

## Patient's commitment to practicing home therapeutic exercises correctly

Abdulmajeed R. Almalty<sup>1</sup>, Ahmed Hussein Mashaal<sup>2\*</sup>, Mohannad Hawamdeh<sup>1</sup>

<sup>1</sup>Department of Physical and Occupational Therapy, Faculty of Applied Medical Sciences, The Hashemite University, Zarqa, Jordan.

<sup>2</sup>Physical Therapy Department, Applied Medical Science Faculty, Irbid University, Jordan.

\* Correspondence: Ahmed Hussein Mashaal; [drahmedmashaal@gmail.com](mailto:drahmedmashaal@gmail.com)

### ABSTRACT

Home exercises are targeted exercises for specific muscles or muscle groups to be done by the patient at home without supervision. Prescribing physiotherapy home exercises is one of the most essential aspects of the treatment plan for any patient. The aim of this study was to explore the problem of adherence to physiotherapy home exercise in Jordan and find out the main obstacles that face Jordanian citizens in applying their prescribed home exercises. An online survey accessed through a hyperlink was directed to clients (n=76; 50% female, 50% male) of physiotherapy centers in Jordan, aged 18-22 years. The link to survey was given to clients who were asked to re-share the link with their friends and relatives who visit other physiotherapy centers on a regular basis in order to reach a maximum number of participants. Low adherence to home exercises could be attributed to participants' laziness, no time and not understanding what they were supposed to do. However, regarding perceived importance and benefits, most declared the need for home exercise and stated that they could help with everyday activities if done regularly, despite the poor level of commitment.

### KEYWORDS

Patient Adherence; Home Exercises; Physiotherapy

## **1. INTRODUCTION**

Home exercises are targeted exercises for specific muscles or muscle groups to be done by the patient at home without supervision. Prescribing physiotherapy home exercises is one of the most essential aspects of the treatment plan for any patient (Jack et al., 2010). It is shown in literature that patients who adhere to their prescribed home exercises demonstrate better results in movement and functionality (Di Fabio et al., 1995; Pinto et al., 2009). However, poor adherence and commitment to the prescribed exercises is well noted among many patients, reaching about 65% for general musculoskeletal conditions (Karnad & McLean, 2011), which might reflect negative outcomes or give the impression that physiotherapy treatment is ineffective (Beinart et al., 2013). The reasons for non-adherence to home exercises are multifactorial; including lack of time for doing the exercises, being less active physically, pain, and psychosocial symptoms like depression, or lack of social support (Wright et al., 2014; Argent et al., 2018). Despite the current evidence on the existence of the problem and its multifactorial reasons, there is a great need to conduct studies that address this problem in different patient populations and different communities in order to rule out any specific bio-psychosocial factors that might have uniquely contributed to the problem in comparison to other populations or communities. In a previous study done by Hawamdeh et al. (2021), obstacles for adherence to physiotherapy sessions in Jordanian citizens were investigated and a variety of reasons were identified, which were mostly focused in socioeconomic dimension of the participants. However, the mentioned study did not focus on adherence for physiotherapy home-based exercises. From this point, our current study aims to explore the problem of adherence to physiotherapy home exercise in Jordan, and find out the main obstacles that face Jordanian citizens in applying their prescribed home exercises. The study also aims to explore whether home exercise programs in Jordan play an effective role in the physiotherapy treatment plan from the point view of Jordanian physiotherapy recipients.

## **2. METHODS**

### **2.1. Participants**

An online survey accessed through a hyperlink was directed to clients (n=76) of physiotherapy centers in Jordan. The link to survey was given to clients who were asked to re-share the link with them friends and relatives who visit other physiotherapy centers on regular basis in order to reach maximum number of participants.

All clients of physiotherapy centers who can read and respond to questions electronically were eligible to complete the online survey. Participation was totally voluntary. A cover letter explaining the aims of the study was included in the survey. All participants who checked the box included in the survey to agree on completing the questionnaire were considered consented for participation in the study, and have the freedom to withdraw from completing the survey at any point. The link to access the survey was valid for a period of 2 weeks.

## **2.2. Ethical considerations**

This study was conducted in accordance with the ethical principles outlined in the Helsinki Declaration. All participants provided written informed consent prior to their participation in the study, and their privacy and confidentiality were strictly protected throughout the study. The study was designed to minimize harm and maximize benefits to participants, and all risks were carefully assessed and monitored throughout the study. The study was approved by the Institutional Review Board of the Hashemite University and was conducted in compliance with all applicable laws and regulations. The data collected in this study analyzed and reported in a manner that ensures scientific rigor and transparency, while also respecting the privacy and confidentiality of the participants. Informed consent was obtained from all subjects involved in the study.

## **2.3. Materials**

**Survey Development:** The survey was developed based on the available literature reviews. A pilot survey was tested on a small sample of physiotherapy clients at one center to assess time and ease of completion. After the pilot survey was completed, the survey was revised and modified, and the final electronic version was developed. The survey was delivered in Arabic language. **Survey Content:** the final 8-item questionnaire required less than 10 minutes to complete. All the survey questions were close-ended.

## **2.4. Statistical analysis**

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) Software version 25 for Windows (Chicago, IL, USA). Mean and standard deviation for quantitative variables and counts (%) for qualitative variables were used to summarize data. Logistic regression was utilized to examine the relationship between commitment to home exercises and other parameters. The level of significance was set at  $p \leq 0.05$ .

### 3. RESULTS

#### 3.1. Demographic characteristics

A total of 76 participants participated in this study, 38 (50.0%) females and 38 (50.0%) males. Most of the participants were under bachelor's degree (77.6%); 84.2% were in the age range 18 through 22 (Table 1).

**Table 1.** Demographic data

	<b>Total (n=76) (%)</b>
<b>Gender</b>	
Female	38 (50.0%)
Male	38 (50.0%)
<b>Educational level</b>	
Graduate	10 (13.2%)
Undergraduate B.Sc.	59 (77.6%)
High School	6 (7.9%)
Elementary school	1 (1.3%)
<b>Age groups</b>	
18-22	64 (84.2%)
23-40	7 (9.2%)
>40	5 (6.6%)

#### 3.2. Commitment to prescribed home exercises programs

Forty-five participants (59.2%) reported a non-commitment to home exercises programs, where most of them attributed the non-commitment to laziness (n=21, 27.6%), followed by lack of time (n=12, 15.8%), where 8 participants (10.5%) reported that they don't understand the correct prescription, and only 4 participants (5.3%) reported lack of knowledge about goal and importance of exercises (Table 2). Seventy participants (92.1%) reported that encouragement and motivation could increase their commitment to home exercises programs. Participants' perception about exercises importance and benefits on daily living activities most of participants see that home exercises are important (92.1%), where 64 participants (84.2%) reported that during committed days, they reported an improvement in their performance in daily living activities (Table 2).

**Table 2.** Commitment to home exercises, and factors that influence commitment

	<b>n (%)</b>
<b>Commitment to home exercises</b>	
Yes	31 (40.8%)
No	45 (59.2%)
<b>Cause for non-commitment</b>	
Laziness	21 (27.6%)
Lack of understanding the correct prescription.	8 (10.5%)
Lack of knowledge about goal and importance of exercises	4 (5.3%)
Lack of time	12 (15.8%)
<b>Perception about home exercises</b>	
<b>Do you think home exercises are important?</b>	
Yes	70 (92.1%)
No	6 (7.9%)
<b>Will motivation increase exercises commitment?</b>	
Yes	70 (92.1%)
No	6 (7.9%)
<b>Will commitment improve daily living activities performance?</b>	
Yes	64 (84.2%)
No	12 (15.8%)
<b>Do you think you are doing exercises correctly?</b>	
Yes	52 (68.4%)
No	24 (31.6%)
<b>Delivery of home exercises instructions</b>	
Directly from Physical Therapist	42 (55.3%)
Video	33 (43.4%)
Written instructions	1 (1.3%)

### 3.3. Delivery of exercise prescription and correctness of performance

Most participants (n=52, 68.4%) believe that they perform home exercises correctly, most participants (n=42, 55.3%) preferred receiving exercise instructions directly from therapist and 33 participants (43.4%) preferred video instructions, while only one participant reported a preference of written instructions for home exercises (Table 2).

### 3.4. Association between commitment to home exercises and demographics

Gender, educational level, and age were not significantly associated with home exercises commitment. There was no significant association between home exercises commitment and perception of correct performance and delivery of exercises instructions (Table 3).

**Table 3.** Association between commitment to home exercises and demographics

	Committed to home exercises. n (%)	Not committed n (%)	OR (95% CI)	p-value
<b>Gender</b>				
Female	14 (45.2%)	24 (53.3%)	1 <sup>^</sup>	
Male	17 (54.8%)	21 (46.7%)	.721 [.288-1.805]	0.484
<b>Educational level</b>				
Graduate	2 (6.5%)	8 (17.8%)	1 <sup>^</sup>	
Undergraduate B.Sc.	24 (77.4%)	35 (77.8%)	2.74 [.535-14.059]	0.226
High School	4 (12.9%)	2 (4.4%)	8.000 [.803-79.655]	0.076
Elementary school	1 (3.2%)	0 (0.00%)	6461899371[.000]	1.000
<b>Age groups</b>				
18-22	1 (3.2%)	4 (8.9%)	1 <sup>^</sup>	
23-40	26 (83.9%)	38 (84.4%)	1.949 [.402-9.441]	0.407
>40	4 (12.87%)	3 (6.7%)	.365 [.039-3.458]	0.380

Note. OR: Odds Ratio; CI: Confidence Interval; P-value: Probability value (according to logistic regression); \*: statistically significant difference; ^: reference category.

#### 4. DISCUSSION

To our knowledge, this is the first study in Jordan that studied the commitment to home exercises programs and explore whether home exercise programs in Jordan play an effective role in the physiotherapy treatment plan from the point view of Jordanian physiotherapy recipients. The findings of this results showed that almost 60% of participants did not commit to home exercises prescribed by physiotherapists. The adherence to the home-based exercise program is a problematic issue globally; the adherence rate to home-based exercise is generally between 30-70% (Friedrich et al., 1996; Wright et al., 2014; Argent et al., 2018; Hawamdeh et al., 2021; Falossi et al., 2022).

The participants in this study mentioned some factors that decreased the commitment to the home-based exercises. All of these factors were person-related factors; laziness, lack of time, lack of understanding the correct prescription and lack of knowledge about the goal and importance of exercises. The literature showed several causes of low-rate of adherence to the prescribed exercises including absence of supervision, lack of time, lack of motivation, poor self-efficacy, fear of pain, inability to fit exercises into daily life, and large number of prescribed exercises (Friedrich et al., 1996; Falossi et al., 2022). These factors need to be addressed to improve the adherence to the home-based exercise programs. Palazzo et al. (2016) proposed providing feedback and availability of support by healthcare providers or other patient might improve the adherence to home-based exercises. Also, theory-based interventions can be implemented to change the patients' behavior and

adhere to the prescribed treatment (Medina-Mirapeix et al., 2009). Self-management interventions can be also used with patients to change patients' behavior and help them to take care of their own condition, this may increase the adherence to the prescribed home-based exercises (Palazzo et al., 2016).

This study showed the participants perceived that the adherence to the exercises improved their daily living activities performance. A study presented that compliant patient to the home physical exercise program had an improvement in health status (Hawamdeh et al., 2021). Also, the literature reveals that compliance with exercise program improved the health outcomes among people with musculoskeletal pain, while on the other hand, non-adherence to the exercise program made the treatment ineffective (Kolt & McEvoy, 2003; School et al., 2005; Mansell et al., 2016; Argent et al., 2018; Hagger & Weed, 2019)

To increase the adherence to home-based exercises, further investigation needs to be done to identify the facilitator of it. In this study, participants believed in the importance of exercises and thought that motivation increases the adherence. A systematic review concluded increasing the patients' self-motivation improved the adherence to the home-based exercises (Pisters et al., 2010). There are some factors that need to be enhanced to increase the adherence to the prescribed exercises including support from the physiotherapist, prescription of a low number of exercises, motivation, and avoiding depression and anxiety (Pisters et al., 2010). Another factor that should be considered is the delivery methods of teaching the home exercise by the physiotherapist. The methods can be verbal instructions, booklet, photos or videos (Holden et al., 2014). In this study, more than half of the participants declared that they got the instructions directly from the physiotherapist. This may reduce the adherence as it may lead to misunderstanding and lack of motivation (Holden et al., 2014). Using the videos to teach the patients the exercises is important at the early stage of the program. However, using the videos alone is not more effective than other methods (Holden et al., 2014). Therefore, it is important to use combination of the aforementioned delivery methods to improve the adherence to the treatment plan.

This study also showed that age, gender and education were not significant factors of adherence to home-based exercises. However, Okezue et al. (2019) and Yalew et al. (2022) the literature presented that age, gender and education were significant factors of adherence to home-based exercises (Bachmann et al., 2017; Yalew et al., 2022). This difference might relate to that most of this study's participants were 18-22 years old and attended bachelor degree.

Physiotherapist supervision, prescription of low number of exercise and increase the motivation are important factors to improve the adherence to the home-based exercises. Also, using different teaching delivery methods to the patients such as verbal and written instructions, photos and videos may improve the adherence.

The barriers and facilitators of the adherence to the home-based exercise program will be studied in order to enhance the facilitators and overcome the barriers using theory-based interventions. Then, the effectiveness of the intervention will be assessed to find whether the adherence to the exercises and health outcomes are improved.

## **5. LIMITATIONS**

There were some limitations in this study that need to be noted. The effect of the adherence on the health outcomes was assessed using one question: the perceived improvement in ADL. Also, most of the participants in this study were 18-22 years old, therefore, the findings cannot be generalized.

## **6. CONCLUSIONS**

Low adherence to home exercises could be attributed to participants' laziness, no time, not understanding what they were supposed to do and ignore. Perceived Importance and Benefits: Most, however, declared the need for home exercise and stated that they could help with everyday activities if done regularly, despite the poor level of commitment. Many participants favored having exercise guidelines delivered by a therapist instead of receiving videos and literature advice. Different from certain other studies that revealed age, gender, and education to act as crucial elements determining adherence to home exercises, we are unable to indicate this case. Theory-based interventions were required to improve adherence with prescribed exercises. Peer or healthcare provider's support was also important together with incorporation of multiple teaching methods such as verbal, written and visual to improve adherence with prescribed exercises. Motivational strategies, fewer exercise sessions and attending psychological issues like depression and anxiety were recommended to support adherence. Further studies ought to identify those factors that promote or make it difficult for people to stick to home exercises programs. A study of theory-based interventions focused on adherence and subsequent health outcomes is needed.



## 7. REFERENCES

1. Argent, R., Daly, A., & Caulfield, B. (2018). Patient involvement with home-based exercise programs: Can connected health interventions influence adherence? *JMIR MHealth and UHealth*, 6(3), 32-47. <https://doi.org/10.2196/mhealth.8518>
2. Bachmann, C., Oesch, P., & Bachmann, S. (2017). Recommendations for improving adherence to home-based exercise: A systematic review. *Physikalische Medizin, Rehabilitationsmedizin, Kurortmedizin*, 28(3), 135–141.
3. Beinart, N. A., Goodchild, C. E., Weinman, J., Ayis, S., & Godfrey, E. L. (2013). Individual and intervention-related factors associated with adherence to home exercise in chronic low back pain: A systematic review. *Spine Journal*, 13(12), 1940–1950. <https://doi.org/10.1016/j.spinee.2013.08.027>
4. Di Fabio, R. P., Mackey, G., & Holte, J. B. (1995). Disability and functional status in patients with low back pain receiving workers' compensation: a descriptive study with implications for the efficacy of physical therapy. *Physical Therapy*, 75(3), 180–193. <https://doi.org/10.1093/ptj/75.3.180>
5. Falossi, F., Natuzzi, A., Bartolucci, P., Pasquetti, P., & Martini, C. (2022). Adherence to a home physical exercise program in patients with osteoporotic vertebral fractures: A retrospective observational study. *Journal of Back and Musculoskeletal Rehabilitation*, 35(4), 777–782. <https://doi.org/10.3233/BMR-210288>
6. Friedrich, M., Cermak, T., & Maderbacher, P. (1996). The effect of brochure use versus therapist teaching on patients performing therapeutic exercise and on changes in impairment status. *Physical Therapy*, 76(10), 1082–1088. <https://doi.org/10.1093/ptj/76.10.1082>
7. Hagger, M. S., & Weed, M. (2019). DEBATE: Do interventions based on behavioral theory work in the real world? *International Journal of Behavioral Nutrition and Physical Activity*, 16(1), 1-10. <https://doi.org/10.1186/s12966-019-0795-4>
8. Hawamdeh, M., Al-Nassan, S., Shallan, A., & Etoom, M. (2021). The obstacles that encounter Jordanian citizens to adhere to physiotherapy sessions. *Fizjoterapia Polska*, 21(4), 134–140.
9. Holden, M. A., Haywood, K. L., Potia, T. A., Gee, M., & McLean, S. (2014). Recommendations for exercise adherence measures in musculoskeletal settings: A systematic review and consensus meeting (protocol). *BMJ Open*, 4(6), 1-6. <https://doi.org/10.1136/bmjopen-2013-004178>
10. Jack, K., McLean, S., Moffett, J. K., & Gardiner, E. (2010). Barriers to treatment adherence in physiotherapy outpatient clinics: A systematic review. *Manual Therapy*, 15(3), 220–228. <https://doi.org/10.1016/j.math.2009.12.002>
11. Karnad, P., & McLean, S. (2011). Physiotherapists' perceptions of patient adherence to home exercises in chronic musculoskeletal rehabilitation. *International Journal of Physiotherapy*, 1(2), 14–29.
12. Kolt, G. S., & McEvoy, J. F. (2003). Adherence to rehabilitation in patients with low back pain. *Manual Therapy*, 8(2), 110–116. [https://doi.org/10.1016/S1356-689X\(02\)00156-6](https://doi.org/10.1016/S1356-689X(02)00156-6)
13. Mansell, G., Hall, A., & Toomey, E. (2016). Behaviour change and self-management interventions in persistent low back pain. *Best Practice & Research Clinical Rheumatology*, 30(6), 994–1002. <https://doi.org/10.1016/j.berh.2017.01.002>

14. Medina-Mirapeix, F., Escolar-Reina, P., Gascon-Canovas, J. J., Montilla-Herrador, J., & Jimeno-Serrano, F. J. (2009). Predictive factors of adherence to frequency and duration components in home exercise programs for neck and low back pain: An observational study. *Physical Therapy*, 89(3), 1–9.
15. Mourad, S., et al. (2018). Patient's adherence to prescribed home exercises: Barriers and interventions. *International Journal of Physiotherapy*, 3(4), 20–25.
16. Okezue, O., et al. (2019). Adherence to home exercise programmes and its associated factors among patients receiving physiotherapy. *Clinical Health Promotion*, 9(2), 40–46.
17. Palazzo, C., Klinger, E., Dorner, V., Kadri, A., Boumenir, Y., Ville, I., & Poiraudau, S. (2016). Barriers to home-based exercise program adherence with chronic low back pain: Patient expectations regarding new technologies. *Annals of Physical and Rehabilitation Medicine*, 59(2), 107–113. <https://doi.org/10.1016/j.rehab.2016.01.009>
18. Pinto, B. M., Rabin, C., & Dunsiger, S. (2009). Home-based exercise among cancer survivors: Adherence and its predictors. *Psycho-Oncology*, 18(4), 369–376. <https://doi.org/10.1002/pon.1465>
19. Pisters, M. F., Veenhof, C., Van Dijk, G. M., Dekker, J., & Bijlsma, J. W. J. (2010). Exercise adherence improving long-term patient outcome in patients with osteoarthritis of the hip and/or knee. *Arthritis Care & Research*, 62(8), 1087–1094. <https://doi.org/10.1002/acr.20182>
20. Schoo, A. M., Morris, M. E., & Bui, Q. M. J. P. C. (2005). Predictors of home exercise adherence in older people with osteoarthritis. *Physiotherapy Canada*, 57(3), 179–187.
21. Wright, B. J., Galtieri, N. J., & Fell, M. (2014). Non-adherence to prescribed home rehabilitation exercises for musculoskeletal injuries: The role of the patient-practitioner relationship. *Journal of Rehabilitation Medicine*, 46(2), 153–158. <https://doi.org/10.2340/16501977-1250>
22. Yalew, E., Abebe, E., Wondmu, A., Alemayehu, S., & Ayele, Y. (2022). Adherence to home-based exercise program and its predictors among patients treated in physiotherapy outpatient department in Amhara region hospitals in Ethiopia: A prospective cross-sectional study. *Patient Preference and Adherence*, 16, 561–572. <https://doi.org/10.2147/PPA.S348467>

## **AUTHOR CONTRIBUTIONS**

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

## **CONFLICTS OF INTEREST**

The authors declare no conflict of interest.

## **FUNDING**

This research received no external funding.

## **COPYRIGHT**

© Copyright 2025: Publication Service of the University of Murcia, Murcia, Spain.