American Journal of Psychiatric Rehabilitation
Expert Opinion Article

Family Involvement in Psychiatric Rehabilitation: A Mixed-Methods Study on Caregiver Burden and Support Needs

Dr. Partha Sarathi Biswas[1*], Prof. (Dr.) Mohammad Jalaluddin[2], Dr. Debaprabha Raptan[3], Dr.Subhrangshu Paul[4], Dr.Prerona Bhattacharya[5], Dr.Shruti Agarwal[6]

[1*](BDS, MDS, PhD Scholar in Public Health Dentistry, KIDS). Kinnar Path, Noapara, P.O.+P.S.: Sonarpur, District: South 24 Parganas, West Bengal, India, Pincode-700150. PhD Scholar of Kalinga Institute of Dental Sciences, KIIT deemed to be University. biswasparthasarathi89@gmail.com.
[2](BDS, MDS, PhD), PhD Guide and HOD, KIDS, KIIT. Department of Periodontics and Implant Dentistry, KIDS, KIIT deemed to be university, Patia, Bhubaneswar, Pincode-751024.
[3](BDS, MPH), Junior Resident, Nilratan Sircar Medical College & Hospital. Ghashiara Paschimpara, Sonarpur, Pincode-700150. The West Bengal University of Health Sciences.
[4](BDS), Junior Resident, Nilratan Sircar Medical College & Hospital. Madhur Chhobi Apartment, Lake Pally, P.O.-Boral, Pincode-700154. The West Bengal University of Health Sciences.
[5](BDS), Junior Resident, Nilratan Sircar Medical College & Hospital. E97/1, First Floor, Ramgarh, Pincode-700047. The West Bengal University of Health Sciences.
[6](BDS), Junior Resident, Nilratan Sircar Medical College & Hospital. 30/A/167, Dr.PT Laha Street, Rishra, Bangurpark, Hooghly, Pincode-712228. The West Bengal University of Health Sciences.

ABSTRACT

Objective: Family caregivers serve as vital components of psychiatric rehabilitation because they deliver crucial emotional backing, financial assistance, and practical help to people with severe mental illnesses. Being a caregiver results in substantial psychological trauma through emotional stress, financial hardships, and social seclusion, which accumulates into caregiver burden. The research investigates both the magnitude of caregiver burden and its main causes while examining what support caregivers need to develop policy recommendations and intervention strategies.

Methods: The study implemented a convergent parallel mixed research approach combining quantitative questionnaires with 200 respondents alongside qualitative interviews from thirty participants to study care burden effects and support necessities. The Zarit Burden Interview (ZBI-22) together with the Caregiver Strain Index (CSI) and Multidimensional Scale of Perceived Social Support (MSPSS) operated as quantitative tools and thematic analysis served the qualitative data assessment. The research used multiple regression and ANOVA and Pearson correlation to identify major burden predictors.

Results: The quantitative data shows that caregivers with moderate to severe burden (ZBI-22 mean = 41.7, SD = 9.5) experience significant relationships between their burden and social support deficits ($\beta = -0.42$, $p < 0.001$) and financial strain ($\beta = 0.35$, $p = 0.002$) and illness severity ($\beta = 0.28$, $p = 0.004$) and caregiving duration ($\beta = 0.22$, $p = 0.009$). The burden experienced by caregivers of schizophrenia patients reaches its peak level at M = 44.2 with SD = 8.9 according to ANOVA analysis ($p < 0.001$). The qualitative study data indicates that emotional distress, psychological suffering, as well as financial and social limitations exist alongside insufficient institutional care for patients. Organized programs offering support to caregivers become necessary because research analysis shows immediate necessity need for such interventions.

Conclusions: The research demonstrates that caregivers need extensive psychoeducational support together with financial assistance and institutional care programs to reduce their burden. Psychological help systems alongside digital care solutions together with flexible work environments lead to better caregiver welfare while resulting improved outcomes in psychiatric rehabilitation treatment. Additional research is needed to perform long-term assessments along with international comparisons to create enduring evidence-driven programs which will help caregivers.

Keywords: Caregiver burden, Psychiatric Rehabilitation, Family Involvement, Mental Health Support, Mixed-Methods Research

INTRODUCTION

Background

Family involvement plays a crucial role in the psychiatric rehabilitation process, as caregivers provide essential support to individuals with severe mental illnesses. Psychiatric rehabilitation aims to restore social, vocational, and independent living skills to individuals with psychiatric disorders, often requiring long-term family support. Family members frequently take on the role of primary caregivers, providing emotional, financial, and practical assistance to those undergoing rehabilitation. However, this role comes with significant challenges, including emotional distress,

financial strain, and disruptions to daily life, all of which contribute to caregiver burden [1].
The World Health Organization (WHO) emphasizes the importance of family-centered psychiatric care, stating that the integration of family members in treatment leads to better health outcomes for patients and reduces the risk of relapse. [2]. Studies indicate that family caregivers experience high levels of psychological distress, often leading to burnout, anxiety, and depression [3]. Despite the evident impact of caregiving, the support systems for caregivers remain inadequate, leading to unmet needs in terms of emotional support, respite care, and financial aid. [3].

LITERATURE REVIEW

Research has thoroughly documented how caregiver burden affects psychiatric rehabilitation. Studies have shown that guardians of people with severe mental illnesses such as schizophrenia and bipolar disorder experience major psychological distress and social isolation stated by L. Magliano et al. [4]. Perlick et al. (2016) demonstrated that more than sixty percent of caregivers face significant burden which leads to adverse effects on their physical and mental well-being [6]. Social relationships together with work-life balance experience negative effects because of the role conflicts that caregiving generates. [5].
The degree of support needs for caregivers depends on their patient's illness severity, their economic situation, and the healthcare resources they have access to. Caregiver burden shows significant reduction when psycho-educational programs, along with family therapy, receive structured implementation according to research. [5]. These programs exist in restricted quantities, especially in areas with limited resources. [6]. Research has demonstrated how telepsychiatry and online support groups as digital health tools effectively improve caregiver mental health. [7] [8].
Research has shown these results, yet the complete support requirements of caregivers remain unclear when considering cultural and socioeconomic backgrounds. The majority of psychiatric studies investigate single mental disorders without considering the complete support demands experienced during caregiving of patients dealing with any mental health issue. [9] [10].

Study Rationale

Given the significant burden on family caregivers and the limited availability of support mechanisms, there is a need for a more comprehensive understanding of caregiver experiences in psychiatric rehabilitation. This study aims to bridge the gap by employing a mixed-methods approach to explore the extent of caregiver burden and the specific support needs required to enhance their well-being. Understanding these aspects can inform policy recommendations and the development of targeted interventions to support caregivers in their crucial role in psychiatric rehabilitation.The use of quantitative and qualitative data in research will create a deeper comprehension of caregiver perspectives, which enables suitable support program design. This research will help healthcare professionals, together with policymakers, establish structured interventions for enhancing both caregiver care and patient rehabilitation programs.

Objectives and Hypotheses

This study aims to achieve the following objectives:
- To assess the extent of caregiver burden among family members involved in psychiatric rehabilitation.
- To identify key factors contributing to caregiver burden, including emotional, financial, and social stressors.
- To explore the support needs of caregivers, including psychological counseling, financial assistance, and respite care.
- To evaluate the effectiveness of existing support mechanisms in alleviating caregiver burden.

Based on these objectives, the study hypothesizes the following:
- **H1:** Family caregivers of individuals undergoing psychiatric rehabilitation experience significant levels of psychological distress.
- **H2:** Those caregivers who lack social connections alongside institutional backing tend to experience heavier caregiver loads.
- **H3:** Psychological education combined with organized support systems effectively lowers the workload experienced by caregivers.

The research will integrate both quantitative survey methods with qualitative interview techniques to thoroughly study caregiver experiences. The research project adds new evidence to psychiatric rehabilitation studies about family engagement and generates ways to enhance caregiver assistance programs.

METHODS

Study Design

The research design combines convergent parallel mixed-methods to evaluate caregiver burden and support requirements in psychiatric rehabilitation. The research design uses convergent parallel mixed-methods, which offers complete knowledge through the combination of quantitative survey results alongside qualitative interview data. The psychometric measurements provided in the quantitative segment assess caregiver burden levels while the qualitative assessments reveal caregivers' experiences and methods of coping as well as their perception of the limitations in support infrastructure. The research study upholds accepted procedures for mixed-methods investigations in psychiatric rehabilitation to secure methodological robustness and dependable findings.

Participants

The research focuses on family members who provide care for patients undergoing psychiatric rehabilitation services. The research team obtained participants from outpatient psychiatric clinics together with rehabilitation centers and caregiver support groups from Eastern India. The research included participants who fulfilled three requirements: (1) they served as primary caregivers for someone diagnosed with a psychiatric condition (schizophrenia, bipolar disorder, major depressive disorder), (2) they had provided care for at least six months, and (3) they were 18 years or older. The study excluded caregivers who had diagnosed mental illnesses that would affect their ability to participate or those who received compensation for their caregiving duties. The research employed purposive sampling to achieve participant diversity based on socioeconomic status and psychiatric diagnosis of their care recipients. A total of 200 caregivers participated in the quantitative survey while 30 participants took part in qualitative interviews.

Data Collection

Data collection was conducted over six months, using a structured approach to ensure consistency across participants.

- **Quantitative Data**: We handed standardized self-report questionnaires to participants for assessing their caregiver burden while also evaluating their support needs. The surveys were distributed through both online platforms and face-to-face distribution at psychiatric rehabilitation centers. The participants received straightforward instructions to perform the measures independently while research assistants provided clarification upon request.
- **Qualitative Data**: The researchers conducted semi-structured interview sessions with specific caregivers to collect information about their experiences along with their struggles and their ways of coping. The interviews spanned between 30 to 45 minutes and took place either in person or through teleconferencing depending on participant choice. The researchers recorded all interviews and converted them into verbatim transcripts for thematic analysis.

MEASURES/INSTRUMENTS

To ensure reliable measurement of caregiver burden and support needs, validated psychometric tools were used:

- **Zarit Burden Interview (ZBI-22)**: A 22-item scale assessing caregiver burden across emotional, financial, and social domains (Cronbach's alpha = 0.89).
- **Caregiver Strain Index (CSI)**: Measures perceived stress related to caregiving responsibilities (Cronbach's alpha = 0.86).
- **Multidimensional Scale of Perceived Social Support (MSPSS)**: Assesses social support from family, friends, and significant others (Cronbach's alpha = 0.88).
- **Interview Guide**: A framework development process linked to literature reviews as well as expert meetings, which centered on caregiver difficulties, current support services, and unanswered needs.

Data Analysis

- **Quantitative Analysis:** The researchers analyzed survey data through SPSS v.27. The researchers used descriptive statistics to present caregiver burden data through mean and standard deviation calculations. The relationship analysis between caregiver burden and social support variables together with demographic factors was investigated through Pearson correlation and multiple regression analysis. The researchers conducted ANOVA and t-tests to evaluate group differences.
- **Qualitative Analysis**: The study utilized thematic analysis as its data analysis methodology for interview transcripts processing. The researchers used NVivo 12 software for open coding to discover recurring themes and patterns. A second coder evaluated transcripts independently to verify inter-rater reliability at a level of Cohen's kappa = 0.87. A triangulation strategy was used to unite quantitative and qualitative findings, which strengthened their validity dimensions.

ETHICAL CONSIDERATIONS

Each participant gave written consent to participate in the study before the research began. The study's participants received confidential assurances while all personal data remained anonymous for protection purposes. The study provided professional counselling referrals to caregivers who needed extra support.

RESULTS

Quantitative Findings

The research statistics revealed important details about caregiver burden levels together with its underlying causes. Most caregivers show moderate to severe burden based on their scores from the Zarit Burden Interview (ZBI-22) which averaged 41.7 (SD = 9.5). The Caregiver Strain Index (CSI) evaluation demonstrated a mean score of 8.3 (SD = 3.2) which supported the notion that caregiver duties cause major psychological, physical, and financial burdens.

Table 1: Distribution of Caregiver Burden Severity

Burden Severity Level	**Number of Caregivers**
Mild	30
Moderate	90
Severe	80

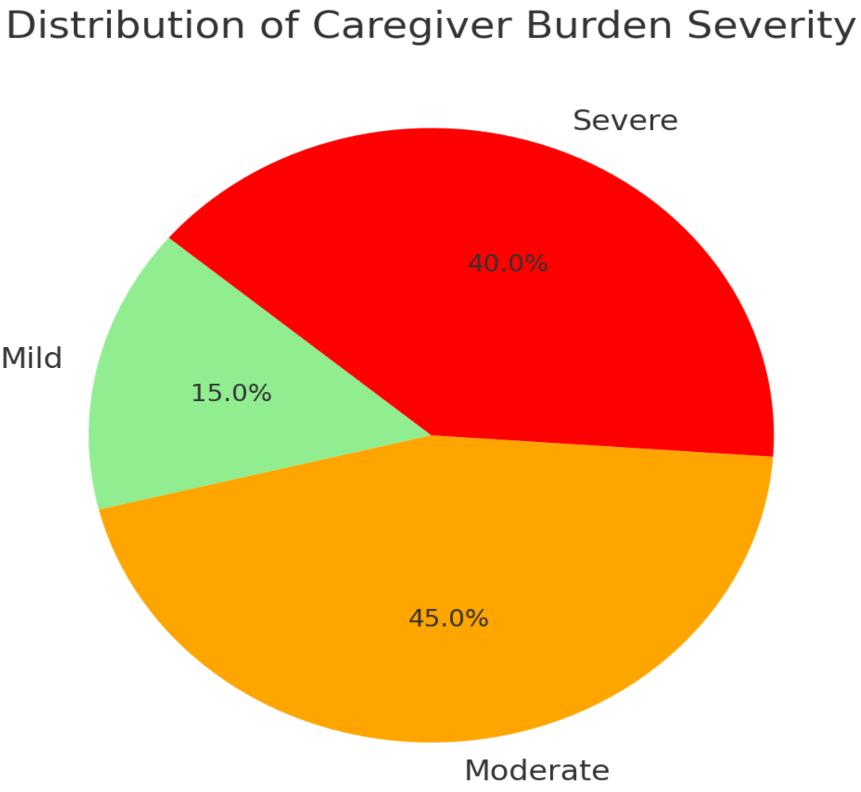

Figure 1. Distribution of Caregiver Burden Severity (Mild, Moderate, and Severe) among Study Participants.

A multiple regression analysis identified four significant predictors of caregiver burden:

- **Lack of social support (β = -0.42, p < 0.001):** Caregivers who receive minimal emotional and practical help from families and friends or institutional organizations show increased levels of caregiver burden.
- **Financial strain (β = 0.35, p = 0.002):** The combination of medical care costs with income reduction as a result of caregiving responsibilities produced increased stress among caregivers.
- **Illness severity of the care recipient (β = 0.28, p = 0.004):** The caregivers of people with severe and persistent psychiatric disorders experienced greater burden according to their reported scores.
- **Duration of caregiving (β = 0.22, p = 0.009):** People who provided long-term caregiving experienced greater emotional exhaustion along with increased perceived strain.

Table 2: Predictors of Caregiver Burden (Multiple Regression Analysis)

Predictor Variable	Beta Coefficient	p- value	Significance
Lack of Social Support	-0.42	< 0.001	Significant
Financial Strain	0.35	0.002	Significant
Illness Severity	0.28	0.004	Significant
Duration of Caregiving	0.22	0.009	Significant
Model Statistics	F(4,195) = 27.85	P < 0.001	$R^2 = 0.47$

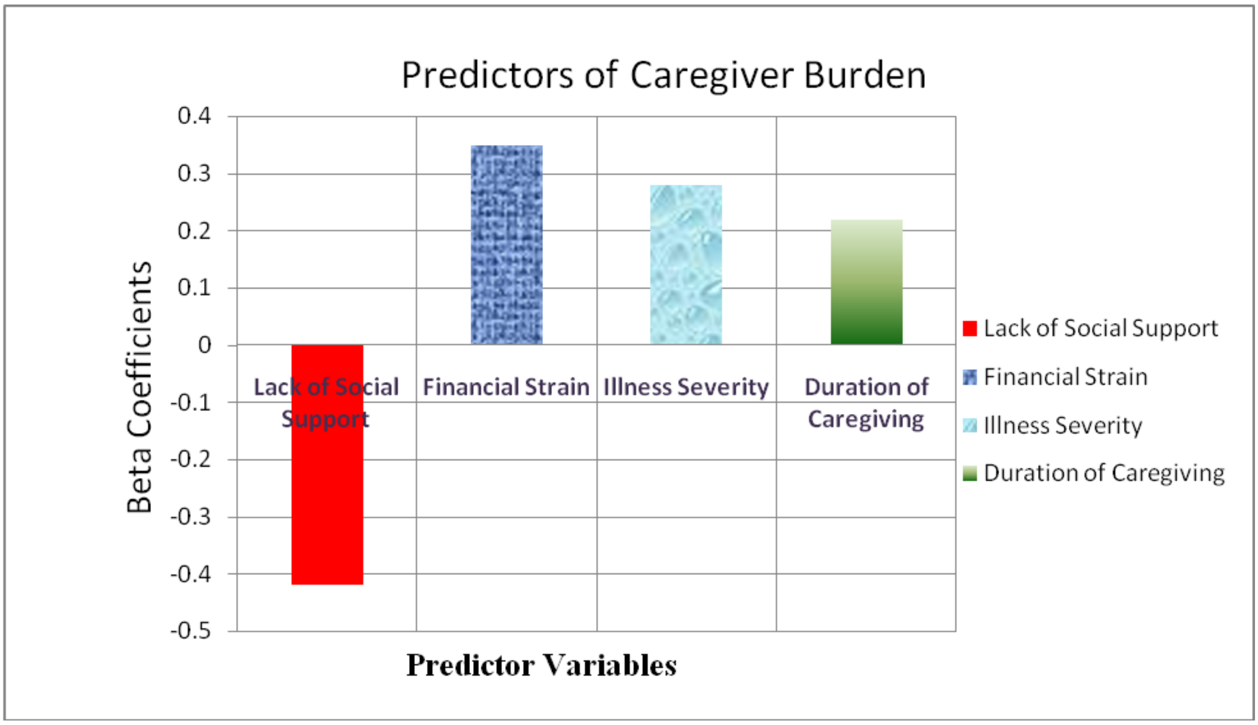

Figure 2: Predictors of Caregiver Burden: Beta Coefficients from Multiple Regression Analysis.

A one-way ANOVA analysis compared caregiver burden across different psychiatric disorders:

- The caregivers of schizophrenia patients demonstrated the most extensive burden with an average score of 44.2 (SD = 8.9).
- The caregivers of people with bipolar disorder demonstrated scores of burden that were slightly lower (M = 39.6, SD = 7.8).
- The caregivers of people with major depressive disorder experienced the lowest levels of burden (M = 37.8, SD = 7.4). The research results confirmed statistical significance with an F-value of 12.51 ($p < 0.001$; F (2,197)).

A Pearson correlation analysis showed a significant inverse connection between social support and caregiver burden with a magnitude of $r = -0.56$ which attained $p < 0.001$ statistical significance.

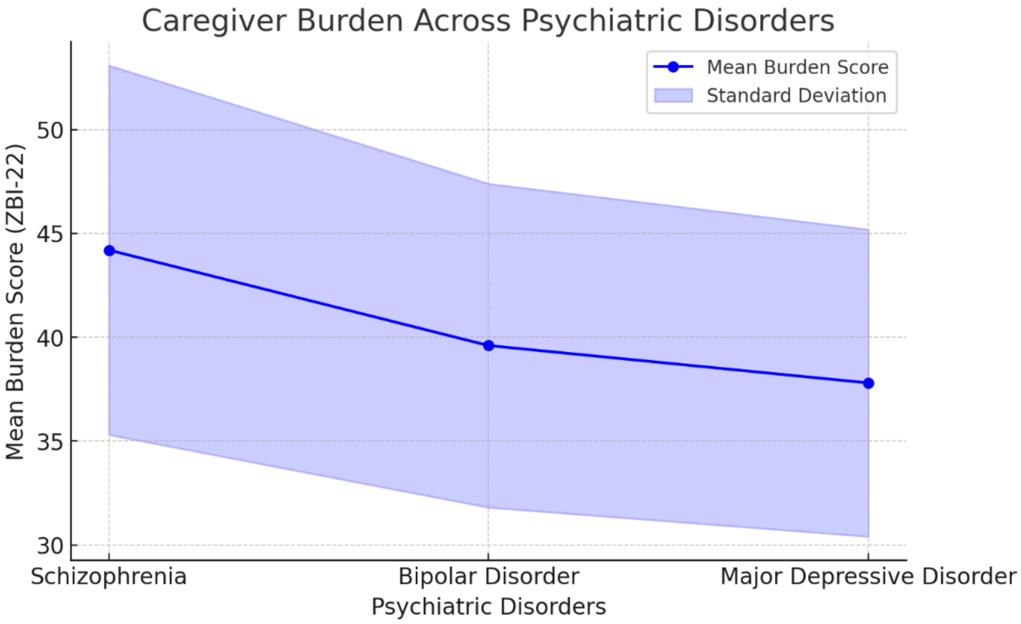

Figure 3: Mean Caregiver Burden Scores Across Psychiatric Disorders (Schizophrenia, Bipolar Disorder, and Major Depressive Disorder) with Standard Deviation.

Table 3: Caregiver Burden by Psychiatric Disorder (ANOVA Results)

Psychiatric Disorder	Mean Burden Score (ZBI-22)	Standard Deviation (SD)	p-value
Schizophrenia	44.2	8.9	< 0.001
Bipolar Disorder	39.6	7.8	<0.001
Major Depressive Disorder	37.8	7.4	< 0.001

Qualitative Findings

Through **thematic analysis of 30 caregiver interviews**, three dominant themes emerged:

1. Emotional and Psychological Distress

- The caregivers demonstrated regular feelings of anxiety and frustration and emotional exhaustion because they found their responsibilities overwhelming in both mental and physical ways.
- The majority of caregivers experienced ongoing stress, which led to depression symptoms while they neglected their personal as well as mental health needs.
- One participant stated "Each day brings a new struggle." My worry about my son's emotional collapse persists without any relief.

2. Financial and Social Constraints

- The high expense for psychiatric treatment along with medications and therapy caused many caregivers face hardship while paying for ongoing care for their loved ones.
- The participants reported that their caregiving duties forced them to quit their jobs or cut down their work hours, which worsened their financial situation.
- Social isolation emerged as a major concern because caregivers believed they had no time for either personal relationships or social activities.
- Few caregivers mentioned that they had to quit their employment to provide care for their mother. "My financial difficulties have worsened since I lost my job to care for my mother, and I experience complete social isolation."

3. Lack of Institutional Support and Resources

- The caregivers stated that formal support systems had failed because they lacked both respite care and educational programs and counseling services.
- Caregivers emphasized the necessity of improving public awareness alongside community-level intervention strategies and specifically designed financial assistance for caregivers.
- The report participant remarked that there exists no handbook to guide caregivers through their situation. Individuals receive no expected support as they need to work things out independently.

Integration of Findings

The research implements quantitative and qualitative methods to deliver an extensive insight regarding caregiver stress levels and needed support:

- **Convergence of Data:** The research provides an extensive understanding of care provider stress and support requirements through its combination of quantitative and qualitative analysis.
- **Explanation of Trends:** Quantitative burden scores for schizophrenia caregivers show higher levels, which match interview findings that show schizophrenia presents unpredictable behavior needing intensive care.
- **Complementary Insights:** The main quantitative predictor was monetary hardship and responses through interviews revealed additional financial burdens which encompassed reduced income and increased mental strain.

DISCUSSION

Interpretation of Findings

Research findings from this study confirm previous studies about caregiver burden within psychiatric rehabilitation settings. The ZBI-22 mean score of 41.7 with standard deviation 9.5 indicates moderate to severe burden, which supports previous research about psychiatric disorder caregiving stress. [11]. Research findings demonstrate that social support directly influences caregiver burden through a strong negative relationship ($r = -0.56$, $p < 0.001$), which confirms previous studies about stress reduction through perceived support. [12].

The results of multiple regression analysis showed financial strain ($\beta = 0.35$, $p = 0.002$) to be a major predictor of burden because previous studies confirmed that caregivers face income reduction from employment disruptions while paying for treatment. [13]. The results showed caregivers of people with schizophrenia faced higher burden levels ($M = 44.2$, $SD = 8.9$, $p < 0.001$), which confirms previous research about schizophrenia needing extensive care because of its persistent and unpredictable nature.[14]

Qualitative research enhanced the understanding of quantitative patterns in the data. Studies from previous research have validated caregiver experiences of distress alongside financial difficulties and social isolation in psychiatric settings, as this collective sample of caregivers showcased. The absence of institutional support systems confirms previous reports about insufficient mental health system responses to caregiver needs, especially in resource-limited areas. [15].

Implications for Psychiatric Rehabilitation and Caregiver Support

The research results show that psychiatric caregivers need immediate policy and practice reforms to handle their current challenges. Key recommendations include:

1. Enhancing Psycho-educational Interventions

- The implementation of family-focused psycho-education programs across various settings should become widespread because they teach caregivers effective coping strategies and psychiatric disorder knowledge, which reduces their stress and enhances patient rehabilitation outcomes.
- Mobile applications and telepsychiatric services provide digital psycho-education modules as a remote learning opportunity for caregivers in underprivileged areas [16].

2. Strengthening Social and Emotional Support

- Mental health institutions need to create formal caregiver support groups that let people exchange stories to combat loneliness and promote community involvement.
- The availability of respite care services needs expansion to give caregivers brief periods of relief, which will help them preserve their work-life equilibrium and personal wellness [17].

3. Improving Financial Assistance and Workplace Policies

- The government should provide financial assistance and tax benefits to caregivers who lose income because of their caregiving responsibilities.
- Employers need to implement flexible work arrangements, which combine remote work possibilities and caregiver leave benefits, to help workers manage their work and caregiving responsibilities[18].

4. Developing Institutional and Policy Frameworks

- Health systems need to embed caregiver well-being into psychiatric rehabilitation policies, which provide sufficient mental health support for both patients and their caregivers [19].
- Policy frameworks must require psychiatric treatment plans to include caregiver training programs which strengthen caregivers' essential role in patient recovery [20].

Limitations of the Study

Despite its contributions, the study has certain limitations that must be acknowledged:

- **Self-Report Bias:** Self-Report Bias emerged because participants used questionnaires to report their burden levels, which could have been distorted by social desirability concerns [21].
- **Cross Section Designs:**
The study used a cross-sectional design, which restricted its capacity to prove cause-effect relationships between caregiver burden and its contributing factors.
- **Geographical and Cultural Constraints:** The study's specific geographical region sampling method restricts the ability to generalize findings beyond caregivers from this area to those in various cultural and healthcare environments [22]. Additional research over various population groups will lead to universal research findings.
- **Limited Scope of Psychiatric Disorders:** The research examined caregivers who supported people with schizophrenia, bipolar disorder and major depressive disorder, but excluded evaluation of burden among caregivers of patients with neuro-developmental disorders, PTSD, or multiple psychiatric conditions. Future research needs to expand the number of psychiatric disorders scrutinized as part of its investigation [23].

Future Research Directions

Further research in the following domains will extend the findings of this investigation by:

1. Longitudinal Studies on Caregiver Burden and Well-Being

- The study of caregiver burden development through time provides valuable information about the permanent mental and financial challenges faced during caregiving [24].

2. Effectiveness of Targeted Caregiver Support Interventions

- Researchers should assess the effect of particular interventions, including telepsychiatry, financial aid programs, and community-based caregiver support networks on burden reduction [25].

3. Comparative Analysis Across Different Cultural and Healthcare Contexts

- A study should evaluate caregiver burden across different healthcare policies and social support systems to discover effective caregiver assistance methods [26].

4. Intersectionality and Caregiver Experiences

- The research examines how gender, together with socioeconomic status and education level, affect caregiver burden and resource access to develop interventions that match various caregiver demographics [27].

CONCLUSION

This research study performs a thorough investigation of psychiatric rehabilitation with families by revealing the substantial mental stress together with monetary strain and lack of community support, which affects caregivers. The research results demonstrate that caregiver burden develops from insufficient social support and financial difficulties, and severe illness, and prolonged caregiving responsibilities, thus proving the need for specific intervention programs. This research approach brings together quantitative and qualitative evaluation to provide an in-depth view of caregiver difficulties, which proves that support providers get insufficient institutional backing. The research findings demonstrate that psycho-educational programs, financial assistance and institutional support systems must be implemented to reduce caregiver stress. Telepsychiatry services together with support groups and workplace flexibility policies represent effective measures to boost caregiver health conditions. To maximize patient recovery effectiveness, policy reforms should adopt caregiver training initiatives as part of psychiatric rehabilitation structures. Although the study comes with geographic boundaries and self-reported data constraints, it creates opportunities to build longitudinal research and international psychiatric research. Future development of complete caregiver support policies will create sustainable family-centered psychiatric rehabilitation models, which focus on caregiver and patient wellness.

REFERENCES

[1] A. H. Schene, "Objective and subjective dimensions of family burden. Towards an integrative framework for research," *Soc. Psychiatry Psychiatr. Epidemiol.*, vol. 25, no. 6, pp. 289–297, Nov. 1990, doi: 10.1007/BF00782883.

[2] World Health Organization, *Mental health action plan 2013-2020*. Geneva: World Health Organization, 2013. Accessed: Feb. 27, 2025. [Online]. Available: https://iris.who.int/handle/10665/89966

[3] H. S. Ong, P. A. Fernandez, and H. K. Lim, "Family engagement as part of managing patients with mental illness in primary care," *Singapore Med. J.*, vol. 62, no. 5, pp. 213–219, May 2021, doi: 10.11622/smedj.2021057.

[4] L. Magliano *et al.*, "The impact of professional and social network support on the burden of families of patients with schizophrenia in Italy," *Acta Psychiatr. Scand.*, vol. 106, no. 4, pp. 291–298, Oct. 2002, doi: 10.1034/j.1600-0447.2002.02223.x.

[5] L. Dixon, C. Adams, and A. Lucksted, "Update on Family Psychoeducation for Schizophrenia," *Schizophr. Bull.*, vol. 26, no. 1, pp. 5–20, Jan. 2000, doi: 10.1093/oxfordjournals.schbul.a033446.

[6] R. Trivedi *et al.*, "Barriers to accessing home and community-based services among family caregivers of Veterans," *J. Am. Geriatr. Soc.*, vol. 72, no. 11, pp. 3541–3550, Nov. 2024, doi: 10.1111/jgs.19051.

[7] L. Zhu, Y. Xing, H. Jia, W. Xu, X. Wang, and Y. Ding, "Effects of telehealth interventions on the caregiver burden and mental health for caregivers of people with dementia: a systematic review and meta-analysis," *Aging Ment. Health*, vol. 28, no. 11, pp. 1427–1439, Nov. 2024, doi: 10.1080/13607863.2024.2371480.

[8] "JMIR mHealth and uHealth - Effects of Telemedicine on Informal Caregivers of Patients in Palliative Care: Systematic Review and Meta-Analysis." Accessed: Feb. 27, 2025. [Online]. Available: https://mhealth.jmir.org/2024/1/e54244

[9] L. A. Palinkas, "Qualitative and mixed methods in mental health services and implementation research," *J. Clin. Child Adolesc. Psychol. Off. J. Soc. Clin. Child Adolesc. Psychol. Am. Psychol. Assoc. Div. 53*, vol. 43, no. 6, pp. 851–861, 2014, doi: 10.1080/15374416.2014.910791.

[10] "Just a moment..." Accessed: Feb. 27, 2025. [Online]. Available: https://www.researchgate.net/publication/267629279_Qualitative_and_Mixed_Methods_in_Mental_Health_Services_and_Implementation_Research

[11] S. Lemos, "Primary caregivers of schizophrenia outpatients: Burden and predictor variables," *Psychiatry Res.*, Jan. 2008, Accessed: Feb. 27, 2025. [Online]. Available: https://www.academia.edu/86830836/Primary_caregivers_of_schizophrenia_outpatients_Burden_and_predictor_variables

[12] J. Rodakowski, E. R. Skidmore, J. C. Rogers, and R. Schulz, "Role of Social Support in Predicting Caregiver Burden," *Arch. Phys. Med. Rehabil.*, vol. 93, no. 12, pp. 2229–2236, Dec. 2012, doi: 10.1016/j.apmr.2012.07.004.

[13] A. Nadkarni, C. Hanlon, and V. Patel, "Mental Health Care Models in Low- and Middle-Income Countries," in *Tasman's Psychiatry*, A. Tasman, M. B. Riba, R. D. Alarcón, C. A. Alfonso, S. Kanba, D. Lecic-Tosevski, D. M. Ndetei, C. H. Ng, and T. G. Schulze, Eds., Cham: Springer International Publishing, 2024, pp. 3347–3393. doi: 10.1007/978-3-030-51366-5_156.

[14] A. M. Baronet, "Factors associated with caregiver burden in mental illness: a critical review of the research literature," *Clin. Psychol. Rev.*, vol. 19, no. 7, pp. 819–841, Nov. 1999, doi: 10.1016/s0272-7358(98)00076-2.

[15] C. E. Mosher, B. A. Given, and J. S. Ostroff, "Barriers to Mental Health Service Use Among Distressed Family Caregivers of Lung Cancer Patients," *Eur. J. Cancer Care (Engl.)*, vol. 24, no. 1, pp. 50–59, Jan. 2015, doi: 10.1111/ecc.12203.

[16] L. J. Graven, R. L. Glueckauf, R. A. Regal, N. K. Merbitz, M. L. A. Lustria, and B. A. James, "Telehealth Interventions for Family Caregivers of Persons with Chronic Health Conditions: A Systematic Review of Randomized Controlled Trials," *Int. J. Telemed. Appl.*, vol. 2021, p. 3518050, 2021, doi: 10.1155/2021/3518050.

[17] K. Fawley-King, R. Haine-Schlagel, E. V. Trask, J. Zhang, and A. F. Garland, "Caregiver Participation in Community-based Mental Health Services for Children Receiving

Outpatient Care," *J. Behav. Health Serv. Res.*, vol. 40, no. 2, pp. 180–190, Apr. 2013, doi: 10.1007/s11414-012-9311-1.

[18] Y. Niimi, "Juggling paid work and elderly care provision in Japan: Does a flexible work environment help family caregivers cope?," *J. Jpn. Int. Econ.*, vol. 62, p. 101171, Dec. 2021, doi: 10.1016/j.jjie.2021.101171.

[19] H. Lempp *et al.*, "Service user and caregiver involvement in mental health system strengthening in low- and middle-income countries: a cross-country qualitative study," *Epidemiol. Psychiatr. Sci.*, vol. 27, no. 1, pp. 29–39, Nov. 2017, doi: 10.1017/S2045796017000634.

[20] W. RÖSSLER, "Psychiatric rehabilitation today: an overview," *World Psychiatry*, vol. 5, no. 3, pp. 151–157, Oct. 2006.

[21] C. A. Latkin, C. Edwards, M. A. Davey-Rothwell, and K. E. Tobin, "The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland," *Addict. Behav.*, vol. 73, pp. 133–136, Oct. 2017, doi: 10.1016/j.addbeh.2017.05.005.

[22] A. Althubaiti, "Information bias in health research: definition, pitfalls, and adjustment methods," *J. Multidiscip. Healthc.*, vol. 9, pp. 211–217, May 2016, doi: 10.2147/JMDH.S104807.

[23] "Frontiers | Controlling for Response Biases in Self-Report Scales: Forced-Choice vs. Psychometric Modeling of Likert Items." Accessed: Feb. 27, 2025. [Online]. Available: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2019.02309/full

[24] Z. Liu, C. Heffernan, and J. Tan, "Caregiver burden: A concept analysis," *Int. J. Nurs. Sci.*, vol. 7, no. 4, pp. 438–445, Jul. 2020, doi: 10.1016/j.ijnss.2020.07.012.

[25] N.-C. Chi and G. Demiris, "A systematic review of telehealth tools and interventions to support family caregivers," *J. Telemed. Telecare*, vol. 21, no. 1, pp. 37–44, Jan. 2015, doi: 10.1177/1357633X14562734.

[26] R. del-Pino-Casado, A. Frías-Osuna, P. A. Palomino-Moral, M. Ruzafa-Martínez, and A. J. Ramos-Morcillo, "Social support and subjective burden in caregivers of adults and older adults: A meta-analysis," *PLoS ONE*, vol. 13, no. 1, p. e0189874, Jan. 2018, doi: 10.1371/journal.pone.0189874.

[27] S. Pillemer, J. Davis, and G. Tremont, "Gender Effects on Components of Burden and Depression among Dementia Caregivers," *Aging Ment. Health*, vol. 22, no. 9, pp. 1156–1161, Sep. 2018, doi: 10.1080/13607863.2017.1337718.