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ORIGINAL ARTICLE

BARRIERS TO RENDERING QUALITY ORTHOPEDIC PHYSIOTHERAPY SERVICES IN SEMI-URBAN AREAS AND LOW RESOURCE SETTINGS

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ABSTRACT

In regions with limited resources, particularly in semi-urban and rural areas, the prevalence of physical disabilities is notably high. **Objective:** This study aims to examine the challenges associated with providing orthopedic physiotherapy services to individuals residing in semi-urban locales. **Methods:** A total of 301 older people who attended physiotherapy centers in the two districts in the northern part of Bangladesh. Data analysis included frequency distribution, cross-tabulation and co-relation. **Results:** The mean age of respondents is 44±13.86 years and the median is 45 years. We found statistically significant differences in the age of patients by sex ($\chi 2 = 22.70$, $p<.003$; df = 14; Cramer's V = .31). The age of the patient and the occupation of the patient were strongly associated ($\chi 2= 29.50$; Cramer's V= .38, df = 11; $p< .02$). The barriers to receiving Physiotherapy services include access to care (58%), availability (55%), affordability (47%), acceptability (41%), distance from health facilities (40%), negative experiences with service providers (38%), and lack of staff and equipment (37%). Traveling difficulties (65.4%), high-cost services (33.6%), reluctant to perform exercise (31.6%), long-duration physiotherapy treatment (31%), in-accessibility of physiotherapy centers and family support (28.6%), tiredness from exercise (16%), exercise is difficult and painful (12.6%), difficult and depressive of physiotherapy services (3.3%) and not benefited due to health co-morbidity (3.7%) were adherence factors. **Conclusion:** Socio-cultural and social determinants of health (SDH) adherence levels are the significant factors that negatively impact accessing physiotherapy-related services to people in low-resource settings.

Keywords: Bangladesh, Low resources, Orthopedic physiotherapy, Social determinants of health (SDH), Semi-urban.

INTRODUCTION

Approximately 15% of the global population, equating to over a billion individuals, experience some form of disability[1]. In developing countries, this issue is particularly pronounced, with an estimated 80% of people with disabilities residing in these regions[2]. Among the world's most impov-

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erished communities, around 20% are people with disabilities[3]. Street youths are significantly affected, with about 30% having a disability[4]. A striking disparity exists in education for disabled children in developing countries, where 90% do not receive schooling[5]. The literacy rate among adults with disabilities worldwide is alarmingly low at just 3%[6]. Only 35% of individuals with disabilities are engaged in income-generating activities, highlighting a significant gap in economic participation[7].

Turning to Bangladesh, the situation mirrors these global challenges. Recent data from 2020 indicates that approximately 1,810,821 Bangladeshis live with disabilities. There is a notable gender discrepancy, with a higher prevalence of disability among women. Geographic disparities are also evident, with a 6% disability rate in rural areas compared to 4% in urban settings[8]. Among youths with disabilities, 64% are neither employed nor in education, compared to 43% of their non-disabled counterparts. The elderly population also shows a higher incidence of disability[9].

The economic impact of disability in Bangladesh is substantial, with an estimated annual cost of 118 billion, equivalent to 1.74% of the nation's Gross Domestic Product (GDP)[10]. A particularly striking statistic is the annual loss of approximately US $891 million due to the lack of employment opportunities for people with disabilities[11].

The prevalence of physical disabilities is high, especially in semi-urban and rural areas. Despite this, disability management and medical rehabilitation are not prioritized within the health sector, which is more focused on acute and primary healthcare services[12]. However, disability is a significant public health and development issue globally, and its prevalence is notably higher in developing countries[13].

Orthopedic physiotherapy services and interventions are crucial for rehabilitating people with disabilities[14]. However, access to such rehabilitation is limited, particularly in semi-urban areas, where social determinants of health present additional challenges[15]. Most of Bangladesh's health professionals are based in urban areas, making delivering primary healthcare services, including orthopedic physiotherapy, to semi-urban areas extremely challenging[16]. The present study explores factors related to orthopedic physiotherapy services in these areas and informs government policy in Bangladesh to enhance the quality of life and living conditions for people with disabilities.

MATERIALS AND METHODS

This was a cross-sectional study. Quantitative data were collected through a sample survey using a structured questionnaire. A total of 300 respondents were interviewed between January to June 2020. The study was conducted at two semi-urban physiotherapy centers in the Natore and Naogaon districts in the northern part of Bangladesh. The sample centers were located far apart from one another. Two districts were selected purposively, and each district had an Orthopedic physiotherapy services facility to collect the data. Fisher, et al. (1991) formula was used to calculate the sample size of the study, and the sample size was determined around 290 and we rounded up to 300[17]. Data was collected using a structured questionnaire and the questionnaire was pre-tested before the final collection of data. A stratified random sampling technique was applied to draw samples from potential respondents stratified by age. The respondents aged 30 years and above were included in this study. There was a proportional representation according to the inclusion of the age groups in the samples. An interview schedule was used to collect survey data, including structured and open-ended questions. The interview schedule was pretested, the results of which were analyzed to determine reliability. The consistency of data has been double-checked (at least 5% of collected data) by research team members. A research expert determined the validity of the questions.

Statistical Analysis

The survey data were analyzed in two ways, univariate and bivariate with the help of statistics like percentage distribution, mean, standard deviation, correlation, and non-parametric tests. Quantitative data were analyzed with the help of the SPSS statistical package version 27.

RESULTS

The mean age of respondents is 44±13.86 years and the median is 45 years, indicating that most of the sampled population is adult and aged. It is observed that over 46% of male patients were 4 years or below as against only 54% of females. The mean ages of male and female patients were 46 and 42 years, respectively but median ages were only 44 years for males and 42 years for females. The data indicate that the majority of respondents were older and females. Result showed that older women in Bangladesh received more physiotherapy-related treatment compared to their counterparts of males of the same age. The reason may be older females in remote and rural Bangladesh are engaged in risky domestic hazardous activities after marriage and caring for a large number of children and family me-mbers. We found an association between the age of respondents and sex ($\chi 2 = 22.70$, df = 14; Cramer's V = 0.31, p< .01). To determine the actual ratio of males and females with physiotherapy treatment in a large community survey is required.

The majority of the patients (86%) were 21-60-year age group and among them, about 80% had both physiotherapy and medication to recover their illness (Table 1). There is a strong relationship between respondents age and the type of treatment they received (x2= 21.82; Cramer's V= 0.42, df = 8; p< 0.007). The majority of the respondents are engaged in housewives (51.2%) followed by business (20.6%), agriculture (16.6%), service holders (6.6%), and others (5%). About 95% of patients were married and 5% were unmarried. The average family size of the respondents is 4.5 which is very close to the national family size of 4.7. The monthly household mean income is around Tk. 30330.17±14881.49 ($270±13), while the mean monthly expenditure is around Tk.26500.60±11600.35 ($236±10), which means household-level savings is around Tk.3800 ($34). About 89% of respondents were from rural and 11% were from urban areas.

The data reveals that about 98% of the patients attended the clinic with Orthopedic problems. Patients who had Orthopedic problems, about 92% of them had a history of both medication and Physiotherapy. About 99% of the patients were recommended for regular Physiotherapy. About 89% of the patients in the study were from rural settings. A statistically significant association was found between respondent age and occupation ($\chi 2= 29.50$; Cramer's V= 0.38, df = 11; p=0.02). The majo-rity of the respondents (77%) opined that there is no good quality of the latest equipment Physiotherapy center is not available in semi-urban areas and low-resource settings in Bangladesh. The reasons include access to care (58%), availability (55%), affordability (47%), acceptability (41%), distance from health facilities (40%), negative experiences with service providers (38%), and lack of staff and equipment (37%) are negatively influence users to attend the Physiotherapy center.

Table I. Percentage distribution of type of treatment received by age of the patients

Age Categories	Physiotherapy (n= 25)	Physiotherapy + Medication (n= 276)	Total(n= 301)
	Percentage(%)	Percentage(%)	Percentage(%)
1-10 years	0.70	0.30	1.00
10-20 years	0	2.30	2.30
21-30 years	0.30	10.60	10.90
31-40 years	2.60	25.90	28.60
41-50 years	1.00	26.20	27.20
51-60 years	2.00	17.30	19.30
61-70 years	1.30	6.30	7.60
71-80 years	0.30	2.00	2.30
81-90 years	0	0.70	0.70
Total	100.0	100.0	100.0

The factors that adherence to the orthopedic physiotherapy treatment in semi-urban and rural areas included distance and traveling difficulties (65.4%), high-cost services (33.6%), reluctant to perform exercise (31.6%), long-duration of physiotherapy treatment (31%), in-accessibility of physiotherapy centers & family support (28.6%), tiredness from exercise (16%), exercise re difficult and painful (12.6%), difficult and depressive of physiotherapy services(3.3%) and not benefited due to health co-morbidity (3.7%) as shown in Figure 1.

Social Determinants of Health (SDH) indicators including level of education (65%), family income (63%), respondents gender (62%), ethnicity of the respondents (63%), place of residence of the respondents (55%), and Occupation (48%) strongly associated with the level of receiving of treatment and frequent of the visit of physiotherapy center at low-resource settings ($\chi 2 = 28.68$; Cramer's V = 0.42, df = 9; $p<0.01$).

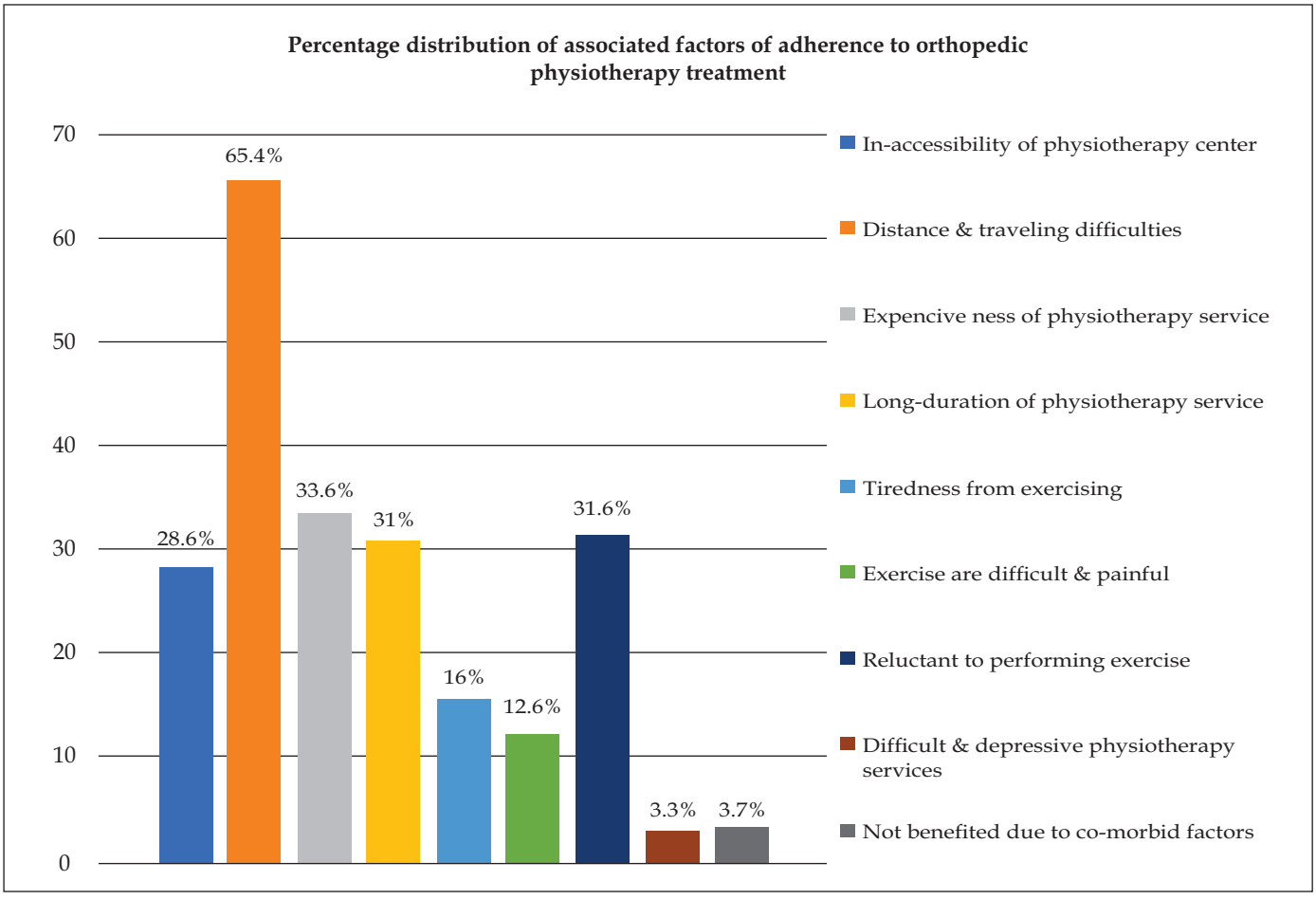

Figure 1. Percentage distribution of the respondent's opinions about associated factors of adherence to orthopedic hysiotherapy treatment

DISCUSSION

Physiotherapy, an essential component of public healthcare, especially for treating musculoskeletal disorders, faces significant challenges in developing countries. These challenges arise from both barriers and push factors, which make the delivery of physiotherapy services a daunting task for healthcare providers. Understanding the factors has paramount importance, as it plays a crucial role in developing national treatment plans and enhancing the current healthcare system. In this context, our study aims to conceive the perceptions of users at physiotherapy centers located in semi-urban and low-resource settings. This study is particularly relevant

as it sheds light on the experiences of those who are directly impacted by the availability and quality of physiotherapy services. The majority of the study's participants hailed from low and middle-income backgrounds, encompassing a range of black-and-white occupations. Despite their generally poor levels of education, these respondents exhibited a good understanding and positive perception of physiotherapy and its benefits. This positive perception is noteworthy, considering that the data collection center for this study was a private clinic, where services are typically more expensive compared to government facilities.

Nonetheless, the recipients of these services appeared to be satisfied with the care they received, highlighting a certain level of contentment with the available healthcare options, despite the higher costs. However, the study also revealed a significant gap in the availability of physiotherapy services in semi-urban areas. People living in remote rural communities are often forced to depend on these limited local facilities due to a lack of better options. In contrast, the regional, divisional, and capital cities of developing countries often have well-equipped physiotherapy centers with qualified physiotherapists. But for residents of low-resource settings, accessing these centers is fraught with challenges, primarily due to the long distances they need to travel and the associated unbearable transport costs. This disparity in the availability and accessibility of physiotherapy services is a significant barrier to receiving adequate healthcare.

Moreover, the clinics in semi-urban areas frequently suffer from a lack of highly qualified staff and the necessary equipment to provide comprehensive physiotherapy care. This situation in semi-urban areas of developing countries aligns closely with the findings of the World Health Organization's disability report from 2003[18], which highlighted that inadequate therapist, along with low skills or training and a dearth of modern equipment, are common problems in rural regions of Asia and Africa. In this study, it was found that approximately 28.6% of respondents had no access to physiotherapy centers, with the main reasons being the distance to the center, lack of transport facilities, weak physical conditions, and the high cost of treatment. These findings echo the results of a similar study conducted in India, which identified distance and travel-related difficulties as significant predictors for non-adherence to physiotherapy treatment[19].

Studies from Ethiopia and Nepal also reported that high costs and the long duration of physiotherapy services are associated with non-adherence to treatment[20]. In the context of our study, about 33.6% of respondents were unable to afford the high costs of physiotherapy services in semi-urban areas. Additionally, the requirement for frequent visits and the long duration of treatment also influenced the respondents' attitudes toward receiving treatment. It was observed that socio-cultural barriers and social determinants of health play a significant role in hindering adherence to physiotherapy services and treatment.

The level of poverty emerged as the primary barrier to accessing physiotherapy sessions in this study. SDH-related factors like respondent level of education, types of occupation, and the cost of drug adherence were identified as key barriers to accessing physiotherapy services in low-resource settings. Physical barriers, including the lack of facilities that are wheelchair or walking aid-friendly, also negatively influenced the respondents' willingness to attend physiotherapy services. These finding is similar to the previous study which revealed that easy access to a facility for performing exercises and a clean, conducive environment is closely associated with adherence to physiotherapy services[21].

In summary, the study highlighted the multifaceted challenges faced in accessing physiotherapy services in developing countries, particularly in semi-urban and low-resource settings. These challenges range from economic and physical barriers to socio-cultural factors and the availability of qualified healthcare professionals and facilities. Overcoming these barriers is essential for ensuring that all segments of the population have access to effective physiotherapy services, which are crucial for remote and rural healthcare and the manag-

ement of the health sector[22].

As such, there is a pressing need for policymakers and healthcare providers to address these challenges comprehensively, ensuring equitable access to physiotherapy and related healthcare services for all, irrespective of their socio-economic or geographical background. This study addressed the aged orthopedic patients attending a private clinic and the results may not have applied to wider healthcare settings. The present quantitative data and lacking qualitative information did not allow to fully generalize the findings for the whole country population.

CONCLUSION

This study has assessed the factors related to barriers to access to physiotherapy treatment for older people attending semi-urban areas. Socio-cultural and SDH adherence levels are the significant barriers that contributed to default on accessing physiotherapy-related treatment for aged people in low-resource settings. Study findings suggest conducting large-scale and mixed-method studies that may help us to have an in-depth understanding of patients' adherence to physio-therapy treatment at the national level.

DECLARATION

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