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Enhancing Community Resilience: An Integrated Home-based Psychological Intervention for Individuals Living with Physical Disabilities

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Abstract

Individuals living with physical disabilities more likely develop psychological problems and less able to seek appropriate care for their issues as compared with the individuals living without disability. This study aimed to assess the effectiveness of an integrated home-based psychological intervention in managing psychological problems among individuals living with disabilities. For the purpose, a total of 60 participants were enrolled from the Community-Based Rehabilitation (CBR) program at Aid to Leprosy Patients (ALP) in Rawalpindi Pakistan between November 2021 and July 2022. These participants received comprehensive rehabilitation services alongside a structured psychological intervention. The duration of the study was 5 months including the follow up sessions. Significant improvements observed from pre-treatment to post-treatment. The main effect for psychosocial disabilities was (F = 116.93, p<.001), emotional problems (F = 116.93, p<.001), Depression (F = 117.30, p<.001), Anxiety (F = 150.02, p<.001) and Stress (F = 93.36, p<.001). The integrated home-based psychological intervention served as an effective rehabilitation approach for individuals with physical disabilities, particularly those previously unable to reintegrate into community life.

Keywords: Community Functioning**,** Integrated Healthcare, Psychosocial Disability

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Introduction

The prevalence of physical disability stands at approximately 16% of the global population (World Health Organization, 2023). There are different causes of physical disabilities including congenital and acquired. This rate of disability is continuously rising due to health ignorance, chronic health conditions, limited healthcare access, unsafe working conditions, road traffic accidents and natural disasters (Arsh & Darain, 2019). Consequently, the physical disability limits the daily functioning of the individuals and also associate with challenges to adopt the different lifestyles (Kissow, 2015). Furthermore, physical disability significantly impacts the individuals; emotionally, psychologically, and socially, potentially elevating stress, anxiety and depression among people living with disabilities (PWDs) (Rokach et al., 2006; Zaman et al., 2021).

Psychosocial support also plays an important role in enhancing disability management and independence (Watkinson, 2011). The World Health Organization (WHO) advocates for low-intensity psychological interventions for individuals with psychosocial impairments and concurrent depressive symptoms, administered by the trained community health workers (WHO, 2001). Problem Management Plus (PM+), a manualized treatment, serves those who are struggling

with common mental disorders (WHO, 2017), exhibiting efficacy in Pakistani populations (Hamdani et al., 2020). PM+ consists of five weekly sessions employing behavioral techniques like stress management, problem management and enhancement of the social support (Dawson et al., 2015). Each session lasts about ninety minutes, can be facilitated by trained individuals, such as community health workers.

However, access to psychological support in primary healthcare in Pakistan is not available in general and particularly for PWDs. Furthermore, mobility is another major challenge for such people and in the prevalence of psychological problems which is relatively high among them, therefore, there is a need to integrate psychological intervention as a fundamental component for special needs of PWDs. The current study set out to add evidence of treating these problems in community settings. As Pakistan is one of the low and middle income countries (LMIC) and PWD living in rural areas having serious issues on mobility and stigma is associated with disability and mental health issues, so home-based integrated treatment may help to encounter these challenges and reduce the level of psychological ailments among socially isolated and chronically ill people (Hussain et al., 2023).

Furthermore, this study also highlights the potential advantages of integrated psychological interventions into primary healthcare for individuals with physical disabilities, fostering a more comprehensive approach to their well-being. Through this exploration, the study aims to improve the quality of life of this often under-served population. Therefore, current study assessed the efficacy of a PM+ intervention as an integrated treatment for the amelioration of emotional problems that occurred as secondary to the disability issue.

Method

Participants

In total, sixty participants were engaged from the Community Based Rehabilitation (CBR) of the Aid to Leprosy Patients (ALP) Rawalpindi-Pakistan from November 2021 to July 2022. The Urdu version of the General Health Questionnaire (GHQ-12) was used for the screening. Only those participants were included, whose scores were exceeded the cutoff limit (≥2). In addition to this, inclusion criteria involved individuals aging from 18 to 65 years, who diagnosed with a physical disability and were able to give informed consent. Furthermore, exclusion criteria included severe cognitive impairment. A total of 148 participants were screened out and out of them 60 were selected for the current study. The sample size was estimated while assuming 0.02 prevalence of physical disability with a precision of 0.01 by using the formula $n=Z^2 P (1-P)/d^2$ (Pourhoseingholi et al., 2013). Furthermore, in current study the sample was raised by using purposive sampling technique.

The participants (*n*=60) received comprehensive rehabilitation services consisting of physical therapy and occupational therapy. In addition, they were provided structured psychological intervention based on PM+ principles. The total duration of the study was spread over a period of 5 months including the follow-up sessions of the patients.

Procedure

In current study, participants received comprehensive rehabilitation services, which was integrated with home-based services. This intervention included the structured psychological intervention, physical therapy and occupational therapy. The participants (*n*=60) were provided structured psychological intervention based on PM+ delivered by the trained health workers. They had the experience in community based rehabilitation (CBR) and also trained on PM+

assessment and intervention strategies. Ten health workers have provided integrated home-based intervention to all participants under the supervision of rehabilitation and mental health professionals. Each participant had 5 intervention sessions, once in a week and each session was consisting of ninety minutes. They followed the same intervention format and strategy, outlined/tailored as per individual needs of the person with disability.

The five sessions were integrated with physical therapy and occupational therapy based on the individual needs of the participants. However, psychological interventions sessions were designed as per the following structure:

Session-I: Session one facilitated the participants to understand the PM+ intervention and outlined their psychosocial problems (Emotional and practical problems) associated with their disabilities. Moreover, this also include to understand their own pattern of physiological, cognitive, emotional and behavioral responses to external stressful events and emphasis was put on "managing stress" by practicing relaxation exercise (Slow breathing). This helped the participants to prevent state of extreme stress or anxiety by daily practice.

Session-II: The second session aimed to develop skills to apply in a situation where the participants were experiencing practical difficulties (i.e., unemployment, family conflict) by learning the strategy of "managing problem".

Session-III: Session third helped the participants to improve their level of activity (i.e., social activities, job). During this session in order to increase the participants level of activities and to keep their emotional active "Get going, keep doing" strategies were adopted.

Session-IV: The fourth session aimed to increase the social support of the participants by "strengthening social support" as people with emotional problems isolate themselves from the supportive people.

Session-V: Session five focused on developing a practical plan to implement the PM+ strategies in their daily life by "staying well".

In addition to intervention sessions, at the beginning of each session, health workers asked the participants to complete the intervention assessment (WHO, 2016). This helped to understand the participants' psychosocial problems whether after session, this had improved their condition than the last week or otherwise.

To assess the intervention's effectiveness, participants underwent pre-intervention baseline assessments standardized psychological scales. Furthermore, post-intervention outcome assessments were conducted upon the completion of the psychological intervention. In the end follow-up assessment was carried out after the three months of outcome assessment to evaluate the long-term effects of the integrated intervention.

Psychometric Measures

Psychometric measures were utilized to assess the level of symptomatology and functional impairment. These measures included:

General Health Questionnaire (GHQ-12)

The GHQ is a 12-item self-report scale. It is commonly used to evaluate psychological distress. The GHQ-12 is widely employed to ascertain the presence or absence of psychological distress, especially in Pakistani population (Minhas & Mubbashar, 1996). This was only used during the baseline assessment (Table 2). The Urdu version GHQ-12 was used to assess the psychological distress, which establish adequate psychometric properties with high internal consistency (Cronbach's $\alpha = 0.92$).

WHO Disability Assessment Scale (WHODAS 2.0)

The WHODAS is a self-report scale was used to assess disability across six domains. These includes: (i) cognition, (ii) mobility, (iii) self-care, (iv) getting along, (v) life activities and (vi) participation (World Health Organization, 2010). The Urdu version 12-item WHODAS 2.0 was used, which demonstrated acceptable psychometric properties with high internal consistency (Cronbach's $\alpha = 0.84$).

Depression, Anxiety, and Stress Scale-21 (DASS-21)

The DASS is a 21-item self-report 4-point Likert scale comprising of three subscales (depression, anxiety and stress) (Zafar & Khalily, 2015). The Urdu version DASS-21 was used to assess the symptoms of emotional problems, demonstrating good psychometric properties with high internal consistency (Cronbach's $\alpha = 0.95$).

Procedure

Ethical approval was acquired from the Bioethics Committee, International Islamic University Islamabad. Additionally, informed consent was also obtained from the study participants by confirming their privacy and confidentiality on the matters etc.

Data Analysis

The data was analyzed by using Statistical Package for Social Sciences Version 29 (SPSS 29.0). Repeated measure ANOVA was used to compare the outcomes of the two groups by focusing on changes in emotional problem scores. Data analysis revealed significant differences between outcomes and baseline scores, providing insights into the effectiveness of integrating psychological interventions into primary healthcare for individuals living with physical disabilities.

Results

Table 1

Demographic Characteristics of Individuals with Disability (N = 60)

Variables	*n*	%	Variables	*n*	%
Gender			**Family System**		
Female	24	40.0	Nuclear	23	38.3
Male	36	60.0	Joint	37	61.7
Marital status			**Occupation**		
Married	31	51.7	Student	4	6.7
Unmarried	29	48.3	Daily Wages Labor	3	5.0
Education			House Wife	20	33.3
Illiterate	30	50.0	Self Employed	12	20.0
Primary	22	36.7	Unemployment	21	35.0
Middle	3	5.0			
Matric	3	5.0			
Intermediate	2	3.3			

In total, sixty persons have participated in the study. There were 36 male and 24 female participants. Most of them were illiterate (30, 50%) and the rest ranged from primary to

intermediate level education. Majority of the participants were living in a joint family (37, 61.7%) and the rest were living in a nuclear family (Table 1).

Table 2

Disability Information of Individuals with Disability (N = 60)

Variable	*n*	%	*M*	*SD*
GHQ-12			21.93	7.03
Age			36.17	12.19
Duration of Disability			20.82	16.25
Siblings				
Brothers			2.62	0.80
Sisters			2.52	1.16
Disability Type				
Lower Limb (Mobility Disability)	36	60.0		
Vision Disability	6	10.0		
Hearing Disability	2	3.3		
Upper Limb (Independent Living Disability)	4	6.7		
Locomotor (Self-care Disability)	12	20.0		
Disability Etiology				
Congenital	30	50.0		
Accident	6	10.0		
Infection	14	23.3		
Senile	5	8.3		
Stroke	5	8.3		

GHQ-12 = General Health Questionnaire

The GHQ test was applied for screening the participants (*M* = 21.93, *SD*=7.03). The duration of the disability of the participants were (*M* = 20.82, *SD*=16.25). Majority of the participants had lower limb disability (36, 60%) where major cause of the disability was reported as congenital (30, 50%) (Table 2).

Table 3

Comparison of Pretest and Posttest Intervention Scores and Follow-up Score of Participants (N=60)

Scale	Baseline (1st Week)		Outcome (8th Week)		Follow-up (20th Week)		F(2, 118)	η^2
	M	*SD*	*M*	*SD*	*M*	*SD*		
WHODAS	36.78	7.84	28.20	10.35	25.20	11.55	116.93***	.67
DASS	38.88	9.91	25.45	9.59	25.44	9.58	114.76***	.66
Depression	12.78	3.91	8.47	3.14	6.87	3.15	117.30***	.77
Anxiety	12.62	2.99	7.92	3.28	7.06	2.63	150.02***	.72
Stress	13.48	3.86	9.07	3.79	7.88	3.70	93.36***	.61

Note: WHODAS = WHO Disability Assessment Scale 2.0, DASS = Depression, Anxiety, and Stress Scale

***p<.001

A repeated measure ANOVA was used to examine the changes in baseline, outcome and follow-up assessment scores. Table 3 shows means, standard deviations and F-value of disability across baseline, outcome and follow-up. Results indicated significant mean differences in disability across three conditions F (1.34, 79.23) = 116.93, MSE = 27.62, p = .000, η^2 = .67 with medium effect size. The findings reveal that the level of disability at baseline (M = 36.78, SD = 7.84) subsequently decreased at outcome (M = 28.20, SD = 10.35) and follow-up (M = 25.20, SD = 11.55). Further analysis indicated significant mean differences in psychological problems across three conditions, F (1.00, 59.00) = 114.76, MSE = 62.90, p = .000, η^2 = .66 with medium effect size. Results also reveal significant mean differences in depression across three conditions, F (1.33, 78.22) = 150.02, MSE = 5.39, p = .000, η^2 = .77 with medium effect size. The statistical test also performed on anxiety, which indicated significant mean differences in anxiety across three conditions, F (1.39, 81.70) = 117.31, MSE = 6.91, p = .000, η^2 = .72 with medium effect size. These results indicate significant mean differences in stress across three conditions, F (1.47, 86.77) = 93.36, MSE = 7.61, p = .000, η^2 = .61 with medium effect size. The pair-wise comparisons indicate that there are significant mean differences in all pairs of scores between baseline, outcome and follow-up assessment scores. The PM+ intervention outcome and follow-up were associated with a significant amelioration in disability levels as measured with the WHODAS. In particular, improvements in depression, anxiety and stress symptoms were reported by using the DASS with a further improvement noted at follow-up (Table 3).

Discussion

The World Health Organization has emphasized its member states to "put people at the center of healthcare," viewing it essential for achieving the Sustainable Development Goal on universal health coverage (WHO, 2018). Achieving this goal involves providing comprehensive primary care services integrated with other levels of care. A significant majority of individuals living with physical disabilities prefer to stay at home, often living with comorbid psychological problems (Zaman et al., 2021). Therefore, there was a dire need of integrated care to be extended to the community or home settings as part of primary healthcare. Furthermore, in addition to the availability of the services, it is also important to respect the patient values, accessibility and also recognize the significance of their families as well (Mitchell et al., 2015). In this context, psychosocial support significantly enhance the quality of life, particularly in person living with physical disability (PWDs). Physical disability not only effect the individuals emotionally, but also significantly influence the PWDs psychologically as well as socially (Zaman et al., 2021). However, access to psychological support is not common in Pakistan, specifically in rural areas. In addition to this, mobility of PWDs is another challenge because of the environmental barriers (Hussain et al., 2020).

Current study designed with the aim to address physical as well as psychological issues of the individuals living with disabilities. Furthermore, to improve the accessibility of the service, this intervention has been designed in such a way that it can be delivered to PWDs at their homes. Additionally, this study also aimed to uncover the efficacy of a home-based integrated psychological intervention in

order to reduce psychosocial disability and emotional problems of the individuals living with physical disabilities. In this regard, participants received five integrated sessions encompassing physical and occupational therapy tailored to their individual needs. This also coupled with structured psychological intervention based on the PM+ manual developed by the World Health Organization for the common mental health problems in low resource setting (WHO, 2017).

The current study findings support the efficacy of the integrated care program for managing psychological problems of the individuals living with disabilities. The results revealed that the study participants showed clinically significant improvement in their functioning and emotional well-being. In addition to this, substantial improvement in community integration was observed during the course of treatment. This advancement was measured by the WHO Disability Assessment Scale (WHODAS) (WHO, 2010). The changes in Depression, Anxiety and Stress Scale (DASS) suggest that participants had made significant clinical enhancement in the emotional problems. These problems include depression, anxiety and stress. Furthermore, these findings are aligned with the similar studies conducted in Pakistan (Hamdani et al., 2020; Rahman et al., 2016), which highlighted the efficacy of PM+ interventions in relieving common mental illnesses among individuals with disabilities (Hussain et al., 2023).

Furthermore, findings of the PM+ intervention also shows that it enhanced the sociability and community engagement of the participants. This enabled them to address their stresses, anxiety management, problem management, behavioral activation and enhancing social support techniques (Dawson et al., 2015). These techniques were tailored to address the unique needs of individuals with disabilities. These findings emphasize the importance and potential of integration of psychological care to improve the lives of individuals living with both physical and psychological ailments.

Person living with physical disabilities are more vulnerable to develop psychological problems because of limited social activities. Therefore, such interventions are very important to address the comorbid psychological problems of the PWDs. This will not only help to improve their quality of life but also to integrate the community by enhancing the sociability and community engagement. This ultimately leads to fostering more supportive and inclusive society. Furthermore, such community based integrated intervention may reduce the needs of specialized mental health care and hospitalization, which ultimately be cost effective for healthcare system.

Limitations & Recommendations

The current study had been designed on the pre-test, post-test and follow-up design. However, it does not control group, which limit the study findings. In future, comparative group may be used to assess the effectiveness between the experimental and control groups.

Conclusion

This study findings highlight the effectiveness of the integration of home-based psychological intervention to the individuals living with disabilities. This intervention is an effective approach to address the depression and anxiety symptoms of the PWDs. However, for future studies, it is recommended to conduct randomized controlled trials (RCTs), which may help for a clear understanding of PM+ clinical efficacy within this population. Moreover, it is recommended to establish an integrated management plan between rehabilitation experts and mental health professionals to ensure earlier access of psychological interventions for the individuals diagnosed with physical disabilities.

Contribution of Authors

Basharat Hussain: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft

Muhammad Tahir Khalily: Conceptualization, Methodology, Writing - Reviewing & Editing, Supervision

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Conflict of Interest

There is no conflict of interest declared by the authors.

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Data Availability Statement

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [B.H.] upon the reasonable request.

Disclaimer

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