Impact of Health Insurance on Accessibility of Physical Therapy's Patients at King Fahd Hospital of the University-AL Khobar

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Abstract: Physiotherapy plays an essential role in modern healthcare delivery as it provides a wide range of non-surgical treatments to treat chronic diseases. Physiotherapy includes many clinical guidelines as treatment and rehabilitation services improve patients' lives. Changes in health insurance policies and coverage affect costs Borne by patients and their families; this can lead to a variety of services and barriers to appropriate healthcare. The study goal is to describe the impact of Health Insurance on Accessibility among Physical Therapy Patients at King Fahd Hospital of the University-AL Khobar to describe the benefits of Health insurance on accessibility among physical therapy patients and to explore the barriers and challenges of Health insurance on accessibility among physical therapy patients.We carried out a descriptive cross-sectional survey design to describe the physical therapy patients' perception toward health insurance accessibility at King Fahd Hospital of the University-AL Khobar. Data were collected on Monday, March 9th, 2021, through self-administered questionnaires that 740 surveys were distributed, and only 544 patients participated in the survey. The data finished collecting on April 1st, 2021. Statistical Package for Social Science (SPSS) was used to analyze the data.

Overall, 544 respondents completed the survey. This study clearly shows that access to health care services is a significant concern that accessibility of physical therapy was confirmed by 36.6%. Low accessibility due to the high cost of physical therapy was reported by 36.9% of patients included. Accessibility to physical therapy upon need was not written in a high frequency 30% versus 29.6% as not sure. Accessibility to facilities was highly reported by 29.6%; insurance companies enhancing accessibility to physical therapy was not approved by the majority of the included participants 37.1%. Also, insurance companies offering multiple choices for physical therapy were only agreed on 26.8%. Finally, the quality of service differs based on the facility's nature and was approved by 50.2% of included patients. Direct access to physical therapy is an example of providing an innovative primary care service that is achievable, acceptable to both users and service providers, and health insurance will positively impact access to the healthcare system. However, accessibility is a necessary term that must be taken care of to define the need

for healthcare to deliver healthcare services and organizational structures to match the community's needs.

Keywords: Direct access, physical therapy, health insurance, Referral.

Framework of the study

1.1 Introduction

Physical therapy plays an essential role in modern healthcare delivery. It provides a wide range of non-invasive treatments to treat chronic diseases and is an inherent part of many clinical guidelines. In line with global and regional public health strategies, the scope of physical therapy has expanded to include health promotion and disease prevention. Physical therapy is included in many clinical guidelines and is a commonly used health service (E.J., 1926). Treatment and rehabilitation services improve patients' lives. Medical insurance is a method of protecting against the financial risks of incurring medical expenses (Xiong et al., 2018). Inadequate access to quality health care for poor families is an important issue for both low- and middle-income countries. These countries have recognized and highlighted the existing gap in accessibility and governments need to develop effective strategies to improve equity. Therefore, the medical insurance system in general is designed to improve accessibility and equal use of health services and protect the population from medical impoverishment (Bodhisane & Pongpanich, 2019).

Changes in health insurance policies and coverage have a significant impact on the costs borne by patients and their families. This may lead to a diversity of services and barriers to appropriate healthcare. Coverage of treatment and rehabilitation services has been a dynamic process over the past several decades. In the rapidly changing health care system, access to physical therapy has changed through health insurance. Despite the changing landscape of health insurance coverage, treatment and rehabilitation services remain essential to improving the function and quality of life for patients receiving physical therapy as the primary treatment for their disease (Carvalho et al., 2017). Health insurance coverage should protect individuals from medical debt. However, unlike most insurance products, which offset losses due to events with low probability and high consequences, health insurance plays the dual role of promoting measures to prevent such events and protect against loss resulting from them (Herman et al., 2011). In employer-sponsored insurance plans, physiotherapy is a shared benefit but not available globally. A 2011 US Department of Labor (DOL) study showed that 70% of private employment-based insurance plans reported that physical therapy was covered (Sandstrom et al., 2013).

One of the factors behind the difference in approaches to health incentives over time and types of coverage is uncertainty about incentives' effects. If the incentives motivate individuals to reduce health risks, then health plans will succeed in redirecting resources from treating patients to preventing disease. Therefore, physiotherapy had to be included in the country's health plans (Madison et al., 2013). The estimated health insurance coverage gain is an estimate of the coverage gain it is associated with the provisions of the Affordable Care Act. That is, the coverage gains estimate reductions in the number of uninsured people after controlling for general economic conditions (through employment status), secular trends, geographic location, and demographic changes (Uberoi et al., 2016). Korea has one national health insurance program, and all citizens are covered under this program, which represents 97% of the population, that is, nearly 50 million people. Claims submitted by health care providers are reviewed by reviewing and evaluating health insurance for all treatments and from the natural therapy (Kim et al., 2013). The health insurance system covers exceptional medical expenses, but health care is expensive and long-term (Kerssens

& Groenewegen, 2005). Modifying health insurance benefit designs provides an opportunity to create more excellent value in naturopathy by encouraging patients to choose conservative, non-invasive management that will lead to long-term economic and social benefits, as health insurance companies offer a range of benefit designs with built-in financial incentives that influence patient choice. One of the features was the restriction of access to service providers (Carey et al., 2019). Differences in rates of universal health care use or receiving health care for specific conditions may reflect differences in individuals' perceived need for medical care rather than differences in access to healthcare for patients who desire it. An alternative that may be easier to explain is to look at the specific use of symptoms. In other words, if the patient had a specific condition such as chest pain, coughing, or ankle sprain, did she receive medical attention? Few studies have used this approach to examine whether the uninsured are less likely to receive necessary medical care (Baker et al., 2000).

Many studies claiming to show the causal effect of health insurance on health do not convincingly because the observed relationship between insurance and good health may be driven by other, unobserved factors (Levy & Meltzer, 2008; Oscier et al., 2008). At the national and international levels, direct access for patients to physiotherapy services is currently being discussed. Direct access to patients seeking physiotherapy care may reduce waiting time and costs and be beneficial to patients and health insurance companies. Reliable and correct data are needed to assess the situation (Kopkow et al., 2017).

Many modern health systems claim to provide universal coverage for those in medical need and provide equitable access to health services. So, clinicians and therapists must develop strategies to improve adherence to hard-to-reach groups and supply in low-supply areas (E.J., 1926).

1.2 Statement of problem

The researcher will investigate clinicians' perspectives on King Fahd Hospital of the University-AL Khobar, in Saudi Arabia to know the impact of Health Insurance on accessibility among physical therapy patients. The study will be conducted on physical therapy patients to see the effects of Health Insurance on accessibility.

This study aimed to know the impact of Health Insurance on Accessibility among Physical Therapy Patients at King Fahd Hospital of the University-AL Khobar. Direct access and self-referral emerge as the goal that requires coordinated strategic action. Direct access to patients seeking naturopathy care may reduce waiting time and costs, and thus be beneficial to patients and health insurance companies (Kopkow et al., 2017).

1.3 Research Goals and Objectives

The study goal is to describe the impact of Health Insurance on Accessibility among Physical Therapy Patients at King Fahd Hospital of the University-AL Khobar to describe the benefits of Health insurance on accessibility among physical therapy patients and to explore the barriers and challenges of Health insurance on accessibility among physical therapy patients.

1.4 Significance of the study

Several studies were conducted to investigate accessibility among insured physical therapy patients in different parts of the world, but this study has not been conducted in Saudi Arabia before nor has it been conducted at King Fahd Hospital. The results of this study can be used to

help medical stakeholders to undertake the appropriate development of health insurance plans that ensure coverage of physiotherapy patients' needs and improve accessibility in the future.

1.5 Delimitations

Subjective delimitation: The study was delimited because it focused more on Health Insurance on accessibility among physical therapy patients at King Fahd Hospital of the University-Alkhobar. Indeed, Changes in health insurance policies and coverage have a significant impact on the costs borne by patients and their families. The study was done as it was identified that Saudi Arabia had not done proper research and development of Health insurance on accessibility among physical therapy patients.

Time delimitation: The researcher ensured that an adequate amount of time was allocated when collecting data from the study participants. Similarly, the researcher provided that the work plan assigned sufficient amounts of time to all the activities. The research was also limited in the number of health facilities as it included one hospital, only King Fahd Hospital of the University-AL Khobar.The researcher will complete the study within a specified time during the graduation year.

- **Spatial delimitation:** We chose King Fahd Hospital of the University-AL Khobar because it is nearby where the researcher lives.

1.6 Summary

Physiotherapy plays an essential role in modern healthcare provision as the scope of physical therapy has expanded to include health promotion and disease prevention Changes in health insurance policies and coverage have a major impact on the costs borne by patients and their families. This can lead to a variety of services and barriers to adequate healthcare. Covering treatment and rehabilitation services has been a dynamic process over the past several decades. Therefore, it is imperative that treatment and rehabilitation services in the healthcare system be covered by health insurance to improve the function and quality of life of patients who receive physical therapy as the primary treatment for their disease. Therefore, the study aimed to determine the effect of health insurance on accessibility among physiotherapy patients at King Fahd Hospital, Khobar University.

Literature Review

2.1 Background

Physical therapy and rehabilitation services are an essential component of the healthcare chain to address the pain and functional limitations that accompany many conditions (Rommel & Kroll, 2017). Health insurance increases the amount of healthcare consumed, and many medical interventions have proven beneficial. But mounting evidence shows that many individuals receive care that offers little to no clinical benefit. The most important reason for the difficulty in knowing how health insurance affects health is that an individual's health insurance coverage is almost always determined by some of the same factors determining health status. Thus, the different outcomes for the insured and uninsured individuals may result from differences in health insurance, or they may be caused by other differences between individuals with or without health

insurance. Other differences that the researcher may or may not notice. Health conditions may also directly affect insurance coverage (Levy & Meltzer, 2008).

Changes in health insurance policies and coverage greatly affect the out-of-pocket costs for patients and their families (Carvalho et al., 2017b). David and his colleagues said that lack of health insurance is a major impediment to receiving medical care, even for severe and ill symptoms (Levy & Meltzer, 2008). Also, In a study by Shou Hisa et al found that universal health insurance removed some barriers to healthcare for newly insured people so it appears that co-payment design in the insurance system has little effect on limiting Medicare utilization (Shou-Hsia & Tung-Liang, 1997).

Equity requires that health care services be distributed in an equitable manner. He defined the just method as one in which everyone has an equal opportunity to access the system (Yarborough, 1994). In the study by Herman et al found that health insurance rarely provides complete protection against financial loss due to illness or injury. Instead, increasing portions of medical costs are paid directly by the insured in the form of co-payments, deductions, exclusions and restrictions on covered benefits, co-insurance provisions, and lifetime spending ceilings (Herman et al., 2011).

In 2012, a study by Sandstorm et al, expressed that the Board of Directors of the American Physical Therapy Association expressed its concerns about designing the benefit structure of the insurance plan for physiotherapy precisely. It included concerns such as escalating the requirements for out-of-pocket payments and combining the limits of physiotherapy benefits, which led to different structure benefits of physical therapy according to the insurance company (Sandstrom et al., 2013). It was similar to another study by Rommel et al that found coverage of treatment and rehabilitation services has been a dynamic process over several decades. As the healthcare system was rapidly changing in America, access changed as well, and it was difficult to predict the impact that changes would have on physiotherapy services today (Rommel & Kroll, 2017). Also, in Sandstorm study found that physical therapy was a covered feature in individual insurance plans where physical therapy was included in the benefit of joint discipline with occupational therapy and speech therapy (Sandstrom et al., 2013).

Kopkow et al study found that supply is heterogeneous for physiotherapy services in Germany, which was clarified across all statutory health insurance companies. The burden of disease was high compared to health insurance coverage of physiotherapy measures. Moreover, it is vital to meet the specific requirements of the insured. Regarding treatment with transparency, they are developing and implementing standards for the structure, process, and quality of physiotherapy services. This requires a cultural change in the understanding of quality management in physical therapy and structural support through health insurance coverage (Kopkow et al., 2017a). It was similar in Randy and colleagues' study on health insurance status found that the delay time did not differ between patients with and without health insurance. However, there are gaps between health insurance types, reimbursement, receipt of medical procedures, prescription of medications, and health outcomes, including deaths (Foraker et al., 2008).

In a study by Xinliang Liu and colleagues in 2018, they said that the impact of receiving physiotherapy and the timing of initiation of physical therapy on health care use and costs at the national level may differ due to the geographical variation in care seeking and payment levels. For example, co-payment may affect health insurance tolerance, mainly on physical therapy and when

to initiate physiotherapy. Therefore, future research should examine the effect of patient cost-sharing on the use and timing of physical therapy and related healthcare costs (Liu, X, Hanney, W, & Masaracchio, M, 2018).

Medical insurance is a method of protecting against the financial risks of incurring medical expenses. The medical insurance system in general is designed to improve accessibility and equal use of health services and protect the population from medical impoverishment. The expansion of medical insurance coverage will motivate more people to seek medical care. The co-payments and payments associated with the medical insurance system will affect the quantities and methods of services of hospitals and doctors and their quantities, the cost and the flow of care request for medical consumption of patients as medical insurance plays an important role in directing the flow of patients to seek care in hospitals of different level (Xiong et al., 2018).

The timing of physiotherapy is essential, and that a shorter period of direct access group complaints may be responsible for a better outcome. Two major concerns regarding direct access were that physical therapists would be overwhelmed with referring patients themselves and that insurance company costs would rise (Leemrijse et al., 2008).

2.2 Theory

There is no doubt that in the coming year's rehabilitation workers will face challenges and changes in the norm. It remains to be seen if these changes will allow full access to medical services and rehab services for all Americans or if cost restrictions lead to more significant access restrictions (Boninger et al., 2012). Direct reach and self-referral appear as a goal that requires coordinated strategic action. This goal is unlikely to be achieved at an individual level and requires leadership from professional physical therapy associations and service leaders who work on several strategies (Bury & Stokes, 2013). Direct access to patients seeking physiotherapy care may reduce waiting time and costs, and thus be beneficial to patients and health insurance companies. To critically assess this situation, reliable and correct data are needed (Kopkow et al., 2017b).

Most insurance companies reimburse the direct access costs without additional restrictions (Leemrijse et al., 2008). The use of health services, or access to health services, has been severely affected due to the existence of a chronic condition within the family and that a regular situation has arisen in the health insurance system, known as reverse selection, where people exposed to suffering from health problems are more likely to obtain health insurance, because the system Insurance cannot discriminate against this group of the population, which may compel them to do so, under the law, as well as other restrictions so it is highly recommended that the government improve financial management and spending systems at all levels of the health system. In addition, the government should rely on evidence-based priority setting to determine which of its limited resources should be developed and strengthened (Bodhisane & Pongpanich, 2019).

Helen Levy and colleagues measured accessibility by convincing evidence that health insurance can improve some health measures for some subpopulations, some, if not all, of the same subgroups that would be potential targets for coverage expansion policies (Levy & Meltzer, 2008). But Durant et al found that many physical therapists support direct access to physical therapy as it will improve the healthcare system by reducing health care costs and reducing delays before starting physical therapy. Patients reported that by delaying appropriate medical care, they risked worsening their physical disability and harming their health (Durant et al., 1989). Another study

by Kathleen Carey and colleagues found that health insurers implemented a set of benefit designs with embedded financial incentives that influence patient choice (Carey et al., 2019).

The McCallum and Diangles study noted that comparing reviews on direct access is difficult due to how direct access to physical therapy has been determined across studies and data collection applications (McCallum & DiAngelis, 2012). Also, in a survey by Holdsworth and colleagues, the case for direct access and self-referral for physiotherapy is supported by mounting evidence showing that patient safety is not at risk, that it is likely to lead to lower health service costs as a result of fewer doctor care In an American study, opponents of doctors argued that direct access would jeopardize cost and safety but did not provide any evidence to support their position (Shoemaker, 2012).

As it is known that insurance status is related to physical therapists' access to physical therapy use (for example, number of visits) is less exact. So Machlin et al. reported that people who live in urban areas, the northeast, and the Midwest have more physiotherapy visits than people who live in a rural or western census area. However, these researchers were unable to find a relationship between age or insurance status and the number of treatment visits for each care episode (Machlin et al., 2011). Mitchell et al study found that some of the dire arrival episodes included claims regarding inpatient hospital care, medication, or outpatient radiographs, all services requiring a doctor's prescription. The use of hospital services or imaging procedures during the direct access episodes had little to do with the number of "physiotherapy visits or costs of the episode. In contrast, direct access episodes that contained doctor claims were associated with increased physical therapy and higher costs (Mitchell & De Lissovoy, 1997). " In a Webster et al study found that, direct access acknowledges professional responsibility and increases the challenge for physical therapists, as they now make independent decisions about further interaction with patients (Webster et al., 2008).

Another study by Samuel and colleagues demonstrated that jobs, employment characteristics, and marital status are significant determinants of insurance access inequalities, but that health policy is difficult to influence directly. Many of the existing disparities remain unjustified, which poses a challenge to establishing procedures to eliminate them (Zuvekas & Taliaferro, 2003).

Joseph and his colleagues even found that the lack of health care insurance was associated with a significant decrease in the use of recommended healthcare services; Increasing income did not reduce the difference in employment between uninsured and insured adults. Therefore efforts to improve the use of recommended healthcare services among the uninsured should focus on patient education and expanding insurance eligibility for low-income and high-income adults (Ross et al., 2006).

In a Robinson study found that major health plans seek to influence patient behavior through benefit designs that cover a wide range of services but with high co-payments and tiered network designs that cover a wide range of physicians. The variable medical management and co-insurance programs provide incentives for patients to improve healthcare management and physical therapy cases (Robinson, 2004). Several international studies revealed that patients with direct access received fewer prescriptions, were referred more often for radiographs and secondary care and had less need for more invasive treatments (Daker-White et al., 1999;Holdsworth et al., 2007). Eric and his colleagues said that costs can affect patients' access to services, and without treatment, some patients may not be able to return to work or engage in other activities of daily living. Patients are also subject to arbitrary visitation restrictions annually which do not take into account the initial

diagnosis, severity, variation in rehabilitation progression, or complications. As a result, patients are responsible for escalating provider fees if they choose to continue receiving services other than their insurance benefits (Carvalho et al., 2017a).

Despite the increasing number of states allowing direct access, many states still have provisions restricting a consumer's ability to access physical therapy directly. Removing these provisions can be very difficult as Michael's study revealed that the success or failure of adopting a direct access policy is a complex and multi-factor issue. It may require useful clarification of how the diagnosis is used by physical therapists and the communication of evidence that direct access does not increase costs or reduce safety to the public (Shoemaker, 2012). Results of Miranda J Rogers and colleagues' study revealed that access to physical therapy care remains limited despite expanded health insurance coverage (Rogers et al., 2018). American research aimed to improve health insurance access by providing a market for private health insurance plans and helping uninsured people obtain health insurance benefits (Sandstrom et al., 2013).

In Leemrijse et al study found that many patients visited a physical therapist without a doctor's referral, direct access did not lead to increased use of physical therapy services. However, patients who referred themselves to a physical therapist had different features from those referred by their physician (Leemrijse et al., 2008). In another study, in the first year of direct access to physical therapy, a large, specific group of patients took advantage of this new opportunity, although there was no increase in the number of patients who visited physical therapist. Patients with direct access received fewer treatment sessions compared to referred patients, and treatment outcomes were positive. Bearing in mind that self-referring patients skip a visit to their GP, direct access may save healthcare costs in the future (Crout et al., 1998). In Hon et al study found that direct access improved functional outcomes and cost-effectiveness at clinical and healthcare system levels (Hon et al., 2021).

In Swinkels et al study found that healthcare insurance companies pay self-referral for physiotherapy in health insurance packages. Sometimes, this reimbursement is limited to the health insurance company's preferred service providers as the percentage of patients using self-referral continues to increase, and uncertainty remains as to whether self-referral affects healthcare consumption cost-benefit analysis of self-referral in physical therapy care are recommended (Swinkels et al., 2014). In a study by Daniel et al., the value-based approach to enhancing patients' access to treatment can improve patient outcomes by better aligning treatment patterns with recommended guidelines and improving the patient's experience of care (Maeng et al., 2017). In a Saudi study, it said that physicians believe that accessibility is a significant policy concern, and that health insurance will positively impact access to the healthcare system. However, accessibility is a misleading term that has many aspects that go beyond identifying the need for healthcare to deliver healthcare services and organizational structures to match the needs of the community. Collaboration as a national health system should be based on collaborative efforts rather than competition in the market itself (Alnaif, 2006).

A study in Thailand by Bodhisane el at found that insufficient access to quality health care for poor families is an important issue for both low- and middle-income countries. These countries have recognized and highlighted the existing gap in access and governments need to develop effective strategies to improve equity. Therefore, poor families do not have to pay monthly or annual contributions to secure their free use of health services (Bodhisane & Pongpanich, 2019). In Xiong et al study in China found that access to medical services in high-standard hospitals for

patients is currently still difficult. It is also difficult for patients to obtain a significant reduction in medical costs in China, so differences in patient affordability are mainly evident in the different medical insurance plans and different care-seeking options (Xiong et al., 2018).

Lagarde and Palmer systematically reviewed studies examining the impact of community and cooperative health insurance on expanding access to health services for the poor in low- and middle-income countries and found that there is little evidence to produce any conclusive data. Under the Cambridge Basic Terms of Use, countries found that health insurance improved access and use but had no decisive effect on health status (Payerle et al., 2015). In a study by Daker, although cost and limiting health insurance coverage to the number of visits required were important barriers to care, many additional problems could limit access. Health care providers can be limited geographically, especially in rural states or rural areas within the state (D, 1931). Therefore, the use of digital health technology may address access issues due to distance, availability of service providers and specialists, poor mobility, and lack of transportation. Clinical evaluations are tested and rehabilitation services are provided via the Internet and communication networks in various forms, from smartphone applications to virtual therapists (Carvalho et al., 2017a). In Carolina, the inability to directly access a physical therapist or occupational therapist remained a necessary interruption in required care so a law allowing direct access to occupational therapists was passed in North Carolina, but implementation regulations have yet to be developed (Carvalho et al., 2017a).

The concern that directs access will lead to over-implementation of services or increased costs appears to be unjustified. Some episodes of direct access to physician-prescribed services indicate that physical therapists make referrals to clinicians (Mitchell & De Lissovoy, 1997). In the Netherlands by Lemmrijseet al found that, there was an association between mode of access and several clinical characteristics of a patient as policymakers must be aware of the increasing percentage of care episodes for which direct access has been used (Leemrijse et al., 2008). In Rogers et al study found that we found that patients 'access to rehabilitation services varies according to the type of health insurance, as it was discovered that insured patients in general have access to a lower percentage than private insured patients. Even when both types of insurance (private and public) were accepted into the PT center, patients with general insurance had a longer waiting time than those with private insurance (Rogers et al., 2018).Up to the author's knowledge, our study is the first study in the middle east was talking about the Impact of Health Insurance on Accessibility Among Physical Therapy Patients.

Methods

3.1 Research Design:

In this research, the researcher will use a descriptive cross-sectional survey design to describe the perception of the physical therapy patients toward health insurance accessibility. This will help medical stakeholders undertake the appropriate development of health insurance plans that ensure coverage of physiotherapy patients' needs and improve accessibility.

3.2 Participants:

Participants are the patients who are 18 years and above, saudi & nonsaudi nationalities, and currently living in Saudi Arabia were physical Therapy Patients at King Fahd Hospital of the University-Alkhobar. Only participants who have files visiting or used to visit the physical therapy

at King Fahd Hospital of the University-AL Khobar were in this study. According to the annual statistical book report of King Fahd Hospital of the University-AL Khobar, the physical therapy population was 58,381 patients (2018).

3.3 Sampling Procedures:

According to a convenient sample using the Raosoft online sample size calculator, the sample size was calculated using the following parameters, the number of patients who took medical service in outpatient clinics of King Fahd hospital was estimated to be 58,381 patients (2018), expected proportion of patients with physical therapy included in their insurance plan 62% (Sandstrom et al., 2013), level of significance 0.05, precision 10%, and confidence interval 95%. The sample was estimated as N = 360 individuals.

3.4 Instruments:

This research will use the questionnaire to collect the data from physical therapy patients visiting the King Fahd Hospital of the University-AL Khobar. This questionnaire adopted the main part about accessibility from a Rand Corporation survey (General Access, section C1) (Sandstrom et al., 2013).

The questionnaire is consistent with the following parts. The first part includes items such as: demographic characteristics such as age, gender, marital status, education level, employment, income level. Second part includes Health insurance coverage. Third part includes Access preference which consists of some questions and their answers ranging from strongly agree, somewhat agree, are unsure, somewhat disagree, or strongly disagree with each statement.

3.5 Data Collection:

The researcher collected the data using a self-administered questionnaire, which was explained to the physical therapy patients to help them understand the questions well. The questionnaire was prepared in Arabic version to make patients understand it quickly. The survey was distributed via several methods (in person, Google Doc, social media). The researcher started distributing surveys on Monday March 9th, 2021. 740 surveys were distributed, and only 544 patients participated in the survey. The data finished collecting April 1st, 2021. The response rate was 73.24%.

3.6 Statistical Treatment:

Statistical Package for Social Science (SPSS) will be used to analyze the data. The statistical analysis procedures included calculating frequencies and percentages for the participants' demographic characteristics and the questionnaire items. Besides, the mean and standard deviation for all the questionnaire scales and subscales were calculated

3.7 Limitations:

Patients were not cooperative sometimes in taking the survey. So, it took a long time to collect the study data. Elder patients did not know how to handle the survey, so I had to fill it for them as they answered the questions. Due to the emergence of the coronavirus pandemic, distributing the questionnaire was a challenge. Some questionnaires were altered or cancelled, which was the reason for interrupting this study for some time.

3.8 Summary:

Treatment and rehabilitation services improve patients' lives, as many modern health systems claim to provide comprehensive coverage for those in medical need and provide equitable access to health services. Therefore, this chapter provided a detailed description of the research design and the methodology used in this study. The research objective and objectives are described with the research questions. The research context is also briefly described, explaining the methods of sampling, data collection, analysis, and rationale for choosing these methods.

Results of the Study

4.1 Statistical analysis

Statistical analysis was conducted using SPSS, continuous variables were presented using mean ± SD and compared using Mann Whitney U test. Categorical data were presented using frequencies and percentages and compared using Chi2 test.

4.2 Results

A total of 544 respondents filled our online self-administered questionnaire for assessment of physical therapy coverage in different insurance sectors. The most frequent age group was ≥ 18-24 years old representing 37.5% followed by 25-34 years old represented 28.7%. There was no gender disparity witnessed in gender distribution as males represented 56.8% and females represented 43.2%.

Table 1 Descriptive statistics of demographics and baseline characters

	Variables level	Frequency	%
Age group	≤ 55	42	7.7%
	≥ 18-24	204	37.5%
	25-34	156	28.7%
	35-44	93	17.1%
	45-54	49	9.0%
Gender	Male	309	56.8%
	Female	235	43.2%
Marital status	Single	244	44.9%
	Married	214	39.3%
	Divorced	54	9.9%
	Widow	32	5.9%
Nationality	Non-Saudi	80	14.7%
	Saudi	464	85.3%
Education level	Illiterate	40	7.4%
	Primary	61	11.2%
	Preparatory	19	3.5%
	Secondary	102	18.8%
	College	322	59.2%
Job	Not employed	110	20.2%
	Student	191	35.1%

	Public employee	64	11.8%
	Private employee	112	20.6%
	Health care worker	67	12.3%
Monthly income	≤ 20,000	40	7.4%
	≥ 5000	261	48.0%
	10,000-14,900	117	21.5%
	15,000-19,900	45	8.3%
	5000-9900	81	14.9%
Chronic morbidities	None	348	64.0%
	Hypertension	59	10.8%
	Diabetes	27	5.0%
	Malignancy	40	7.4%
	Cardiac	15	2.8%
	Immunology	6	1.1%
	Neurological	10	1.8%
	Metabolic	13	2.4%
	Others	26	4.8%
Cause for physical therapy	None	48	8.8%
	Disability level 1	420	77.2%
	Disability level 2	31	5.7%
	Disability level 3	45	8.3%
Type of insurance agency	None	43	7.9%
	Public	372	68.4%
	Private	129	23.7%
Do you prefer the insurance coverage of out-of-pocket coverage for expenses?	Insurance	172	31.6%
	Out of pocket	372	68.4%
During the last 6 months, did you need physical therapy and you couldn't get it?	No	304	55.9%
	Yes	240	44.1%

In Table 1, Majority of respondents were having no comorbidities representing 64, however the commonest comorbidities reported was hypertension 19.8% followed by malignancy 7.4%. Most of the included patients were suffering from grade 1 disability 77.2% and covered by public insurance policy 68.4%, followed 23.7% insured by private insurance 23.7%.

The Out-of-pocket expenditure for physical therapy was the highest among the included sample 68.4%. Besides 44.1% had difficulty in accessing physical therapy during the last 6 months

Table 2 Physical therapy accessibility in insurance coverage

	Mean	SD	Median	Percentile 25th	Percentile 75th
If I need physical therapy, I can reach it anytime?	3.7	1.3	4.0	3.0	5.0
Sometimes I stay without physical therapy as it is very costly?	3.8	1.2	4.0	3.0	5.0
I find it easy to access physical therapist when I want to	3.6	1.2	4.0	3.0	5.0
Physical therapy facilities are accessible	3.6	1.2	4.0	3.0	5.0
Insurance company make physical therapy accessible with better appointments reservation	3.4	1.2	3.0	3.0	4.0
Insurance company offer multiple choices in therapy	3.5	1.2	3.0	3.0	5.0
Level of care differ according to insurance facility	4.1	1.1	5.0	3.0	5.0

In Table 2, the mean total score for accessibility to physical therapy was 3.67 ± 0.22, divided into Accessibility of physical therapy had a mean 3.7 ± 1.3, low accessibility due to high cost of physical therapy 3.8 ± 1.2, accessibility to physical therapy upon need 3.6 ± 1.2, accessibility to facilities 3.6 ± 1.2, insurance companies enhance accessibility to physical therapy 3.4 ± 1.2, insurance companies offer multiple choices for physical therapy 3.5 ± 1.2 and finally, the quality of service differ based on the nature of the facility 4.1 ± 1.1.

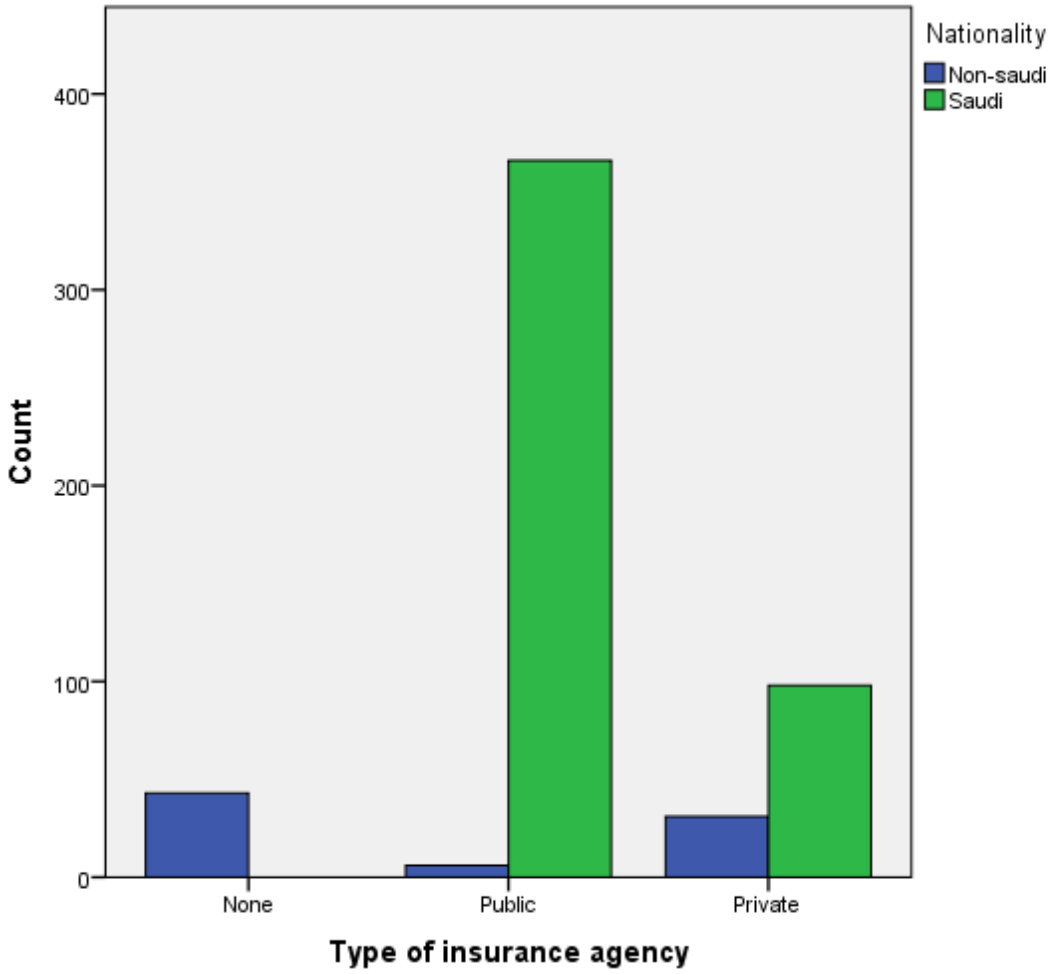

Figure 1 A bar chart showing the insurance company distribution based on nationality of participants

Table 3 Descriptive statistics of questions of accessibility of physical therapy:

Questions		Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean	SD
If I need physical therapy, I can reach it anytime?	F	33	72	130	110	199	3.7	1.3
	%	6.1%	13.2%	23.9%	20.2%	36.6%		
	F	35	35	115	158	201	3.8	1.2

Sometimes I stay without physical therapy as it is very costly?	%	6.4%	6.4%	21.1%	29.0%	36.9%		
I find it easy to access physical therapist when I want to	F	24	77	161	119	163	3.6	1.2
	%	4.4%	14.2%	29.6%	21.9%	30.0%		
Physical therapy facilities are accessible	F	42	60	132	149	161	3.6	1.2
	%	7.7%	11.0%	24.3%	27.4%	29.6%		
Insurance company make physical therapy accessible with better appointments reservation	F	46	49	202	116	131	3.4	1.2
	%	8.5%	9.0%	37.1%	21.3%	24.1%		
Insurance company offer multiple choices in therapy	F	49	55	169	125	146	3.5	1.2
	%	9.0%	10.1%	31.1%	23.0%	26.8%		
Level of care differ according to insurance facility	F	24	19	108	120	273	4.1	1.1
	%	4.4%	3.5%	19.9%	22.1%	50.2%		

Average means	3.67 ± 0.22

In Table 3, accessibility of physical therapy was confirmed by 36.6%, low accessibility due to high cost of physical therapy was reported by 36.9% of patients included and accessibility to physical therapy upon need was not reported in a high frequency 30% versus 29.6% as not sure.
Accessibility to facilities was highly reported by 29.6%, insurance companies enhance accessibility to physical therapy was not approved by the majority of the included participants 37.1%, also insurance companies offer multiple choices for physical therapy was only agreed in 26.8% and finally, the quality of service differ based on the nature of the facility was approved by 50.2% of included patients.

5.1 Summary

Physiotherapy plays an essential role in modern healthcare delivery as it provides a wide range of non-surgical treatments to treat chronic diseases. Physiotherapy includes many clinical guidelines as treatment and rehabilitation services improve patients' lives. Changes in health insurance policies and coverage affect costs Borne by patients and their families; this can lead to a variety of services and barriers to appropriate healthcare. Adjusting health insurance benefit designs also provides an opportunity to create more excellent value in physiotherapy. Health insurance coverage should protect individuals from medical debt. However, unlike most insurance products, which offset losses due to events with low probability and high consequences, health insurance plays the dual role of promoting measures to prevent such events and protect against loss resulting from them. In employer-sponsored insurance plans, physiotherapy is a shared benefit but not available globally. Modifying health insurance benefit designs provides an opportunity to create more excellent value in naturopathy by encouraging patients to choose conservative, non-invasive management that will lead to long-term economic and social benefits, as health insurance companies offer a range of benefit designs with built-in financial incentives that influence patient choice. One of the features was the restriction of access to service providers. Direct access to naturopathy care patients may reduce waiting for time and costs and benefit patients and health insurers. Therefore, reliable and correct data was needed. To assess the situation by describing the perception of physiotherapy patients towards access to health insurance by covering the needs of physiotherapy patients and improving accessibility. This research uses the questionnaire to collect data from physiotherapy patients visiting King Fahd Hospital at Khobar University. This questionnaire adopted the main part on accessibility.

5.2 Conclusion

A group of respondents filled out our online questionnaire to assess physiotherapy coverage in different insurance sectors. In our study, the most common age group was the younger group, and a similar survey of Chantal and others also found that younger patients benefited from direct access (Leemrijse et al., 2008). In our study, no gender disparity was observed in the distribution of the sexes. Something similar to that by Lesley et al. Also found that direct access patients were more likely to be male, younger, with conditions of shorter duration, in paid jobs with fewer absences about a career (Holdsworth et al., 2007). While in a study by Steven et al., the gender difference in the use of physical therapy may also be related to unavailable clinical variables, such as levels of pain and disability, which tend to be more pronounced in women than in men with musculoskeletal problems (Machlin et al., 2011).

In researcher study, accessibility to physiotherapy in insurance coverage was high but was affected by the high cost of physiotherapy, accessibility to physiotherapy when needed, and access to facilities so insurance companies enhanced access to physical therapy. When needed, insurance companies worked to enhance accessibility to physical therapy, with insurance companies offering multiple options for physical therapy with different service quality depending on the facility's nature. Our study was similar to the study conducted by Alnaif, as it was shown that access to healthcare services is a significant concern. Also, many respondents agreed that everyone in the Kingdom should have access to health care services (Alnaif, 2006). Another study by Tracy and others also shared that direct access and self-referral is a goal that requires coordinated strategic action. But achieving this goal on an individual level involves leadership from professional physical therapy associations and service leaders who work on several strategies. A very high response rate in Europe was higher than in our study (Bury & Stokes, 2013).

Accessibility of physical therapy was higher in the researcher study than Massachusetts and Connecticut studies, where therapists in both states equally supported direct access, and therapists in Connecticut were more supportive of three conditions governing direct access than therapists in Massachusetts. In Massachusetts, respondents practiced direct access, and a tiny percentage of patients seen by therapists were treated without referrals from physicians. Therapists indicated that the most common reasons for limited use of direct access are employer policies and non-payment of insurance (Crout et al., 1998). The percentage in our study was higher than that of Chantal et al., In which patients were examined via direct access. Patients with nonspecific back problems, patients with nonspecific neck complaints, and patients with higher education were more likely to be referred to a physical therapist, as were patients with health problems that persisted for less than one month (Leemrijse et al., 2008).

Accessibility of physical therapy in the researcher study was higher than a study by Christine and others in which physical therapists who practiced direct access were more likely to have been in practice for 6 years or more and held advanced degrees beyond entry-level, were members of the American Physical Therapy Association, and had supportive policies for administration and training. Regulatory. Direct access physiotherapy was generally a private suburban practice that was locally owned or a school clinic. The majority of the patients treated were adults with disorders of the musculoskeletal or neuromuscular system (McCallum & DiAngelis, 2012).

Another study in Thailand demonstrated that during the period 2013-2018, there were improvements in terms of accessibility and financial protection. Access to health services was significantly improved for low-income families. They found that income levels do not significantly impact the likelihood of experiencing a financial disaster. In other words, national health insurance alleviates all income levels' economic problems and reduces the cost of using health services in general. This situation is very similar to research findings in India and South Africa that revealed that people covered by private insurance programs might have been encouraged to use private healthcare, leading to higher co-payments (Bodhisane & Pongpanich, 2019). Increasing the likelihood of suffering from catastrophic health spending while in our study reported that accessibility decreased. Due to the high cost of physiotherapy by many covered patients, insurance companies have strengthened access to physiotherapy, and insurance companies offer multiple options for physical therapy that have been agreed upon.

In a similar study by Sandra et al., it showed that direct access to physiotherapy reduces physiotherapy costs, total healthcare costs, and the number of physiotherapy visits as disability

decreased in both natural access groups, and the functional outcome improved significantly with direct access (Hon et al., 2021). The majority of physical therapists in direct access practice indicated that some or all third-party plans pay for physical therapy services without a referral. This finding contrasts with many physical therapists who do not have direct access across all practice settings who reported the necessity of a referral to receive payment for services. The ratio of this study was higher than our study (McCallum & DiAngelis, 2012).

5.3 Implications

It became clear in the researcher study that there is a problem in accessing health services, so the physiotherapy profession must actively engage with insurance companies and the medical profession to challenge insurance company policies so that the practice reflects contemporary service delivery models available in a variety of settings. This strategy is likely to be more successful when presenting a case of clinical effectiveness and cost-effectiveness. The case for direct access and self-referral for physiotherapy is supported by mounting evidence showing that patient safety is not compromised, and that it is likely to lead to lower health service costs as a result of less physician care, and the quality of care is likely to be enhanced.

5.4 Suggestions for future studies

The researcher study may assist future studies in solving problems of accessing health services by actively engaging physiotherapy with insurance companies and the medical profession to challenge insurance company policies. This strategy is likely to be more successful when presenting a case of clinical efficacy and cost-effectiveness where a case is supported. Direct access and self-referral for physiotherapy through mounting evidence demonstrating that patient safety is not compromised, and that this will likely lead to lower health service costs as a result of less doctor care, and the quality of care is likely to be enhanced.

References:

Baker, D. W., Shapiro, M. F., & Schur, C. L. (2000). Health insurance and access to care for symptomatic conditions. *Archives of Internal Medicine*, *160*(9), 1269–1274. https://doi.org/10.1001/archinte.160.9.1269

Bodhisane, S., & Pongpanich, S. (2019). The impact of National Health Insurance upon accessibility of health services and financial protection from catastrophic health expenditure: A case study of Savannakhet province, the Lao People's Democratic Republic. *Health Research Policy and Systems*, *17*(1), 1–15. https://doi.org/10.1186/s12961-019-0493-3

Herman, P. M., Rissi, J. J., & Walsh, M. E. (2011). Health insurance status, medical debt, and their impact on access to care in arizona. *American Journal of Public Health*, *101*(8), 1437–1443. https://doi.org/10.2105/AJPH.2010.300080

Kopkow, C., Lange, T., Schmitt, J., & Petzold, T. (2017). [Utilization of Physical Therapy Services in Germany from 2004 until 2014: Analysis of Statutory Health Insurance Data]. *Gesundheitswesen (Bundesverband der Arzte des Offentlichen Gesundheitsdienstes*

(Germany)), *79*(3), 153–160. https://doi.org/10.1055/s-0042-116229

Xiong, X., Zhang, Z., Ren, J., Zhang, J., Pan, X., Zhang, L., Gong, S., & Jin, S. (2018). Impact of universal medical insurance system on the accessibility of medical service supply and affordability of patients in China. *PLoS ONE*, *13*(3), 1–21. https://doi.org/10.1371/journal.pone.0193273

Carey, K., Ameli, O., Garrity, B., Rothendler, J., Cabral, H., McDonough, C., Stein, M., Saper, R., & Kazis, L. (2019). Health insurance design and conservative therapy for low back pain. *American Journal of Managed Care*, *25*(6), E182–E187.

Carvalho, E., Bettger, J. P., & Goode, A. P. (2017). Insurance Coverage , Costs , and Barriers to Care Rehabilitation Services. *North Carolina Medical Journal*, *78*(5), 312–314.

E.J. (1926). Original research. *American Journal of Ophthalmology*, *9*(3), 215–217. https://doi.org/10.1016/S0002-9394(26)91015-5

Kerssens, J. J., & Groenewegen, P. P. (2005). Consumer preferences in social health insurance. *European Journal of Health Economics*, *6*(1), 8–15. https://doi.org/10.1007/s10198-004-0252-3

Kim, L., Sakong, J., Kim, Y., Kim, S., Kim, S., Tchoe, B., Jeong, H., & Lee, T. (2013). Developing the Inpatient Sample for the National Health Insurance Claims Data. *Health Policy and Management*, *23*(2), 152–161. https://doi.org/10.4332/kjhpa.2013.23.2.152

Kopkow, C., Lange, T., Schmitt, J., & Petzold, T. (2017). [Utilization of Physical Therapy Services in Germany from 2004 until 2014: Analysis of Statutory Health Insurance Data]. *Gesundheitswesen (Bundesverband der Arzte des Offentlichen Gesundheitsdienstes (Germany))*, *79*(3), 153–160. https://doi.org/10.1055/s-0042-116229

Levy, H., & Meltzer, D. (2008). The impact of health insurance on health. *Annual Review of Public Health*, *29*, 399–409. https://doi.org/10.1146/annurev.publhealth.28.021406.144042

Madison, K., Schmidt, H., & Volpp, K. G. (2013). Smoking, Obesity, Health Insurance, and Health Incentives in the Affordable Care Act. *JAMA*, *310*(2), 143–144. https://doi.org/10.1001/jama.2013.7617

Oscier, C., Bosley, N., & Milner, Q. (2008). Scholar (13). In *Update in Anaesthesia* (Vol. 24, Issue 2, pp. 112–114).

Sandstrom, R. W., Lehman, J., Hahn, L., & Ballard, A. (2013). Structure of the physical therapy benefit in a typical blue cross blue shield preferred provider organization plan available in the individual insurance market in 2011. *Physical Therapy*, *93*(10), 1342–1350. https://doi.org/10.2522/ptj.20120203

Uberoi, N., Finegold, K., & Gee, E. (2016). Health Insurance Coverage and the Affordable Care

Act, 2010–2016. *The Department of Health and Human Services*, 1–14. http://aspe.hhs.gov

Alnaif, M. S. (2006). Physicians perception of health insurance in Saudi Arabia. *Saudi Medical Journal*, *27*(5), 693–699. http://europepmc.org/abstract/MED/16680262

Bodhisane, S., & Pongpanich, S. (2019). The impact of National Health Insurance upon accessibility of health services and financial protection from catastrophic health expenditure: A case study of Savannakhet province, the Lao People's Democratic Republic. *Health Research Policy and Systems*, *17*(1), 1–15. https://doi.org/10.1186/s12961-019-0493-3

Boninger, J. W., Gans, B. M., & Chan, L. (2012). Patient protection and affordable care act: Potential effects on physical medicine and rehabilitation. *Archives of Physical Medicine and Rehabilitation*, *93*(6), 929–934. https://doi.org/10.1016/j.apmr.2012.03.014

Bury, T. J., & Stokes, E. K. (2013). A Global View of Direct Access and Patient Self-Referral to Physical Therapy: Implications for the Profession. *Physical Therapy*, *93*(4), 449–459. https://doi.org/10.2522/ptj.20120060

Carey, K., Ameli, O., Garrity, B., Rothendler, J., Cabral, H., McDonough, C., Stein, M., Saper, R., & Kazis, L. (2019). Health insurance design and conservative therapy for low back pain. *American Journal of Managed Care*, *25*(6), E182–E187.

Carvalho, E., Bettger, J. P., & Goode, A. P. (2017a). Insurance Coverage , Costs , and Barriers to Care Rehabilitation Services. *North Carolina Medical Journal*, *78*(5), 312–314.

Carvalho, E., Bettger, J. P., & Goode, A. P. (2017b). Insurance Coverage, Costs, and Barriers to Care for Outpatient Musculoskeletal Therapy and Rehabilitation Services. *North Carolina Medical Journal*, *78*(5), 312 LP – 314. https://doi.org/10.18043/ncm.78.5.312

Crout, K. L., Hodgkins Tweedie, J., & Miller, D. J. (1998). Physical therapists' opinions and practices regarding direct access. *Physical Therapy*, *78*(1), 52–61.

D, S. (1931). *Scholar (4)* (pp. 167–168). https://doi.org/10.1163/_q3_SIM_00374

Daker-White, G., Carr, A. J., Harvey, I., Woolhead, G., Bannister, G., Nelson, I., & Kammerling, M. (1999). A randomised controlled trial. Shifting boundaries of doctors and physiotherapists in orthopaedic outpatient departments. *Journal of Epidemiology &*

Community Health, *53*(10), 643–650.

Durant, T. L., Lord, L. J., & Domholdt, E. (1989). Outpatient views on direct access to physical therapy in Indiana. *Physical Therapy*, *69*(10), 850–857. https://doi.org/10.1093/ptj/69.10.850

Foraker, R. E., Rose, K. M., McGinn, A. P., Suchindran, C. M., Goff, D. C., Whitsel, E. A., Wood, J. L., & Rosamond, W. D. (2008). Neighborhood income, health insurance, and prehospital delay for myocardial infarction: The atherosclerosis risk in communities study. *Archives of Internal Medicine*, *168*(17), 1874–1879. https://doi.org/10.1001/archinte.168.17.1874

Herman, P. M., Rissi, J. J., & Walsh, M. E. (2011). Health insurance status, medical debt, and their impact on access to care in arizona. *American Journal of Public Health*, *101*(8), 1437–1443. https://doi.org/10.2105/AJPH.2010.300080

Holdsworth, L. K., Webster, V. S., McFadyen, A. K., & Group, S. P. S.-R. S. (2007). What are the costs to NHS Scotland of self-referral to physiotherapy? Results of a national trial. *Physiotherapy*, *93*(1), 3–11.

Hon, S., Ritter, R., & Allen, D. D. (2021). Cost-Effectiveness and Outcomes of Direct Access to Physical Therapy for Musculoskeletal Disorders Compared to Physician-First Access in the United States: Systematic Review and Meta-Analysis. *Physical Therapy*, *101*(1). https://doi.org/10.1093/ptj/pzaa201

Kopkow, C., Lange, T., Schmitt, J., & Petzold, T. (2017a). [Utilization of Physical Therapy Services in Germany from 2004 until 2014: Analysis of Statutory Health Insurance Data]. *Gesundheitswesen (Bundesverband der Arzte des Offentlichen Gesundheitsdienstes (Germany))*, *79*(3), 153–160. https://doi.org/10.1055/s-0042-116229

Kopkow, C., Lange, T., Schmitt, J., & Petzold, T. (2017b). Physiotherapeutische Versorgungssituation in Deutschland von 2004 bis 2014. Analyse des Verordnungsverhaltens bei Versicherten der Gesetzlichen Krankenversicherung. *Gesundheitswesen*, *79*(3), 153–160. https://doi.org/10.1055/s-0042-116229

Leemrijse, C. J., Swinkels, I. C. S., & Veenhof, C. (2008). Direct access to physical therapy in

the Netherlands: Results from the first year in community-based physical therapy. *Physical Therapy*, *88*(8), 936–946. https://doi.org/10.2522/ptj.20070308

Levy, H., & Meltzer, D. (2008). The impact of health insurance on health. *Annual Review of Public Health*, *29*, 399–409. https://doi.org/10.1146/annurev.publhealth.28.021406.144042

Machlin, S. R., Chevan, J., Yu, W. W., & Zodet, M. W. (2011). Determinants of utilization and expenditures for episodes of ambulatory physical therapy among adults. *Physical Therapy*, *91*(7), 1018–1029.

Maeng, D. D., Graboski, A., Allison, P. L., Fisher, D. Y., & Bulger, J. B. (2017). Impact of a value-based insurance design for physical therapy to treat back pain on care utilization and cost. *Journal of Pain Research*, *10*, 1337–1346. https://doi.org/10.2147/JPR.S135813

McCallum, C. A., & DiAngelis, T. (2012). Direct access: factors that affect physical therapist practice in the state of Ohio. *Physical Therapy*, *92*(5), 688–706.

Mitchell, J. M., & De Lissovoy, G. (1997). A comparison of resource use and cost in direct access versus physician referral episodes of physical therapy. *Physical Therapy*, *77*(1), 10–18. https://doi.org/10.1093/ptj/77.1.10

Payerle, G., Team, R. C., Payerle, G., D, S., Dolnicar, S., Chapple, A., Pastuszak, A. W., & Wang, R. (2015). Scholar (3). In *Annals of Tourism Research* (Vol. 3, Issue 4, p. 45). http://www.ncbi.nlm.nih.gov/pubmed/25926610%5Cnhttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC4492060%0Ahttp://www.sciencedirect.com/science/article/pii/S0160738315000444

Robinson, J. C. (2004). Reinvention of Health Insurance in the Consumer Era. *JAMA*, *291*(15), 1880–1886. https://doi.org/10.1001/jama.291.15.1880

Rogers, M. J., Penvose, I., Curry, E. J., DeGiacomo, A., & Li, X. (2018). Medicaid Health Insurance Status Limits Patient Accessibility to Rehabilitation Services Following ACL Reconstruction Surgery. *Orthopaedic Journal of Sports Medicine*, *6*(4), 2325967118763353. https://doi.org/10.1177/2325967118763353

Rommel, A., & Kroll, L. E. (2017). Individual and regional determinants for physical therapy utilization in Germany: multilevel analysis of national survey data. *Physical Therapy*, *97*(5),

512–523.

Ross, J. S., Bradley, E. H., & Busch, S. H. (2006). Use of health care services by lower-income and higher-income uninsured adults. *Journal of the American Medical Association*, *295*(17), 2027–2036. https://doi.org/10.1001/jama.295.17.2027

Sandstrom, R. W., Lehman, J., Hahn, L., & Ballard, A. (2013). Structure of the physical therapy benefit in a typical blue cross blue shield preferred provider organization plan available in the individual insurance market in 2011. *Physical Therapy*, *93*(10), 1342–1350. https://doi.org/10.2522/ptj.20120203

Shoemaker, M. J. (2012). Direct Consumer Access to Physical Therapy in Michigan: Challenges to Policy Adoption. *Physical Therapy*, *92*(2), 236–250. https://doi.org/10.2522/ptj.20100421

Shou-Hsia, C., & Tung-Liang, C. (1997). The Effect of Universal Health Insurance on Health Care Utilization in Taiwan: Results From a Natural Experiment. *JAMA*, *278*(2), 89–93. https://doi.org/10.1001/jama.1997.03550020017009

Swinkels, I. C. S., Kooijman, M. K., Spreeuwenberg, P. M., Bossen, D., Leemrijse, C. J., Van Dijk, C. E., Verheij, R., De Bakker, D. H., & Veenhof, C. (2014). An overview of 5 years of patient self-referral for physical therapy in the Netherlands. *Physical Therapy*, *94*(12), 1785–1795.

Webster, V. S., Holdsworth, L. K., McFadyen, A. K., Little, H., & Group, S. P. S. R. S. (2008). Self-referral, access and physiotherapy: patients' knowledge and attitudes—results of a national trial. *Physiotherapy*, *94*(2), 141–149.

Xiong, X., Zhang, Z., Ren, J., Zhang, J., Pan, X., Zhang, L., Gong, S., & Jin, S. (2018). Impact of universal medical insurance system on the accessibility of medical service supply and affordability of patients in China. *PLoS ONE*, *13*(3), 1–21. https://doi.org/10.1371/journal.pone.0193273

Yarborough, M. (1994). The private health insurance industry: The real barrier to healthcare access? *Cambridge Quarterly of Healthcare Ethics*, *3*(1), 99–107. https://doi.org/10.1017/S0963180100004771

Zuvekas, S. H., & Taliaferro, G. S. (2003). Pathways to access: health insurance, the health care delivery system, and racial/ethnic disparities, 1996–1999. *Health Affairs*, *22*(2), 139–153.

Sandstrom, R. W., Lehman, J., Hahn, L., & Ballard, A. (2013). Structure of the Physical Therapy Benefit in a Typical Blue Cross Blue Shield Preferred Provider Organization Plan Available in the Individual Insurance Market in 2011. *Physical Therapy*, *93*(10), 1342–1350. https://doi.org/10.2522/ptj.20120203

(2018). تقرير مستشفى الملك فهد الجامعي *2018*. Issuu. https://issuu.com/universityofdammam/docs/ 2018

Alnaif, M. S. (2006). Physicians perception of health insurance in Saudi Arabia. *Saudi Medical Journal*, *27*(5), 693–699. http://europepmc.org/abstract/MED/16680262

Bodhisane, S., & Pongpanich, S. (2019). The impact of National Health Insurance upon accessibility of health services and financial protection from catastrophic health expenditure: A case study of Savannakhet province, the Lao People's Democratic Republic. *Health Research Policy and Systems*, *17*(1), 1–15. https://doi.org/10.1186/s12961-019-0493-3

Bury, T. J., & Stokes, E. K. (2013). A Global View of Direct Access and Patient Self-Referral to Physical Therapy: Implications for the Profession. *Physical Therapy*, *93*(4), 449–459. https://doi.org/10.2522/ptj.20120060

Crout, K. L., Hodgkins Tweedie, J., & Miller, D. J. (1998). Physical therapists' opinions and practices regarding direct access. *Physical Therapy*, *78*(1), 52–61.

Holdsworth, L. K., Webster, V. S., McFadyen, A. K., & Group, S. P. S.-R. S. (2007). What are the costs to NHS Scotland of self-referral to physiotherapy? Results of a national trial. *Physiotherapy*, *93*(1), 3–11.

Hon, S., Ritter, R., & Allen, D. D. (2021). Cost-Effectiveness and Outcomes of Direct Access to Physical Therapy for Musculoskeletal Disorders Compared to Physician-First Access in the United States: Systematic Review and Meta-Analysis. *Physical Therapy*, *101*(1). https://doi.org/10.1093/ptj/pzaa201

Leemrijse, C. J., Swinkels, I. C. S., & Veenhof, C. (2008). Direct access to physical therapy in the Netherlands: Results from the first year in community-based physical therapy. *Physical*

Therapy, *88*(8), 936–946. https://doi.org/10.2522/ptj.20070308

Machlin, S. R., Chevan, J., Yu, W. W., & Zodet, M. W. (2011). Determinants of utilization and expenditures for episodes of ambulatory physical therapy among adults. *Physical Therapy*, *91*(7), 1018–1029.

McCallum, C. A., & DiAngelis, T. (2012). Direct access: factors that affect physical therapist practice in the state of Ohio. *Physical Therapy*, *92*(5), 688–706.