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Adherence to Home Exercise Program (Hep) in Patients with Low Back Pain Undergoing Physical Therapy Intervention in Naval, Biliran

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ABSTRACT

Home exercise programs (HEP) are crucial in physical therapy rehabilitation for musculoskeletal, orthopedic, and neurological conditions. Adherence to treatment criteria, including appointment attendance, frequency, and execution, significantly influences intervention success. This study investigates adherence to HEP in patients with low back pain (LBP) undergoing physical therapy intervention in Naval, Biliran, aiming to identify personal demographics and biopsychosocial factors influencing HEP adherence. A descriptive-correlational design was employed, with data collected through survey questionnaires. Participants included 18 LBP patients, with data analysis revealing that 7 were non-adherent and 11 adhered to their HEPs. Analysis showed no significant association between demographic profiles (socioeconomic status, age, sex, educational attainment, and religion) and HEP adherence. Among the 12 biopsychosocial factors, a significant association was found between the belief that exercise can cause injury and HEP adherence (p-value = 0.016). Other biopsychosocial factors, such as fatigue, time constraints, forgetfulness, family/friend support, difficulty of exercise, interest in exercise, pain, perceived benefits, fit in daily routine, need for physical assistance, and need for a physiotherapist's presence, showed no significant associations with adherence. These findings highlight the need to address specific barriers, particularly exercise-induced injury concerns, to improve HEP adherence and physical therapy outcomes for LBP patients.

INTRODUCTION

Background of the Study

Home exercise programs (HEP) are a vital part of physical therapy rehabilitation for various types of musculoskeletal, orthopedic, and neurological conditions. These are a set of prearranged exercises

usually constructed by the physical therapist to fit the needs of the patients (Bassett SF, Prapavessis H., 2011).

According to the World Health Organization (WHO) in 2003, the term "adherence" is defined as "the extent to which a person's behavior corresponds with agreed recommendations from a healthcare provider". In the context of physical therapy, adherence relates to the attendance of appointments, degree of following advice, undertaking prescribed exercises, frequency of undertaking prescribed exercises, proper performance of exercises, or doing more or less than advised (McLean, et. al, 2010).

The extent to which patients adhere to clinic and home-based treatment requirements is recognized as a contributing factor to the effectiveness of physical therapy interventions (Codori et al., 1992; Slujis et al., 1998). Success of many treatment protocols is largely linked to patient's compliance to HEPs (Bassett SF, Prapavessis H., 2011). Patients who follow prescribed exercises exhibit a significantly higher likelihood at achieving their goals and demonstrate a more substantial improvement in physical function (Di Fabio et al., 1995; Pinto and Rabin, 2009; Karnad, 2011).

HEP varies greatly in terms of delivery, intensity, types, and content. The level of complexity and intensity of programs have a strong correlation on patient's compliance— as the complexity increases, the compliance decreases. Over time, compliance also decreases due to diminished motivation of a patient as a result of symptom relief (Rejeski, et al., 1997). This, in turn, reduces the treatment efficiency and increases the chance of recurrence of the conditions (Wright, et al., 2014). Unidentified non-adherence is one of the reasons for treatment programs being unnecessarily altered, and has even been accounted for non-significant research outcomes in clinical-based research (Turk and Rudy, 1991).

Low back pain (LBP) is one of the most common musculoskeletal disorders (Holmberg, Thelin, 2006), accounting for 70-85% of individuals in the community suffering from LBP at any time of their life (Hoy et al., 2010). The impact of LBP patient functioning and the economic burden on society call for effective treatments (Buchbinder et al., 2018). Physiotherapy intervention is a common form of conservative treatment of LBP (Goldby et al., 2006). They often include training as well as the use of several modalities (Baxter & Gracey, 2004). Exercise is one of the approaches that is considered indispensable in the treatment of many musculoskeletal disorders as it is an important part of protective rehabilitation and in the pain control and restoration of motor function in movement restriction (Baxter & Gracey, 2004). Adherence has been identified as an antecedent to the success of patient outcomes, especially those with musculoskeletal disorder (Holden et al., 2014; Pisters et al., 2010).

Some of the key roles of physical therapists to their patients is to prescribe exercise and educate them on the importance and value of exercise to their current health and functional ability (Tinetti et al., 1994). Researchers have identified environmental and personal factors that contribute to lack of adherence to HEPs. These environmental factors include lack of social support and positive feedback (McLean at al., 2009). Personal factors include depression, anxiety, motivation, and increased pain with exercise (Jack et al., 2010).

The assessment of adherence in terms of completing the exercise and physical activity correctly, in different settings and the agreed "dose", can be challenging. No gold standard measure of adherence has been developed (Treuth, 2002). Additionally, the most appropriate measure of adherence for one type of therapeutic exercise may not be appropriate to measure adherence to other types of therapeutic exercise. Within the clinical setting, more objective measures of exercise adherence, such as diaries, are underutilized due to the high rate of socially desirable answers (Bollen et al., 2014). In randomized controlled trials of exercise for musculoskeletal disorders measurement of adherence, it is either non-

existent or limited by lack of standardized method. Despite this, a wide range of performance-based, clinician-reported, and patient-reported measures of exercise adherence is available (Frost et al., 2016).
Although HEP has been shown to be effective, adherence in patients with LBP varies from approximately 70-90% and declines significantly over time (Hammer et al., 2007; Kolt & McEvoy, 2003). Thus, more specific knowledge on predictors of compliance of home-based exercise programs in LBP patients is needed to improve adherence. The purpose of this study is to investigate patients' adherence to HEPs, identify its relationship to personal demographics, and identify which biopsychosocial influential factor(s) or barrier(s) significantly affect engagement in musculoskeletal LBP patients following discharge from a physical therapy intervention session.

Theoretical Framework

The study of factors that prevent patients from adhering to home exercise programs is essential, as exercise and physical activity play a pivotal role in health and longevity (Fahey, Insel, & Roth, 2018). Transactional model theory offers a multifaceted challenge influenced by interconnected biopsychosocial factors, including socioeconomic status and educational attainment, which determine access to exercise opportunities, and living arrangements, which impact motivation and social support (Folkman, Rinzel, 2020). Health status, encompassing medical conditions and limitations, is equally crucial in this context. An individual's baseline physical fitness and mental health, particularly in terms of depression, are critical factors influencing exercise adherence.
Adherence to home exercise programs (HEP) is crucial for optimizing outcomes in patients undergoing physical therapy intervention for low back pain (LBP). The Health Belief Model Theory (HBM) (Roseur,2019) offers valuable insights into the factors influencing adherence behavior in this population. According to the Health Belief Model, individuals are more likely to engage in health-related behaviors if they perceive themselves to be susceptible to a health problem, believe that the problem has severe consequences, consider the recommended actions as beneficial in reducing the risk or severity of the problem, and perceive fewer barriers to taking action. Enhancing exercise adherence not only has the potential to extend lifespan and improve quality of life but also to mitigate healthcare costs.
One important theory to consider is social support, which refers to the assistance, encouragement, and emotional support provided by family, friends, and healthcare professionals (Gupta & Sharma, 2021). According to Johnson, Smith, and Brown (2018), social support plays a significant role in adherence to home exercise programs. Patients who perceive higher levels of social support are more likely to engage in regular exercise. (Harrison, 2017) Doe, and Johnson (2020) conducted a study that revealed a positive influence of social norms on patients' engagement in home exercise programs. Patients who perceive exercise as a socially accepted and expected behavior are more likely to adhere to their exercise routines (Trede FV, 2017). Therefore, interventions that promote positive exercise norms through social modelling, peer support, and community engagement can be effective in promoting exercise adherence (Brewer, BW, Cornelius UE, 2020).
The theory of constructed emotion challenges the traditional view of emotions as discrete, universal categories with specific physiological and behavioral markers correlating to how emotions are constructed in the brain based on experiences, context, and cultural influences (Barrett LF, 2017). Individuals may vary in how they adhere to or manage their emotions, engaging in adaptive emotion regulation strategies to cope with and navigate their emotional experiences effectively (Williams & Marcus, 2015). Drawing upon insights from health behavior, this theory draws that emotions play a

crucial role in shaping individuals' motivation, self-regulation, and perceptions of exercise, thereby impacting their adherence to HEPs. According to the theory, positive emotions, such as enthusiasm and enjoyment, enhance motivation and increase the likelihood of engagement in exercise, leading to improved adherence. Negative emotions, such as anxiety and depression may reduce motivation and willingness to participate, and individuals exhibiting cognitive impairments, such as difficulties with memory and concentration can further impact performance, thereby decreasing adherence (Barret LF, 2017). This shows how emotions influence individuals' perceptions of the benefits and barriers associated with exercise participation, with positive emotions enhancing perceived benefits and negative emotions amplifying perceived barriers (McAuley & Blissmer, 2000).

Kleinman's theory of explanatory model insights from cultural psychology and health behavior posits that individuals develop their conceptions of health and illness within the context of their culture (Winkelman, 2009). The construction of health and illness is understood as a dynamic process influenced by cultural belief systems, which provide frameworks for interpreting and labelling health-related experiences (Kleinman, 1978). Within this framework, culturally based health conceptions are organized into explanatory models, encompassing beliefs about the causes, symptoms, severity, and treatments of illness. Cultural variations in health and illness beliefs, particularly regarding etiological factors, have been well-documented (Helman, 2001; Jobanputra & Furnham, 2005). Beliefs in supernatural causes of illness are prevalent among various cultural groups, influencing perceptions of health and illness. This provides a foundation for understanding how cultural factors shape individuals' perceptions and beliefs about health and illness.

Perceived social barriers theory is also relevant in understanding the social factors that prevent patients from participating in home exercise programs (Daykin & Richardson, 2017). They conducted a systematic review that found a negative relationship between perceived social barriers and exercise adherence. Patients who perceive more social barriers, such as lack of social support or fear of judgement, are less likely to engage in regular exercise (Haestbak L, 2019). Therefore, interventions that address and minimize perceived social barriers through social skills training, group exercise programs, and creating supportive environments can be effective in promoting exercise adherence (Hayden JA Van, 2017).

Clarke et al. (2019) identified several prominent obstacles and interventions to address these barriers effectively. These interventions include training, enablement, education, environmental restructuring, persuasion, modeling, incentivization, and even coercion, which could bring about positive changes in patient behavior. Additionally, for healthcare professionals (HCPs) promoting exercise, interventions focused on training, modeling, education, environmental restructuring, persuasion, and incentivization were recognized as promising strategies. This highlights the importance of multifaceted interventions in promoting exercise adherence.

Kaur et al. (2020) emphasized the impact of the COVID-19 pandemic on public health, revealing psychological challenges stemming from reduced physical activity and social interaction. Home-based exercise, exergaming, dancing, and yoga were suggested as ways to mitigate these challenges, particularly during times of quarantine and social distancing. The study underlines the significance of monitoring fitness levels and intensity through smartphone apps and wearable sensors, indicating the role of technology in promoting exercise adherence.

Pietch, Linder, & Jansen (2022) revealed a shift in the nature and motivations behind sports and physical activity among study participants during the COVID-19 pandemic. Team sports and swimming declined,

while individual sports and non-affiliated physical activities, often involving digital media, increased. This change in sports and physical activity patterns appeared to have a notable impact on the well-being of participants, particularly among students in sport science and humanities disciplines. It underscores the dynamic nature of exercise behaviors and the influence of external circumstances, such as a global pandemic, on exercise choices and adherence.

The study of factors affecting exercise adherence encompasses a broad spectrum of elements, influenced by individual characteristics, influential factors, and level of program. To promote exercise adherence, interventions need to consider these multifaceted aspects, including personal, psychosocial and environmental factors, as they all play a role in shaping the exercise behavior of individuals.

Conceptual Framework

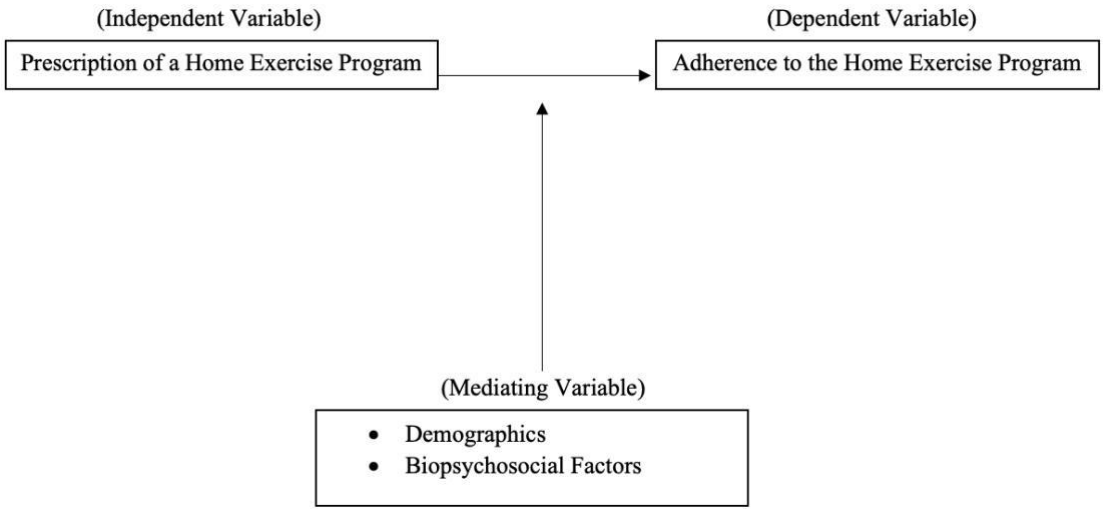

Figure 1.1 Conceptual framework showing the relationship between the variables of this study.

Figure 1 presents the conceptual framework illustrating relationships among variables in the study. It includes the independent variable, prescription of a home exercise program, and the dependent variable, adherence to the program. Mediating variables, demographics (age, sex, socioeconomic status) and biopsychosocial factors (fatigue, time constraints, forgetfulness, family/friend support, difficulty of exercise, interest in exercise, pain, perceived benefits, fit in daily routine, need for physical assistance, and need for a physiotherapist's presence), influence how the prescription impacts adherence.

Statement of the Problem

This study aims to determine the adherence to home exercise program (HEP) in low back pain patients who are undergoing physical therapy intervention in Naval Biliran.

Specifically, this study sought to answer the following questions:

1. What is the profile of the low back pain patient receiving HEP and its association to HEP adherence in terms of:
2. Sex
3. Age
4. Educational attainment

5. Socioeconomic status
6. Religion
7. What is the patient's HEP adherence based on compliance to prescribed exercises in terms of:
8. Frequency
9. Intensity
10. Time
11. Is there an association between patient adherence to HEP and the following biopsychosocial influential factors:
12. Fatigue

b. Time constraint
c. Forgetfulness
d. Family/ friend support
e. Difficulty of exercise
f. Interest in exercise
g. Exercise is painful
h. Exercise can cause injury
i. Exercise is not very beneficial
j. Exercise does not fit daily routine
k. Need for physical assistance
l. Need for physiotherapist's presence

Objectives of the Study

General objective

To investigate adherence to home exercise program (HEP) in low back pain patients who are undergoing physical therapy intervention in Naval Biliran.

Specific objectives

1. To examine whether factors related to demographics including age, gender, socioeconomic status, educational attainment, and religion affect the level of HEP adherence of LBP patients.

2. To determine the patient's HEP adherence based on compliance to prescribed exercises in terms of:

a. Frequency
b. Intensity
c. Time

3. To investigate the association between patient adherence to HEP and the following influential factors:

a. Fatigue
b. Time constraint
c. Forgetfulness
d. Family/ friend support
e. Difficulty of exercise
f. Interest in exercise
g. Exercise is painful
h. Exercise can cause injury

i. Exercise is not very beneficial
j. Exercise does not fit daily routine
k. Need for physical assistance
l. Need for physiotherapist's presence

Null hypothesis

1. There is no significant relationship between factors related to demographics (age, gender, socioeconomic status, educational attainment, religion) and the level of adherence of patients to HEP.
2. There is no significant relationship between possible influential factors and HEP adherence among low back pain patients.

Significance of the study

This study aims to provide valuable information on the factors that prevent patients from performing home exercise programs (HEP). The following are the beneficiaries of the study:

To the PT community. The result of the study will provide the possible and prevalent factors that affect the patient's adherence to home exercise programs. With this, it will be easier for the physical therapists to help address the issue and provide appropriate interventions such as patient education or modifying and personalizing home exercise programs.

To the respondents. This enables the patients or clients to self-evaluate and provide possible solutions on the barriers that affect the home exercise program.

To the family and caregivers of the patients. This will provide awareness on the environmental or personal factors that prevent the patients from performing home exercise programs which can help address the decrease in participation of the patient. This will enable the family and caregivers to be apprised of the ways they can help in improving the performance of the patient such as providing encouragement and support.

To the research community. The result of the study can be a basis in developing a standardized tool in measuring prescribed exercises and serve as related literature for future research and studies.

Scope and Delimitation

This research paper focused on patients with low back pain in Naval, Biliran who are prescribed home exercise programs. It specifically examined home exercise programs and did not consider other forms of physical activity or medical interventions. The study did not delve into specific medical conditions but concentrated on general adherence challenges applicable to patients with LBP. In investigating adherence, researchers explored influential factors affecting LBP patients.

The study is limited to Naval, Biliran and findings are not universally applicable. The study did not explore healthcare provider perspectives or intervention strategies beyond patient adherence. External factors, including healthcare policies and access to healthcare, are not within the study's scope.

Definition of Terms

Home Exercise Program (HEP). A series of exercises that patients with low back pain completes at home to maintain strength and increase therapeutic gains.

Adherence. Is determined by a mean score of 70-100% based on the second part of the survey questionnaire adapted by a similar study of Okezue et al., (2017)
Non-adherence. Failure to follow prescribed treatment plans and is determined by a score of 69% below based on the second part of the survey questionnaire adapted by a similar study of Okezue et al., (2017)
Low Back Pain. Pain felt at the lower region of the spine that may or may not radiate to other parts of the body, caused by either mechanical or non-mechanical factors.
Physical Therapy Intervention. Are evidence-based interventions that help individuals with low back pain improve movement, reduce pain, restore function, and prevent future disability and loss of mobility before it occurs.
Socioeconomic Status. Refers to the social and economic standing of an individual as determined by their monthly household income.

REVIEW OF RELATED LITERATURE

Related Literature

Adherence Measurement Challenges and Interventions

Patients' dedication to prescribed rehabilitation routines is crucial for successful medical interventions, as per the definition by the World Health Organization (WHO), which sees adherence as following healthcare provider recommendations, significantly impacting clinical outcomes.
Nevertheless, the study conducted by Argent et al. (2018) highlights the absence of a standardized measurement method as a challenge in accurately gauging adherence rates. Psychological elements such as self-efficacy, perceived threats and beliefs, locus of control, pain levels, baseline physical activity, psychological symptoms, and social support are acknowledged as pivotal factors influencing compliance with home exercise rehabilitation. A range of interventions, including coaching, real-time exercise guidance, goal setting, self-monitoring, education, automatic reminders, and social support, have been recommended to improve adherence. Stressing the importance of tailored exercise programs that meet individual needs, there is potential for connected health technology to provide more objective measures of adherence. Recognizing the multifaceted nature of adherence, the integration of diverse design features in connected health solutions holds promise in enhancing self-efficacy and supporting patients during rehabilitation. Although ongoing research in this area is advancing, the potential of connected health technology to offer more objective measures of adherence and proactive health management is evident.

Exploration of Patients' Characteristics, Barriers, and Facilitators

Goddard et al. (2020) recently conducted a systematic review of the psychological factors involved in adherence for injury rehabilitation. Although this review primarily focused on athletes and sport-related injuries, the findings provide valuable insights to understanding patient adherence. Specifically, the review of 17 research studies found that adherence was identified by factors from 2 main categories: individual/ person and environment/ situation. Individual-specific factors included the impact of injury, justification for adherence, motivation, self-efficacy, coping, social support, locus of control, cognitive appraisal, and psychological skills. Environmental factors included characteristics, strategies, and effectiveness of the therapist and treatment efficacy.
In their review of patient adherence literature, Goddard and colleagues (2020) highlighted motivation as one particularly influential individual factor on adherence to rehabilitation. This conclusion, combined

with the consistent focus on perceived individual barriers (e.g., low self-efficacy, helplessness) emphasizes the need to focus on patient motivation as a critical determinant of the rehabilitation process and outcome.

The study of Soukayna M et al. (2018) aimed to evaluate a patient's adherence to HEP in physical therapy practice in Lebanon, to learn which factors determine the level of adherence, and the methods used to promote it. A lot of strategies were suggested based on the probable motivators and barriers that affect a patient's adherence. Self-efficacy, time, outcome expectations, patient-therapist interaction, positive and negative reinforcement, emotional distress, and characteristics of the home exercise programs (HEP) are all considered potential motivators or barriers (Chan D and Can F, 2010). Furthermore, exercise misunderstanding and forgetting are major factors that preclude a patient's adherence.

Yalew ES et al. (2022) aimed to assess the adherence levels to home-based exercise programs (HBEP) among patients undergoing treatment at the physiotherapy outpatient department of Amhara regional comprehensive specialized hospitals and identify the factors associated with adherence. Age, gender, education level, occupation, forgetfulness, and interest in exercise were identified as significant factors associated with adherence to HBEP. Younger participants aged 18–35 years exhibited higher adherence rates compared to older individuals. Similarly, male participants were approximately three times more likely to adhere to HBEP compared to their female counterparts. Education level also played a crucial role, with patients with higher educational status showing 4.3 times higher adherence rates compared to those unable to read and write. Interestingly, being a housewife was associated with nearly five times higher adherence rates to HBEP compared to other occupations, potentially due to differences in time availability and lifestyle factors.

Moreover, forgetfulness emerged as a significant barrier to adherence, with participants who remembered their exercises being nearly three times more adherent to HBEP than those who forgot. Similarly, interest in exercise positively influences adherence, with participants interested in exercise demonstrating three times higher adherence rates compared to those who perceived exercise as boring.

Adherence to Home Exercise Programs for Low Back Pain

Altuntaş et al. (2020) investigated patients' adherence to home exercise programs for low back pain, aiming to identify accurately performed exercises and assess adherence levels. They enrolled 121 patients from Hacettepe University Hospital's Physical Medicine and Rehabilitation Department, evaluating exercise accuracy on the 10th day and after one month. Results showed declining patient numbers over time, with a significant increase in accurate application observed for isometric strengthening exercises between assessments ($p < 0.05$). The study emphasizes the need for further research into combined interventions to enhance adherence to home exercise programs. Additionally, they highlight the importance of addressing personal and environmental factors affecting adherence, suggesting that motivational approaches and self-management programs may improve adherence and contribute to reducing healthcare expenditures associated with low back pain.

The study of L'Heureux et al. (2021) titled "Adherence to a home exercise program following a clinical program for non-acute non-specific low back pain: an exploratory study" aimed to investigate adherence behavior in individuals with non-acute non-specific low back pain to a home exercise program after completing a clinical exercise program.

Through a repeated measures design involving 48 participants, the research employed a theory-driven

approach, incorporating the fear-avoidance model, the common-sense model, and the working alliance concept to examine biopsychosocial factors influencing adherence. Results revealed that the regression model explained a substantial portion (50%) of adherence variability, with the global rating of change exhibiting the strongest association. Notably, secondary factors derived from the common-sense model, particularly illness perceptions and outcome expectations, played a significant role in explaining adherence, accounting for 58% of the variance in the global rating of change. These findings underscore the importance of understanding patients' perceptions of change and integrating elements of the common-sense model into treatment approaches to enhance adherence and optimize clinical outcomes in individuals with non-specific low back pain.

Factors Influencing Exercise Adherence in Older Adults

In an informative report study conducted by Fahey et al. (2019), exercise adherence (EA) in older adults (OA) emerges as a multifaceted issue shaped by a complex interplay of biopsychosocial factors. The study highlights the critical role of various elements, including socioeconomic status, marital status, health, physical and cognitive abilities, and depressive symptoms, in influencing EA. Understanding the significance of these multifactorial elements is paramount for promoting an active lifestyle, enhancing overall well-being, and achieving improved health outcomes in the OA population. Notably, the study concluded that adherence rates tend to be significantly higher in supervised programs and are closely associated with factors such as elevated socioeconomic status, marital status, enhanced health status, superior physical and cognitive abilities, as well as the presence of fewer depressive symptoms. Maintaining a commitment to physical activity and exercise can be directly linked to the enhancement of health, a decrease in disease incidence, and an overall improved state of well-being for OA. These key influencing factors, encompassing socioeconomic status, marital status, health, physical and cognitive abilities, as well as depressive symptoms, assume a pivotal role in determining adherence. An in-depth understanding of their profound impact is indispensable for promoting physical activity and enhancing the general welfare of the OA population. Furthermore, addressing these multifaceted factors becomes essential when formulating effective strategies to boost EA, particularly in the realm of health service delivery, which includes considerations relevant to long-term care programs.

Previous studies have demonstrated the advantages of exercise for older adults, but participation was limited because most of the studies required supervised activity in centers. The study conducted by Brandão et. al. (2018), focuses on semi-supervised, at-home workouts. In comparison to a control group, the purpose of this study is to determine whether a semi-supervised, home-based exercise program can enhance the functional mobility and quality of life (QoL) of sedentary elderly individuals. Regular home visits were made to both groups to provide support and assistance. Clinical guidelines are hampered by this approach's lack of evidence. The objective of this study is to show that, even in the absence of continual supervision, a regimented, at-home fitness program can improve the health of older people who are inactive. One of the limitations is that participants cannot be blinded; nevertheless, separate assistants work with each group to reduce bias. The frequency of exercise completion is self-referenced, and family members are enlisted to help with these annotations in addition to monitoring the frequency register during home visits.

A number of studies have identified having depressive symptoms as one of the factors that reduce adherence to physical activity as people in this group show lack of motivation and are more likely to have a sedentary lifestyle. Zang et al. (2023), found that older stroke patients are susceptible to

depressive symptoms, which lower their intrinsic motivation to exercise. These findings are in line with those of Morris et al. (2017) and Collado-Mateo et al. (2021).

Physical activity has a range of physical and psychological health benefits for people of all ages. Structured exercise programs, a kind of exercise, have been demonstrated to be beneficial for older adults. However, despite the well-known benefits of physical exercise, older people aged over 60 do not meet the recommended level of physical activity. Given this projected trend in population aging, older people's engagement with physical health concerns worldwide.

Jones, A. Silva (2018) found that personalized exercise programs should be designed based on individual needs and abilities such as therapeutic exercise and activity programs tailored to a senior's specific goals and mobility limitations. White A. Taylor-Piliae RE, (2017) describes the experiences and perceptions of community-dwelling older people on facilitators and barriers to physical activity participation. Synthesis of the results revealed six major themes and sixteen subthemes: social influences (valuing interaction with peers; social awkwardness; encouragement from others; dependence on professional instruction), physical limitations (pain or discomfort; concerns about falling; comorbidities), competing priorities, access difficulties (environmental barriers, affordability), personal benefits of physical activity (strength, balance and flexibility; self-confidence; independence; improved health and mental well-being), and motivation and beliefs (apathy, irrelevance and inefficacy, maintaining habits). This thematic synthesis revealed that although some older people believe in the potential of physical activity to improve physical and mental well-being, barriers to participation in physical activity include social support and accessibility.

The data generated from this study suggest that older people place higher values on exercise characteristics than on the benefits of exercise and, therefore, their decision on whether or not to engage in exercise programs is more influenced by program design and convenience rather than improvements in the health outcomes provided by the program. To effectively increase exercise participation, these findings suggest that strategies to enhance physical activity among older people must aim to improve environmental and financial access to physical activity programs as well as to raise awareness of the health benefits and minimize the perceived risks of physical activity. Clinicians, for instance, should advocate for the provision of low-cost exercise opportunities close to where people live and should prescribe home-based exercises to be performed in multiple short bouts.

Following the current view that patients' values and needs should remain central to the planning and development of health services, these findings can assist health professionals and policymakers in developing strategies to promote physical activity amongst the older population.

Prevalence of Low Back Pain among Adolescents

In a study by F. Akbar et al. (2019) investigating the prevalence of low back pain (LBP) among adolescents in public high schools in Kuwait, it was found that approximately 70% of the participants reported experiencing LBP at some point in their lives. Moreover, 49% and 31% reported experiencing LBP within the last 6 months and the last month, respectively. These findings suggest a high prevalence of LBP among adolescents in Kuwait, which may indicate a rising trend compared to previous studies conducted over a decade ago.

Furthermore, the study revealed that LBP was more prevalent among females compared to males. This observation aligns with several previous studies indicating that young females experience more LBP

than young males. The reasons suggested for this difference include higher body awareness, perception of pain, and the potential influence of the menstrual cycle on pain perception among females.

Regarding the association between LBP and school bag weight, the study found no significant relationship between the absolute or relative weight of the school bag and LBP. Contrary to recommendations by professional associations, which suggest limiting school bag weight to 10-15% of a student's body weight, the study results did not support such guidelines. Instead, the perceived heaviness of the school bag emerged as a significant factor associated with LBP. Students who considered their bags to be heavy were more likely to report LBP, irrespective of the actual weight of the bag.

Predictors of Perceived Barriers to Physical Activity in the General Adult Population

Herazo-Beltrán et al. (2017) investigated predictors of perception of barriers to physical activity among the adult population in Barranquilla, Colombia. The study involved different places from neighborhoods, streets, housing conglomerates and individuals aged 18 to 69. The researchers have included factors such as sociodemographic variables (age, gender, marital status, socioeconomic level, level of education), perception of barriers that do not allow performance of physical activity, and the level of physical activity. The study found that being an adult from a low socioeconomic level in the city is the risk factor most strongly related with the perceived barriers of lack of motivation and lack of resources. Similarly, Ibrahim et al (2013) report that individuals with lower economic income perceive greater personal barriers, like not having extra energy to exercise after work, along with limited talent and self-discipline for physical activity, among others. Furthermore, the participants in the study recognized lack of resources as a barrier to being physically active, which can be attributed from low socioeconomic level. Lack of information on the different domains of physical activity may also lead people to overlook their homes, workplaces, and neighborhoods as suitable settings for physical activity without considerable cost.

Role of Religion in Physical Activity

A study by Shuval et al. in 2008 explored how to improve understanding of the cultural, religious, and environmental barriers and enablers to physical activity. A total of 45 college students in Arab Isarael was gathered to participate in the qualitative study. Results showed that participants recognized the importance of physical activity in chronic disease prevention, yet most were not regularly physically active. This contradiction could be explained by the fact that many participants live in an extended-family setting that does not emphasize the importance of physical activity. Women often found themselves exercising in odd hours so that they would not be noticed by neighbors. Religion was considered a facilitating factor because the scriptures promoted physical activity. However, quantitative data from a parallel survey revealed no significant difference in physical activity levels between religious and nonreligious Arab students. Furthermore, some religious participants expressed fatalistic views of health, which impede health-promoting behaviors by reducing self-efficacy and increasing external locus of control.

An exploratory study of Robinson & Wicks (2010) assessed the thinking patterns of African Americans (AA) related to personal versus divine control over health status that could affect self-efficacy beliefs and physical activity behavior. Studies have found that generally AA women view their religiosity in terms of being health protective. However, confounding factors related to demographics, socioeconomics, and family or caregiver responsibilities have been cited as potential barriers to such

health protective behaviors as routine physical exercise. A positive correlation between religiosity and physical health has been noted in the literature; however, there is limited empirical evidence as to the relationship between religiosity and psychological outcomes.

The Association of Patient Educational Attainment with Home Exercise Program Adherence and Health Outcomes

Denkmann et. al. (2022) investigated patient's adherence to home exercise program among 184 patients which highlights the persistent disparities in educational attainment. It was found out that educational attainment was significantly associated with most patient characteristics examined at intake as a significant predictor of the number of sessions completed. In this study, patients with little or no formal education were non-adherent, while home exercise program adherence was displayed only in groups with better educational backgrounds. Better adherence associated with improved educational status could be attributed to patients' health literacy levels. A previous study conducted by Gashaw et. al (2021) has demonstrated that higher educational status enhances health literacy, allowing individuals to gather, interpret, and comprehend crucial health information or services necessary for making informed health decisions. Some authors have lamented the low health literacy levels common in the current study environment. Consequently, patients with minimal or no formal education may have struggled to make positive health decisions that would enhance their adherence to home exercise program (HEP). Furthermore, this supports the concept of cultural capital, indicating that patients' educational backgrounds contribute to the success of the home exercise program (Bordeiu, 2018).

Adherence to Home Exercise Programmes and its Associated Factors among Patients Receiving Physiotherapy

The study "Adherence to Home Exercise Programmes and its Associated Factors among Patients Receiving Physiotherapy" by Obinna Okezue et al., (2019) investigated the adherence of 139 patients to home exercise programs (HEPs) and the impact of gender on this adherence. Results showed that men were three times more likely to adhere to HEPs than women. This finding aligns with other research indicating higher levels of physical activity in men compared to women. The higher adherence among men in this study may be attributed to cultural factors that encourage men to be more physically active and provide greater community support, enhancing their adherence to HEPs. Women, on the other hand, may not receive the same level of encouragement, underscoring the need for further research to explore these gender-based differences in adherence to home exercise programs.

Exercise Program-Related Factors

In the studies pertaining to the design of the exercise program, two prominent factors were identified: (1) the individualization of exercise and (2) duration of the exercise program. Several reviews on the individualization of exercise found that tailored exercise is necessary to achieve high levels of adherence. The other factor showed that longer exercise interventions coincided with lower adherence to the program.

From a patient-centered perspective, the individualization of the exercise in terms of type, intensity, duration, frequency, and also in needs and interests, is necessary for effective promotion of adherence (Horne, 2012). Regarding the exercise frequency, it has been shown that one single session each week may lead to lower adherence, probably due to low confidence on the efficacy and the bias caused by the

selection of physically active participants who may be unsatisfied with low exercise frequency (McPhate & Haines, 2013).

Findings related to the duration of the exercise program revealed that longer duration of the intervention results in lower adherence obtained in individuals that underwent the program. With the goal of increasing long-term adherence to physical exercise, there was an emphasis on the need to develop alternatives to avoid intervention that could possibly bore or overwhelm the patients (McPhate & Haines, 2013). This finding may conflict with scientific bases of knowledge since it is known that certain variables may need a few months to be improved by physical exercise, hence, reducing the duration of the interventions may not be an adequate alternative. In that case wherein a specific intervention length is required, researchers and physiotherapists must make an effort to facilitate the incorporation of exercises within the daily living of patients (McDonald et al., 2019).

Enhancing Adherence to Home Exercise Programs for Mothers of Children with Special Needs

According to recent research conducted by R. Alwhaibi et al. (2022), exploring factors influencing adherence to home exercise programs (HEP) among mothers of children with special needs, several key themes emerged. It was found that the alignment of the HEP with the mother's daily routine significantly impacted adherence to the exercises. When the exercises seamlessly fit into the mother's schedule, adherence was higher; however, if the HEP conflicted with their daily routines, adherence was compromised. This finding underscores the importance of considering individual circumstances when designing exercise programs.

Moreover, the study revealed that caregiver stress plays a significant role in adherence to HEP. Caretakers of impaired children often experience high levels of stress, which negatively affect their ability to adhere to the prescribed exercises. Stress management strategies may therefore be crucial in enhancing adherence among this population.

Another notable finding was the association between a mother's sense of insecurity and adherence to HEP. Feelings of doubt and uncertainty regarding their ability to complete the exercises were linked to lower adherence rates. This highlights the importance of addressing psychological factors such as self-confidence and self-efficacy in promoting adherence.

Furthermore, the behavior of the physical therapist was identified as a significant determinant of adherence to HEP. Negative interactions or perceptions of the therapist's attitude could lead mothers to question the necessity of the exercises, thus undermining adherence. This underscores the importance of establishing positive therapist-patient relationships and providing supportive guidance throughout the rehabilitation process.

Conceptual Literature

Many theories and models have been proposed from different disciplines to explain the “adherence to exercise” phenomenon (Spring et al., 2020).

Theory of Cognitive Evaluation

A number of studies have examined the potential influence that motivation has on adherence in rehabilitation through several theories. Eynon et al. (2017) attempted to examine how autonomous motivation and psychological need satisfaction could predict exercise referral scheme adherence based

on the idea of the Cognitive Evaluation Theory (Deci & Ryan, 2000). It states that the motivation can be divided into autonomous or self-determined motivation (e.g. guilt and/or external reinforcement)

Basic Needs Theory

Another theory, the Basic Needs Theory, suggests that effective functioning requires the individual to have 3 psychological needs: autonomy (need to have choice), relatedness (need to be accepted by peers), and competence (need to feel effective when performing a task). That is, satisfaction of the three needs can help individuals thrive and enhance physical and mental well-being, while thwarting or dissatisfaction of these needs can lead to individual frustration and a decrease in physical health and wellbeing (Standage et al., 2018).

TPB-SCT Model

The TPB_SCT Model of Rodrigues et al. (2016) is an integration of the Theory of Planned Behavior (TPB) and Social Cognitive Theory (SCT). This model is represented by a linear diagram that includes four interrelated elements or concepts: (1) normative beliefs which are subjective and descriptive constructs that represent an individual's sense of social acceptance when embracing a new behavior, (2) attitudes toward the behavior which was defined as the degree to which an individual feels positively or negatively about the behavior they wish to engage in, (3) the environment which was defined in the model as a person's physical surroundings which include things like the accessibilities in the community and quality of life, and (4) perceived behavioral control which reflects the beliefs about how simple or difficult it is to adopt a new behavior. All of these affect behavioral intentions, which in turn affect behavior. The study showed some strategies on how each TPB-SCT concept can enhance the adherence or exercise behaviors.

METHODOLOGY

Research Design

This quantitative study utilized a descriptive-correlational design. In situations where little is known about a certain occurrence, a descriptive design is employed. This type of design allowed the researchers to observe, describe, and document various aspects of a phenomenon. There is no experimentation or manipulation of the variables (Sousa et al. 2007).

On the other hand, a correlational design entails the systematic research of the nature of relationships, or associations, between and among variables rather than focusing on direct cause-effect relationship. This design was used to investigate whether changes in one or more variables are related to changes in another variable. Correlations analyze the direction, degree, magnitude, and strength of the relationships or associations (Sousa et al. 2007).

This method involved a collection of demographic data and analysis of adherence. A survey questionnaire was utilized to further explore experiences and perspectives of the respondents. This design allowed the researchers to have a holistic exploration of HEP adherence in patients with low back pain, offering valuable insights for healthcare professionals and policymakers aiming to enhance the effectiveness of physical therapy interventions.

Research Respondents

Inclusion criteria

The respondents of this study consists of patients with low back pain who received or are currently receiving physical therapy interventions in ASP Physical Therapy Center Naval, Biliran.
The eligible respondents met the following criteria: (1) male or female, (2) fall within the age range of 20-60 years old, (3) suffering from mechanical / non-mechanical low back pain (4) receiving physical therapy intervention in the province of Biliran, and engaged in Physical Therapy for LBP with a prescribed home exercise program. Exclusion criteria
Respondents (1) with deficits in their memory, understanding, and communication, and those (2) who do not have a prescribed home exercise program were excluded to avoid biases and inaccuracies in the data collection. This methodical approach aims to enhance the precision of respondent selection, upholding the integrity and relevance of the investigation of HEP adherence among low back pain patients.

Sampling Method

This study employed a complete enumeration sampling method. Complete enumeration, also known as census or exhaustive enumeration, a collection of information from all units in the population. In this case, every patient with low back pain who participated in the study were included and assessed for their adherence to their home exercise program (HEP).
Complete enumeration was chosen to ensure that every respondent in the target population is accounted for, providing a comprehensive understanding of adherence behaviors across the entire population (Arnab, 2017). By collecting data from all respondents, the study aims to capture the full spectrum of adherence within a sampling unit.

Research Locale

The study was conducted in ASP Physical Therapy Center in Naval, Biliran. The respondents answered the survey questionnaire inside the clinic, and returned it within the same day.

Research Instrument

The quantitative approach adapted a survey questionnaire based on previous research studies on patient adherence to HEP (Miller et al., 2024; Slujis et al., 1993; Chan et al., 2010)
The survey questionnaire is divided into three sections. The first section focused on obtaining the respondent's demographics: age, sex, socioeconomic status, educational attainment, and religion. The second section assessed each respondent's adherence to HEP based on their performance on the exercises that were prescribed as part of their physical therapy intervention. Three questions were included based on the following principles: frequency, intensity, and time of exercise which are answerable by a four-point Likert Scale: (1) Always, (2) Often, (3) Rarely, and (4) Never. The responses were assigned percentage weights: 'Always' at 100%, 'Often' at 66%, 'Rarely' at 33%, and 'Never' at 0%. For each respondent the total score from these three responses was calculated and then divided by three to obtain the average. Mean scores ranging from 70% to 100% were considered adherent, while scores below this were considered non-adherent.
The last section of the questionnaire addressed influential factors that aim to determine HEP adherence. To examine the factors that have potential influence on adherence, an instrument utilized by Slujis et al., (1993) was adapted. The last section included 12 questions, which highlights the various influential factors that will be rated on a four-point scale: (1) Strongly Agree, (2) Agree, (3) Disagree, (4) Strongly Disagree.

Validity & Reliability

According to the study of Okezue et al., (2017), who also utilized a similar research instrument, the adapted instrument yielded a high Cronbach's alpha value of 0.76, signifying an acceptable reliability of their assessment of relevant influential factors in their study.

To ensure that all respondents are able to answer the questionnaire in the language they are most comfortable with, the researchers translated the instrument from English to Filipino and vise-versa. The translations were then verified and deemed valid by professors specializing in Filipino and English.

Data Gathering Procedure

The researchers were able to gather 18 respondents using a complete enumeration sampling. A letter of request was sent out to the ASP Physical Therapy Center in Naval, Biliran. Upon establishing the respondent's eligibility for participation in the study, they were thoroughly informed on the study objectives and procedure for the data collection– emphasizing voluntary and anonymous involvement. Informed consent was given and obtained from all respondents. Then, questionnaires were administered with the supervision of at least 2 researchers. The researchers' role was only to clarify unfamiliar terms in order for the respondents to answer the questionnaire with full comprehension.

After the collection, the researchers tabulated the results obtained from the research instrument for data analysis.

Data Analysis

The researchers sought a statistician to analyze the data who utilized a simple frequency count and percentage frequencies for the calculation of the respondents' demographic characteristics & their adherence to HEP, presented in tabular form.

The correlation coefficient analysis, specifically a chi square test, was utilized to determine the relationship between adherence to Home Exercise Program (HEP) and the respondent's demographic characteristics, and between adherence to HEP and the possible influential factors. The data obtained were analyzed using the SPSS Software Version 23. The level of significance was set at ($p < 0.05$) for all tests and relationship analysis.

Ethical Consideration

The protection of rights is a principle that researchers consistently prioritize in their studies. To ensure the rights of respondents are upheld, four ethical guidelines were followed strictly throughout the study. These principles include maintaining anonymity, confidentiality, non-maleficence, and autonomy—to choose whether to participate or decline. First and foremost, the respondents have the autonomy, the right to decline, not participate, or back out of study without being questioned. Secondly, the researchers are committed to ensuring that no physical or psychological harm comes as a result of the study, adhering to the principle of non-maleficence protecting respondents from any injuries. Additionally, as per the Data Privacy Act, all respondent information was kept confidential and securely anonymized while preventing unauthorized access. This refers to personal or sensitive data provided by respondents which will be treated with utmost confidentiality through data anonymization techniques. Moreover, all electronically stored data acquired during this study were password protected to prevent unauthorized access ensuring anonymity, confidentiality, and data integrity.

RESULTS AND DISCUSSION

This study was conducted to 18 respondents living in Naval, Biliran, who are suffering from low back pain and are doing HEPs. These respondents were given an adapted questionnaire to gain information limited only to their demographic profiles, their adherence to HEP and their view on biopsychosocial influential factors affecting their adherence.

Frequency Count of Demographic Variables

Table 1. Age of the Respondents

Age	Frequency	Percentage
21-30 years old	6	33.33
31-40 years old	6	33.33
41-50 years old	3	16.67
51-60 years old	3	16.67

Table 1 displays the frequency of the age of the respondents. It can be observed that most of the respondents with low back pain receiving HEP are those ages between 21 to 30 years old, and 31 to 40 years old with both six respondents each. The other six were split in half with those respondents between 41 to 50 years old, and those between 51 to 60 years old, both having 3 respondents each.

Table 2. Sex of the Respondents

Sex	Frequency	Percentage
Female	11	61.1
Male	7	38.9

Table 2 displays the frequency of the sex of the respondents. It shows that there are more female respondents with low back pain receiving HEP treatment with 11 respondents compared to the seven male respondents.

Table 3. Educational Attainment of the Respondents

Educational Attainment	Frequency	Percentage
Elementary School	1	5.6
High School	1	5.6
College Undergraduate	4	22.2
College Graduate	11	61.1
Others	1	5.6

Presented in Table 3 are the frequency of the highest educational attainment of the 18 respondents receiving HEP treatment. Most respondents are college graduates with 11 counts, 4 are undergraduates in college, 1 finished high school, 1 reached elementary school, and the other last went through vocational learning.

Table 4. Socioeconomic status of the Respondents

Monthly Income	Frequency	Percentage
Less than 20,000	1	5.6
20,000-40,000	5	27.8
40,000-80,000	6	33.3
80,000-100,000	2	11.1
More than 100,000	4	22.2

Table 4 showcases the socioeconomic status of the respondents depending on their monthly income. A total of 6 respondents have a total monthly income ranging between 40,000 pesos and 80,000 pesos. Followed by 5 respondents having a monthly income of 20,000 to 40,000 pesos. Meanwhile, 4 respondents have a total monthly income of more than 100,000 pesos. The other 2 respondents have a monthly income between 80,000 to 100,000, and the last one respondent has a monthly income of less than 20,000 pesos.

Table 5. Religion of the Respondents

Religion	Frequency	Percentage
Roman Catholic	14	77.8
Born Again Christian	1	5.6
Oneness	1	5.6
Others	2	11.1

Presented in table 5 is the frequency of the religion of the respondents' receiving HEP treatment. A total of 14 respondents believe in Roman Catholicism which is 77.8% of the total sample. On the other hand, 1 respondent is a Born Again Christian, and also 1 is a believer of Oneness. However, 2 respondents did not specify their religion.

Frequency Count Respondents' Adherence of Respondents to HEP

Table 6. The Prescribed Parameters of HEP and Level of Adherence of the Respondents

Prescribed Parameters of HEP	Adherence to HEP	
	Non-Adherent	Adherent
Frequency:	**7 (100.0%)**	**11 (100.0%)**
Never	0	0
Rarely	4	1
Often	3	2
Always	0	8
Intensity:	**7 (100.0%)**	**11 (100.0%)**
Never	0	0
Rarely	3	0
Often	3	2
Always	1	9

Time:	**7 (100.0%)**	**11 (100.0%)**
Never	0	0
Rarely	3	0
Often	4	1
Always	0	10

Table 6 presents the frequency of the adherence of the respondents to HEP according to their performance based on the prescribed parameters of HEP. It can be seen that there were 11 respondents that adhered to HEP. Eight respondents always perform HEP according to the prescribed frequency, two respondents often perform the prescribed frequency and only 1 rarely performs the prescribed frequency. On the other hand, it was found that seven respondents are non-adherent to HEP. Three of which often perform the prescribed frequency and four respondents rarely.

As also presented in the table, prescribed intensity in performing HEP. It is revealed that 11 respondents adhere to HEP. Nine of them always perform the prescribed intensity and two often. Followed by respondents that are non-adherent to HEP with 7 respondents out of 18. One of them always performed the prescribed intensity to HEP, and three respondents each who rarely and often performed the prescribed intensity.

Additionally, it was also revealed in the table the prescribed time in performing HEP. The majority of the respondents adhere to HEP with 11 respondents. 10 of them always perform the prescribed time and only one often performs the prescribed time. Lastly, there were seven respondents who do not adhere to HEP. About four respondents were found to often perform the prescribed time and three rarely.

Roughly two-thirds of the respondents in our study were adherent to HEP (11/18).

This suggests that there is high adherence to HEP among LBP patients in the community.

Association Between Demographic Variables and Adherence to HEP

Table 7. Association between Profile of the Respondents and their Adherence to HEP

Profile Variables	**Adherence to HEP**		**χ^2**	**p-value**
Age	**Non-Adherent**	**Adherent**	15.896	0.320
21-30 years old	2	4		
31-40 years old	2	4		
41-50 years old	2	1		
51-60 years old	1	2		
Sex	**Non-Adherent**	**Adherent**	0.076	0.783
Female	4	7		
Male	3	4		

Table 7 continued….

Educational Attainment	**Non-Adherent**	**Adherent**	3.368	0.498
Elementary	0	1		
High School	1	0		
College Undergraduate	1	3		
College Graduate	5	6		
Others	0	1		
Socioeconomic Status	**Non-Adherent**	**Adherent**	5.166	0.271
Less than 20,000	0	1		
20,000-40,000	1	4		
40,000-80,000	3	3		
80,000-100,000	2	0		
More than 100,000	1	3		
Religion	**Non-Adherent**	**Adherent**	2.371	0.499
Roman Catholic	5	9		
Born Again Christian	0	1		
Oneness	1	0		
Others	1	1		

Table 7 presents the association between the profile of the respondents and their adherence to HEP.

Relationship with Age

As seen from the table, age and adherence to HEP showed no significant association with p-value of 0.320 which is greater than 0.05. In the same way, some authors like Jette M et al. (1998) also found no association between age and HEP adherence. However, some authors have reported that adherence is reduced with increasing age amongst patients. Okezue et al. (2020) revealed a decline in the adherence of older adults, as they were nearly six times less likely to adhere to HEPs when compared to the youngest population. Older patients might not necessarily deviate from executing home exercise programs (HEPs), as presented in our study, which indicates that non-adherence does not significantly correlate with age. Therefore, age-specific interventions may not be necessary to address non-adherence in this context.

Relationship with Sex

It can also be gleaned from the table that sex is not associated with adherence to HEP of the respondents (p value = 0.783). Jette M. et al also found that there is no association between sex and HEP adherence. In contrast, Okezue et al. (2020) found that men were three times more likely to adhere to HEPs than women. In support of this, another HEP study by Pickering et al. (2013) found that men performed 15% more repetitions than women; although this difference was not reported as statistically significant.

Relationship with Educational Attainment

As revealed in the table above, the educational attainment variable posted a p-value of 0.498. This indicates that educational attainment and adherence to HEP is not associated with each other. A study of Maurizio et. al. (2020) seemed to support this finding, which explored the potential link between educational attainment and HEP that there is no association in between. However, accuracy with the association of low educational level is lacking. Contrariwise, Obinna et. al (2019) reports a significant association between adherence to HEPs and educational status, provided that people with the highest educational attainment were more likely to adhere to exercise programmes (Chinedu, 2020). Better adherence linked to improved educational status might be attributed to patients' health literacy levels, enabling individuals to acquire, process, and comprehend basic health information and services necessary for making appropriate health decisions.

Relationship with Socio-Economic Status

It can be observed that socio-economic status accounted for a p-value of 0.271. This result indicates that socio-economic status and adherence to HEP showed no significant association with each other. This finding is consistent with several related studies. For instance, Gajdosik & Campbell (1991) found that socioeconomic status (SES) was not significantly predictive to compliance in mothers with their disabled children HEP. Although in the study, the therapists hypothesized that mothers with higher SES would have greater compliance levels than mothers with low SES, the social class of the family was not related to follow through when measured by the journal. Despite the reason that SES can be easily identified and can potentially be considered as a factor to measure compliance levels, they do not necessarily predict adherence to home exercise programs. However, the study presented above by Herazo-Beltran in 2017 indicated relationships between SES and adherence to exercise. The study reveals low socioeconomic status as the strongest risk factor for perceived barriers such as lack of motivation and resources. Likewise, Ibrahim et al. (2013) report that individuals with lower incomes face greater barriers, such as low energy after work and limited self-discipline.

Relationship with Religion

As revealed in the same table above, it was found that religion is not significantly associated with adherence to HEP with p-value greater than 0.05 (0.499). This finding aligns with a similar study of Niederdeppe et al. in 2007 where it showed no significant difference in physical activity levels between religious and non-religious Arab students. Conversely, a study by Shuval et. al (2008) found a modest association between religious involvement and higher adherence to health behaviors, considering religion as a facilitating factor to adherence since scriptures encouraged physical activity.

Association Between Possible Influential Factors and Adherence to HEP

Table 8. Association between Adherence to HEP and Biopsychosocial Influential Factors of the Respondents

Biopsychosocial Influential Factors	χ^2	p-value
Fatigue	0.117	0.732
Time Constraint	3.542	0.170
Forgetfulness	2.010	0.570
Family/Friend Support	3.273	0.195
Difficulty of Exercise	0.795	0.851
Interest in exercise	1.679	0.642
Exercise is painful	3.974	0.264
Exercise can cause injury	8.290	0.016
Exercise is not very beneficial	4.295	0.117
Exercise does not fit daily routine	7.748	0.052
Need for physical assistance	1.169	0.760
Need for physiotherapist's presence	3.273	0.351

Table 8 shows the association between adherence to HEP and biophysical influential factors of the respondents. Among the 12 biopsychosocial influential factors, only 1 had a significant association to patients' adherence to HEP which is *"Exercise can cause injury"*, with a p-value of 0.016. Meanwhile, the other 11 influential factors were found to have no significant association to patients' adherence to HEP which have p-values greater than 0.05. Fear of injury has been reported as a perceived barrier to physical activity in a general adult population (Herazo-Beltran et al., 2017), which supports our present finding. Some authors have also noted that patients reported fear of falling and concerns about getting injured while exercising as reasons for non-adherence to HEPs (Miller et al., 2014).

Summary of Findings

The study was conducted to 18 respondents from Naval, Biliran, who are suffering from low back pain and currently doing HEPs. The respondents were given an adapted questionnaire containing 5 questions about their demographic profiles, three questions about their performance on the prescribed parameters of prescribed exercises which was used to determine the level of adherence towards HEP, and 12 questions about their view on biopsychosocial influence factors, and three questions about the prescribed parameters of HEP which was used to determine the level of adherence each respondent has towards HEP.

The demographic profiles obtained from the respondents are their age, sex, educational attainment, socioeconomic status, and religion. In terms of age, 6 were aged 21-30 years old, also 6 were aged 31-40 years old, 3 were aged 41-50 years old, and also 3 were aged 51-60 years old. Regarding the respondents' sex, 11 were female and 7 were male. In terms of educational attainment, 1 finished elementary school, 1 graduated high school, 4 were undergraduates in college, while 11 graduated college, and 1 finished vocational studies. Regarding the respondents' socioeconomic status which was determined through their monthly household income, 6 had a monthly income between 40,000 and 80, 000, 5 had an income between 20,000 and 40,000, 4 had an income of more than 100,000, 2 had an

income of 80,000 to 100,000, and 1 had a monthly income of less than 20,000. Lastly, in terms of religion, 14 were Roman Catholics, 1 Born Again Christian, 1 Oneness, and 2 respondents did not disclose what their religion is.

The prescribed parameters of HEP and the level of adherence of the patients towards HEP was also studied. In reference to the adherence of the patients to HEP, 7 were non-adherent and 11 adhered. Regarding the frequency of doing HEP, 5 answered rarely, 5 also answered often and 8 answered always following the prescribed frequency of HEP. In intensity, 3 answered rarely, 5 answered often, and 10 responded that they always follow the prescribed intensity or amount of effort needed in HEP. Lastly, with regards to time, 3 answered rarely, 5 responded often and 10 admitted to doing the prescribed amount of time to do HEP.

In analyzing the association between the profile variables and the adherence to HEP, no significant association was observed between the respondents' demographic profiles and their adherence to HEP. Specifically, no significant association was found between the respondents' socioeconomic status and adherence to HEP with a p-value of 0.271, age and adherence to HEP with 0.320, respondents' sex and adherence to HEP with 0.783, educational attainment of the respondents and their adherence to HEP with 0.498, and the respondents' religion and adherence to HEP showed a p-value of 0.499.

The association between biopsychosocial influential factors and adherence to HEP was also analyzed. The results show that a significant association was only present between the patients' adherence to HEP and the factor mentioning that exercise can cause injury, with a p-value of 0.016. The other 11 biopsychosocial influential factors namely: fatigue, time constraint, forgetfulness, family/friend support, difficulty of exercise, interest in exercise, exercise is painful, exercise is not very beneficial, exercise does not fit daily routine, need for physical assistance, and need for physiotherapist's presence, showed no significant association to the patients' adherence to HEP.

CONCLUSION

The following conclusions were derived from the findings of the study:

1. Out of the 18 respondents, 11 were adherent and 7 were not, suggesting a high rate of adherence of LBP patients in Naval, Biliran
2. The profiles of the respondents show that most of them who feel low back pain and undergoing HEP are those from ages 21 to 40 years old. In terms of sex, more female respondents receive HEP than men. Moreover, most respondents have finished college. Regarding the respondents' socioeconomic status, which was based on their monthly household income, a third of the respondents receive an income between 40,000 and 80,000 pesos. Lastly, the most common religion among the respondents is Roman Catholicism.
3. The association between the respondents' demographic profiles and their level of adherence to HEP shows that no significant association was present between the level of adherence to HEP and their demographic profiles.
4. Among the 12 biopsychosocial influential factors, significant association was found only between the adherence to HEP of the respondents and the belief that exercise can cause injury.