ORIGINAL ARTICLE

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IDENTIFY BARRIERS AND THEIR ASSOCIATION WITH ADHERENCE TO PHYSIOTHERAPY TREATMENT AMONG RURAL AND URBAN GERIATRIC POPULATION IN PATIALA DISTRICT

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ABSTRACT

Background:Adherence with the treatment has been identified as an essential factor that influences the success and outcomes of treatment. Undetected nonadherence is recognized as a reason for altered treatment programs and has been suggested as a reason for nonsignificant research outcomes.

Methods: A total of 150 subjects(urban-30 females and 47 males, rural- 36 females and 37 males)were surveyed for information using structured self-questionnairefromoutpatient physiotherapy centers, Punjabi University Patiala.

Results: More than 95% (77 urban and 73 rural) of the elderly population. About 93.3% urban and 97.6% rural females were nonadherent whereas 91.4% urban and 100% rural males werenonadherent. Observations suggested a statistically significant relationship of barriers with adherence to physiotherapy treatment with location (p=0.0001*), physical therapy centre accessibility (p=0.0235*), difficulty travelling to physical therapy centre (p=0.0020*), paying expenses (p=0.0001*), longer treatment duration (p=0.0004*), less encouragement from family/spouse for exercise (p=0.0106*). A non-significant relationship was found with confidence to return to exercises once stopped (p=0.0998NS), difficulty in remembering exercises (p=0.7928NS), other medical condition (OA, incontinence) (p=0.0796NS), anxiety and depression (p=0.2860NS), ability to perform ADL/IDL (p=0.0888NS).

Conclusion: The findings indicate that a very low level of adherence was observed among the elderly population to physical therapy treatment (6.6% urban, 2.7% rural females) and (8.5% urban, 0% of rural males). Elderly residing in rural areas are comparatively less adherent than urban elderly to physiotherapy treatment.

Keywords: Adherence, geriatric, physiotherapy treatment, compliance, barriers, elderly assessment.

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INTRODUCTION

Aging is an essential process that distresses all of our systems and tissues. The chronological criterion that is presently used for categorizing the older adult in America has been set at age 65 years [1]. Almost one-half (47 %) of the elderly population is suffering from at least one chronic disease such as asthma, angina, arthritis, depression, or diabetes [2]. Exercise and physical activity playa significant role when it comes to the rehabilitation of the elderly. Studies have proved that exercises can significantly improve functional independence, quality of life, and balance of aged individuals[3].The role of geriatric physical therapists is significant in all care setting. Physical therapists are providing excellent care to patients in numerous contexts that include acute care hospitals, outpatient departments, home health care, rehabilitation centers depending upon the multiple comorbid conditions of the elderly individual [4]. However, it has been identified that poor adherence to treatment is the most common problem across some healthcare disciplines including physiotherapy [5].

Adherence has been defined as "the extent to which a person's behavior corresponds with agreed recommendations from a healthcare provider"[6].The term adherence is preferred over compliance as it corresponds to voluntary efforts of the patient in setting up and to implementing the treatment on the other hand compliance is defined as abiding obediently by the practitioner's advice[7].Patient obedience has vital importance in terms of physical therapy treatment as well as its results[8]. Though, within the physiotherapy, it is yet not understood, which factor act as barriers to adherence, [9] failure to exercise regularly-is documented as the primary factor for non-adherence among patients with chronic conditions[10].

Thus with this point of view, this paper will discuss the problem of adherence and barriers related to adherence for physiotherapy treatments among urban and rural geriatric population.

This paper aims to find the barriers to access physiotherapy treatment among the rural and urban geriatric population and analyzed their association with adherence of the patient to physiotherapy treatments.

METHODOLOGY

The study is descriptive. The permission to conduct the surveywas taken from the departmental committee of Physiotherapy Department, Punjabi University, Patiala. Elderly population from various locations were contacted to find if they know about physiotherapy and have undergone physiotherapy for any medical or surgical condition. A total of two hundred elderly subjects were screened with convenient random sampling (who have undergone physiotherapy), for the participation in the study. Out of 200 subjects a total of 150 agreed (urban-30 females and 47 males, rural- 36 females and 37 males)and participated in the study. Among the participants, 77 subjects were from urban areas,and 73subjects were from rural areas.

DEVELOPMENT OF THE TOOL

For constituting the questionnaire PUBMED, Google Scholars database was used to review previous researches investigating the factors that affect the adherence in older adults to physical therapy treatment. Studies including Buddhadev(2012) [10], jacket al. (2010) [9],Marwahaet al.(2010)[5], Slujis (1993) [8]were thoroughly reviewed to construct the present questionnaire. Based on the outcomes of these studies a questionnaire was developed to identify barriers for non-adherence among the elderly population. The questionnaire consists of three parts. The first part includes the information regarding the demographic variables (like age, gender, the location of the resident, marital status) and socioeconomic factors like the family setup, dependency, qualification, and occupation. The second part consists five questions to find the adherence or nonadherence among the elderly. Part three included of twelve questions for identifying the barriers that lead to nonadherence among elderly for accessing the physiotherapy treatment. Out of twelve items, eleven questions are closed-ended whereas one question is open-ended. The Questionnaire was developed based on those factors that appeared most relevant for the geriatric population,especially in the Indian context. The questionnaire was anonymous,and subjects were educated about the anonymity of the study.

A pilot study was conducted on 30 elderly individuals to reveal any limitations in the design and questions of the designed questionnaire. Difficulties encountered while collecting information like the clarity of questions, time to complete the questionnaire were reviewed,and some revisions were done. Revision of the questionnaire included clarification of the questions and sequencing of questions. The final questionnaire (Annexure: 1) was used to collect the data for the study.

PROCEDURE

An elderly population aged group 65 years or above was screened for eligibility criteria for participation in the study from urban and rural areas of district Patiala. A total of 150 participants met the inclusion criteria and were willing to participate in the study. After getting genuine interest from the participants, written consent was taken from the subjects and an in-depth interview was conducted to extract the information regarding adherence and barriers related to nonadherence. The Information regarding the demographics and socio-economic status was recorded as part 1 of the self-structured questionnaire. In part 2, a total of five questions were asked to determine adherence of the elderly population to physical therapy treatment. Participants who were nonadherent were taken to part 3 of the interview that consisted of a set of twelve questions to identify the barriers that lead to nonadherence. Out of these twelve questions, eleven were closed-ended type of questions, to provide uniform answers and to simplify coding for data analysis. One open-ended kind of question was incorporated to give subjects an opportunity to describe other problems that were not included in the closed-end-

edkind of questions.

The entire questionnaire was explained in the local language of the subjects and response was recorded. Non-responses were coded as not applicable. Most of the interviews lasted for 15-20 minutes.

DATA ANALYSIS

Statistical package SPSS version 20, Microsoft Excel 2007 was used to analyze the data where percentage and frequency were derived. Chi-square test was used to establish the association of barriers with adherence to physical therapy treatment. The criterion of statistical significance was set at ($p<0.05$).

RESULTS

The sample population consisted of 150 elderly individuals (≥65 years) in which 77 (51.3%) were from urban,and 73 (48.6%) were from rural areas. Among the urban elderly population, the prevalence of adherence was found to be 6.6% and 8.5% in the females and males respectively. Among the rural community the adhesion was found to be 2.7% in females. However, none of the male (0%) was found to be adherent with the physiotherapy treatment. The findings indicate that a large number of participants from both urban (93.3% female; 91.4% males) and rural (97.6% females; 100% males) areas were nonadherent to the physiotherapy treatments.

Description of sample

Adherence to physical therapy treatment in elderly

Table 1: presents the information about the adherence to physical therapy treatment among the elderly population (urban and rural)

Variables	Urban N= 77	Rural N=73
Females	Frequency (%) n=30	Frequency (%) n=36
Non adherent	28 (93.3%)	35 (97.6%)
Adherent	2 (6.6%)	1 (2.7%)
Males	Frequency (%) n=47	Frequency (%) n=37
Non adherent	43 (91.4%)	37 (100%)
Adherent	4 (8.5%)	0 (0%)

Table 1 Shows adherence to the physical therapy treatment in which 93.3% urban and 97.6% rural females were non-adherent whereas 91.4% urban and 100% rural males were nonadherent and only 6.6% urban and 2.7% rural females were found adherent whereas 8.5% urban and 0% rural males were adherent.

Table 2: Various barriers or factors were identified in the current study that was associated with nonadherence among the studied population,and they are as under:

Factors	χ^2	p-value	Significance
Adherence with location (urban and rural)	61.190	p=0.0001*	Significant
Ability to perform ADL/IDL	2.8950	p=0.0888^{NS}	Non-significant
Physical therapy centre accessibility	5.1290	p=0.0235*	Significant
Difficulty traveling to a physical therapy center	9.5900	p=0.0020*	Significant
Paying expenses	23.270	p=0.0001*	Significant
Anxiety and depression	1.1390	p=0.2860^{NS}	Non-significant
Longer treatment duration	12.700	p=0.0004*	Significant
Other medical condition (OA, incontinence)	3.0740	p=0.0796^{NS}	Non-significant
Confidence to return to exercises once stopped	2.7080	p=0.0998^{NS}	Non-significant
Difficulty in remembering exercises	0.0690	p=0.7928^{NS}	Non-significant
Less encouragement from Family/spouse for exercise	6.5350	p=0.0106*	Significant

Table 2 shows the association of barriers with adherence to physiotherapy treatment. Observations suggested a statistically significant relationship of barriers with adherence to physiotherapy treatment with location (p=0.0001*), physical therapy centre accessibility (p=0.0235*), difficulty travelling to physical therapy centre (p=0.0020*), paying expenses (p=0.0001*), longer treatment duration (p=0.0004*), less encouragement from family/spouse for exercise (p=0.0106*).

DISCUSSION

This study was an attempt to find out the barriers and their association with adherence to physiotherapy treatment among rural and urban geriatric population.The findings of the present study are discussed as under:

I. Adherence of urban and rural elderly population to physical therapy treatment
II. Barriers to access physiotherapy treatment and their association with adherence among urban and rural geriatric population

The sample population consisted of 150 elderly individuals (≥65 years) in which 77 (51.3%) were from urban,and 73 (48.6%) were from rural areas. Among the urban elderly population, the prevalence of adherence was found to be 6.6% and 8.5% in the females and males respectively. Among the ruralcommunity the adherence was found to be 2.7% in females. However, none of the male (0%) was found to be adherent with the physiotherapy treatment. The findings indicate that a large number of participants from both urban (93.3% female; 91.4% males) and rural (97.6% females; 100% males) areas were nonadherent to the physiotherapy treatments. In contrast to our study, a higher rate of adherence (39%) has been reported by Chan and Can, (2010). [12] In another studyForkanet al.[11] done on old patients with impaired balance, the adherence rate was reported to be (28.2%). Lower rate of adherence observed in the current study could be because in the present study the adherence was calculated for the physiotherapy treatment provided at physiotherapy centers, whereas adherence rate reported byChan and Can, (2010) [12] and Forkanet al. (2006) [11]is for home exercise based program. Secondly,

there is a difference in the targeted population. The present survey is performed on the elderlypopulation (≥65 years) whereas the study done by Chan and Can, (2010) [12] was done on the young population. Moreover, the current research includes data for the elderly population from both urban and rural locations.

The findings revealed that elderly individuals residing in urban areas are more adherent to physiotherapy treatment in comparison to the population living in rural areas. The chi-square analysis was done to establish an association between the location and the adherence. The results (χ^2 = 61.19, p=0.0001) suggested a significant association between the adherence and the location of residence in the current study. This could be attributed to access to the physiotherapy center to the people residing in rural areas. A significant association was observed between the access of the physiotherapy services and adherence rates (χ^2= 5.129, p=0.0235) in the current study. The people residing in urban areas had a privilege for easy access to physiotherapy centers whereas a difficulty is faced by the people living in rural areas as these are a deficit of physiotherapy centers. Moreover, there is difficulty in reaching the far placed physiotherapy centers due to transportation problems. By our study, a study was done by Slujiset al. (2006) [8] and Alexander et al. (2002) [13] also reported transportation as one of the barriers that lead to nonadherence among the elderly population. Education could be another factor that may predict the level of nonadherence among the people. In the current study, the level of education among the rural and urban population demonstrated a wide variation. The education level among rural community was professionals (2.7%), graduate (1.4%), intermediate (30.1%), high school (6.8%), primary school (21.9%), and illiterate (37%), whereas for the urban population it was professionals (26%), graduate (49%), intermediate (10.9%), high school (6.5%), primary school (3.9%), and illiterate (3.9%). This shows that literacy rate was significantly higher among the urban population in contrast to the rural community where a large number of elderly were found to be illiterate (37%).

The study was further carried out to identify the various barriers that could lead to non adherence among the geriatric population to physiotherapy treatment.

- Barriers to access physiotherapy treatment and their association with adherence among urban and rural geriatric population

Various barriers or factors were identified in the current study that was associated with nonadherence among the studied population. Accessibility to physical therapy services was found to be one of the significant factors associated with nonadherence. In the current study, 74.6% of the urban and 91.6% of the rural participant's reported difficulty in easy accessibility to physical therapy centers. Chi-square analysis suggested a significant association between the availability to physiotherapy centers and adherence (χ^2= 5.129, p=0.0235). This could be attributed to the location of residence of the participant, as the results specify that elderly from rural population has a greater difficulty to access physiotherapy centers. A secondlythe lesser number of physiotherapy centers in the area of study could be related to the lower accessibility rates. This is the limitation of the research that physiotherapy center's and their distance from the location of the respondent was not included in the study.

Further, traveling to the physiotherapy center was recognized as a difficulty for accessing the services anda significant association was found between adherence and problem in traveling (χ^2= 9.590, p=0.0020). Other factors include limitations in the physical abilities (ability to perform ADL and IDL), other medical conditions and less encouragement from a family/spouse. Among studied population, 23.9% of the urban and 12.5% of the rural population had a limitation in performing physical activities independently and hence were entirely dependent upon their family for their travel and accessibility to the physiotherapy center. Family and spouse play a crucial role in encouraging an elderly to adhere to a specific treatment. Moreover, their support is required for taking the elderly for any treatment as most of the elderly are dependent on their family for their physical activities and travel. Encouragement from family and spouses was found to be significantly associated with the adherence of the elderly to physiotherapy treatment (χ^2= 6.535, p=0.0106). In the present study, 54.9% of the urban and 29.1% of the rural population reported no encouragement from the family and spouse as a factor related to their nonadherence with the treatment. The finding is by the results of Funch and Gale, (1986)[14] who suggested that in subjects with chronic TMJ pain, social factors predicted completion of a behavioral therapy program.

Further, other medical conditions associated with aging restrict the elderly for independent access to the physiotherapy services as they need the help of others for accessing a physiotherapy center. Medical conditions (OA, incontinence,etc) were reported as a barrier to access and adherence for physiotherapy treatment by 40.8% and 30.5% of the urban and rural elderly respectively in the current study. However, chi-square analysis did not suggest a significant association of other medical conditions with adherence (χ^2= 3.074, p=0.0796).

Another factor which was observed as a significant barrier to the continuation of the treatment was the financial constraints. Paying the expenses for physical therapy service was found to be significantly associated with the adherence of the elderly to physiotherapy treatment (χ^2= 6.535, p=0.0106). In the current study, 40.8% of the urban and 77.7 % of the rural population reported that they had difficulty paying the expenses of physical therapy services. These findings are by a study done by Bhuddadev, (2012) [10] and Marwaha, (2010) [5], who in their study on Indian population suggested that in a country like India, economic factors may act as a barrier to attend physiotherapy service. Paying expenses becomes even more difficult when it comes to the elderly population. It has been seen that the socio-economic factor of the elderly is of utmost

importance, as poverty and dependency increases with age. The reasons may be, health issues, cost of medications, personal help and professional services increases with age, whereas on the other hand source of income decreases. It is observed that most of the elderly are dependent on their family or spouse even for their daily needs. It was reported in a study done by Multani and Verma, (2007) [4], that 40 percent of elderly Indian population is living below the poverty line. Among the elderly participants in the current study, only 10.4% of the urban and 1.4% of rural participants were independent. Whereas, the rest of the participants were either dependent upon the family (urban 87% and rural 71.2%) or caretakers (urban 2.6% and rural 27.4%)

Another factor that was related significantly with adherence was a more extended period of physiotherapy treatment protocols (χ^2= 12.700, p=0.0004). As the patients had to travel a long distance to reach a physiotherapy center, it becomes difficult for the elderly to complete or carry out the treatment for a longer duration. In the current study, 87.3% of the urban and 98.6% of the rural population reported a more extendedperiod of therapy as a limitation for their compliance with physiotherapy treatments. These findings are accordance with a study done by Marwahaet at. (2010)[5] who suggested that physiotherapy treatment is time consuming and patients need to change their daily routine and take out time from, social responsibilities, work and family to attain a physiotherapy service which becomes very difficult for many patients

Difficulties in remembering exercise and lack of confidence in returning to exercise once stopped are the other two factors related to exercise that were identified as barriers for adherence among the studied population. 87.3% urban and 83.3% rural participants agreed they find difficulty in remembering exercises. Participant's confidence level to overcome obstacles to exercise or return to exercise after relapse for several weeks was also identified as one of the factors related to patient adherence to physiotherapy. The findings of the current study indicated that 16.9% urban and 34.7% of rural elderly participants were not confident to overcome obstacles to exercising. This lack of confidence, self-efficacyandself-motivation, restricts them to continue or restart an exercise program. Similar to the present study, Jack et al. (2010)[9] also suggested that a low level of self-efficacy as a barrier to treatment adherence.

Anxiety and depression due to exercises is another factor, which may act as a barrier to access physical therapy treatment among the elderly population. Thiswas identified in the present study and 60.5% urban and 65.2 % rural participants responded that exercises make them anxious and depressed. The results of the present study are in line with the research done by Shaw et al. (1994)[15] who in their study suggested that high level of depression at baseline in OA subjects was found to be the factor for poor attendance at a social support and education group. In contradiction study done by Buddhadev, (2012) [10] concluded that anxiety does not prevent the patient from adhering with treatment recommendations.

Lastly, the current study tried to find out if home-based programs could help the patient over center-based treatment for overcoming issues of adherence. The respondents were asked whether home-based exercise programs are beneficial than visiting a physical therapy center. 43.6% urban and 55.5% rural participants agreed that home-based exercise program isbeneficial than attending physical therapy centers. However, 56.3% urban and 44.4% rural decided that the home-based exercises are not easy than visiting physical therapy centers as they are not able to perform the exercises and require a physical therapist to provide the treatment. The finding suggests that nearly half of the population is not able to adhere to the protocols even if they are offered home-based programs. This finding is accordance with a study done by Forkanet al. (2015)[11]who reported nonadherence as a common phenomenon to a prescribed home-based program after discharge.

The current study also attempted to explore the attitude of the participants towards exercise. Therefore, an open-ended question was asked to the participants related to their reason for nonadherence to exercise. The response was recorded as; "exercises will not help much" (5.2% of urban), "recovery depends on therapist, therapist is more important" (22.5% of urban and 12.5% of rural) and "I cannot afford to exercise" (6.5% urban and 16.4% rural participants), other responses include "I often forget to exercise", (2.6% urban and 12.6% rural), "I can do little myself" (2.6% urban and 13.8% rural).

The information accomplished depends upon the reliability of the subjects. The present study did not investigatethe adherence issue related to a specific disease condition or protocol. The study did not examine the viewpoint of physiotherapists regarding adherence.

CONCLUSION

The present study suggests that the physiotherapists should be concerned about attitudes, beliefs and barriers that a patient faces and should act collaboratively with the patients to plan more realistic treatment protocols which need to be modified according to patient's convenience. Steps could be taken to formulate such treatment strategies like home-based programs, mobile vans, group therapies, free camps,etc to cope up with nonadherence of the patients. Moreover, the provision of physiotherapy services could be planned for rural areas. Patient must be made aware of the government schemes for dealing the financial issues. Home-based programs with time to time monitoring must be planned for patients who cannot afford the expenses of regular physical therapy treatment. In the last, the most important thing is to change the attitude of the patient towards exercise. Proper counseling regarding the role and benefits of exercise should be given by the physiotherapists before involving the patient into an exercise program.

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Annexure: 1

QUESTIONNAIRE

Part I

PERSONAL INFORMATION

Age: - Gender: - Location: - Rural / Urban

Marital status: Married,Unmarried, Widowed, Divorced

Dependency: - Family Caretaker Relatives Neighbor Independent

Family set up: - With Spouse Family Children Grand Children Alone Relatives

Education level:-

- Profession
- Graduate
- Intermediate
- High school
- Middle school
- Primary school
- Illiterate

Occupation level:-

- Profession
- Semi Profession
- Clerical
- Skilled worker
- Semi-skilled worker
- Unskilled worker
- Unemployed

Part 2 identifying the elderly for adherence/nonadherence to physical therapy treatment

1:-Do you know what physiotherapy is?

Yes No

2:-Do you have any musculoskeletal problem (low back pain, knee pain or others)?

Yes No

3:- What treatment you are taking for your problem?

- Physiotherapy
- Medicine
- Both

4:-Have your doctor ever recommended you physiotherapy?

Yes No

5:-Have you ever had physical therapy treatment?

Yes No

If yes did you receive benefits from the service?

Yes No

6:- Have you completed your course of physical therapy treatment.

Yes No

Part 3: identifying the barriers for nonadherence

1:- Are you able to perform the activities of daily living as well as instrumental activities of daily living?

Yes No

2:- Is the location of Physical Therapy center easily accessible to you?

Yes No

3:- Do you find difficult to travel to a physical therapy center?

Yes No

4:- Do you think paying the expenses of physical therapy service is difficult for you?

Yes No

5:- Do you think exercises make you anxious and depressed?

Yes No

6:- Do you feel a longer treatment duration makes it difficult to get physical therapy services?

Yes No

7:- Do you think home-based exercise program is easy than visiting physical therapy centers?

Yes No

8:- Are you not able to benefit from physical therapy services because of any other medical condition (such as urinary incontinence, greater BMI, OA, communicable disease)?

Yes No

9:-How confident are you that you can overcome obstacles to exercising or return to exercise, despite having replaced for several weeks?

Yes No

10:- Do you find difficulty in remembering exercises?

Yes No

11:- Does your family /spouse encourage you for exercise?

Yes No

12:- What problems you experience other than these?

- I get tired from exercising
- The exercises are difficult
- The exercises are painful
- I have too little time
- Exercises do not fit in a daily routine

- I often forget to exercise
- I cannot afford to exercise
- Exercising will not help much
- I can do little myself
- Recovery depends on the therapist
- The therapist is more important
- My complaints will disappear without exercising