Factors affecting compliance to home-based exercises among selected community-based rehabilitation patients

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Abstract

Introduction Home exercise programs are part of home-based rehabilitation or self-management for chronic conditions and are typically unsupervised by health professionals. This paper aimed to identify the most common factors affecting compliance to a home exercise program among patients of a community-based rehabilitation.

Methods This study correlated age, gender, civil status and educational background with perceived factors affecting compliance among patients undergoing community-based rehabilitation. A self-generated questionnaire with a 5-point Likert-type scale was used to measure the patient-related, therapy-related and health care factors affecting compliance. Correlation of the demographic characteristics listed with factors affecting compliance was determined using Pearson's r and Spearman rho.

Results Around 90-95% of respondents agreed or strongly agreed with the patient-related, therapy-related and health care system factors listed. Correlating with age, pain was a barrier in achieving goals (r=-0.383). Willingness to do exercises had some correlation with doing the home exercises (r=0.366). Pain was a barrier in doing the exercises among married patients (r = -0.485). Willingness to do exercises at home was weakly negatively correlated with a low educational attainment (r = -0.287). All the correlations were not significant.

Conclusion Compliance to a home exercise program are inluenced by the patient's motivation, pain as a barrier in achieving goals, and accommodating staff. Female gender and single status correlated with better compliance but the correlation was not significant.

Key words: community-based rehabilitation (CBR), compliance, home-based exercise program (HEP)

The effects of exercise-based rehabilitation in improving fitness and functional ability among people with chronic conditions have received considerable attention. These outcomes are very important because they can make a substantial difference in people's lives and in the economy. Home exercise programs are part of home-based rehabilitation or self-management for chronic conditions and are typically unsupervised by health professionals. Therefore, the patients may not be exercising, or they may not be exercising enough, or they may not be sustaining their exercise level long enough to obtain the therapeutic benefit.[1] Chen found

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a clear association between compliance and treatment outcomes. Patients who follow their treatment recommendations more diligently have been observed to experience better treatment outcomes.[2]

However, these studies have failed to recognize that it is the responsibility of patients to be an active participant in their own care. If patients are not compliant with the treatment protocol, it is difficult to confidently establish the effectiveness of the intervention.[3] Despite the importance of compliance in community based-rehabilitation, few researchers have isolated factors affecting the patients' non-adherence to the prescribed home-exercise protocol. In spite of these early observations, there is no clear strategy to improve patient compliance to a home exercise program.[2] It is desirable to carry out surveys of the compliance of patients on home-based exercises.

The purpose of this paper was to identify the most common factors affecting compliance to a home exercise program among patients of the community-based rehabilitation (CBR) of UERMMMCI. In this paper, the investigators introduced a novel method to determine the extent of the problem of non-compliance and why it should be a concern to all healthcare providers. This paper hopes to help not just physical therapists but other health care professionals maintain proper and quality health care.

Methods

This study correlated age, gender, civil status and educational background with perceived factors affecting compliance among patients undergoing community- based rehabilitation in Barangay Malaria, Caloocan City in January and February 2016. A self-generated questionnaire with a 5-point Likert-type scale was used to measure the factors affecting compliance. The relationship of the demographic characteristics listed with factors affecting compliance was determined using Pearson's r and Spearman rho correlation. The study was approved by the Ethics Review Committee of the medical center.

Patients undergoing community-based rehabilitation (CBR) in Barangay Malaria, Caloocan City were recruited by convenience sampling. Those who could understand English or Filipino and gave an informed consent were included, regardless of their medical condition, and whether or not they could read or write.

The study utilized a self-generated questionnaire (SGQ) based on a pilot questionnaire by Howard about the factors affecting patient compliance to home exercise programs assigned to them during CBR.[4] Other studies have supported the validity and reliability of the tool.[5] The questionnaire consists of nine items covering patient-related, therapy-related (degree of behavioral change required) and health care system (unhappy clinic visits) factors. The patient-related factors included psychosocial factors (attitude and motivation), forgetfulness, and history of good compliance. The therapy-related factors were pain/barriers in achieving goals and benefits of following the regimen. Health care system factors were attitude of the physical therapists and ambiance. Subjects answered the tool using a 5-point Likert-type scale: strongly agree (5), agree (4), neutral (3), disagree (2) and strongly disagree (1). The investigators assisted the participants in answering the questionnaire.

Mean, median, mode and standard deviation were computed and used to characterize the respondents' answers to the questionnaire. Correlation of the demographic characteristics age, gender, civil status and educational background with factors affecting compliance was determined using Pearson's r and Spearman rho.

Results

Thirty patients were invited to join and 25 agreed to participate in the study. As seen in Table 1, the respondents were in their early to mid-50s; there were more women (3:1); more than half were married and 80% did not reach college. More than 70% were satisfied with the clinic they went to and 65% waited more than 10 minutes to be attended to. Close to 90% of respondents did their home exercises at least three times a week. All patients were aware of the cause of their impairment and 96% were aware of the benefits of exercise on their condition.

Perceived factors affecting compliance to participant's home-based exercise were divided to patient-related factors, therapy-related factors and health care system factors. Around 90% of respondents agreed or strongly agreed with the patient-related factors listed. More than half disagreed that instructions were difficult to follow but 25% agreed. More than 95% of respondents agreed or strongly agreed that pain is a barrier and that there are benefits in following the program. At least 90%

Table 1. Demographic profile of respondents (N = 25).

Characteristics	n (%)
Gender	
Male	6 (24)
Female	19 (76)
Age (yr ± SD)	53.4 ± 19.9
Civil Status	
Single	5 (20)
Married	15 (60)
Widowed	5 (20)
Others	-
Highest educational attainment	
Elementary	10 (40)
High school	10 (40)
Vocational training	-
College graduate	2 (8)
Graduate school	3 (12)
Perception about the clinic	
Satisfied	18 (72)
Unsatisfied	6 (24)
Others	1 (4)
Waiting time before treatment	
Less than 5 minutes	-
5 - 10 minutes	4 (16)
11 - 20 minutes	11 (44)
21 - 30 minutes	5 (20)
More than 30 minutes	5 (20)
Frequency of home exercises	
Daily	15 (60)
Twice a week	3 (12)
Thrice a week	7 (28)
Never	-

of respondents agreed or strongly agreed that accommodating staff and ambiance positively affect compliance. These findings are seen in Table 2.

Table 3 shows that, correlated with age, pain is a barrier in doing the home exercise program (r = -0.383). The other factors that encourage a patient are perception that exercises are helpful (r = 0.293) and the ambiance (r = 0.219), although these are not statistically significant. Table 4 shows that, correlated with female gender, willingness to do exercises (r = 0.366), intensity of exercise (r = 0.289) and clinic staff (r = 0.285) influence a patient to do her exercises although these are not statistically significant. Table 5 shows that married patients are less likely to do their exercises and the factor that influences this is pain as a barrier (r = -0.485). The relationship is not significant. A married patient does not see the benefit of exercise and tends to forget. Table 6 shows that a level of education not beyond high school is weakly negatively correlated with willingness to do exercises (r = -0.287) but is not statistically significant.

Discussion

Patient compliance and satisfaction to their exercise program play an important role in ensuring a successful outcome of community-based rehabilitation. This study attempted to determine the

Table 2. Factors affecting compliance to home exercise program among patients undergoing community based rehabilitation.

Factors	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)
1. Patient-related factors					
1.1. Psychosocial factors					
• Attitude towards exercise					
• Willingness to do exercise	19 (76%)	5 (20%)	-	-	1 (4%)
• Make time to do exercise	19 (76%)	6 (24%)	-	-	-
• Motivation					
• Motivated when doing the exercise	16 (64%)	8 (32%)	-	-	1 (4%)
• Confident that exercise is helpful	21 (84%)	4 (16%)	-	-	-
1.2. Forgetfulness					
• Exercise is difficult to understand	3 (12%)	3 (12%)	5 (20%)	3 (12%)	11 (44%)
• Enough information about exercise	18 (72%)	4 (16%)	1 (4%)	1 (4%)	1 (4%)
1.3. History of good compliance					
• PT told to follow HEP	18 (72%)	5 (20%)	-	1 (4%)	1 (4%)
• Intensity of exercise is tolerable	16 (64%)	4 (16%)	2 (8%)	2 (8%)	1 (4%)
2. Therapy-related factors (degree of behavioral change required)					
2.1. Pain or barrier is a challenge in achieving goals	20 (84%)	4 (16%)	1 (4%)	-	-
2.2. Benefit of following	20 (80%)	4 (16%)	1 (4%)	-	-
3. Health-care system factors (unhappy clinic visits)					
3.1. Staff/ PT interns are accommodating	21 (84%)	3 (12%)	1 (4%)	-	-
3.2. Pleasant ambiance	19 (76%)	3 (12%)	3 (12%)	-	-

*- None

correlation of age, gender, marital status and educational attainment with perceived patient-related, therapy-related and health care system factors affect compliance to a home exercise program.

Findings that 65% of patients waited 10 minutes or more are similar to other studies showing that long waiting time affected patient satisfaction.[6,7] A small percentage of respondents did not understand the benefits of their exercise program, similar to the results of other studies show that some patients lack understanding and are in need of further explanation about the role of their therapies in a treating their complaints and as well as the value of their clinic visits.[6,8]

Table 3. Correlation of perceived factors and age.

Perceived factors	r	p
Patient-related factors		
Attitude - willingness to do exercise	0.084	0.71
Attitude - make time to do exercise	0.197	0.38
Motivation during exercise	0.134	0.55
Motivation - confident that exercise is helpful	0.293	0.19
Forgetfulness - exercise is difficult to understand	0.222	0.32
Forgetfulness - information about exercise	0.205	0.36
Compliance - PT told me	0.047	0.83
Compliance - intensity of exercise	0.161	0.47
Therapy-related factors		
Pain or barrier challenges	-0.383	0.08
Benefit of following	-0.038	0.86
Health care system factors		
Staff/PT interns	-0.199	0.37
Ambiance	0.219	0.33

Table 4. Correlation of perceived factors with female gender.

Perceived factors	r	p
Patient-related factors		
Attitude - willingness to do exercise	0.366	0.07
Attitude - make time to do exercise	0.123	0.56
Motivation during exercise	0.023	0.91
Motivation - confident that exercise is helpful	0.010	0.96
Forgetfulness - exercise is difficult to understand	0.068	0.75
Forgetfulness - information about exercise	0.132	0.53
Compliance - PT told me	0.289	0.16
Compliance - intensity of exercise	-0.258	-0.21
Therapy-related factors		
Pain or barrier challenges	0.168	0.42
Benefit of following	0.041	0.85
Health care system factors		
Staff/PT interns	0.285	0.17
Ambiance	-0.122	0.56

Table 5. Correlation of perceived factors and married status.

Perceived factors	r	p
Patient-related factors		
Attitude - willingness to do exercise	-0.141	0.50
Attitude - make time to do exercise	-0.148	0.48
Motivation during exercise	-0.250	0.23
Motivation - confident that exercise is helpful	-0.173	0.41
Forgetfulness - exercise is difficult to understand	0.305	0.14
Forgetfulness - information about the exercises	0.000	1.00
Compliance - PT told me	-0.128	0.54
Compliance - intensity of exercise	0.046	0.83
Therapy related factors		
Pain or barrier challenges	-0.485	0.01
Benefit of following	-0.330	0.11
Health care system factors		
Staff/PT interns	0.165	0.43
Ambiance	-0.129	0.54

Table 6. Correlation of perceived factors with elementary and high school level of education.

Perceived factors	r	p
Patient-related factors		
Attitude - willingness to do exercise	-0.287	0.16
Attitude - make time to do exercise	-0.153	0.47
Motivation during exercise	-0.131	0.46
Motivation - confident that exercise is helpful	0.000	1.00
Forgetfulness - exercise is difficult to understand	-0.185	0.38
Forgetfulness - information about exercise	-0.031	0.88
Compliance - PT told me	-0.029	0.89
Compliance - intensity of exercise	0.182	0.38
Therapy-related factors		
Pain or barrier challenges	0.129	0.54
Benefit of following	-0.100	0.64
Health care system factors		
Staff/PT interns	-0.100	0.64
Ambiance	0.029	0.89

In this study, majority of the respondents were middle-aged and elderly; results show that older patients were more likely to comply with HEP and the factor that affected their compliance is perceived pain. Minor and Dobkin showed that worsening pain during exercise was a barrier to adherence with exercise though there was conflicting evidence that age and greater pain at baseline were barriers to treatment adherence.[9,10] Other studies did not find age to have an effect on patient's adherence to home exercises.[11]

The results show that female patients were more likely to be willing to do the exercise, consistent with previous studies.[12-14] Since the study was being implemented in a community setting, many women were housewives and tended to have more time to do exercises. Murcia noted that the reasons of most women were those related to health, the release of accumulated energy and personal image.[15] The same study showed that women exhibited more positive attitudes towards physical activities that emphasized appearance, improved health and social relations.[15] This means that women are more likely to value a healthier life this is why in turn, they tend to be willing to do the exercises. However, according to Yap, males tend to show an affective attitude towards exercising as well as exercise intention compared to women but women tend to lead a healthier lifestyle than men.[16]

With regard to marital status, the results show that a higher percentage of single patients tended to comply with their home exercise program since they have more time than the married patients. According to King, the transition from a married to a single state did not affect physical activity relative to remaining married.[17] In contrast, the transition from a single to a married state resulted in significant positive changes in physical activity relative to remaining single throughout the study. Other studies showed that another factor that greatly affects the patient is that married patients do not see the benefits of exercise in their life.[18] They also tend to forget the exercise due to complexity and due to difficulty to initiate the exercise.

Majority of the respondents reached elementary or high school only. The results show that the higher the educational attainment the participants had, the lower the tendency not to comply with the home exercise program. These results may be explained by McNamee who showed that people who do not have high school degrees are more likely to be engaged in occupational physical activity at their jobs and people with a college degree are more active on weekends than on weekdays.[19]

Based on the results of the study, the investigators conclude that: 1) motivation towards therapy, pain/barrier as a challenge to achieving goals, and accommodating staff play a major role in influencing a patient's compliance; 2) gender plays a minimal role in having willingness to exercise; and 3) a patient's civil status greatly affects the compliance of the patient to his exercise regimen. Single patients tend to comply more with their home exercise program than their married counterparts. Given the findings, the investigators recommend a qualitative study to explain why such factors affect compliance.

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