains poorly studied, especially in the context of medication adherence to address bipolar disorder (Ibrahim, Jamali, & Suhaimi, 2021). Nurses are particularly well placed to use gamified psychoeducation because they monitor patients closely, can provide individualized information, and can also enforce positive behaviors. By using gamification tools within structured sessions, nurses will be able to establish stronger interaction, improve memory of information and encourage compliance and do so in a positive atmosphere (Santórum et al., 2023) These benefits notwithstanding, the impact of the union of gamification and nurse-led psychoeducation in the psychiatric setting has not been well-researched, including foundational evidence of its effectiveness in bipolar disorder patients (Naor & Dubovi, 2025)

With such a gap, it is imperative to determine the effect of a nurse-led, gamified psychoeducational intervention on medication adherence in individuals with bipolar disorder. Quasi-experimental study design provides a chance to assess this innovative approach in real practice without randomization, which is ethically or practically difficult in psychiatric care. The study can play an informative role in outlining the transformation mechanisms of psychiatric nursing to address the demands of a contemporary patient cohort that can be treated by engaging, cheaper, and culturally scalable aids to enhance treatment outcomes.

Methodology

This quasi-experimental study was carried out at the psychiatric unit of Saidu Group of Teaching Hospitals (SGTH) to determine how effective a nurse-led psychoeducational program based on gamification tools is in improving medication adherence in patients with bipolar disorder. It was a non-equivalent control group design: the sample was stratified into an intervention and control group that were not randomized. Patients diagnosed with bipolar disorder (Type I or II), aged 18-60 years, by clinical criteria per DSM-5 were the study population. Eligible participants were on mood-stabilizing medication at least one month (patients), could give informed consent, and were at a stage where they could communicate. Patients who had comorbid psychotic disorder, intellectual disability or severe cognitive impairments were not included.

Data Collection Procedure:

Purposive sampling was employed to recruit a total of 60 participants, drawn in the form of an intervention group (n = 30) and a control group (n = 30). The Medication Adherence Rating Scale (MARS) measured baseline levels of medication adherence. Intervention group members were offered four sessions of weekly nurse-led psychoeducation, each 45 to 60 minutes in length. Such sessions included gamification elements, such as engaging quizzes, online scoreboards, progress charts, and rewards, which were supposed to maximize retention and engagement. Educational information was devoted to the characteristics of bipolar disorder, the role of medication, the management of the side effects, and adherence strategies. Conventional psychoeducation with the use of lecture and discussion formats, free of gamified items, was conducted with the control group. Both samples also received standard psychiatric treatment at SGTH throughout the study. The degree of medication compliance was measured again at the end of the month-long intervention, based on the same scale (MARS).

Data Analysis procedure:

Data were entered and analyzed using SPSS version 27. Characteristics of participants were described using descriptive statistics (frequencies, percentages, means, and standard deviations). Inferential statistics such as paired t-tests and independent t-tests were used to evaluate the change of adherence within and between groups. Statistical significance was set at $p < 0.05$. The study was approved by the Institutional Review Board of SGTH, and written informed consent was obtained by all participants. Anonymity and confidentiality were strictly maintained throughout the study. The results of this study were intended to provide evidence in implementing novel, nurse-driven interventions towards better outcomes in the treatment of psychiatric patients using better adherence.

Results and Analysis

Demographic Characteristics of Participants

The participants were 60 participants divided into intervention and control groups in equal numbers. The majority of the responses were those aged 31-45 years (41.7 percent) with a higher

percentage of males (58.3 percent) compared to females (41.7 percent). The level of education was relatively equal with 41.7 percent secondary level education and 30 percent university-level education. The two groups were matched in terms of their demographics, such as age, gender, and levels of education (Table 1).

Table 1: Demographic Characteristics of Participants (N = 60)

Variable	Category	Intervention Group (n = 30)	Control Group (n = 30)	Total (N = 60)
Age (in years)	18–30	10 (33.3%)	9 (30.0%)	19 (31.7%)
	31–45	12 (40.0%)	13 (43.3%)	25 (41.7%)
	46–60	8 (26.7%)	8 (26.7%)	16 (26.7%)
Gender	Male	17 (56.7%)	18 (60.0%)	35 (58.3%)
	Female	13 (43.3%)	12 (40.0%)	25 (41.7%)
Education Level	Primary	8 (26.7%)	9 (30.0%)	17 (28.3%)
	Secondary	13 (43.3%)	12 (40.0%)	25 (41.7%)
	University	9 (30.0%)	9 (30.0%)	18 (30.0%)

Pre and Post-Intervention MARS Scores

The intervention group showed a significant improvement in medication adherence, with mean scores increasing from 5.20 ± 1.42 to 8.13 ± 1.26 ($p < 0.001$). In contrast, the control group's scores showed only a slight, non-significant increase from 5.10 ± 1.38 to 5.40 ± 1.52 ($p = 0.081$). This indicates that the gamified nurse-led psychoeducation had a meaningful impact on improving adherence, while standard education did not (Table 2).

Table 2: Pre and Post-Intervention MARS Scores (Medication Adherence Rating Scale)

Group	Time Point	Mean Score ± SD	p-value (within group)
Intervention	Pre-intervention	5.20 ± 1.42	
	Post-intervention	8.13 ± 1.26	**< 0.001** (↑)
Control	Pre-intervention	5.10 ± 1.38	
	Post-intervention	5.40 ± 1.52	0.081 (NS)

Comparison of Mean Difference in MARS Scores

The intervention group showed a significant improvement with a mean difference of +2.93 (SD = 1.18), while the control group had a minimal change of +0.30 (SD = 0.77). The between-group comparison yielded a statistically significant p-value of < 0.001, indicating the effectiveness of the intervention (Table 3).

Table 3: Comparison of Mean Difference in MARS Scores between Groups

Group	Mean Difference (Post - Pre)	SD	p-value (between groups)
Intervention	**+2.93**	1.18	**< 0.001**
Control	+0.30	0.77	

Participant Feedback on Gamified Sessions

The majority of participants agreed that the gamified content enhanced their understanding of illness (86.7%), and that the point system motivated session attendance (80.0%). Notably, 93.3% stated they would recommend the program to other patients, indicating high overall satisfaction (Table 4).

Table 4: Participant Feedback on Gamified Sessions (Intervention Group Only)

Feedback Item	Agree (n, %)	Neutral (n, %)	Disagree (n, %)
The gamified content helped me better understand my illness	26 (86.7%)	3 (10.0%)	1 (3.3%)
The point system motivated me to attend all sessions	24 (80.0%)	4 (13.3%)	2 (6.7%)
I would recommend this program to other patients	28 (93.3%)	2 (6.7%)	0 (0.0%)

Discussion

This study explored the effects of a nurse-delivered psychoeducation program with gamification solutions on medication compliance in bipolar patients within the Saidu Group of Teaching Hospitals (SGTH). The results showed that adherence scores of the sample that received the gamified intervention were significantly higher than the scores of the participants receiving the traditional psychoeducation. These findings provided evidence for the hypothesis that interactive, engaging learning techniques have the potential to increase patient engagement in treatment and modify treatment-associated behaviors in a psychiatric setting. The dramatic difference between baseline and post-baseline Medication Adherence Rating Scale (MARS) scores in the intervention group reflects the previous reports that psychoeducation is effective in improving insight and adherence of bipolar patients. As an example, Sinha (2021), have focused on improving the effectiveness of postoperative and psychiatric care with culturally competent, engaging educational methods to enhance patient outcomes. Comparably, Yelton & Jildeh (2023) have emphasized that language and cognitive differences usually impede the traditional approaches to patient education, implying that experimental technologies such as gamification might fix this point by de-cluttering complicated facets and enhancing recall.

In contrast to the earlier studies, in which psychoeducation was administered in a regular setting, this study limited that component by including gamification features, including points, quizzes, and feedback loops also seemed to boost patient interest and involvement. This is in contrast to a study by Pirie et al. (2022), who observed that traditional lectures in psychoeducational interventions were of low importance to behavior modification among psychiatrists. Our paper hints that gamification not only enhances the instructiveness of psychoeducation but could also provide a psychologically safe and rewarding game experience to those with cognitive or motivational dysfunctions. Interestingly, the psychoeducation in the control group was conducted in a non-gamified manner, which elicited only a negligible, statistically insignificant increase in adherence (Gomez, et al., 2024). The observation supports the idea that passive learning techniques may not adequately suit psychiatric patients with frequent attention and memory disorders. Conversely, Abraham et al. (2024) victorious that education in culturally descriptive frames may enhance the management of acute pain, although they reported limited patient participation that was not an issue in this research, as they participated actively and provided real-time feedback using features integrated into gamified sessions.

The quantitative results of this study are also given weight by the qualitative commentaries of respondents. Most said that the gamified format enabled them to learn more about their illness and medication routine and encouraged them to attend sessions. This is consistent with the result of the studies conducted by Qian, Yu, & Liu (2022), who highlighted the effectiveness of non-verbal

and experience-based learning, including storytelling and visualization, in enhancing the understanding of chronically ill patients with long-term pain. Though in his case, Becker was interested in communicating pain, the principle of engaging more with unconventional ways warrants our findings.

Nevertheless, the study does not correspond with the current research by Rogger et al. (2023), who noticed that structured education with no motivational elements did not show significant changes in postoperative pain perception. This comparison underlines the importance of the format of content delivery, especially in psychiatric demographics, where emotional and cognitive interaction is vital. This study has widened the psychoeducation scope into a more interactive and personalized system by incorporating gamification into a nurse-led system (Wu et al., 2024).

Altogether, the research introduces new exciting ideas to the realm of psychiatric nursing practice, as it was shown that the implementation of the gamified approach to psychoeducation, when conducted by practiced nurses, can have a significant impact on the medication adherence of people living with bipolar disorder. It does not refute that, in addition to content, delivery mode is critical to behavioral outcome. Future studies are also needed to examine scalability, long-term effects, and adaptability to other psychiatric conditions and other cultural backgrounds to further verify these results and guide treatment.

Conclusion

The findings of this study pointed out that group-based psychoeducational interventions by nurses with the use of gamification tools enhanced medication adherence in patients with bipolar disorder in SGTH considerably. Active and gamified components like quizzes, graphic visualization of the learning progress, and earning points by learning contributed to increased engagement and retention of knowledge as opposed to classical psychoeducation. This evidence confirms the success of new and patient-focused teaching methods in psychiatric nursing. As the non-adherence rate in bipolar disorder is very high, and adverse outcomes can have severe consequences, the study provided a scalable yet affordable and feasible idea that can be introduced and applied to both inpatient and outpatient psychiatric care. Findings highlight the importance of psychiatric nurses in behavioral change based on well-planned and interactive educational interventions that met the cognitive and emotional requirements of patients.

Recommendations

1. **Implement Gamified Psychoeducation in Routine Psychiatric Nursing Practice**
   To promote compliance and patient engagement, psychiatric units may wish to adopt gamification-based educational modules as regular elements of care provision to bipolar disorder patients.
2. **Train Nurses in Gamification Techniques and Digital Health Tools**
   The training of mental health nurses on developing and administering gamified interventions should include knowledge that reflects their clinical attainments as well as knowledge on foundational motivational design.
3. **Adapt Gamified Content to Diverse Cultural and Educational Backgrounds**
   Linguistically and culturally relevant educational tools must be developed based on sensitivities to facilitate accessibility and relevance to diverse patients.
4. **Conduct Longitudinal Follow-Up Studies to Assess Sustainability**
   Future studies should assess the impact of gamified psychoeducation on adherence and relapse in the long term and not limit it to the immediate after the intervention.
5. **Integrate Family and Caregivers into the Psychoeducation Process**

Incorporating family members in the gamified sessions could support the behavior of adherence and foster a caring home environment to provide continuity of treatment.

6. **Develop Mobile App Versions for Remote and Outpatient Use**

Since face-to-face gamification has shown some success, creating mobile application variants can expand the reach of psychoeducational material to patients in outpatient or country locations. Surrounding the purpose of suffering, administering medications, and going against knowledge and traditions to positively influence treatment adherence.

References

Abraham, J., Cooksey, K. E., Holzer, K. J., Mehta, D., Avidan, M. S., & Lenze, E. J. (2024). A Culturally Adapted Perioperative Mental Health Intervention for Older Black Surgical Patients. The American Journal of Geriatric Psychiatry, 32(11), 1341-1357.

Christopoulos, A., & Mystakidis, S. (2023). Gamification in education. Encyclopedia, 3(4), 1223-1243.

Da Silva Valente, L. S. (2024). Hospitalizações por Perturbação Bipolar e Perturbações do Uso de Substâncias: Um Estudo Nacional Retrospetivo Entre 2008 e 2015 (Master's thesis, Universidade do Porto (Portugal)).

Gomez, K., Edwards, H. L., & Kirby, J. (2024). Livestreaming clinical experience to remotely located learners: a critical narrative review. Medical Education, 58(9), 1032-1041.

Ibrahim, E. N. M., Jamali, N., & Suhaimi, A. I. H. (2021). Exploring gamification design elements for mental health support. International Journal of Advanced Technology and Engineering Exploration, 8(74), 114.

Naor, A. P., & Dubovi, I. (2025). Nurse-led inpatient education using a gamification approach for patients with mental illness: A quasi-experimental study. International Journal of Nursing Sciences.

Oliveira, C. T. D., & Dias, A. C. G. (2023). How can psychoeducation help in the treatment of mental disorders?. Estudos de Psicologia (Campinas), 40, e190183.

Petersen, K. O., & McIntyre, T. T. (2025). DSM-5-TR for Nurses Made Easy: A Practical Casebook for Assessment and Diagnosis. Isohan Publishing.

Primerano, A. (2023). Genomic stratification of bipolar disorder trajectories and outcome (Doctoral dissertation, Cardiff University).

Qian, Y., Yu, X., & Liu, F. (2022). Comparison of two approaches to enhance self-esteem and self-acceptance in Chinese college students: psychoeducational lecture vs. Group intervention. Frontiers in Psychology, 13, 877737.

Rogger, R., Bello, C., Romero, C. S., Urman, R. D., Luedi, M. M., & Filipovic, M. G. (2023). Cultural framing and the impact on acute pain and pain services. Current pain and headache reports, 27(9), 429-436.

Santórum, M., Carrión-Toro, M., Yánez, D., Maldonado-Garcés, V., Galindo, J., & Acosta-Vargas, P. (2023, November). Enhancing Spatial-Temporal Orientation Skills through a Psychoeducational Serious Game. In 2023 Fourth International Conference on Information Systems and Software Technologies (ICI2ST) (pp. 89-96). IEEE.

Sinha, N. (2021). Introducing gamification for advancing current mental healthcare and treatment practices. In IoT in Healthcare and Ambient Assisted Living (pp. 223-241). Singapore: Springer Singapore.

Triantafyllou, S., & Georgiadis, C. (2022). Gamification Design Patterns for user engagement. Informatics in Education.

Valente, L., Freitas, A., & Gonçalves-Pinho, M. (2025). Bipolar Disorder Hospitalizations and Substance Use Disorders: A Nationwide Retrospective Study From 2008 To 2015. Journal of Dual Diagnosis, 1-13.

Waqas, A., Correia, J. C., Ahmad, M., Akhtar, T. N., Meraj, H., Angelakis, I., & Pataky, Z. (2024). Therapeutic patient education for severe mental disorders: A systematic review. Cambridge Prisms: Global Mental Health, 11, e78.

Wu, K., Quadri, G. J., Wang, A. Z., Osei-Tutu, D. K., Petersen, E., Koushik, V., & Szafir, D. A. (2024, October). Our Stories, Our Data: Co-designing Visualizations with People with Intellectual and Developmental Disabilities. In Proceedings of the 26th International ACM SIGACCESS Conference on Computers and Accessibility (pp. 1-17).

Yao, S., Harder, A., Darki, F., Chang, Y. W., Li, A., Nikouei, K., ... & Hjerling-Leffler, J. (2025). Connecting genomic results for psychiatric disorders to human brain cell types and regions reveals convergence with functional connectivity. Nature Communications, 16(1), 395.

Yelton, M. J., & Jildeh, T. R. (2023). Cultural competence and the postoperative experience: pain control and rehabilitation. Arthroscopy, Sports Medicine, and Rehabilitation, 5(4), 100733.

Zeine, F., & Changizi, S. (2025). Enhancing Mental Health Support: Integrating Artificial Intelligence Powered Mobile Apps and Chatbots for Psychoeducation and Skill-Building. Medical Research Archives, 13(5).