REASONS FOR ASTHMATIC PATIENT READMISSION: HEALTH CARE PROVIDERS AND PATIENTS PERSPECTIVES

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نموذج تفويض

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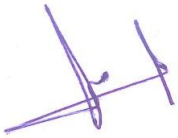
Dr. Mona A. Abed, Member A. Prof of Nursing (Hashemite University)	

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والدي العزيز

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الى بسمة الحياة
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أمي الحبيبة

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الى خير سند في الحياة
زوجي الغالي

الى الذين حملوا أقدس رسالة في الحياة
الى الذين مهدوا لنا طريق العلم والمعرفة
أساتذتنا الأفاضل

THANKS, AND APPRECIATION

شكر وتقدير

أتقدم بأسمى عبارات الشكر والتقدير والعرفان للدكتور المشرف على رسالتي دكتور عماد الفيومي على مجهوداته الكبيرة الجبارة في تدليل العقبات التي واجهتني أثناء إعداد الرسالة رغم كل الإكراهات التي فرضتها الظروف الصعبة التي مرت بنا ،،،

أسأل الله عز وجل أن يجزينا ويجزيكم خير الجزاء وأن يجعل كل ما قدم في ميزان حسناتنا حفظنا الله جميعا وأدام علينا نعمة البصيرة ،،،

شكرا جزيلا على عطائك الدائم ،،،

الباحثة: أمل محمد عبد المجيد رحال

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LIST OF ABBREVIATIONS

No	Abbreviation	Meaning
1.	WHO	World Health Organization

2.	CDC	Centers for Disease Control and Prevention
3.	HBM	Health Belief Models
4.	MeSH	medical subject headings
5.	LOS	Level of service
6.	COPD	Chronic Obstructive Pulmonary Disease
7.	GBD	Global Burden Of Disease
8.	ACT	Asthma Control Test
9.	HCP	Health Care Providers
10.	HPM	Health Promotion Models
11.	ACO	Asthma COPD Overlap
12.	GERD	Gastro oesophageal reflux Disease
13.	LABA	Long-Acting Beta Agonist
14.	ICs	Inhaled Corticosteroids
15.	LTRA	Leukotriene antagonists
16.	Ers	Emergency Rooms
17.	Eos	Eosinophilic Asthma group
18.	AIDS	Acquired Immunodeficiency Syndrome
20.	FEV1	Forced Expiratory Volume 1
21.	ADL	Activities of Daily Living

ABSTRACT

Background: The utilisation of thirty-day readmission (30-DR) rates is prevalent as a measure of quality and a quantifiable gauge for healthcare facilities, given that patients frequently experience readmission due to the aggravation of asthmatic conditions from initial admission. The correlation between the calibre of patient education and post discharge care and the frequency of readmissions is noteworthy.

Purpose: This study aimed to assess the health belief model aspects as well as demographic variables among asthmatic patients who were previously readmitted to hospitals in last 30 days in addition to healthcare professionals and its statistical association to the rate of readmission for asthmatic patients in respect to health belief model aspects.

Design: A case control study was conducted by using questionnaires for asthmatic patients as well as health team members.

Materials and methods: This study is subdivided into healthcare professionals who are 99 member in number as well as asthmatic adult patients who are subdivided into cases (n=149) and controls group (n=150), all of these participants completed the questionnaires. All cases group were readmitted to hospitals in the previous 30 days while controls group were not. The statistical program SPSS, version 26 statistical software to analyse the collected data using ANOVA, independent sample t-tests and person-correlation coefficient.

Results: A total of 299 patients and 99 healthcare professionals represented that there is a single demographical variable which was "age" which affected and contributed to asthma condition's control, also, this study findings revealed that there is a statistically significant difference in the level of responses of the case group in relation to the HBM aspect of benefits according to gender in favour of female patients, while there is no significant differences reported between physicians and nurses in relation to all aspects of the HBM. Also, the study results showed that there were a statistically significant differences in the level of (seriousness, benefits, attitude, cost, knowledge, and total degree of reasons for asthmatic patient readmissions from all patients perspectives, and the knowledge of the control group had a positive impact on asthma control.

Conclusion: This study has also documented that patients who exhibit better control over their asthma have not necessitated a hospital readmission within a 30-day period. The patients exhibited asthma control by engaging in physical activity, experiencing infrequent nocturnal awakenings or early morning awakenings, and implementing asthma control techniques during the preceding four-week period. The Health Belief Model (HBM) identified two key constructs,

namely perceived asthma seriousness and perceived benefits of controlling asthma, which were found to significantly influence the behaviour of patients who were successful in managing their asthma symptoms and avoiding hospital readmissions. The construct of cost, as perceived by patients, is a component of the Health Belief Model that acts as a barrier to taking action.

Keywords: Asthma - Hospital re-admission – 30-days readmission - Health Belief Model - HBM – Jordan.

CHAPTER ONE
INTRODUCTION

1.2 Background

Asthma is a condition in which airways narrow and swell and may produce extra mucus. This can make breathing difficult and trigger coughing, a whistling sound (wheezing) when a person breathes out, and shortness of breath. For some people, asthma is a minor nuisance (Madson, 2022). Over 235 million people around the world were affected

by asthma in 2020, making it the most common chronic inflammatory airway disease of the lungs (World Health Organization [WHO, 2020). To make matters even worse, asthma was the primary factor in the deaths of 383,000 people around the world in 2015. (WHO, 2017). According to the Centers for Disease Control and Prevention (CDC), the number of people suffering from asthma has increased despite the ready availability of effective treatments and medications (CDC, 2017). This is significant because it implies a greater burden on both the healthcare system and society as a whole. After all, more people are living with the condition. High costs are involved in the treatment and management of the condition.

In the meantime, asthma has been determined to be the most prevalent chronic condition, and its effects are felt not only by the person who is afflicted but by the entire family as a whole (Donques *et al*., 2017). A person who is afflicted with asthma may experience a range of negative effects, including those on their body and their emotions (Sico *et al*., 2021). Therefore, effective management requires not only taking medication to treat the physical symptoms but also addressing the stressors that are associated with the condition. Emotions such as grief, despair, fear, confusion, uncertainty, and anger are examples of these stressors (Alotaibi, 2015).

In a similar line, the number of people suffering from asthma has been steadily climbing despite the progress that has been made in both its pathophysiology and treatment (Mishra *et al*., 2017). Asthma and its associated complications are responsible for the deaths of a great number of people (Donques *et al*., 2017). Inadequate knowledge of the condition and its treatment, inadequate knowledge of inhalers and how to use them, and inadequate self-management are a few of the contributing factors that account for the majority of this morbidity (Al-Muhsen *et al*., 2015). These things show how important it is to teach patients about their health (Mishra *et al*., 2017).

In Jordan, the rate of asthmatic admissions in hospitals reached 2.38% from total asthmatic patients as reported by the Jordan ministry of Health (Nour *et al*., 2023), and the total costs needed for coverage of the asthmatic patients' readmissions as reported to find the mean value For asthmatic patients, the total cost for their admission and readmission over a period of three years was recorded as 110,874 Jordanian dinars (equivalent to 156,382 US dollars). Patients diagnosed with asthma who experience uncontrolled symptoms exhibit notably elevated total direct medical expenses per year in comparison to those with partly controlled and controlled asthma. Specifically, the annual costs for readmission for uncontrolled asthma were JD 396 (equivalent to US$ 558), while partly controlled and controlled asthma incurred costs of JD 258 (US$ 364) and JD 150 (US$ 211), respectively. (Alefan *et al*., 2022). Although the readmission rate for Asthma in Jordan was not found to be lower than that of other countries. the estimated rate among the adult population with asthma in Jordan was 2.3% (Abu-Ekteish *et al*., 2019).

As a result, the percentage of people who are admitted to hospitals because of bronchial Asthma has skyrocketed all over the world (Carini *et al*., 2021). This increase in admissions has an effect, in addition to its impact on the cost of health care, on the individual's quality of life (Global Initiative for Asthma, 2019). Education of patients is essential to prioritize disease management and thereby promote health (Pinnock, 2015). As part of this process, patients and their families are provided with the information required to effectively manage their condition (Axelsson *et al*., 2015). Assessment, planning, implementation, and evaluation are the four stages of the process that make up patient education (Carrillo *et al*., 2017). This is significant because it suggests that the education of patients is a methodical process of gaining knowledge. It is expected of medical professionals (doctors and nurses) to provide patients with information regarding their illnesses as part of their professional duties. There has been a lot of focus on how important it is for these professionals to be able to act as educational facilitators. In particular, they need to be in a better position to evaluate the learning needs of patients, as well as determine the appropriate teaching methods and evaluate the learning achievements.

To effectively manage asthma, patient education is therefore an essential component (Linsky, 2021). It has become an extremely important component of service delivery, particularly in light of the growing number of people living in the community who suffer from

chronic conditions that require on-going management (Rolke, 2021). Denial of asthma, a lack of knowledge about the disease process and its treatment, and insufficient self-management are all indicators of a lack of education about asthma. Studies have been conducted to evaluate the effects of patient education. These studies revealed that denial of asthma, lack of knowledge, and insufficient self-management all indicate a lack of education about asthma. This has affected the morbidity of asthma has been a leading cause of many patients' being unable to care for themselves following asthmatic episodes. As a result of this, there has been an increase in the number of patients who are unable to care for themselves.

In addition, Kercsmar *et al*. (2017) based the design of their study on chronic care model. They discovered that care coordination in primary care involved frequent reinforcement of asthma management skills and medication education, which, when put into practice, led to a decrease in the number of hospitalizations that were caused by asthma to practice, leading to a 41% decrease in the number of hospitalizations that were caused by asthma. Inadequate education, a failure to adhere to medication and treatment, and a lack of regular checkups attendance are the primary contributors to admissions to hospitals (Burns *et al*., 2017). Patients are not aware of the factors that put them at risk for asthma, nor are they aware of how asthma can be treated or prevented. Costs are also going up because more people are being admitted to hospitals (Leong, 2021).

As a consequence of this, there has been an increase in the number of people admitted to hospitals due to asthma, even though there have been many more preventer drugs developed (Gangasingh, 2022). For example, in Saudi Arabia, in recent years there has been a discernible increase in the number of people who are admitted to hospitals due to asthma, and each new year brings with it even higher rates of asthma diagnosis. There is also evidence that the severity of asthma, as well as its prevalence, is increasing in a great number of other countries. This is demonstrated even further by the rising costs associated with the treatment and management of asthma, including the higher prices of medications (Alotaibi *et al*., 2015). Analyzing hospital admissions and, in particular, taking note of the total amount of time spent, there is one method for estimating the severity of asthma. It has been demonstrated through research that a patient's need for hospitalization is a strong indicator of the severity of their asthma. Also, it is a predictor of hospital readmissions and death in the future (Tsi, 2021).

In industrialized nations, ICU readmission is correlated with several patient-level characteristics, including male sex, advanced age, co-morbid diseases, location before ICU admission, the severity of organ support during ICU stay, and length of ICU stay (Ponzoni *et al*., 2017). Although Gonzalez-Barcala *et al*., (2020) found no significant association between overweight or obesity and either early or late hospital readmissions owing to asthma in either the univariate or multivariate analyses.

Another study by Albataineh *et al*. (2019), which was conducted was cross-sectional in nature and involved a total of 93 patients who were admitted to hospitals in Jordan. The participants were aged 40.5 ± 13.6 years and met the criteria set by the Global Initiative for Asthma (GINA). The pertinent patient information was obtained by means of a survey and a thorough examination of medical documentation. The survey consisted of various sections that focused on sociodemographic and clinical features, in addition to pharmacological treatment for asthma, asthma severity, and asthma management. The study findings indicate that 45.2% of the sample achieved control over their asthma. In addition, advanced age, severe asthma as per the Global Initiative for Asthma (GINA) guidelines, prolonged duration of asthma, atopic tendencies, ongoing asthma treatment, and a past medical history of allergic rhinitis were recognised as the primary risk factors associated with inadequately managed asthma. The results of the multivariate analyses indicated that solely atopy to two or more allergens and experiencing severe asthmatic attacks were found to have a statistically significant association with inadequately managed asthma. The odds ratio Mantel-Haenszel (ORMH) values obtained for these factors were 17.2 and 2.2, respectively. The results suggest that uncontrolled asthma is primarily associated with severe asthma and atopy to two or more allergens. Nevertheless, additional research with more extensive sample sizes is required to validate these findings.

Also, Altawalbeh *et al*. (2021), who aimed to examine and compare the clinical features and healthcare costs of individuals diagnosed with Asthma-Chronic Obstructive Pulmonary Disease (COPD) overlap (ACO) in relation to those diagnosed with either asthma or COPD alone. The study was a retrospective cohort investigation that included individuals who had been diagnosed with ACO, asthma, or COPD as of January 2016. The study utilised medical records of patients who received medical care at King Abdullah University Hospital (KAUH) located in the northern region of Jordan, within the timeframe of 2015-2016, to identify suitable

participants and pertinent clinical features. Respiratory and all-cause charges were obtained from the billing system of King Abdulaziz University Hospital for the duration of 2016. The study conducted a comparison of the total, inpatient, outpatient, and pharmacy charges among the three disease categories. The charges were quantified in Jordanian Dinar (JOD), which is equivalent to 1.41 US Dollars. His study included a total of 761 patients, comprising 87 patients with ACO, 494 patients with asthma, and 180 patients with COPD. Patients diagnosed with ACO exhibited considerably higher respiratory-related charges in comparison to those diagnosed with asthma, with an average of 601.4 JODs versus 354.3 JODs, respectively (P value < 0.001). The mean charges for all causes were found to be significantly greater for patients diagnosed with ACO and COPD in comparison to those diagnosed with asthma (1830.8 and 1705.4 versus 1251.7 JODs; P value < 0.001). The ACO variable demonstrated a noteworthy association with increased respiratory and all-cause medical expenses. Elevated respiratory charges were observed in elderly patients and individuals with greater disease severity.

And Nour *et al*. (2023) study, The objective of this investigation was to ascertain the frequency of asthma in patients residing in Amman, Jordan. Subsequently, an assessment was conducted on the proficiency and aptitude of Jordanian educational personnel in regards to their understanding and execution of asthma first-aid procedures. The present investigation was a cross-sectional study that spanned a period of five months during the year 2019. The investigator conducted an assessment of primary schools, both private and public, to evaluate the adequacy of first-aid equipment and the level of teachers' knowledge in this area. The study involved a total of 20 schools, comprising 10 public schools and 10 private schools. Each school had 100 teachers who participated in the study. According to the findings, a minority of schools, specifically, less than 25%, indicated possession of an asthma first-aid kit, while a majority of 65% reported possession of medical reports pertaining to chronic ailments, such as asthma. The study revealed that the average number of students in the schools under consideration was 455.31 ± 212.92, with a proportion of 10.38 ± 7.26 being with asthma.

The study found that the incidence of asthma among patients in Amman, Jordan was 2.38%. The study revealed that educational institutions exhibited a dearth of medical documentation pertaining to asthmatic patients, alongside an inadequacy of readily available first aid kits. The level of asthma knowledge among teachers in schools was found to be inadequate.

Educators should cultivate greater awareness. The aforementioned discoveries illuminate significant issues that demand prompt consideration.

In addition, providing comprehensive and individualized education for asthma patients is essential to reducing the high hospitalization rates that have been observed (Mishra *et al*., 2017). Particularly, the focus must be placed on educating patients about how to take care of themselves.

In addition to this, nurses are responsible for ensuring that patients follow the care plan that has been established for them (Zeng *et al*., 2022). Medical professionals need to ensure that their patients comprehend the significance of adhering to this plan and taking all of the prescribed medication to alleviate their symptoms. According to Axelsson *et al*. (2015), the action plan outlines all of the prerequisites, such as the foods and medications that the patient needs to have. In addition, doctors have the responsibility of ensuring that patients and the people who care for them are aware of how to protect themselves from the factors that can cause the disease and how to treat it in the event of a medical emergency. By reducing irritation, controlling the factors that trigger asthma can help reduce the likelihood that a patient will require hospitalization.

Finally, physicians and nurses should make regular visits to their patients and conduct assessments to ensure that patients are taking their medication as prescribed (Eissa *et al*., 2019). They will understand the likelihood of the patient having adverse attacks as a result, and they will provide the patient with the appropriate advice to achieve better results. Together with the high cost that asthma brings upon society as a result of hospital readmissions, and hospital admission is an important risk factor for death from asthma exacerbation. In addition, hospital readmissions are expensive. There is a paucity of knowledge regarding the precise factors that contribute to acute asthma exacerbations that lead to readmission to hospitals. It is necessary to have an understanding of the potential risk factors that can be modified to construct effective strategies to either stop or at least significantly cut down on readmissions. Because of this, we were inspired to complete this task.

1.3 Health Belief Model (HBM)

The Health Belief Model (HBM) has been a prominent conceptual framework in health behaviour research since the early 1950s. It has been utilised extensively to elucidate the alteration and sustenance of health-related behaviours (Sheppard and Thomas, 2021). as well as to provide direction for health behaviour interventions. In the last twenty years, the Health Belief Model (HBM) has undergone expansion in comparison to other frameworks. It has also been utilised to provide backing for interventions aimed at altering health behaviour (Wong *et al*., 2021).

The Health Belief Model (HBM) was originally formulated by American social psychologists within the Public Health Service during the 1950s. Its primary objective was to elucidate the pervasive non-participation of individuals in disease prevention and detection initiatives (Jose *et al*., 2021).

Subsequently, the model was expanded to investigate individuals' reactions to symptoms and their conduct following a confirmed diagnosis, with a specific focus on compliance with prescribed medical protocols (Green *et al*., 2020). The present article provides an overview of the psychological underpinnings of the model, which was developed incrementally in response to pressing public health issues. This exposition aims to elucidate the model's reasoning behind specific concepts and their interconnections, as well as to explicate its merits and limitations. The constructs of the Health Belief Model (HBM) are the key components that comprise this theoretical framework (Sheppard and Thomas, 2021).

The concept of perceived susceptibility. The term "perceived susceptibility" pertains to an individual's beliefs regarding the probability of contracting a particular ailment or affliction. To illustrate, it is imperative for a woman to hold the belief that she may be susceptible to breast cancer in order to demonstrate interest in acquiring a mammogram (Sheppard and Thomas, 2021).

The concept of perceived severity is a crucial factor in understanding how individuals perceive and respond to various risks and threats (Wong *et al*., 2021). The perception of the gravity of acquiring an ailment or neglecting its treatment encompasses assessments of both medical and clinical ramifications, such as mortality, incapacity, and suffering, as well as potential social implications, including the impact of the condition on employment, familial

dynamics, and interpersonal connections. The construct of perceived threat has been attributed to the amalgamation of susceptibility and severity (Limbu *et al*., 2022)

Perceived benefits are the advantages or positive outcomes that an individual believes they will receive from a particular action or decision the impact of an individual's perceived susceptibility to a severe health condition in their behaviour change is contingent upon their beliefs concerning the perceived benefits of the available measures for mitigating the disease threat (Wong *et al*., 2021).. Additional non-health-related factors, such as the potential economic benefits of smoking cessation or the desire to satisfy a loved one by undergoing a mammogram, may also impact an individual's behavioural choices. Hence, it can be inferred that individuals who possess ideal beliefs regarding susceptibility and severity are unlikely to comply with recommended health measures unless they perceive such measures to be advantageous in mitigating the perceived threat (Sheppard and Thomas, 2021).

Perceived barriers refer to the obstacles or challenges that individuals believe may impede their ability to achieve a certain goal perceived barrier, which refers to the potential negative aspects of a specific health action, can serve as obstacles to the adoption of recommended behaviours. Individuals engage in a form of subconscious evaluation that involves assessing the anticipated advantages of an action against perceived obstacles (Wong *et al*., 2021). This assessment takes into account factors such as potential expenses, adverse effects, discomfort, inconvenience, and time consumption.

Therefore, the confluence of susceptibility and severity levels generates the impetus or momentum for action, while the perception of benefits (minus barriers) delineates a favoured course of action (Costa, 2020).

The Health Belief Model (HBM) can be utilised to gain a deeper understanding of the various factors that could potentially impact hospitalisations and readmissions (Press *et al*., 2019). The alteration of variables within the Health Belief Model (HBM) has the potential to either facilitate or impede favourable health behaviours (Cronin *et al*., 2019). This, in turn, may lead to a reduction in acute healthcare utilisation, such as hospitalisations and readmissions. The hypothesis posits that there exists a correlation between non-attendance of appointments, which can be construed as negative health behaviour, and a rise in hospital admissions and

readmissions (Chen *et al*., 2015). Furthermore, they investigated the correlation between self-reported indicators of mental health, social determinants of health, social support, health literacy, and spirituality with documented hospitalizations' and readmissions among individuals with asthma (Baptist *et al*., 2007).

1.4 Problem Statement

Asthma is one of the chronic diseases that needs to be well controlled, asthma readmission is one of the common complications related to hospitals, as it increases the cost of healthcare services and affect patients emotional and psychological characters negatively, health belief model is one of well-organized models that can inspect and detect the main reason for any defect o any negative consequences on healthcare and its disorders asthma, studying the reasons for asthma readmission relying on HBM gives a positive impact and significant results that may be good indicator for other research after that (Gardner, 2016). According to Fleetcroft *et al*. (2016), the majority of asthma-related hospital admissions can be avoided. Inadequate management, non-adherence to treatment and medication, and failure to attend check-ups and follow-up appointments are the primary causes of these admissions (Batra *et al*., 2022). According to the findings of some studies by Gonzalez-Barcala *et al*. (2018), Chung *et al*. (2015), and Bloomberg *et al*. (2003), reported that asthma is one of the conditions that has been shown to have a high potential for readmission to the hospital after being discharged for the same reason. So, asthma is to blame for the work that health care providers have to do and the costs that the health system has had to pay (Braman, 2006) and A key area of emphasis has been the identification of demographic attributes and additional factors that increase the likelihood of hospital readmissions and/or revisits to the emergency department (ED). Risk factors that are commonly examined in studies investigating susceptibility to readmission include variables such as age at initial admission, gender, race/ethnicity, acute and chronic asthma severity, past hospitalizations, socioeconomic status, parental knowledge, and medication management. In Jordan, only limited studies conducted on this problem. Further analysis is needed.

1.5 Significance of the Study

The rate of hospital readmissions is generally considered to be a contributor to the rising costs of health care; however, it may be a benchmark for the quality of health care (Murray *et al*., 2021). According to the findings of the Global Burden of Disease (GBD) study from 2016, there

were approximately 339.4 million people all over the world who suffered from asthma. This studying will enrich the literature with more perspectives for the main reasons for asthmatic patients readmission and the main consequences that may happen after that in both point if view, the health care professionals, and asthmatic patients, these mixed points of views will give a general implication to the study and etiological aspects of this high rate of readmission and its economic and health considerations.

1.6 Study Purpose

This study aims to investigate the main reasons that may contribute to asthmatic patients readmissions and increase its rate, from both patient's and healthcare provider's perspectives in addition to looking into the effects of patient education on asthma to find out how much it helps reduce hospital admissions (Ho & Chiang, 2021).

1.7 Research Objectives

1. Identify the reasons for asthmatic patient readmission from the health care provider's perspective.
2. Identify the reasons for asthmatic patient readmission from patients' perspective
3. Compare admitted patients and readmitted patients within the 30 days of the last discharge for asthma regarding a health belief model.
4. Identify the difference between case and control group regarding asthma control?

1.8 Research Questions

1. What are the reasons for asthmatic patient readmission from a healthcare provider's perspective?
2. What are the reasons for asthmatic patient readmission from the patients' perspective?
3. What is the difference in patients' perspective of the reasons for readmission between patients who have been admitted to the hospital and patients who were readmitted during 30 days of discharge?
4. What is the difference between the case and control group regarding asthma control?

1.9 Definition of study variables

- **Conceptual Definition:**

Readmission is defined differently in each of the studies that were conducted. According to the findings of this study, a patient was considered to have had readmission if it occurred between one month and one year after their initial hospitalization. The number of asthma patients who have to go back to the hospital varies from country to country (Eissa *et al*., 2019).

Chambers and Clarke define readmission as 'the next subsequent admission of a patient as an immediate (that is, emergency or unplanned) admission … within a defined interval of a previous (index) discharge taking place within a defined reference period (Chambers, Clarke, 1990; Chambers M, Clarke, A., 1990)

- **Operational definition:**

Readmission: It is the patient's return to the hospital for Asthma within the 30 days of the last discharge.

1.10 Chapter Summary

This chapter discusses the main background about asthma meaning, prevalence its risk factors, model to assess this disease and its main risk factors causing asthmatic patients' readmission, also, the it was shown that healthcare professionals (HCPs) have a moral obligation to give their patients and clients accurate information about the reasons for hospital readmission. For patients to reach the point where they can self-manage their asthma, they need to have a firm grasp on the symptoms and precipitating factors of their condition. Only then will they be able to determine when and how much of their asthma medication they should take? In addition, asthma symptoms ranging from mild to moderate can be controlled with the help of the patients themselves (Leong, 2021).

The need to involve patients in educational activities was found to be the most important result. initiatives aimed at lowering the number of times complications occur and minimizing the need for hospitalization rates of admission; the requirement to provide instructions concerning the appropriate use of instruments and methods for minimizing exposure to potentially harmful factors; the significance of nurses' and the roles played by physicians in the management of asthma to reduce the need for hospitalization; Increasing the level of knowledge among the families of asthma patients improves the effectiveness and high quality of the medical care provided by doctors and nurses, as a result reducing the number of patients who need to be

admitted to the hospital and offering patients theoretical increased knowledge and practical expertise will likely result in fewer hospital admissions to ensure that they are capable of taking care of themselves at home.

This chapter also discussed the general aspects and main construct of the health belief model and its application on asthmatic patients assessment for readmission cases in both patients and HCPs believes, besides that, few studies conducted in Jordan gives the chance for this study to be very affective in the research field and literature.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter provides the reviewed literature and findings of research associated with the reasons for asthmatic patient readmissions: health care providers and patients' perspectives.

2.2 Search Strategy

- **Research protocol**

The databases sources for literature review had been chosen according to previous experiences about the main databases containing the main asthmatic readmission and admission criteria and their reasons in addition to main models used to assess them, such as the National Library of Medicine (NLM), CINAHL, the PubMed Central (PMC), and the Web of Science (WOS) electronic databases.

The keywords used to search for studies related to this study's were defined in this review: Reasons for asthmatic patient readmission: health care providers AND patients' perspectives. Asthma, AND "causes" OR "reasons", "readmission", "patients", "admission", "Jordan", "HBM" OR "health belied model" NOT "children", "pediatric asthma" and "healthcare providers" were all included in the medical subject headings (MeSH). More Synonymous key words had been utilized.

- **Inclusion Criteria:**

1. English Language only (not translated) - Literature Past 7 years.
2. Topics are relevant to our search terms. All asthma patients were more than 18 years old as this study targeted adults only.
3. Topics relevant to nursing and health.

- **Exclusion Criteria:**

1. Studies in contexts other than health care, and nursing.
2. Studies in the non-asthmatic period.
3. Studies in contexts other than original papers in English
4. language, and the past 5 years.

These studies were accessed from the databases available in these electronic libraries of AL-Isra University. I relied on the following databases as the main data sources: Medline, CINAHL, Psych info, and EBSCO-HOST, using the Boolean operators (AND, OR, NOT).

This data has a lot of useful information. Using date filters, we ensured that the literature we retrieved was accurate and up to date for the last 7 years across all databases to ensure updated deep analysis evidence. Because of a lack of translation resources, papers written in languages other than English were discarded, as were papers not available in full text, debates, conference abstracts, and dissertations; however, reference lists were checked.

Screening the results, papers other than English and duplicates, and systematic review, and meta-analysis were removed. A total of 37 articles were reviewed for relevance after being narrowed down to those with titles that most closely resembled the original search term.

2.3 Asthma prevalence and cost in Jordan

There few to no accredited data about the incidence and costs consumed to cover asthma admissions and control in Jordan, but according to a report by the Jordan Ministry of Health (Nour *et al*., 2023), the percentage of asthmatic patients admitted to hospitals in Jordan has reached 2.38% of the total number of asthmatic patients. Additionally, the mean total cost of admission and readmission for asthmatic patients over a three-year period was found to be 110,874 Jordanian dinars, which is equivalent to 156,382 US dollars. Patients who have been diagnosed with asthma and exhibit uncontrolled symptoms demonstrate significantly higher total direct medical expenses per annum in comparison to those who have partly controlled and controlled asthma. The study found that the yearly expenses associated with readmission due to uncontrolled asthma amounted to JD 396 (equivalent to US$ 558). In contrast, partly controlled and controlled asthma resulted in costs of JD 258 (US$ 364) and JD 150 (US$ 211), respectively. The citation "Alefan *et al*., 2022" has been provided. Abu-Ekteish *et al*. (2019) reported that the estimated readmission rate for adult asthma patients in Jordan was 2.3%, which is comparable to rates observed in other countries.

2.4 Causes For Asthmatic Patient Readmission

Standard metrics for measuring hospital quality improvement and performance include LOS, patient safety measures, and readmission rates. Since patients are frequently readmitted for the worsening of conditions following the index admission, hospitals frequently use the 30-day readmission rate as a quality indicator and quantifiable statistic. According to the findings of Patel *et al*., (2021) the 30-day readmission rate for asthma was 11.9% for all causes. Asthma exacerbations (36.74%), COPD flare-ups (11.47%), respiratory failure (6.46%), non-specific pneumonia (6.19%), septicemia (3.61%), and congestive heart failure (3.31%) were the most common reasons for 30-DR. Half of all visits were made within the first two weeks, with a quarter of those coming in the first week. A significant role in avoiding readmission due to asthma could be played by education about illness and the significance of medicine compliance.

Asthma is a chronic inflammatory condition of the airways that affects a wide variety of people. It is "characterized by the history of respiratory symptoms such as wheezing, shortness of breath, chest tightness, and cough that change over time and in intensity, typically with varying expiratory airflow limitation can be observed" (AlMoamary *et al*., 2019) Some of the highest rates of asthma prevalence in the world are seen in Saudi Arabia, where it is one of the most frequent chronic diseases (Al Ghobain *et al*., 2018). Lost time at work or school, diminished well-being, increased use of healthcare services, and even premature death are just some of how this problem affects patients, their families, and the larger community (Alharbi *et al*., 2018).

Also, Almomani *et al*. (2016), who aimed to measure the extent to which uncontrolled asthma impacts patients in Jordan remains largely undetermined. The present investigation evaluated diverse facets of clinical manifestations of asthma, including the degree of asthma management, its association with quality of life, and potential predictors of asthma control. Methods: From 2013 to 2014, interviews were conducted with asthmatic patients aged 16 years or older in the northern region of Jordan, using a face-to-face approach. The evaluation of outcomes measures was conducted through the implementation of the asthma control test (ACT), the mini asthma quality of life questionnaire (mini-AQLQ), and the Generic health-related quality of life (EQ-5D). The present study investigated the correlation between asthma control and quality of life through the utilisation of Spearman's correlation coefficient. The study

employed multivariable logistic regression analysis, which was adjusted for confounding variables, to identify the predictors of asthma control. The study recruited a sample of 255 patients, with a mean age of 45.16 years and a female representation of 74.5%. Around 30.6% ($n = 78$) of the participants exhibited controlled asthma, as indicated by an ACT score of 20 or higher. The study revealed a significant association ($p < 0.001$) between asthma management and mini-AQLQ as well as EQ-5D scores. The study found that poor asthma control was independently associated with subjects who required an increase in treatment (OR = 0.12, 95% CI: 0.02–0.63, $p = 0.01$) and those who experienced acute asthma exacerbation (OR = 0.32, 95% CI: 0.18–0.58, $p < 0.001$). Conclusions: A significant proportion of the enrolled individuals did not attain the desired level of asthma management, which was found to be correlated with a diminished quality of life. The research underscores the potential utility of employing a basic evaluation instrument, such as the Asthma Control Test (ACT), to screen and classify asthma management in regions with limited economic resources. The implementation of this approach could potentially enhance the efficacy of treatment plans and ultimately enhance asthma management and quality of life among individuals with asthma.

Visits to the emergency room due to an asthma exacerbation are common. An indicator of asthma severity, readmission rates within 30 days remains high. It has been established that the use of prescription opiates and anxiolytics is correlated with an increased risk of being readmitted to the hospital soon after discharge. Higher rates of readmission after steroid use likely reflect a more severe condition at the outset. The effects of obesity and gastroesophageal reflux disease (GERD) on asthma onset, severity, and responsiveness to treatment are becoming increasingly clear. Dhital *et al*., (2018) emphasize the significance of identifying high-risk factors for readmission to focus preventative interventions on individuals who are most at risk. Acute asthma readmission risk factors were identified by Eissa *et al*., (2019) to include disease duration, viral infections, the common cold, dust, and activity. Acute asthma readmission is influenced by the severity of the disease and treatment compliance.

Asthma exacerbations are so severe that hospitalization is necessary to mark a turning point that calls for a thorough reevaluation of past asthma therapy and a fresh, individualized strategy for future asthma management (Ferrante & La Grutta, 2018). Current asthma treatments

should, ideally, be determined by the underlying phenotype of the disease. Despite protective therapy with inhaled corticosteroids (ICS), ICS + long-acting beta-agonists (LABA), or leukotriene antagonists (LTRA), Donath *et al*., (2020) found a significant readmission rate. Therefore, to properly manage asthma in pre-school patients and avoid hospitalization, current care and treatment options should be reevaluated continuously. Asthma is the most frequent form of respiratory disease, according to Alansari & Mirza, (2020). Asthma is a major public health concern in Saudi Arabia because it hurts the lives of patients, their families, and the community at large. This includes but is not limited to, missed school and work days, lower quality of life, increased visits to the emergency room, hospitalization, and even death.

In addition, patient with preexisting genetic vulnerability often experience asthma attacks or exacerbations, leading to hospitalization. These are typically linked to respiratory virus infections, but can also be caused by exposure to allergens or air pollution. Due to a shortage of trained professionals and diagnostic tools, asthma is often misdiagnosed. As a corollary, poor treatment adherence and a lack of access to specialist care are major contributors to the failure to effectively manage and prevent disease outbreaks in disadvantaged communities. When asthma patients are unable to manage their symptoms at home, they frequently seek treatment in hospitals' emergency rooms (ERs), which can be expensive for both the health care system and the patients' families (Morillo *et al*., 2022).

Patients with asthma can have a decent quality of life with the help of medication and careful management, despite the lack of a cure. Lack of sleep, exhaustion, reduced activity, and missed work or school days are all possible outcomes of having asthma that flares up frequently. Asthma remains a major public health burden with considerable morbidity and mortality worldwide (Dahmash, 2021).

2.5 Health Care Provider Perspective Regarding Readmission Of Asthmatic Patients

An asthmatic parent's questions were answered by a nurse practitioner, who also showed them how to use an inhaler and explained the disease's symptoms and treatment options. The module's instructional value and readability for parents were discussed verbally by the nursing staff. Positive comments from parents and teachers suggested the program was a successful means of asthma teaching (Gardner, 2016). Hospitalizations for illnesses amenable to outpatient care, such as asthma, can be reduced with prompt and efficient treatment, as reported by Cho *et*

al., (2016). In addition, many public medical institutions have lost the public's faith due to poor quality of service, making it difficult to gain the trust of asthmatic patients (Ministry of Health and Population, 2017).

There is a lack of research on how ambulatory follow-up can help reduce long-term readmissions for minority patients who have been hospitalized due to asthma. In this study, aimed to (1) determine whether or not ambulatory visit attendance was associated with long-term readmission among urban, minority patients with asthma, and (2) identify predictors of such attendance (Philips *et al*., 2020). Furthermore, there was no statistically significant difference in mortality or readmission rates between the two groups during the 6-month follow-up period. There was a statistically and clinically significant decrease in mortality and hospital readmissions for Health Fauiler patients who had received information prescribed by their doctors over the course of a long period (Kazemi Majd *et al*., 2021).

An intervention designed to aid people with asthma in taking better care of themselves and avoiding asthma attacks can help lessen the financial toll of the condition and boost the quality of life for those who suffer from it. Self-management education, appropriate medical care, and avoiding environmental triggers that can lead to asthmatic episodes can help keep asthma under control even though its specific etiology is unknown and it cannot be cured. Poor information and a lack of education about the subject are two causes of uncontrolled asthma (Ahmad, 2018). In addition, Basheti *et al*. (2018) found that asthma patients who were hospitalized for their condition improved their inhaler technique after receiving training from a pharmacist and that these patients continued to use their inhalers correctly three months after discharge. All of the inhaler groups showed statistically significant gains on the Asthma Control Test (ACT).

Asthma's adjusted prevalence was found to be between 4.4 to 7.6 percent in the Middle East, significantly lower than the stated incidence in Europe and North America. High rates of co-morbid disorders in people with asthma suggest that doctors should screen for them and make sure they're well-managed, as asthma has a detrimental effect on the quality of life (Tarraf *et al*., 2018).

Medical professionals, nurses, and social workers cannot eliminate the myriad of factors that contribute to readmissions. To achieve their goals, multidisciplinary teams must have

defined leadership and duties, as well as the ability to communicate effectively, efficiently, and politely between themselves and with patients. To ensure that best practices are incorporated into transition procedures, hospitals can either form new teams to redesign transitions or direct the work of existing teams in this direction. In addition to doctors, nurses, and social workers, teams may also include quality and safety leaders. Professional medical interpreters should be included as part of the interdisciplinary team while providing care to patients with limited English ability. Pharmacists, dietitians, psychologists, and social workers are all examples of allied health professionals that are commonly found in high-performing teams, as are "non-traditional" team members such as community health workers, navigators, and health coaches (Centers for Medicare and Medicaid Services, 2020).

Major airway illnesses such as asthma and chronic obstructive pulmonary disease (COPD) both independently contribute to considerable societal and economic burdens. Asthma-COPD overlap (ACO) has gained international attention because of the strong correlation between the two conditions and the increased risk of exacerbations and negative health outcomes it poses. Individuals with ACO have higher healthcare costs than patients with asthma or COPD alone. Subjects with ACO have been routinely left out of large clinical trials, therefore there is little published data on how best to treat them. Diagnosing and treating ACO remains difficult, necessitating additional research and evidence-based management guidelines (Altawalbeh *et al*., 2021).

The patient's education is an integral aspect of his service. With more people suffering from chronic conditions, it's more important than ever to implement education initiatives, as these patients require constant monitoring (Clarke *et al*., 2017). Asthma education is crucial, with the primary focus being on increasing patients' knowledge and enhancing their adherence to drug regimes. Due to a lack of information, asthmatic patients have been hesitant to participate in illness management activities that would involve self-management (Eissa *et al*., 2020).

2.6 Health Belief Models

The premise of the health belief model proposed by Rosenstock and Becker (Rosenstock, Strecher, & Becker, 1988) is that health-related behavior is contingent on the concomitant presence of a number of health-related beliefs. To better serve patients as clients, better understandiang their health beliefs, especially those that shape their sense of agency in their own

medical treatment. The extent to which clients feel they can affect or manage their health via their own actions is revealed to the nurse through an evaluation of their health beliefs.

Asthma attack prediction models can be broken down into three groups, according to Chung *et al*. (2021): those that just include bio signals, those that only consider environmental factors and those that consider both. Prediction models that just utilize environmental risk factors.

Numerous studies have employed the Health Belief Model (HBM) to assess individuals' perspectives on health and their subsequent actions. HBM is a mental model that looks for good ways of behaving. HBM consists of four primary factors: vulnerability, severity, benefits, and perceived barriers. HBM posits that the behavior may be traced back to a synthesis of perspectives on these four ideas. To increase parents' trust in asthma in their patients, researchers compiled an education module for these parents based on the fundamental concepts of HBM. These four components that build confidence are perceived susceptibility/seriousness, perceived benefits, perceived barriers, and self-efficacy (Tintin & Nursalam, 2020).

A study conducted by Sukartini *et al*. (2020), who employed a quasi-experimental design and included a sample of 33 patients diagnosed with asthma. The present study aims to assess parental belief utilizing the Health Belief Model (HBM) framework. The study employed an educational intervention that utilized a childhood management module with a focus on asthma to prevent relapse of the condition. The study employed MANOVA to assess the impact of asthma management on the belief-based health model. The results of the Chi-square test indicated that there was no statistically significant difference in the respondent characteristics related to education, age,occupation, asthma information, and sex ($p > 0.05$). The statistical significance of F group is less than 0.001 ($p < 0.05$). The component of belief was found to be significantly influenced by all variables within the group. The study revealed a significant correlation between asthma management and belief components, as evidenced by the partial Eta Squared value. Specifically, the perceived benefit (0.547), perceived susceptibility/seriousness (0.486), perceived barrier (0.539), and self (0.150) beliefs of parents were found to be strong indicators of the relationship. The integration of the Health Belief Model (HBM) with an educational intervention for managing asthma can serve as a viable alternative for educating all

patients. Engaging in healthy behaviors based on the perceived advantages of a novel activity typically serves as a preventive measure against the onset of illness.

Indonesian Cross-sectional descriptive study of Sari in 2018, aimed to examine factors related to asthma control among adult asthmatic patients based on the Health Belief Model on group of 397 participants selected using simple random sampling. Findings showed that there was no correlation between age, gender, enough income, degree of education, or employment and asthma control. Asthma management was significantly correlated with four aspects of perception: vulnerability, severity, benefits, and barrier with asthma control.

As a theoretical framework and a guide for variable selection, the original (HBM) was used for the management of asthma. Perceived susceptibility, perceived severity, perceived benefit, and perceived barrier are the four HBM constructs that Sari, (2018) examines. Healthcare providers might benefit from an appreciation of these concepts to better assist their adult patients in maintaining asthma control. When a person has a clear mental picture of their asthma, they are better able to manage their condition. To avoid the health risks associated with uncontrolled asthma, people's perspectives on the condition are crucial. The purpose of this research was to analyze the correlation between asthma management and demographic variables such as age, gender, income, education level, employment, perceived susceptibility, perceived severity, perceived benefit, and perceived barrier.

HBM is one of the important precise models which is used to determine the relationship between health beliefs and behaviors, and it is one of the most effective models of health education, primarily focused on the prevention of diseases and the adoption of behaviors to avoid illness and disease chains. According to the HBM, people will take measures to avoid disease if they believe they are at risk for the ailment (perceived susceptibility), that the ailment could have serious consequences (perceived severity), that there is a specific action they could take that would lessen their risk, lessen the severity, or lead to other positive outcomes (perceived benefits), and that there are few negative attributes related to the health action (perceived barriers) (Mohammadi Pelarti *et al*., 2019).

2.7 Variations Among Patients Admitted And Not Admitted During 30 Days Period

Many people have an interest in finding ways to decrease hospital readmissions. However, little is known about the features of adult readmissions to hospitals within 30 days of an initial hospitalization for asthma-related reasons. Whether older persons have a higher risk of readmission within 30 days is also unknown (Hasegawa *et al*., 2016). Patients with severe asthma often have exacerbations of their condition. This paper details the findings of two retrospective cohort studies in the United States and the United Kingdom that examine the relationship between asthma severity and the frequency and risk of exacerbations, readmissions to the emergency department (ED), and the cost of asthma treatment. Patients with more severe diseases require intensive post-exacerbation care because of the correlation between increased exacerbation frequency, ED/hospital re-admission, expenditures, and risk of repeat exacerbation (Suruki *et al*., 2017).

The chance of being readmitted to the hospital within 30 days after being released from the hospital for reasons other than emergency treatment. Similar outcomes were seen in patients readmitted due to COVID-19 compared to those who were initially discharged from the hospital due to pneumonia. This finding further supports the greater planned/irrelevant readmission in COVID-19 patients. Furthermore, whereas mortality rates during the readmission period were steady, they were higher for COVID-19 patients. In contrast, pneumonia patients had a lower risk of dying during their initial hospital stay than they did after being readmitted (Alyabsi *et al*., 2022).

The majority of patients who were recruited did not have their asthma under control, which was linked to a lower quality of life. The findings show that a straightforward assessment tool like the Asthma Control Test (ACT) can be used to screen for and classify levels of asthma control even in countries with limited resources. A more effective treatment plan would be made possible with this method, leading to better asthma control and a higher standard of living for asthma patients (Almomani *et al*., 2016). Similarly, Sun *et al*. (2021) found that 5.29 percent of the patients treated at a hospital in southern China for acute asthma attacks were readmitted within a year. The significance of targeted long-term post discharge follow-up of patients with a history of eczema and a positive Malaria antigen detection test (MP) antibody IgM was further emphasized by the fact that these patients had considerably elevated readmission rates after one year.

The importance of targeted long-term post discharge follow-up of these patients was also highlighted by Tse, S. M., & Samson, C. (2017), who enumerated that patients who had been admitted to the ICU for asthma had a shorter time to asthma-related readmission, compared with patients who did not require intensive care. Having a longer hospital stay increases the risk of future morbidity, especially for patients in the preschool age range.

A study by Dahmash (2021) which conducted in Jordan and aimed toinvestigate and pinpoint the lacunae in physicians' comprehension and implementation of asthma management protocols. In Jordan, a cross-sectional study was carried out utilising an online survey to investigate the disparity in physicians' knowledge and practises regarding asthma management. The study utilised a validated questionnaire, namely the Physicians' Practise Assessment Questionnaire (PPAQ). The study employed the utilisation of knowledge questions that were anchored on the Global Initiative for Asthma (GINA) guidelines to evaluate the knowledge and practise levels of the participants. Logistic regression was employed to identify the predictors of good practise. The survey garnered the participation of 271 physicians, as indicated by the results. Physicians exhibited a mean level of knowledge exceeding 78%. The identification of asthma attacks, which constituted 61.9% of the participants, was significantly associated with gaps in knowledge. Conversely, only 67.6% of physicians demonstrated knowledge of the drugs used for asthma management. The study's results have highlighted the necessity of converting knowledge into practical application. One potential strategy to accomplish this objective is to provide formal training to healthcare professionals and deliver regular, concise prompts to reinforce best practises. Additionally, conducting a clinical audit of medical practises may prove beneficial. In order to promote effective management of asthma, there is a requirement for innovative methods of knowledge transfer that can facilitate alterations in behaviour and practise.

CHAPTER HREE

METHODOLOGY

3.1 Introduction

This research was designed according to general procedures used in the previous studies, this chapter listed, the study population and samples with the proper sampling technique, study tools, and data collection, the validity of the questionnaire, and the reliability analysis that was applied clearly stated. Finally, the discussion of statistical analysis procedures that were used in data collection methods.

3.2 Study Design

This case-control study was conducted in Jordan and the strength lies in its capacity to provide simultaneous comparisons of multiple factors. It was performed using self-assessed questionnaires that collected data over six weeks from a sample that constituted 99 HC providers and 299 patients.

3.3 Settings

This case-control study was conducted in governmental hospitals specifically in Al-Basheer, Toutanji, Al Nadeem, and Prince Hamzah Hospitals, in Jordan, and the sample population was selected from these hospitals.

3.4 Population and Sample

3.4.1 Sampling

Using the Richard Geiger equation, with a margin of error determined as 5%, a confidence level of 95%, the population, and 50% response distribution, and using sampling size calculation of more than 500 expected responses as cited by Charan and Biswas, (2013), Nour *et al*. (2023) to get the final total sample size which equals 99 health care providers and convenience selected 299 asthmatic patients who were sorted as 149 for case group that readmission patients during 30 days after hospital discharge and 150 for the control group that there was no readmission during 30 days after discharge as cited before by Phillips *et al*. (2021).

The formula for sample size is presented,

Below is the formula used for the calculation.

$$\text{Unlimited population: } n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2}$$

$$\text{Finite population: } n' = \frac{n}{1+\frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2 N}}$$

n =Sample size

z = Critical value = 1.960 with the selected confidence level of 95%

N = Population size

P = Sample proportion (that describes the number of people in a sample who have a certain trait or characteristic), ranging from 50 to 70%

Source:- *https://www.calculator.net/sample-size-calculator.html*

And the odd ratio with poser for case and control is presented,

$$P_1 = \frac{(OR)P_2}{(OR)P_2 + (1 - P_2)}$$

As directed from:

https://www.statsdirect.co.uk/help/sample_size/independent_case_control.htm

3.4.2 Health Belief Model construct

The Health Belief Model (HBM) was employed as a guiding framework for variable selection and analysis of factors associated with asthma control, including age, gender, income, educational level, and occupation (Becker *et al.*, 1978). The Health Belief Model (HBM)

developed by Rosenstock is a theoretical framework that pertains to the decision-making process related to health. It involves a structured approach to organising the various components of the model. The theoretical framework endeavours to elucidate the circumstances in which an individual would partake in personal health-related actions, such as undergoing preventive screenings or pursuing medical intervention for a health ailment, The construct for HBM is cited previously by Luger (2013), as follows:

According to the Health Belief Model (HBM), an individual's probability of engaging in health-related behaviour is believed to be associated with four primary factors. Initially, the likelihood of taking action is higher if an individual perceives oneself to be vulnerable or at risk of developing the particular condition. In the event that Lucy possesses a familial history of breast cancer, she may perceive herself as being more vulnerable to the onset of breast cancer. Consequently, she may exhibit a higher likelihood of undergoing an annual mammogram. The probability of taking action is contingent upon the perceived gravity of the situation. The assessment of the gravity of a situation can be determined by the level of emotional stimulation elicited upon contemplation of the circumstance, as well as the predicted physiological, societal, and psychological aftermaths that may arise from its manifestation. Lucy's perception of breast cancer as a serious condition necessitating preventive measures is influenced by her personal experience of losing her mother to the disease. Thirdly, the perceived advantages of executing the task are taken into account. Lucy evaluates the efficacy of mammography in detecting breast cancer as a factor in her decision-making process regarding undergoing the screening. Ultimately, an assessment is made regarding the perceived obstacles associated with executing the given task. Lucy is cognizant of the fact that undergoing a mammogram can elicit discomfort and arranging for an appointment can be inconvenient. Nevertheless, Lucy perceives that the advantages surpass the obstacles. The introduction of supplementary modifying variables, such as age and gender, is based on the assumption that they exert an impact on the aforementioned beliefs.

The Health Belief Model (HBM) variables are designed to assess an individual's psychological preparedness or inclination to take action (Kirscht, 1988). Empirical studies have generally demonstrated the HBM's ability to forecast an individual's health-related behaviours (Janz & Becker, 1984). The correlation between self-reported susceptibility, benefits, barriers,

and severity and health behaviour outcomes, such as attending preventative screening, seeking medical care, and utilising health clinics, has been demonstrated. Despite its widespread use, the Health Belief Model (HBM) has exhibited limited success in accurately forecasting compliance with medical treatment protocols or cessation of detrimental habits like smoking (Kirscht, 1988). Furthermore, although the variables encompassed by the Health Belief Model (HBM) may assess an individual's personal level of preparedness, the ideal level of preparedness for modifying health behaviours remains uncertain.

3.5 Population

Regarding the patients' group, the first one is the inclusion criteria which were:

1. All (males and female) chronic asthmatic patients (Patients who are asthmatic for more than 2 years with more than 3 episodes monthly (Abd-Elmoneim *et al*., 2013) who are attending outpatients' clinics because we can measure their readmission from their visits and they are the best places to record all types of asthmatic patients.
2. Patients who are speaking and writing the Arabic language can read and fill out this questionnaire.
3. Patients who are attending only outpatient clinics.
4. Patients located in Al-Basheer, Toutanji, Al Nadeem, and Prince Hamzah Hospitals because this study is a semi-type of prevalence measurement study.
5. All patients were more than 18 years old as this study targeted adults only.

And the second one is the exclusion criteria which were:

1. The non-asthmatic patients
2. Asthmatic patients who are not speaking and write the Arabic language
3. Children and any patients who are not willing to share in this survey.

The healthcare providers' groups inclusion criteria were:

1. All healthcare professionals who are specifically treat and manage asthmatic cases.
2. Healthcare professionals who have a frequent admissions for asthmatic cases.
3. All healthcare providers who are working in Al-Basheer, Toutanji, Al Nadeem, and Prince Hamzah Hospitals as these governmental hospitals. Because private hospitals have economic and objective reasons to participate in this study and the accessibility in

governmental hospitals is easier than the private ones besides that more cohort studies can be conducted in these type of hospitals without many restrictions besides the questionnaires are spread easily in this type of hospitals.

While the exclusion criteria were:

1. The healthcare professionals who are not specialized into asthma management.
2. All medical students who are still under training in the hospitals.
3. Healthcare workers who are not working in Al-Basheer, Toutanji, Al Nadeem, and Prince Hamzah Hospitals.

The study population consisted of doctors and nurses as health care providers, and asthmatic patients. The difference between these two main groups of the population was designed to merge the perspectives of both healthcare providers and patients. The patients were selected from the outpatient clinic who were previously reported in the hospitals files as asthmatic patients and all patients data were extracted from their files, while the healthcare providers who were selected after presenting the study objectives on them to share with this study, some of chest physicians and critical care besides general medicine nurses participated in this study after asking the administrative departments about the name of healthcare providers who are working in internal medicine, chest, and critical care departments.

Case groups is all asthmatic patients who were readmitted to the hospital through the first 30 days after the last admission and still suffer from asthmatic exacerbations without any observed asthma control, while the control groups is all asthmatic patients who were not readmitted through the first 30 days after their last admission to the hospital with effective asthma control, the significance of case group is determining the mean variables causing readmission after discharge through 30 days and they were the essential group criterion for this study while the control group was needed to neglect all other reasons and variables that causing conflict in determining the mean reason for readmission besides determining reasons for no readmission (Wickens *et al*., 2001).

3.6 Data Collection, Study Tools And Procedure

The questionnaire questions were set according to Patel *et al*. (2022) study and the items of this questionnaire are listed.

Both asthmatic patients and healthcare professionals who fit out to the inclusion and exclusion criteria were selected from Al-Basheer, Toutanji, Al Nadeem, and Prince Hamzah Hospitals, and after filling out the consent for this survey and according to the survey sections, they will fill all items after filling the personal information sheet,

The study dealt with the following tools

First questionnaire: questionnaire of reasons for asthmatic patient readmission from patients' perspectives: this questionnaire consists of three sections, which are:

- Section One: Demographic Variables which contains (gender, age, academic qualifications, occupational status, work nature, family status, whether are you a smoker, do you have health insurance, do you have chronic diseases, Do you live near a hospital, were you are admitted to hospital because of asthma, were you readmitted to hospital because of asthma within 30 days of discharge, do you frequently visit the hospital because of asthma, are allergies and asthma common in your family, do you use the medicated inhaler, is your place of residence overcrowded, are you exposed to disease triggers daily.

- Section Two: Reasons for asthmatic patient readmissions: there was a question that determine if these patients were readmitted during the last 30 days or not. In addition to the Health Belief Model (HBM) questionnaire criteria which was set according to (Cummings *et al*., 1978) and modified by (Niculaescu *et al*., 2021),

Table 0-1 Patients' perspectives contain seven dimensions

Dimension Number	Dimension Title	Dimension Contains statements
First	Susceptibility	1-5
Second	Seriousness	6 – 11 and 43
Third	Benefits	12-31 and 44, 45
Fourth	Self-efficacy	32
Fifth	Attitude	33 and 41
Sixth	Cost	34 - 37
Seventh	Knowledge	38 – 40, and 42,46,47,50

The data was collected and extracted into an excel sheet from the mentioned hospitals after 6 weeks. As the total study duration, the questionnaire covered many items including gender, age, type of work, and other socio-demographic variables of the subjects. In addition to other variables may affect the readmission rates for these patients to be analyzed through suitable analytical methods.

- Section Three: Asthma Control Scale measures level of asthma exacerbations and how to deal with it to reduce readmission through last 30 days.

- This scale consists of 5 questions for participants about asthma exacerbation using 5 points on likert scale between (Never-at all time).

Second questionnaire: questionnaire of reasons for asthmatic patient readmission from Health care provider perspectives: this questionnaire consists of two sections, which are:

- - Section One: Demographic Variables which contains (gender, age, years of experience, job title, academic qualifications, specialty, training program about asthma).
- - Section Two: Reasons for asthmatic patient readmissions: health care providers perspectives, it contains the statements from 34 question.

3.7 Data Validity And Reliability

3.7.1 Likert Scale Significance In The Study

The level of enthusiasm one has for a subject can be gauged through the use of a Likert scale, which is widely employed in surveys. The scale is based on a middle ground that allows you to see how strongly people feel about various issues (McLeod, 2008).

To gauge the opinions of survey takers, the questions typically center around how much the respondents agree or disagree with a given statement or set of questions. The research type for evaluating the validity measuring scale included four Likert scales for patients' perspectives (case and control group) as follows:

Table 0-2 Likert Scale For Patients' Perspectives

Always	Sometimes	Rarely	Never

4	3	2	1

Relative importance, assigned

Median score was calculated as follows;

$$\text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{observation}$$

The Low degree from 1.00- 1.33

The Medium degree from 1.34 –3.67

The High degree from 3.68 – 4.00

The research type for evaluating the reliability measuring scale included five Likert scales for health care providers' perspectives as follows:

Strongly Agree	**Agree**	**Undefined**	**Disagree**	**Strongly disagree**
5	4	3	2	1

Relative importance, assigned

Also, Median score was calculated as follows;

$$\text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{observation}$$

- The Low degree from 1.00- 2.33
- The Medium degree from 2.34 – 3.67
- The High degree from 3.68 – 5.00

This conducting research was tested for its data validity using triangulation techniques, which refers to the practice of combining findings from several different sources into a more complete picture of whatever phenomenon is being studied. Equally, triangulation has been considered a research approach for establishing reliability by combining data from several distinct sources as designed by Carter (1969) and modified by (Patton, 1999).

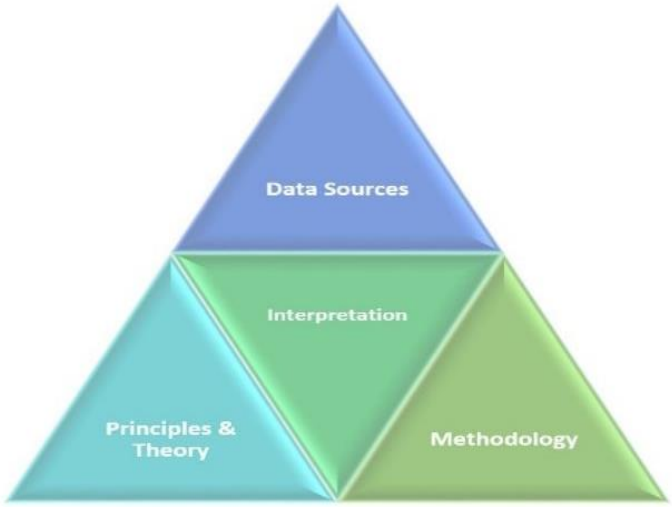

Figure **0-1** Triangulation Data Validity Approach

3.8 Reliability of the study tool

To calculate the stability of an instrument study, the researcher used the equation of internal consistency using Cronbach's alpha test shown in the following table, the test results where the values of Cronbach's alpha for all variables of the study and, identification of general higher (0.60) which is acceptable in the research and studies (hair *et al*., 2010), which gives the questionnaire as a whole the reliability coefficient ranged between (0.700 – 0.881) with total value = (0.897), as shown in the following table;

Table 0-3 Cronbach's alpha for the study fields

Variables	Statements	Cronbach Alpha
Susceptibility	1-5	0.874
Seriousness	6 – 11, 43	0.881
Benefits	12 – 31,44,45	0.768
Self-efficacy	32	---
Attitude	33, 41	0.7
Cost	34 – 37	0.842
Knowledge	38 – 40, 42,46, 47,50	0.777
All Questions	1-50	0.897

A pilot study is defined as a small-scale test of the methods and procedures that will be used on a larger scale," according to the definition. The goal of pilot work isn't to test hypotheses about how an intervention will work. Instead, it's to see if an approach can be used in a larger study and if people are willing to use it, 10 healthcare providers and 30 asthmatic patients were selected to perform the questionnaire as cited by Whitehead *et al*. (2016).

In this study, about 12 case and control asthmatic patients (7 and 5), respectively in addition to 4 doctors were tested for detecting the validity and reliability of this study, the initial results revealed that the study will be conducted successfully with rationales and relevant data, main reasons were detected to be added to the whole and final study results after that.

3.9 Data Collection

3.9.1 Study consent

The selected hospitals and the Deanship of Higher Studies and Scientific Research first gave their approval for the study to be conducted. The information was gathered with the help of a questionnaire and an HBM fill forms. The researcher informed the patient and healthcare professional (according to the interviewee) that the study has two parts, one involving asthmatic patients and the other involving healthcare providers, and that the HBM completion would be conducted in complete secrecy and with respect for their privacy. They can freely expose their identity and their information will not be viewed.

The researcher then completed four documents: an introduction letter, a data collection sheet, an informed consent form, and a survey. The researcher conducted in-depth HBM completions with those who applied to take part in the study (asthmatic patients and healthcare providers). After the researcher had made sure the participants understood what was being asked of them, he or she handed them an informed consent form. Participants were asked to fill out the questionnaires and study questions were filled out after they completed an informed consent form. Every survey was coded. To protect the confidentiality of the study participants, the researcher placed all records in a secure location. Over the course of six weeks, data was gathered.

All data was gathered by asking each participant one-on-one, selecting participants happened at morning as this period is the most active and exacerbated status period for asthmatic

patients and this time is the optimum time for healthcare professionals when they are not busy. The HBM completion models took place at the hospital's thoracic clinics and with patients who suffered from asthma. The researcher introduced herself and then went over the study's objectives, methods, and procedures before obtaining the patient's written consent. All participants had a thorough understanding of the study's goals, procedures, and significance. A participant information page provided them with the researcher's contact details, so they could indicate interest in taking part. Participating asthmatic patients and their healthcare providers were required to sign an informed consent form before taking part in the trial. As far as the healthcare providers were concerned, the researcher was very clear about his goals and the impact of the study on the nursing and healthcare practice, and he answered all of the questions posed by the patients in a way that they could understand. Before filling out a questionnaire, the researcher would chat with patients to learn about their health, listen to them to learn about their culture and dialect, and then speak to them using the same dialect, style, and intellectual and cultural level as the patient.

3.10 Satisfaction And Honesty

The patient was put at ease and allowed to open up during the course of the Health belief model (HBM) questionnaire's administration and subsequent analysis. Healthcare professionals were given ample opportunity to share their perspectives, and participants gained a sense of confidence in their abilities to do so. The strategies for the first set of measures were a friendly face, empathy, listening, providing all the information the subject need, and providing comfort as he filled out the questionnaire. This helped break the ice between the researcher and the subject, which ultimately led to a productive questionnaire completeness.

Seeing patients up close and personal in their time of need was both a moving and heartbreaking experience. When the researcher gave advice, taught, and listened to the patients, it was a great thing to witness. As a result, patients felt less alone and more supported while they battled their sickness.

It's important to show appreciation to healthcare practitioners because the researcher relies heavily on their input. The questionnaire approach was utilized in this study, with each question serving as an item in a health belief model (HBM) (Polit and Beck, 2020).

3.11 Validity Of The Study Tool

To test the questionnaire for clarity and to provide a coherent research questionnaire, a macro review that covers all the research constructs was accurately performed by academic reviewers from Isra University in the nursing section, The questionnaire was submitted to education and chest professional experts as reviewers, to verify the sincerity of its paragraphs, and to take their opinions, and re-wording of some paragraphs, and make the required modifications, to carefully strike a weight degrees between the content of resolution in paragraphs. And based on the experts' modifications, the questionnaire was reached in its final form, which consisted of 50 items with three dimensions for asthmatic patient, and 34 items with to two dimensions for health care provider.

3.12 Ethical Consideration

Approval was obtained from the Institutional Review Board at Isra University in Jordan and the Ministry of Health (MoH) before conducting. The approval was also obtained by selected hospitals (AL-Basheer, Toutanji, AL Nadeem, and Prince Hamzah). Furthermore, the researcher obtained written informed consent from the participants. Anonymity was maintained throughout the study with a data collection ID (specified by the researcher for data collection), and the participants had the option to say and use their names. Participants were asked to avoid stating any form of ID (such as Identity documents, phone numbers, and file numbers).

The participants were made fully aware of the study's purpose, expectation, and significance and given contact information to access the researcher and express interest in participation (through the participant's information sheet). The researcher asked the patients to sign the informed consent form before distributing the study questionnaire. Concerning data protection, principles of data protection in the research were maintained. All the data were treated, analyzed, and presented as group data. For security purposes, the data were retained within a locked cabinet. Only the investigator has access to this cabinet.

3.13 Data Analysis Techniques

The study questions and hypothesis were formulated to examine the reasons for asthmatic patient readmissions: health care providers and patients perspectives, a Statistical Package for Social Sciences (SPSS), version 26, to analyze the collected data and test the research hypotheses. The following statistical techniques and tests were used in data analysis:

4 Frequencies and percentages to describe demographical variables.

5 Cronbach's Alpha reliability (a) measures the strength of the correlation and coherence between questionnaire items and (b) highlights the stability of consistency with which the instrument is measuring the concept and (c) helps to assess the 'goodness' of a measure.

6 Descriptive Statistical Techniques: these included means and standard deviations. These techniques were used to illustrate respondents' study fields.

7 Independent Sample T-test.

8 One Way ANOVA and Scheffé test which is a kind of post-hoc, statistical analysis test that is used to make unplanned comparisons were used.

3.14 Chapter Summary

This study had a great impact on the healthcare management systems all over the world as it reflects the main rationale for readmission from dual points of view and both doctors and nurses with asthmatic patients' perspectives, it will reveal results that may be useful for other researchers in conducting various studies to discuss the same reasons but at another location and discover more variables may affect increasing or decreasing the readmission of asthmatic patients.

This study's variables' significance is used to predict and determine the relationship between demographic data and some factors such as distance to hospital and disease severity in determining the readmission of them while the working status might not be important in this study (Patel *et al*., 2022).

Interviews are the tool for qualitative study and revealing a hassel of data and information that may not be accurate or serve the study objectives, less sample size needed for interviews and more data collection and analysis are considered while Questionnaires is more significant than interviews as it is a best way to be answer research questions to get information from a lot of people quickly to detect that the questions are completely different in questionnaires than in an interview as a study that measures a quantitative measurement in such study, the analysis is completely scientific and related to theories and significance in other hypothes(McDonald, 2008).

CHAPTER FOUR
RESULTS

4.1 Introduction

According to the purpose of the research and the research framework presented in the previous chapter, this chapter describes the results of the statistical analysis for the data collected according to the research questions. The researcher utilized SPSS (version 26) statistical software to analyze the collected data. All subjects (299 patients and 99 health team members) completed the questionnaires. Patients were distributed among the case (n=149) and the control (n=150) groups. The case group patients were those who were readmitted to hospitals in the previous 30 days. Before deciding whether to use parametric or non-parametric testing, normality testing was conducted on the study variables within the three main scales (HBM aspects, Asthma Control Scale, and Health workers' Scale). All study variable data sets were subjected to the Shapiro-Wilk normality test.

4.2 Descriptive Analysis of Study Variable:

Table 0-1 Demographic Information for the Patient Group (Case and Control)

Variable	**Case Group (n = 149)**		**Control Group (n = 150)**	
	Freq.	**%**	**Freq.**	**%**
Gender				
Male	94	63.1	73	48.7
Female	55	36.9	77	51.3
Age				
18-20	16	10.7	23	15.3
21-30	64	43.0	26	17.3
31-40	47	31.5	43	28.7
41-50	19	12.8	34	22.7
51-60	3	2.0	18	12.0
61-70	-	-	6	4.0
Academic Qualifications				
Tawjihi	77	51.7	98	65.3
Diploma	53	35.6	37	24.7
Bachelor	19	12.8	15	10.0

Variable	Case Group (n = 149)		Control Group (n = 150)	
	Freq.	%	Freq.	%
Occupational status				
Working	134	89.9	126	84.0
a student	15	10.1	24	16.0
Family Status				
Live alone	-	-	2	1.3
Live with family	149	100.0	148	98.7
Are you smoker				
Yes	78	52.3	64	42.7
No	71	47.7	86	57.3
Do you have health insurance?				
Yes	60	40.3	78	52.0
No	89	59.7	72	48.0
Do you have chronic diseases?				
Yes	50	33.6	45	30.0
No	99	66.4	105	70.0
Do you live near a hospital?				
Yes	87	58.4	78	52.0
No	62	41.6	72	48.0
Were you admitted to the hospital because of asthma?				
Yes	147	98.7	91	60.7
No	2	1.3	59	39.3
Were you readmitted to the hospital because of asthma within 30 days of discharge?				
Yes	149	100.0	-	-
No	-	-	150	100.0
Do you frequently visit the hospital because of asthma?				
Yes	149	100.0	126	84.0
No	-	-	24	16.0
Are allergies and asthma common in your family?				
Yes	72	48.3	57	38.0
No	77	51.7	93	62.0
Do you use the medicated inhaler?				
Yes	147	98.7	130	86.7
No	2	1.3	20	13.3
Is your place of residence overcrowded?				
Yes	98	65.8	101	67.3
No	51	34.2	49	32.7
Are you exposed to disease triggers daily?				
Yes	149	100.0	135	90.0

Variable	Case Group (n = 149)		Control Group (n = 150)	
	Freq.	%	Freq.	%
No	-	-	15	10.0
Total	**149**	**100.0**	**150**	**100.0**

A total of 149 cases and 150 controls, the diversity in gender had been noticed slightly between males who were higher in the case group, the most predominant age group was 21-30 in case groups, and all of the cases were living with their families and Also all of these cases and 90% of controls have been triggered daily, also, about one third of these cases and controls are suffering from chronic diseases, exposed overcrowded, and about half (48.3%) have a family history of asthma, all of these cases he has a Twjihi certificate and works, all cases in case group frequent visits to the hospital, (98.7%) of them were admitted to the hospital previously and (100%) were readmitted to the hospital, about half cases smokers, and nearly all cases are used inhaler, (40.3%) from case group have health insurance.

4.3 Health Beliefs of Patients about Asthma Control

Differences between case and control groups concerning their health beliefs about asthma control are presented in Table (4.2). The study used an independent Sample T-test to show the differences in case and control groups' perspectives as shown in Table (4.2). Table (4.2) shows that there were statistically significant differences in the level of (seriousness, benefits, attitude, cost, knowledge, and the total degree of reasons for asthmatic patient readmissions from patients (case and control) group perspectives, which (t) values = (-3.759, -7.261, -5.909, -3.769, -2.581, -3.064) respectively and these values more than (t) tabulated = (1.96), while the variances in the level of (seriousness, benefits, attitude, cost, knowledge, and total degree) were in favor of control patient group and the variance in the level of the blank was in favor of case patient group.

The results also showed that there were no statistically significant differences in the level of susceptibility (t = 1.378) and self-efficacy (t = 0.593) between case and control groups at a level of (0.05).

Table 0-2 Differences between case and control group Regarding Health Beliefs Model

	response	N	Mean	Std. Deviation	T value	Df	Sig.
susceptibility	**case**	149	3.62	0.31	1.378	297	.169
	control	150	3.56	0.37			

seriousness	**case**	149	3.23	0.30	-3.759	297	.000*
	control	150	3.40	0.46			
benefits	**case**	148	3.28	0.18	-7.261	296	.000*
	control	150	3.44	0.20			
Self-efficacy	**case**	149	3.12	0.76	.593	297	.554
	control	150	3.07	0.82			
attitude	**case**	149	1.68	0.72	-5.909	297	.000*
	control	150	2.22	0.84			
cost	**case**	149	3.66	0.30	-3.769	297	.000*
	control	150	3.80	0.35			
knowledge	**case**	149	3.06	0.40	-2.581	297	.010*
	control	150	3.19	0.47			
total	**case**	149	3.06	0.21	-3.064	297	.002*
	control	150	3.13	0.20			

*: Significant at a level of (0.05).

The following tables (4.3 and 4.4) describe the aspects of HBM in terms of their importance for the case and control groups.

Table 0-3 Describe the aspect of HBM In Descending Order For The Case Group

No	Health Beliefs Model	Mean	Std. Deviation	Item Importance	Importance Level
6	Cost	3.66	0.30	1	High
1	Susceptibility	3.62	0.31	2	High
3	Benefits	3.28	0.18	3	High
2	Seriousness	3.23	0.30	4	High
4	Self-efficacy	3.12	0.76	5	High
7	Knowledge	3.06	0.40	6	High
5	Attitude	1.68	0.72	8	Low
	Total	3.06	0.21		**High**

The results in Table (4.3) show that the total mean of the Health Beliefs Model about asthmatic patient readmissions was (3.06) with a standard deviation of (0.21). The Cost ranked first with a mean of (3.66) and a standard deviation of (0.30) which is of a high level, Susceptibility ranked second with a mean of (3.62) and a standard deviation of (0.31) which is a high level and Benefits ranked third with mean of (3.28) and standard deviation of (0.18), seriousness ranked forth with mean of (3.23) and standard deviation of (0.30) and it's in the level of high.

Self–efficacy ranked fifth with a mean of (3.12) and a standard deviation of (0.76) which is of a high level and Knowledge ranked sixth with a mean of (3.06) and a standard deviation of (0.40) which is a high level, and finally, the attitude ranked last with mean of (1.68) and standard deviation of (0.72) which is of a low level.

Table 0-4 Describe the aspect of HBM In Descending Order For The Control Group

No	Health Beliefs Model	Mean	Std. Deviation	Item Importance	Importance Level
6	Cost	3.80	0.35	1	High
1	Susceptibility	3.56	0.37	2	High
3	Benefits	3.44	0.20	3	High
2	Seriousness	3.40	0.46	4	High
7	Knowledge	3.19	0.47	5	High
4	Self-efficacy	3.07	0.82	6	High
5	Attitude	2.22	0.84	8	Medium
	Total	3.13	0.20		**High**

The results in Table (4.4) showed that the total mean for patients' responses to Health Beliefs Model was (3.13) with a standard deviation of (0.20) for the control group. The Cost ranked first with a mean of (3.80) and a standard deviation of (0.35) which is of a high level, Susceptibility ranked second with a mean of (3.56) and a standard deviation of (0.37) which is a high level and Benefits ranked third with mean of (3.44) and standard deviation of (0.20), seriousness ranked forth with mean of (3.40) and standard deviation of (0.46) and it's in the level of high.

Knowledge ranked fifth with a mean of (3.19) and a standard deviation of (0.47) which is of a high level and Self-efficacy ranked sixth with a mean of (3.07) and a standard deviation of (0.82) which is of a high level, and finally, the attitude ranked last with mean of (2.22) and standard deviation of (0.84) which is of a medium level.

The ranks of knowledge and self-efficacy were the only factors that varied between the responses of the case and control groups. For both the case and control groups, the other factors had a similar rank order.

4.4 Asthma Control

Differences between case and control groups regarding asthma control are shown in Table (4.5). The results indicate that the control group employed better overall asthma control

than the case group (t = -3.977, p < .001). The control group demonstrates asthma control by being active, rarely or never waking up at night or earlier than usual in the morning, and by using asthma control strategies over the previous four weeks. Patients in the control group had better asthma management and hadn't required hospital readmission in the previous four weeks.

Table 0-5 Differences between Case and Control Groups Regarding Asthma Control

Statement	Response	N	Mean	Std. Deviation	T value	Df	Sig. (2-tailed)
1. During the last 4 weeks, how long did your asthma prevent you from being active at work, school, or home?	Case	149	1.95	1.051	-6.010	297	.000*
	Control	150	2.62	0.902			
2. During the last 4 weeks, how often did you feel short of breath?	Case	149	2.88	1.156	-.102	297	.919
	Control	150	2.89	1.238			
3. During the last 4 weeks, how many times did your asthma symptoms (wheezing, cough, shortness of breath, tightness, or chest pain) wake you up at night or earlier than usual in the morning?	Case	149	2.42	.708	-2.734	297	.007*
	Control	150	2.75	1.296			
4. During the last 4 weeks, how many times have you used your first aid inhaler or inhaler?	Case	149	2.73	.794	1.194	297	.233
	Control	150	2.60	1.087			
5. How can you control your asthma during the last four weeks?	Case	149	3.08	.609	-6.283	297	.000*
	Control	150	3.55	.671			
TOTAL ASTHMA CONTROL	Case	149	2.61	.492	-3.977	297	.000*
	Control	150	2.88	.670			

*Sig. at the 0.05 level

4.5 Factors Impacting Asthma Control

T-tests for independent samples and one-way ANOVA tests were performed to reveal significant differences between demographical variables' subgroups concerning asthma control

among the case and control groups. Age was the single significant factor that contributed to asthma control among the case group. Significant one-way ANOVA test result (F = 3.356, sig. 0.012) followed by multiple comparison procedures using the Tukey test indicated that younger patients reported more asthma control than older patients.

Significant relationships between asthma control and aspects of the HBM were revealed using the Person Product-moment correlation coefficient for the case and control groups (table 4.4). For the case group, there were no significant relationships between asthma control and any of the HBM's components. For the control group, there was only a single significant link between patient knowledge and asthma control. Table (4.6) also revealed a group of significant relationships between various aspects of HBM (individual perceptions of perceived susceptibility and seriousness; modifying factors of patient's knowledge, attitude, and cost; and the health promotion aspect of self-efficacy of patients).

Table 0-6 Correlations among Various Study Variables

Case Group			**Control Group**		
Correlations	**Person correlation**	**Sig. (2-tailed)**	**Correlations**	**Person correlation**	**Sig. (2-tailed)**
Seriousness & Susceptibility	.368**	.000	Asthma Control & Knowledge	.227**	.005
Seriousness & Attitude	.353**	.000	Seriousness & Susceptibility	.363**	.000
Benefits & Cost	.172*	.037	Seriousness & Self-efficacy	.288**	.000
Benefits & Knowledge	.270**	.001	Susceptibility & Self-efficacy	.275**	.001
Attitude & Knowledge	.275**	.001	Susceptibility & Benefits	.258**	.001
			Susceptibility & Knowledge	.303**	.000

			Susceptibility & Cost	.265**	.001
			Benefits & Cost	.478**	.000
			Cost & Knowledge	.204*	.012
			Benefits & Knowledge	.292**	.000
			Self-efficacy & Knowledge	.251**	.002
			Self-efficacy & Attitude	.443**	.000
			Attitude & Knowledge	.273**	.001

4.6 Healthcare Providers' Perspectives

Ninety-nine healthcare professionals, including 36 doctors and 63 nurses, completed the Health Care Providers' Questionnaire. Table (4.8) presents the demographics of the healthcare professionals. Responses of the healthcare professionals on the questionnaire according to aspects of the HBM are incorporated into table (4.9) and ranked according to the overall mean linked to each aspect. Detailed ranking of the 34 items of the Health Care Providers' Questionnaire is presented in Table (4.10). The cost is listed last among the factors for healthcare providers (table 4.9).

Table 0-7 Demographic Information for The Healthcare Providers Respondents

Variable	Freq.	%
Gender		
Male	59	59.6
Female	40	40.4
Age		
21-30	23	23.2
31-40	52	52.5
41-50	20	20.2
51-60	4	4.0
Year experience		
Less than 10 years	56	56.6
More than 10 years	43	43.4
Job title		
Doctor	34	34.3
registered nurse	65	65.6
Qualification		
Doctorate	1	1.0
Masters	6	6.1
Bachelors	92	92.9
Training		
Yes	11	11.1
No	88	88.9

There were a total of 99 healthcare professionals, who filed out the survey, and of those, 59.6%were male and 40.4% were female. The participant's ages ranged from 21 to 60 years for the purpose of this study, which was carried out on a diverse group of people. The respondents whose age group ranged from 31 to 40 years old were the most likely to reply, with 52 of them accounting for 52.5%of the total number of those who did so. People in the age range of 51 to 60 years old reported the fewest number of responses, with only 4% of the entire population responding to the survey. The research was conducted with a variety of health care workers, each holding a unique set of credentials, such as medical doctors and registered nurses. It was found that 92.9% of the replies came from individuals who had a Bachelor's degree in nursing and doctor, while only 1% had the qualification of doctorate, and only 6.1% had the qualification of a master's degree. 11.1% of the replies were from those who have previously attended asthma-related educational sessions.

Table 0-8 Rank-Order Of Aspects Of HBM As Per Health Care Providers' Perspectives

Health Beliefs Model	Mean	Std. Deviation	Item Importance	Importance Level
Susceptibility	4.40	0.329	1	High
Seriousness	4.32	0.245	2	High
Self-efficacy	4.24	0.261	3	High
Benefits	4.20	0.162	4	High
Cost	4.05	0.508	5	High
Total	**4.22**	**0.147**		**High**

Differences in healthcare providers' perspectives, using t-test and one-way ANOVA, revealed no significant differences concerning subjects' demographics. No significant differences were also reported between physicians and nurses concerning all aspects of the HBM.

Table 0-9 Reasons For Asthmatic Patient Readmissions: Health Care Providers Perspectives

No	Statements	Mean	Std. Deviation	Item Importance	Level
30	The high cost of treatment increases the severity of the disease. (severity)	4.52	0.56	1	High
21	Having other chronic diseases increases the risk of asthma. (other chronic diseases)	4.46	0.50	2	High
22	The frequency of the attack at night increases the number of visits to emergency rooms. (frequency attack)	4.46	0.52	2	High
20	The patients' health insurance	4.43	0.50	4	High

No	Statements	Mean	Std. Deviation	Item Importance	Level
	health care the quality impact provided to him or her. (insurance)				
25	The patient's ability to control an asthma attack reduces hospitalization. (severity)	4.42	0.50	5	High
6	The work and home environment increase the May of the asthma patient severity of the disease. (severity)	4.41	0.50	6	High
17	A for Identifying the allergens to reduce patient contribute asthma the attack. (treatment plan, documenting)	4.40	0.49	7	High
15	Educating asthmatic patient's about preventing the spread of infection and preventing the disease reduce the severity of the disease. (severity)	4.36	0.48	8	High
31	Difficulty getting an appointment at medical clinics increases the frequency of hospitalization for asthma patients. (treatment plan, documenting)	4.36	0.50	9	High
3	The severity of asthma is reduced when an asthmatic patient is aware of the disease's indications and symptoms. (severity)	4.33	0.47	10	High
32	The health status of asthmatic patients with age deteriorates. (other chronic diseases)	4.33	0.49	10	High
4	Knowing the symptoms that require admission to the hospital helps reduces the risk of the disease. (pt teaching)	4.31	0.47	12	High
10	Careful medical supervision of treatment reduces the severity of asthma. (severity)	4.31	0.51	12	High
19	Documenting the patient's response to basic life contributes to the development of the treatment plan. action, intervention)	4.30	0.46	14	High
28	The right treatment plan contributes to reducing the progression of the	4.30	0.46	14	High

No	Statements	Mean	Std. Deviation	Item Importance	Level
	disease. (treatment plan, documenting)				
29	Using the patient's ability to correct therapeutic inhalers reduces the severity of the disease. (severity)	4.30	0.46	14	High
33	The use of long-term control medications such as inhaled corticosteroids reduces asthma attacks.(threating plan,documanting)	4.30	0.46	14	High
1	The severity of asthma is reduced when the patient is educated about it. (severity)	4.29	0.52	18	High
9	The lifestyle of an asthmatic patient affects the development of the disease. (	4.29	0.46	18	High
27	Asthma patients' adherence to medical reviews reduces the progression of the disease. (adherence)	4.29	0.46	18	High
34	The use of fast-acting drugs such as inhaled albuterol reduces asthma attacks.(threating plan ,documanting)	4.28	0.45	21	High
2	The severity of asthma is reduced when the patient is educated about the risks (severity)	4.25	0.46	22	High
14	Monitoring the frequency of admission of asthmatic patients to hospitals contributed to modifying the treatment plan. (treatment plan, documenting)	4.21	0.41	23	High
18	Maintaining continuous health care encourages patients to adhere to the treatment plan. (adherence)	4.20	0.40	24	High
11	Assessing the emotional state of the asthma patient contributes to reducing the severity of the disease. (severity)	4.17	0.52	25	High
5	Patient acceptance of asthma reduces its severity. (severity)	4.16	0.57	26	High
13	Monitoring the effects of expected treatment helps reduce asthma.	4.10	0.30	27	High

No	Statements	Mean	Std. Deviation	Item Importance	Level
	(treatment plan, documenting)				
8	Providing psychological support to the asthma patient reduces the severity of the disease. (severity)	4.09	0.69	28	High
12	Considering the patients' rights contribute to the patient's commitment to the treatment plan. (treatment, plan, documenting)	4.09	0.29	28	High
7	The ability of the asthma patient the decrease to perform self-care severity of the disease. (severity)	4.06	0.24	30	High
26	Asthma patients not getting enough rest increases the severity of the disease. (severity)	3.98	0.67	31	High
24	The proximity of asthma patients to the hospital contributes to frequent admission. (insurance)	3.59	0.89	32	High
23	Most asthmatic patients are readmitted to the hospital within 30 days of their discharge. (adherence)	3.46	0.99	33	High
16	Assessing the level of movement and immobility of the patient reduces the risk of the disease.(assessing)	3.45	0.66	34	High

Table 4-10 showed that mean of reasons for asthmatic patient readmission from health care providers perspective, ranged between (4.52-3.45), where the whole dimension earned a total mean of (4.22), which is a level of High. The high cost of treatment increases the severity of the disease. (severity) ranked first with mean of (4.52), and with standard deviation of (0.56), which is a level of high, having other chronic diseases increases the risk of asthma ranked second with mean (4.46) and standard deviation (0.50), and frequency of the attack at night increases the number of visits to emergency rooms ranked second with mean (4.46) and standard deviation (0.52), which is of a high levels. Statement (16) assessing the level of movement and immobility of the patient reduce the risk of the disease. (Assessing) ranked last with mean of (3.45), and a standard deviation of (0.66), which is of a high level.

CHAPTER FIVE
DISCUSSION

5.1 Result Discussion

Worldwide, the number of hospitalizations and readmissions for bronchial asthma has risen considerably in recent years. Patients' health and well-being, as well as the expense of medical care, are affected by the recent uptick in hospitalizations (Eissa *et al*., 2019). In this study the reasons for asthmatic patients' readmission are recorded and the main factors contributing to asthma exacerbations are documented.

While utilizing the Health Belief Model (HBM) and Asthma Control Scale to determine the main reasons for readmission among asthmatic patients, about 299 patients responded to the study questionnaire. Differences between the two study groups (case and control) in relation to their health beliefs about asthma control and factors impacting asthma control were explored. Perspectives of healthcare providers about asthma control according to aspects of the HBM were also explored and compared to patients' perspectives. The triangulated views enabled a thorough understanding about the reasons that accelerated or hindered readmission among asthmatic patients. Patients who have greater asthma control have not required a 30-day hospital readmission. Those patients demonstrated asthma control by being active, rarely or never waking up at night or earlier than usual in the morning, and by using asthma control strategies over the previous four weeks. Perceived asthma seriousness and perceived benefits of their actions to control asthma were the two constructs of the HBM that significantly shaped the behavior of patients who had better control over their asthma symptoms that prevented them from being readmitted to hospital. Cost is another construct of the HBM perceived by the patients as a barrier to action that significantly differentiated behaviors of patients with better control over their symptoms than those with less control. Fortunately, all asthmatic patients, including those who have better control over their symptoms and those who do not, rank cost as the most important HBM construct.

This perspective and knowledge about the disease and its severity is also reported by Alshehri *et al*. (2005) study, who found after performing a case-control research that looks back

via hospital admissions and discharges records to categorize patients, to find that there is a serious need for readmission for asthmatic patients to prevent its complications such as short-term hospital readmissions for asthma were significantly predicted by a history of neonatal intensive care unit admission, bronchopulmonary dysplasia, prior hospitalizations for asthma, recurrent aspirations, intensive care unit admission, intravenous steroids, positive X-ray findings, and mechanical ventilation.

5.2 Identifying the reasons for asthmatic patient readmission from patients' perspective

A total of 149 cases and 150 controls, the diversity in gender had been noticed slightly between males who were higher in the case group, the most predominant age group was 21-30 in case groups, and all of the cases were living with their families and Also all of these cases and 90% of controls have been triggered daily, also, about one third of these cases and controls are suffering from chronic diseases, and about half (48.3%) have a family history of asthma, globally, it is agreed with Rushworth and Rob (2015) study, who reported that Among the age group of 1-to-44 years, out of more than 14,000 admissions for asthma, a proportion of 2.8% were identified as early readmissions. The prevalence of admissions and readmissions was found to be higher in rural regions as compared to their metropolitan counterparts. Autumn was the season with the highest frequency of admissions, while spring was characterized by the highest incidence of early readmissions. The study findings indicate that patients who had a hospital stay of more than one day had a reduced likelihood of experiencing an early readmission, with a confidence interval of 95% ranging from 0.37 to 0.68, compared to patients who stayed for less than one day. Based on the identical dataset, it has been identified a cohort of patients who exhibit a likelihood of being readmitted within a six-month timeframe. Out of the total sample size of 5052 patients, 17.8% of them were readmitted at least once during the study period. Among these, 3.7% experienced early readmission, while 15.8% experienced late readmission, which occurred more than two weeks after their initial discharge. In this cohort, it was observed that a duration of stay exceeding one day was linked with a reduced risk of early readmission, with a hazard ratio of 0.41 and a confidence interval ranging from 0.24 to 0.70. The study findings indicate that a duration of hospitalization exceeding 24 hours was significantly linked to an elevated probability of delayed readmission (1.52, CI 1.09 to 2.12). Furthermore, the likelihood of such readmissions was comparatively lower in rural regions as opposed to

metropolitan areas (0.45, CI 0.37 to 0.55), also, it is in agreement to Youssef and Barakat (2005) study, who reported that the analysis of health records indicates that individuals with a confirmed diagnosis of bronchial asthma who have a family history of the condition have experienced a higher frequency of hospitalizations for asthma-related issues compared to those without such a history.

About 50% of cases and control are smokers which is the most risk factor for asthma to affirm their chronicity and about 98% of cases and controls are admitted due to the asthmatic attacks which is the main factor that led the study to be relevant and reliable as this study intended to assess the admission rates (Lang and Tang, 2019), also, it is agreed with a study conducted in Jordan by Almomani *et al*. (2016), who recruited a sample size of 255 participants, with a mean age of 45.16 years and a female representation of 74.5%. Around 30.6% (n = 78) of participants exhibited controlled asthma and did not require readmission within 30 days, as indicated by an ACT score of 20 or higher. The study revealed a significant association ($p < 0.001$) between asthma management and mini-AQLQ and EQ-5D scores. The study found that individuals who needed increased treatment and were readmitted within 30 days of initial treatment (OR = 0.12, 95% CI: 0.02-0.63, $p = 0.01$) and those experiencing acute asthma exacerbation (OR = 0.32, 95% CI: 0.18-0.58, $p < 0.001$) were significantly linked to inadequate asthma control. These factors suggest that a majority of the participants did not attain optimal asthma control and experienced a diminished quality of life. The research underscores that in nations with limited financial resources, such as Jordan, a basic evaluation instrument like the ACT can be employed to screen and classify asthma management and evaluate the primary factors contributing to hospital readmission. The implementation of this approach is expected to enhance the efficacy of the treatment regimen and ultimately enhance the management of asthma and the overall well-being of individuals with asthma.

5.3 Identifying the reasons for asthmatic patient readmission from the health care provider's perspective

This study results also revealed that age was the single demographical variable that contributed to asthma control. Moreover, there was a statistically significant difference in the level of responses of the case group in relation to the HBM aspect of benefits according to

gender in favour of female patients. No significant differences were reported between physicians and nurses in relation to all aspects of the HBM as their age, gender, and experiences did not affect their perceptions about factors impacting the rate of readmissions for asthma. Beyond subjects' demographics, Ardura-Garcia *et al*. (2018) concluded that the main factors affecting asthmatic readmission rates were the occurrence of bronchopulmonary dysplasia, a medical history of previous asthma admissions, recurrent aspirations, admission to the intensive care unit, administration of intravenous steroids, positive X-ray findings, and the use of mechanical ventilation were identified as significant predictors of short-term hospital readmissions for asthma, it is agreed globally with Gardner (2016), who reported that using HBM model will detect and asses the main risk factors and reasons for readmissions when he found that wrong habits and irregu;ar commitment to medication in addition to smoking and low economic level enhance the exacerbation of asthma as well as increase rate of readmission for total 1290 patients recruited in his study.

Also, the findings of Sari's (2018) study was in consistent with this study results, which found that the individuals demographics had no bearing on how well they controlled their asthma. The study documented that perceived susceptibility, perceived severity, perceived benefits, and perceived barriers with asthma control (Sari, 2018),

5.4 Comparing admitted patients and readmitted patients within the 30 days of the last discharge for asthma regarding health belief model

All cases are visiting hospitals for asthma regularly and about 84% of controls are visiting too, it is reported to give any relevant data to assure that all cases are visiting hospital to get the accurate records of data, it is agreed with Qin *et al*. (2021) study, who analysed the attributes of hospital visits and admissions related to asthma and evaluated the correlation between them. The findings indicated that individuals with severe asthma had a higher incidence of both hospital visits and readmissions. The aforementioned discoveries could potentially stimulate forthcoming investigations aimed at identifying supplementary potential risk factors for frequent Emergency Department visits among subpopulations that are disproportionately affected.

Considering the relationships among various study variables including asthma control and the constructs of the HBM, the findings of the current study point to a single relationship

between asthma control and knowledge among the controls rather than the cases which signifies the importance of knowledge in asthma control, thus hindering readmission. The research also establishes a connection between this knowledge and HBM components of perceived susceptibility, perceived benefits, cost, and attitude. The self-efficacy of asthmatic patients is added to the knowledge-significant relationship, which also enhances asthma control.

Globally, it is agreed with Krupp *et al*. (2017), who performed a study which was conducted exhibited a considerably elevated rate of asthma readmissions within a 30-day timeframe as compared to other healthcare facilities affiliated with the Children's Hospital Association. Consequently, a comprehensive quality enhancement initiative was initiated with the objective of decreasing the rate of inpatient asthma readmissions within 30 days by 50% over a period of two years. The study employed various methods such as analysis of readmission patterns of the institution, value stream mapping of asthma admission, discharge, and follow-up processes, literature review, and examination of comparable successful programs across the United States to identify potential targets for intervention. The study implemented interventions in a sequential fashion, which consisted of augmenting the availability of inhalers subsequent to discharge, adapting asthma education techniques, and furnishing in-home follow-up after discharge. The principal measure of interest was the 30-day inpatient readmission rate, calculated as a running average over a period of 12 months. The study's secondary outcomes encompassed process measures for each individual intervention. The findings indicate that there was a significant decrease in 30-day readmissions, with a reduction of 79.3% observed from January 2013, where the rate was at its highest at 7.98%, to July 2014, where the rate had declined to 1.65%. In conclusion, it is feasible to achieve a noteworthy reduction in hospital readmissions related to patients with asthma by implementing a comprehensive and multidisciplinary approach to quality improvement that encompasses the entire continuum of care.

In Egypt, a study conducted by Miky *et al*. (2022), who The study employed a quasi-experimental design in the El Sharabia District of the North Cairo Governorate.

An intentional sampling technique was employed to gather data from a group of 82 females who were classified as overweight. The data was collected through a self-administered questionnaire that was distributed to female students in secondary school. The questionnaire included inquiries about demographic characteristics, knowledge pertaining to overweight, and

lifestyle factors. The study utilized the health belief model as a tool to investigate the differences in total satisfactory knowledge and lifestyle aspects, such as dietary habits, food frequency consumption, physical activities, and sleeping pattern, among overweight female students in secondary school. The results indicated highly statistically significant differences ($p< 0.001$) between pre- and post-implementation of the health belief model. The study findings indicate a significant statistical difference between the mean ± SD of subscales and total categories of the Health Belief Model before and after implementation, with a p-value of less than 0.001. In conclusion, the implementation of the health belief model among overweight female students in secondary school resulted in noteworthy enhancements in their knowledge and lifestyle facets.

The HBM proposed by Rosenstock and Becker in 1988 posits that health-related behavior is contingent upon the concurrent clarification of clients' health beliefs, particularly those that influence their perception of control over their healthcare status while, many modifications had been done for HBM, it was noted that a version of the Health Belief Model (HBM) has been modified. The modified model of HBM emphasizes the significance of threat perceptions, specifically perceived susceptibility and perceived severity, as a fundamental element of motivation. Threat perception is associated with the provision of the necessary energy or force to initiate action (Moore de Peralta *et al*., 2014). The probability of an individual seeking screening is positively influenced by the perception of benefits and the presence of minimal barriers. The HBM posits that the alteration of variables and cues to action can influence an individual's perception of susceptibility, severity, benefits, barriers, and self-efficacy, ultimately affecting their behavior. Scholars have posited that the HBM operates under the assumption that health is a significant priority or objective for the majority of individuals within various racial and ethnic groups in the United States (Ban and Kim, 2020).

Pender *et al*. (2011) have made modifications to the HBM. The Health Promotion Model (HPM) is a theoretical framework that emphasizes on competencies or approaches. The underlying principle of this concept posits that an individual's inclination to modify their conduct is contingent upon their personal interpretation of the advantages associated with said alteration. The Health Promotion Model (HPM) places significant emphasis on the manner in which clients perceive the advantages of modifying their health-related behaviors. The Health Promotion Model (HPM) does not incorporate fear or threat as determinants for eliciting changes in health-

related behavior. The Health Promotion Model (HPM) integrated the concept of perceived self-efficacy.

The Health Promotion Model (HPM) is founded on a set of underlying presumptions. Individuals endeavor to create living conditions that facilitate the realization of their unique potential for human well-being. The capacity for introspection and self-reflection is a characteristic of human beings, allowing them to assess their own competencies and aptitudes. Individuals tend to prioritize their personal growth in domains that they perceive as favorable, and they endeavor to achieve a satisfactory balance between stability and change. This balance is indicated by the strong relationships this study found among individuals who used better control over their asthma symptoms.

People strive to actively regulate their own behavior. The complex biological, psychological, and social composition of human beings leads to their interaction with the environment, resulting in a reciprocal process of transformation of both the individual and the surroundings. Healthcare professionals are a vital aspect of the societal milieu that exerts influence on individuals throughout their entire life course. The crux of modifying behavior lies in the voluntary restructuring of the interdependent relationship between an individual and their surroundings.

The concept of perceived threat is being referred to. The total perceived threat of an illness to an individual is determined by the combination of perceived susceptibility and perceived seriousness. The findings of the current study document a strong link between the two constructs of perceived susceptibility and perceived seriousness among the control group. The HBM addresses that patients' perceived susceptibility to the disease is likely to increase due to the combination of susceptibility and severity.

5.5 Main reasons discussed for asthmatic patients' readmission

Costs is one of reasons for determining the readmission, as reported by this study which was in agreement with Al-Sharqi *et al*. (2019) study who reported that the cost of healthcare rises as the number of people admitted to hospitals rises. The study's overarching goal is to determine whether or not asthma patient education has a bearing on emergency room visits.

Regarding the cost as a reason for asthma readmission, it was noted that the central diseases control and prevention (CDC) reported that asthma caused an average yearly medical bill of $3266 per patient, with prescription drugs accounting for $1830 of that total. $640 for doctor's appointments Inpatient care costs $529. Cost of an outpatient hospital visit is $176. Care at an emergency room costs $105 (CDC, 202), this reason was highly reported by patients, they are afraid of high costs for readmissions, so they deviated from readmitting their asthmatic individuals, it is in agreement with Stanford *et al*. (1999) study, who reported that an average of $234.48 was spent every visit. The average cost for a hospitalization was $3,102.53, and the average length of stay was 3.8 days. Hospital expenses for asthma were highest for nursing care (43.6%), followed by respiratory therapy (13.6%), and then drugs (10.4%). Hospitalization is an inescapable and costly option for adults with severe asthma. Cost savings might be large if efforts were made to improve asthma management across the lifespan, not just to reduce hospitalizations.

Total case and control group (149 and 150) patients who were asked to measure the differences between them in reasons for readmission for their asthmatic relapses, the results revealed that there were statistically significant differences in the levels of seriousness, benefits, attitude, cost, knowledge, and total degree of reasons for asthmatic patient readmissions between the patients' (case and control group) perspectives.

Also, Chen *et al*. (2010) reported that self-efficacy intervention was found to have a substantial impact on readmission and primary cause of relief for 60 asthma outpatients when reporting the main reasons for readmission besides the ease of accessibility to hospitals to get the proper treatment, in additions,

In addition to the significant difference in the attitude of the case and control groups, the results of the current study also revealed substantial correlations between patients' attitudes and their knowledge and self-efficacy, notably among the control group. This shows how a patient's attitude and knowledge can affect their level of self-efficacy. A study by Donath *et al*. (2020) reported that more people are being readmitted to hospitals because of severe asthma and the attitude of these patients. This retrospective electronic chart review found a high rate of emergency presentations (emergency department and readmission) within 12 months after discharge (n = 42; 20.5%), for many reasons.

Besides that, Alkhthlan (2021) conclude that the self-efficacy of patients has a great role in preventing asthma readmission. Also, the knowledge may affect positively the rate of readmission in addition to being crucial for maintaining health, patient education is also a cornerstone of chronic disease prevention. When it comes to patient education, asthma ranks at the bottom. Poor education, nonadherence to medication and therapy, and missed checkups all contribute to the need for hospitalization. Patients are not only uninformed about asthma and its causes, but also on how to treat and avoid the disease, as reported in Al-Sharqi *et al*. (2019) who set an education program to report the effect of knowledge in readmission of patients, to find that asthma education programs should be made available to patients. This decreases the likelihood of problems and subsequent readmissions.

Regarding the differences between cases and controls in asthma control, the results indicate that the control group employed better overall asthma control than the case group. The control group demonstrates asthma control by being active, rarely, or never waking up at night or earlier than usual in the morning, and by using asthma control strategies over the previous four weeks. Patients in the control group had better asthma management and hadn't required a hospital readmission in the previous four weeks, which is in agreement with Castro *et al*. (2003) study, the study's intervention group exhibited a significant decrease of 69% in total hospital days as compared to the control group over a period of 12 months ($p = 0.04$). This reduction was primarily attributed to the decrease in hospital days for asthma, which was 129 and 53 days for the control and intervention groups, respectively ($p = 0.04$), it was because of the main criteria followed by these patients roto reduce their rate of admission such as using self-inhaler and avoiding all triggers.

Results relevant to specific statements of the Asthma Control Scale revealed significant findings. There are many statements in cases' group were asked to represent the level of asthma exacerbations and how to deal with it to reduce readmission through last 30 days, About 145 cases were asked to answer with their frequencies on some habits, the answer was sometimes (64 cases) for the question: During the last 4 weeks, how long did your asthma prevent you from being active at work, school or home?, this high percentage indicates that the asthma episode may affect negatively on the daily work and activities which may affect the cases' economic status, it is agreed with Gruffydd-Jones *et al*. (2019) study, who reported that responses from

1,598 symptomatic patients out of a total of 2,055 patients on long-term maintenance therapy. Asthma-related absences from work ranged from 3.5% (UK) to 17.4% (US), with the average being 9.3% each week). In terms of lost work time, over three quarters of patients blamed their asthma. Asthma caused a 36% loss in total work productivity (time off and productivity while at work), with losses ranging from 21% in the United Kingdom to 59% in the United States. (Brazil). When asked how their asthma affected them at work, several respondents mentioned breathing difficulties. Work time is negatively impacted by asthma in patients despite the use of long-term maintenance medication and provides unique personal insights. Respondents described concerns about the perception of colleagues and feelings of inferiority, as well as fatigue, weakness, and mental strain. Asthma education, refining asthma management regimens, and implementing workplace wellness initiatives are all possible strategies for improving patients' quality of life. The effects of asthma on the workplace should be better recognized by clinicians, employers, and occupational health teams, who should then collaborate to find solutions.

Regarding questions: During the last 4 weeks, how many times did your asthma symptoms (wheezing, cough, shortness of breath, tightness or chest pain) wake you up at night or earlier than usual in the morning? the answer was once or twice for a week with frequency 66 and 65 cases answered the same answer for question: During the last 4 weeks, how often did you feel short of breath?, these high frequencies and high rate of symptoms of asthma through last 4 weeks indicates that the asthma symptoms are predominant, it is in agreement with He *et al*. (2020) study, who reported that out of a total of 4,939 records, the most common symptoms that affect people with asthma and caused the frequent re admission to outpatient clinics were nasal congestion (61.57%), sleep problems (56.56%), dyspnea (50.31%), chest tightness (50.41%), and wheezing (46.73%). The combined prevalence of rhinitis and allergy/atopy in medical records was 76.37 percent and 63.53 percent, respectively. Asthma medication use was at an aggregated rate of 83.27 percent. A total of 71.26 percent of participants across 4 trials (n = 12,014) reported experiencing all 4 symptoms together: wheezing, dyspnea, chest tightness, and cough. Wheezing, breathlessness, chest tightness, and cough were the most common symptoms of asthma, with nasal congestion, sleep disturbance, and chest tightness following closely behind. The severity of asthma was found to be related to the number and combination of symptoms experienced by an individual.

Most of cases (93) revealed a Modest control when they were asked: for How can you control your asthma during the last four weeks?, this high percentage revealed that the good awareness and knowledge and awareness about dealing with asthma is present.

Finally, when they were asked a question: During the last 4 weeks, how many times have you used your first aid inhaler or inhaler?, the answer, once or twice was the most predominant (66 cases), a study conducted by Zhang *et al*. (2020), the study which was conducted to find that the period of using inhalers when get increased will increase the rate of controlling asthmatic episodes as patients had much greater inhaler adherence after get asthmatic with 6 months with significantly less unpredictable non-adherence. Lung function indicators, relative improvement was all substantially better or higher after 6 months of treatment compared to the control group.

A study conducted by Eissa *et al*. (2019) showed that the seriousness and knowledge are main reasons for readmission when he found that a risk factor for acute asthma readmission was the longer duration of disease in the readmitted group. Acute asthma exacerbation readmission was associated with viral illness, exertion, and dust. Those with severe or moderate bronchial asthma were more likely to be hospitalized than those with mild asthma. Patients who were readmitted were more likely to have sleep disturbances and miss more school. It was concluded that the length of the disease, viral infections, the common cold, dust, and exercise are risk factors for acute asthma readmission because readmitted patients were less adherent to therapy. The rates of readmission for acute asthma vary depending on illness severity and patient compliance with treatment.

When studying the correlations between seriousness, susceptibility, attitude, cost, benefits, and knowledge, the results showed that for the case group, there were no significant relationships between asthma control and any of the HBM's components. For the control group, there was only a single significant link between patient knowledge and asthma control. results of the study also revealed a group of significant relationships between various aspects of HBM (individual perceptions of perceived susceptibility and seriousness; modifying factors of patient's knowledge, attitude, cost; and the health promotion aspect of self-efficacy of patients)., it is also agreed with Wang *et al*. (2014) study, to assure that both costs and knowledge affect positively the rate of readmission and also the attitude may result in decreasing the rates of admission for asthmatic patients, the study intervention group was subjected to a nursing intervention based on

the Health Belief Model (HBM) that lasted for 20-30 minutes every 2 days during their hospitalization period. This intervention was administered after their disease conditions had stabilized, and additional follow-ups were conducted after their discharge. The control group participants were administered with standard nursing care. The HBM-based nursing intervention resulted in a statistically significant increase in patients' health belief and self-efficacy scores. The study demonstrated a statistically significant difference in the FEV1/FVC ratio values between the study groups pre- and post-intervention. The findings of the study revealed significant differences in the mean scores of the Dyspnea Scale, 6-minute walking distance, and ADL both between the groups and across the study time-points. The implementation of nursing intervention utilizing the Health Belief Model (HBM) has been found to be effective in improving the health beliefs and self-efficacy of patients with moderate to severe Chronic Obstructive Pulmonary Disease (COPD). This intervention has also been observed to reduce dyspnea and enhance exercise tolerance and activities of daily living (ADL) among these patients. The Health Belief Model (HBM) can be utilized by nurses as an intervention to augment patients' health beliefs and self-efficacy in relation to the management of Chronic Obstructive Pulmonary Disease (COPD), which can ultimately lead to improved healthcare outcomes.

Also, regarding the accessibility to hospitals and its effect in readmission for the cases in his study, it was in agreed with Fleetcroft *et al*. (2019) who reported that among 3,134,106 people diagnosed with asthma, and 55,570 were admitted to hospitals as emergency cases and all of them were nearly to the emergency department. A reduced rate of admission was observed in medical facilities where were so far from the asthmatic patients although they were have bad composite access score and more patients with bad prognosis with asthma review in the past 15 months" were associated with an increase in hospital admissions but they would not arrive quickly due to long distance to the hospitals.

5.6 Limitations

Despite the study's strengths, such as its use of the HBM to examine the primary causes of readmission of asthmatic patients from the perspectives of both patients and healthcare professionals, this research had limitations resulting from its small sample size and the exclusion

of patients from private and military hospitals. Additionally, there were no distinctions in asthmatic cases based on the severity of the condition.

5.7 Implications for nursing practice

The findings of the current study highlight the significant impact of patients' knowledge on their asthma control, thus preventing hospital readmission. Educational programs should be directed to asthmatic patients as customized to enhance their perceived seriousness and susceptibility of the disease, in addition to benefits of relevant behaviors.

5.8 Implications on nursing research

Using health belief model is unique for this study which merged all reasons for readmission with accurate and reliable results, in addition to that combining both healthcare professionals and asthmatic patients in one model to conclude the main reasons in two complementary point of views implied good to research and may affect positively in the current and coming studies.

5.9 Conclusion

In conclusion, studying the main reason for readmission of asthmatic patients is mandatory and will reflect positively in controlling the asthmatic episodes and reduce the complications of this disease, costs and low knowledge are main reasons for combating the readmission in spite of the dangerous symptoms and complications of asthma, raising the knowledge and awareness among patients and healthcare professionals are keeping the readmission only for crucial reasons.

The current study has added to the corpus of knowledge concerning the causes of readmission for asthma and variables affecting asthma control. The results revealed that age was the single demographical variable that contributed to asthma control. Moreover, there was a statistically significant difference in the level of responses of the case group in relation to the HBM aspect of benefits according to gender in favour of female patients. This study also documented that patients who have greater asthma control have not required a 30-day hospital readmission. Those patients demonstrated asthma control by being active, rarely or never waking up at night or earlier than usual in the morning, and by using asthma control strategies over the previous four weeks. Perceived asthma seriousness and perceived benefits of their actions to control asthma were the two constructs of the HBM that significantly shaped the behavior of

patients who had better control over their asthma symptoms that prevented them from being readmitted to hospital. Cost is another construct of the HBM perceived by the patients as a barrier to action that significantly differentiated behaviors of patients with better control over their symptoms than those with less control. Fortunately, all asthmatic patients, including those who have better control over their symptoms and those who do not, rank cost as the most important HBM construct. The cost is listed last among the factors for healthcare providers. The study also documented the importance of utilizing the HBM to guide similar studies.

5.10 Recommendations

This study spots lights on many methods to raise the knowledge and increase the need for readmission for asthmatic patients, so many recommendations are considered through this research:

- Care, prescriptions, the right use of tools, and warning signs can be difficult for patients to grasp, so it's important to create teaching strategies that incorporate demonstrations of care, teach-back questions and assessments, and that make it easy for providers to communicate with patients.
- Patients' progress can be monitored remotely by nurses and doctors when an action plan is created for them and linked to the Electronic Medical Record.
- Increase patients' and families' understanding of their conditions and treatment options and get them involved as partners with clinicians in illness management and health responsibility.
- Ease accessibility to hospitals for all asthmatic patients is a must to decrease the asthma exacerbations.
- Decreasing the costs for dealing with asthmatic patients and giving them proper treatment must be kept in mind and be the responsibility for ministry of health.

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APPENDIX A

الموافقة المسبقة على المشاركة في الدراسة البحثية

جامعة الاسراء

كلية التمريض ،الأردن ,عمان

عنوان المشروع البحثي:

أسباب إعادة إدخال مرضى الربو إلى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية

إسم المشرف:

د.عماد الفيومي

إسم الباحث:

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رقم هاتف الباحث الرئيسي:

0775261456

الغرض والخلفية:

أمل محمد رحال,جامعة الإسراء,تجري بحثا حول معرفة أسباب إعادة إدخال مرضى الربو إلى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية,حيث أن البحث متطلب لنيل درجة الماجستير في تمريض الأمراض المزمنة,ويشرف على البحث الدكتور عماد الفيومي,جامعة الاسراء.

الغرض من مشاركتك في هذا البحث هو مساعدة الباحث في معرفة أسباب إعادة إدخال مرضى الربو إلى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية,تم إختيارك كمشارك محتمل في هذه الدراسة لأن هذه المعلومات غير متوفرة في الأردن.ولم يكن هناك ما يكفي من الدراسات حول هذه المعلومات.

الاجراءات:

اذا وافقت على المشاركة في هذه الدراسة البحثية فسوف تكمل الاستبيان,الذي يتكون من عناصر تستكشف البيانات الديموغرافية للمشاركين,ودرجة المعرفة ,والممارسة, بالرجوع الى نموذج المعتقدات الصحية (Health Belief Model) والتي تستغرق منك حوالي 30دقيقه لملء الاستبيان, بمستوى التكرار.

حجم المخاطر:

لا يوجد مخاطر

السرية:

يتم الإحتفاظ بسجلات هذه الدراسة بسرية،ولن يتم إستخدام الهويات الفردية في أي من نتائج الدراسة أو المنشورات. سيتم ترميز جميع الإستطلاعات والإحتفاظ بها بشكل منفصل عن أي أسماء أو أي تعريف مباشر اخر للمشاركين,سيتم الإحتفاظ بمعلومات البحث في ملفات امنة في جميع الأوقات,سيتمكن فريق البحث فقط من الوصول إليها,ولن يتمكن من الوصول الى هذا الملف المحدد إلا أولئك الذين لديهم حاجة مشروعة لرؤية الأسماء أو معلومات التعريف الأخرى.

فوائد المشاركة:

لن تكون هناك فائدة مباشرة لك من المشاركة في هذه الدراسة البحثية.الفائدة المتوقعة من مشاركتك في هذه الدراسة هي مساعدة الباحث في وضع إستراتيجيات لمساعدة مرضى الربو مستقبلا,ولمعرفة الأسباب التي تساهم في إعادة إدخال مرضى الربو إلى المستشفيات.

المشاركة الطوعية:

إن قرارك بشأن المشاركة في هذه الدراسة طوعي,ولن تؤثر على مستوى الرعاية المقدمة لك من قبل الكادر الصحي في داخل المستشفى الذي تتلقى فيه الرعاية الصحية,إذا اخترت المشاركة في هذه الدراسة يمكنك الانسحاب ووقف المشاركة في أي وقت دون تحيز.

الأسئلة:

إذا كان لديك أي أسئلة حول الدراسة, يرجى التواصل مع أمل محمد رحال على الرقم 0775261456, ويمكنك أيضا الاتصال بلجنة (IRB) مجلس المراجعة المؤسسية في جامعة الإسراء لطرح أي أسئلة حول حقوق المشاركين في البحث أو المخاوف المتعلقة في البحث.

الموافقة:

إذا قررت المشاركة في هذه الدراسة فإن توقيعك أدناه يشير إلى أنك قررت ذلك بعد قراءة جميع المعلومات الواردة أعلاه وأنك تفهم المعلومات الواردة في هذا النموذج.

عنوان الدراسة

أسباب إعادة إدخال مرضى الربو إلى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية.

المعلومات الديموغرافية:

الجنس: ذكر أنثى

العمر: 20-15 30-21 40-31 50-41 60-51 70-61

المحصل الدراسي: التوجيهي الدبلوم البكالوريوس الماجستير الدكتوراه

الحالة المهنية: تعمل طالب

طبيعة العمل:

الحالة العائلية: تعيش لوحدك تعيش مع العائلة

هل أنت مدخن: نعم لا

هل تمتلك تأمين صحي: نعم لا

هل أنت مصاب بأمراض مزمنه: نعم لا اذكرها:.....

هل تسكن بالقرب من مستشفى: نعم لا

هل دخلت المستشفى بسبب الربو: نعم لا

هل اعيد إدخالك إلى المستشفى بسبب الربو خلال 30يوم من الخروج: نعم لا

هل تتكرر زيارتك إلى المستشفى بسبب مرض الربو: نعم لا

هل الحساسية والربو أمر شائع في عائلتك: نعم لا

هل تستخدم البخاخ العلاجي: نعم لا اذكرها:.....

هل مكان سكنك ذو إكتظاظ سكاني : نعم لا

هل تتعرض لمحفزات المرض يوميا: نعم لا

نموذج المعتقدات الصحية:

رقم السؤال	السؤال	مقياس التكرار			
		أبدا 1	نادرا 2	أحيانا 3	دائما 4
-1	هل تعتقد أن التعرض للبرد والغبار يزيد من حدة النوبة؟				
-2	هل تستطيع تحديد مؤشرات المرض التي تشير الى انك على وشك التعرض لنوبة الربو؟				
-3	هل تعرف الخطوات التي يجب اتباعها عند حدوث نوبة الربو؟				
-4	هل تميز الوقت الذي تحتاج فيه الذهاب الى المستشفى؟				
-5	هل تعتقد أن أعراض المرض تختلف من شخص لاخر؟				
-6	هل تعتقد أن معرفة العلامات والاعراض لمرض الربو يخفف من حدة النوبة؟				

رقم السؤال	السؤال	مقياس التكرار			
		أبدا 1	نادرا 2	أحيانا 3	دائما 4
-7	هل تعتقد أن زيادة الوزن يزيد من حدة النوبة؟				
-8	هل نوبة الربو تؤثر على عملك؟				
-9	هل تسبب لك نوبة الربو الشعور بالقلق والتوتر وعدم الراحة				
-10	هل تعتقد أن الإصابة بأمراض مزمنة يزيد من خطورة مرض الربو؟				
-11	هل تعتقد أن مريض الربو يسوء مع تقدم الوقت؟				
-12	هل تعتقد أن الامتناع عن الروائح الكريهة تخفف من نوبة الربو؟				
-13	هل تعتقد أن المراجعات الطبية المنتظمة تقلل من تطور المرض؟				
-14	هل تعتقد أن العلاجات المنزليه تقلل من حدة نوبة الربو؟				
-15	هل تعتقد أن التثقيف الصحي لمرضى الربو يساعد على التعامل الصحيح مع المرض؟				
-16	هل تعتقد أن تلقي جرعة مطعوم الانفلونزا يقلل من نوبة الربو؟				
-17	هل تعتقد ان الالتزام بفترات راحة عند القيام بأي نشاط جسدي يقلل من حدة نوبة الربو؟				
-18	هل تعتقد أن إعادة تقييم المرضى تساعد في تقليل تطور المرض؟				
-19	هل تعتقد أن إستخدام البخاخ العلاجي يخفف من نوبة الربو؟				
-20	هل تعتقد أن الإلتزام بالأدوية يسيطر على مرض الربو؟				
-21	هل التشجيع من قبل الكادر الطبي يساعد على تقبل المرض؟				
-22	هل تساعدك إختبارات الحساسية على تحديد أي مسببات للحساسية؟				
-23	هل تعتقد أن عدم مخالطة الافراد المصابين بعدوى الجهاز التنفسي يقلل من نوبة الربو؟				
-24	هل يساعدك تكرار غسل اليدين على تقليل خطورة التقاط فيروس نزلات البرد؟				
-25	هل تدرك أهمية الإلتزام بتناول العلاجات بشكل صحيح؟				
-26	هل تعتقد أن وجود خطة علاجية للتحكم في مرض الربو يقلل من حدة النوبة؟				
-27	هل تعتقد أن إمتلاك التأمين الصحي يؤثر على جودة الرعاية الصحية المقدمة للمرضى؟				
-28	هل تعتقد أن إستخدام أدوية التحكم طويل المدى مثل الكورتيكوستيرويدات المستنشقة تقلل من نوبات الربو				

رقم السؤال	السؤال	مقياس التكرار			
		أبدا 1	نادرا 2	أحيانا 3	دائما 4
	أو الحد منها؟				
-29	هل تعتقد أن استخدام ادوية سريعة المفعول مثل الالبيوترول المستنشقة تقلل من نوبة الربو؟				
-30	هل تعتقد أن معرفة المريض بمخاوف المرض يزيد من معرفة المريض على سبل الوقاية؟				
-31	هل تعتقد أن مشاركة المريض بالخطة العلاجية تساعد على الالتزام بها؟				
-32	هل تعتقد أنك قادر على السيطرة على نوبة الربو؟				
-33	هل تسبب لك نوبة الربو الاحراج؟				
-34	هل تعتقد أن علاج مرض الربو بحاجة إلى تكلفة عالية؟				
-35	هل تعتقد أن ارتفاع تكاليف العلاج تزويد من تطور المرض؟				
-36	هل تعتقد أن عدم الإلتزام بالأوامر الطبية تزيد من خطورة المرض؟				
-37	هل تعتقد أن انخفاض نوعية الحياة للمريض تزيد من تطور المرض؟				
-38	هل الالتزام بالتعليمات الطبية امتنعك من القدرة على تربية الحيوانات الاليفة؟				
-39	هل الالتزام بالتعليمات الطبية حددت قدرتك من استعمال المواد العطرية؟				
-40	هل الالتزام بالتعليمات الطبية منعتك من تناول بعض الاطعمة؟				
-41	هل مرض الربو يشعرك بعدم التقدير للذات؟				
-42	هل مرض الربو حدد قدراتك من القيام بالنشاط البدني؟				
-43	هل تتقن استخدام البخاخ العلاجي؟				
-44	هل تواجه صعوبة في مراجعة العيادات الصحية؟				
-45	هل تواجه صعوبة في الحصول على الادوية؟				
-46	هل تعتقد أن البخاخات العلاجية غير فعالة؟				
-47	هل تعتقد أن جرعة العلاج المستخدم غير كافية؟				
-48	هل تعتقد أن أدوية الربو تسبب الإدمان؟				
-49	هل تعتقد أن التدخين يزيد من حدة نوبة الربو؟				
-50	هل تعتقد ان التشخيص الخاطئ يزيد من حدة المرض وتطوره؟				

التوقيع:

APPENDIX B

Asthma Control Test

رقم السؤال	السؤال	أبدا	أوقاتا قليلة	أحيانا	أغلب الأوقات	كل الأوقات
1	خلال ال 4 أسابيع الأخيرة,كم من الوقت منعك مرض الربو من القيام بنشاطك في العمل أو المدرسة أو المنزل؟					
		أبدا	مرة او مرتين في الاسبوع	من 3 الى 6 مرات بالاسبوع	مرة واحدة في اليوم	أكثر من مرة في اليوم
2	خلال ال 4 أسابيع الأخيرة,كم من مرة شعرت بضيق التنفس؟					
		أبدا	مرة أو مرتين	مرة واحدة في الأسبوع	من 2 إلى 3 ليال في الأسبوع	4 ليال أو أكثر في الأسبوع
3	خلال ال 4أسابيع الأخيرة,كم من مرة أيقظتك أعراض الربو(أزيز التنفس,السعال,ضيق التنفس,ضيق أو ألم في الصدر)ليلا أو قبل العادة في الصباح؟					
		أبدا	مرة في الأسبوع أو أقل	2 أو 3 مرات في الأسبوع	مرة او مرتين في اليوم	3مرات أو أكثر في اليوم
4	خلال ال4 أسابيع الأخيرة كم من مرة استعملت البخاخة المسعفة أو الة الإستنشاق؟					
		تحكم شامل	تحكم جيد	تحكم متواضع	تحكم ضعيف	تحكم مفقود
5	كيف تقدر تحكمك في الربو خلال الأربع أسابيع الأخيرة؟					

APPENDIX C

APPROVAL CONSENT

HEALTH CARE PROVIDERS

Informed Consent to Participate in a Research Study

AL-Isra University

Faculty of nursing, Jordan, Amman

Title of Research Project:

Reasons for asthmatic patient readmissions: health care providers and patients

Perspectives

Supervisor name: Dr.Imad AL fayoumi

Name of master student: Amal Mohammad Rahhal

Phone Number of master student: 0775261456

A. PURPOSE AND BACKGROUND:

Amal Mohammad Rahhal AL-Isra University.faculty of nursing is conducting research on Reasons for asthmatic patient readmissions: health care providers and patients perspectives as the research is required to obtain a master's degree in chronic disease nursing, the research is supervised by Dr.Imad AL-Fayumi, AL-Isra University.

The purpose of your participation in this research is to help the researcher to uncover the reasons contributing to asthmatic patient readmissions- from both patients and health care provider's perspectives. You were chosen as apossible participant in this study because this information is not available in Jordan. There was insufficient literature on these concepts.

B.PROCEDURES

If you agree to participate in this research study, you will complete the questionnaire, which includes of elements exploring participants' demographic data, degree of knowledge, and practice and will take around 20 minutes to complete with the level of agreement/disagreement.

C. RISKS:

No risks

D.CONFIDENTIALITY

This study's records are maintained confidential. Individual identities will not be utilized in any of the study's findings. All surveys will be coded and maintained separately from any participant names or other direct identification. All research data will be stored in secured folders at all time. Only research staff will have access to the files, and only those how have a legitimate need to see names or other identifying information will have access to that specific file.

E.BENEFITS OF PARTICIPATION

There will be no direct benefit to you from participating in this research study. The anticipated benefit of your participation is to help the researcher to find out the reasons contributing to asthmatic patient readmission.

F.VOLUNTARY PARTICIPATION

Your decision whether or not to participate in this study is voluntary and will not affect your relationship with the AL-Isra University, faculty of nursing if you choose to participate in this study, you can withdraw your consent and discontinue participation at any time without prejudice.

G.QUESTIONS

If you have any questions about the study, please contact Amal Mohammad Rahhal by calling 0775261456 , You can also contact IRB (institutional review board)committee in AL-Isra University with any questions about the rights of research participants or research related concerns.

CONSENT:

If you decide to participate in this study, your signature below indicates that you did so after reading all of the material above and that you understand the information in this form.

Research Title:

Reasons for asthmatic patient readmissions: health care providers and patients perspective

SECTION A. DEMOGRAPHIC INFORMATION

1-Gender: male female

2-Age: 21-30 31-40 41-50 51-60

3-Years of experience:…….

4-Job title: Doctor Master of Nursing Registered Nurse Associate Nurse Nurse Assistant

5-Your qualification: Doctorate Masters Bachelors Diploma Tawjihi

6-Your specialty:……..

7-Have you taken any educational or training program about asthma: Yes No

Health Beliefs Model

Questions			Satisfaction Scale			
Question Number **2**		**Strongly Agree** **5**	**Agree** **4**	**Undefined** **3**	**Disagree** **2**	**Strongly Disagree** **1**
1-	The severity of asthma is reduced when the patient is educated about it.					
2-	The severity of asthma is reduced when the patient is educated about the risks.					
3-	The severity of asthma is reduced when an asthmatic patient is aware of the disease's indications and symptoms.					
4-	Knowing the symptoms that require admission to the hospital helps reduces the risk of the disease.					
5-	Patient acceptance of asthma reduces its severity.					
6-	The work and home					

Questions			Satisfaction Scale			
Question Number **2**		**Strongly Agree** **5**	**Agree** **4**	**Undefined** **3**	**Disagree** **2**	**Strongly Disagree** **1**
	environment increase the May of the asthma patient severity of the disease.					
7-	The ability of the asthma patient the decrease to perform self-care severity of the disease.					
8-	Providing psychological support to the asthma patient reduce the severity of the disease.					
9-	The lifestyle of an asthmatic patient affects the development of the disease.					
10-	Careful medical supervision of treatment reduces the severity of asthma.					
11-	Assessing the emotional state of the asthma patient contribute to reducing the severity of the disease.					
12-	Considering the patients' rights contribute to the patient's commitment to the treatment plan.					
13-	Monitoring the effects expected treatment helps reduce asthma.					
14-	Monitoring the frequency of admission of asthmatic patient's to hospitals contributed to modifying the treatment plan.					
15-	Educating asthmatic patient's about preventing the spread of infection and preventing the disease reduce the severity of the disease.					
16-	Assessing the level of movement and immobility					

Questions			Satisfaction Scale			
Question Number **2**		**Strongly Agree** **5**	**Agree** **4**	**Undefined** **3**	**Disagree** **2**	**Strongly Disagree** **1**
	of the patient reduce the risk of the disease.					
17-	A for Identifying the allergens to reducing patient contribute asthma the attack.					
18-	Maintaining continuous health care encourages patients to adhere to the treatment plan.					
19-	Documenting the patient's response to basic life contributes to development of the treatment plan.					
20-	The patients' health insurance health care of the quality's impact provided to him or her.					
21-	Having other chronic diseases increases the risk of asthma.					
22-	Frequency of the attack at night increases the number of visits to emergency rooms.					
23-	Most of asthmatic patients are readmitted to the hospital within 30days of their discharge.					
24-	The proximity of asthma patients to the hospital contribute to the frequent admission.					
25-	The patient's ability to control an asthma attack reduces hospitalization.					
26-	Asthma patients not getting enough rest increases the severity of the disease.					
27-	Asthma patient's adherence					

Questions			Satisfaction Scale			
Question Number **2**		**Strongly Agree** **5**	**Agree** **4**	**Undefined** **3**	**Disagree** **2**	**Strongly Disagree** **1**
	to medical reviews reduces the progression of the disease.					
28-	The right treatment plan contributes to reducing the progression of the disease.					
29-	Use the patient's ability to correct therapeutic inhaler reduces the severity of the disease.					
30-	The high cost of treatment increases the severity of the disease.					
31-	Difficulty getting an appointment at medical clinics increases the frequency of hospitalization for asthma patients.					
32-	The health status of asthmatic patients with age deteriorates.					
33-	The use of long term control medications such as inhaled corticosteroids reduces asthma attack.					
34-	The use of fast acting drugs such as inhaled albuterol reduces asthma attacks.					

APPENDIX D:

مستند من **Amal Hayate**

١ رسالة

Amal Rahhal <rahhalamal98@gmail.com> الاثنين، ٢٥ أبريل ٢٠٢٢ في ١٠:٥٢ ص

إلى: raiq2008@hotmail.com

GSK

Good day!

I am Amal Rahhal, a M. S. N. in Nursing Chronic disease at AL_Israa University, Jordan. I am currently doing my thesis entitled Reasons for asthmatic patient readmissions: health care providers and patients perspectives : A retrospective study for my final defense this coming June 2022. In line with this, may I secure your permission to use your Instrument, ASTHMA CONTROL TEST (ACT) as an instrument for my study?

Hoping to hear a positive response from you soon regarding this request.

Thank you very much and God bless!

Truly,

AMAL RAHHAL

الرد

Hello and thanks for contacting us. We appreciate your interest in the Asthma Control Test™. This test may be downloaded and printed from www.asthma.com without copyright permission from GSK. For any other use of this test, please contact GSK at the number listed below.

-Cody

[النص المقتبس مخفي]

APPENDIX E:

وزارة الصحة
مستشفى الأمير حمزة بن الحسين

الرقم ح ح/ابحاث/٤٢٣٨
التاريخ
الموافق ١٧/٥/٢٠٢٢م

رئيس جامعه الاسراء

تحية طيبة وبعد ،،،

اشاره الى كتابكم رقم ج س / 94/6 تاريخ 2022/1/23 بخصوص تسهيل مهمة بحث الطالبه (امل محمد رحال) وبعنوان :

" أسباب إعادة ادخال مرضى الربو الى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية "

فقد تمت مناقشته من قبل اللجنة المؤسسية لدراسة البحث العلمي في مستشفى الامير حمزه خلال اجتماعها المنعقد بتاريخ 10 /5 /2022 وبعد الدراسة المستفيضة حول هذا البحث قررنا الموافقةعلى إجراء الدراسة مع مراعاة الشروط التاليه :

1 - مراعاة سياسة البحث العلمي وحفظ سرية المعلومات .
2 - هذه الموافقه سارية المفعول لمدة سنة واحده من تاريخ اجتماع اللجنة.
3 - ضرورة تزويد اللجنة بنتائج البحث حال توفرها .
4 - تزويد اللجنة بتقارير دورية كل 3 شهور.
5 - عدم نشر البحث دون اخد موافقه اللجنة .
6 - تعتبر الموافقة ملغاة تلقائيا في حال عدم تزويد اللجنة بنتائج البحث .

وتفضّلوا بقبول فائق الإحترام

المدير العام / رئيس اللجنة المؤسسية

الدكتور كفاح ابو طربوش

نسخة:
- مقرر اللجنة
- الملف العام .
- م ح
12/5/2022

المملكة الأردنية الهاشمية

هاتف ٠٠٩٦٢٢٦٥٠٥٣٨٢٦ فاكس : ٠٠٩٦٢٢٦٥٠٥٣٧٩٠ / ٠٠٩٦٢٢٦٥٠٥٣٧٩٢ ، الموقع الإلكتروني www.phh.gov.jo

وزارة الصحة

الرقم تعليم/معلومات/٤٣١٤
التاريخ
الموافق ٢٠٢٢/٥/٩

مدير ادارة مستشفيات البشير
مدير مستشفى الدكتور جميل التوتنجي
مدير مستشفى النديم

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير ادارة مستشفيات البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات /٧٠٠٠ تاريخ ٢٠٢٢/٤/٢٨ بخصوص الموافقة لطالبة ماجستير تمريض الحالات المزمنة من كلية التمريض / جامعة الإسراء **أمل محمد عبد المجيد رحال** إجراء بحث بعنوان :-

(أسباب إعادة إدخال مرضى الربو إلى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية)

وذلك عن طريق توزيع الاستبيان المرفق صورة عنه على المرضى وعلى الكادر الطبي (أطباء وتمريض) في المستشفيات الحكومية التابعة لوزارة الصحة التالية :-

- إدارة مستشفيات البشير
- مستشفى الدكتور جميل التوتنجي
- مستشفى النديم الحكومي

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة إجراء البحث أعلاه ، على أن يتم موافاة لجنة أخلاقيات البحث العلمي بنتائج الدراسة العائدة للبحث المذكور.

وتفضلوا بقبول فائق الاحترام ،،،

مدير مديرية التعليم التدريب الطبي

الدكتورة رهام الحمود

هـ م

وزارة الصحة

الرقم ..... م ب أ/ لجنة أخلاقيات /١٠٠٧
التاريخ .....
الموافق ٢٠٢٢/٤/٢٨

مدير مديرية التعليم والتدريب الطبي

تحية طيبة وبعد،

اشارة لكتابكم رقم تعليم / معلومات / ٤٠٧٢ تاريخ ٢٠٢٢/٤/٢٤ بخصوص البحث المقدم من قبل طالبة الماجستير/ امل محمد عبد المجيد رحال.

أرفق بطيه قرار لجنة اخلاقيات البحث العلمي والمتضمن الموافقة على اجراء البحث العائد للمذكورة اعلاه على ان يتم موافاتنا بنتائج الدراسة العائدة للبحث الانف الذكر.

للاطلاع واجراءاتكم لطفا.

واقبلو فائق الاحترام ،

مديرية التعليم والتدريب الطبي
الرقم: .....

مدير ادارة مستشفيات البشير
الدكتور علي عزات العبداللات

اع

وزارة الصحة

الرقم MOH/REC/2022/136
التاريخ .....
الموافق .....

قرار لجنة أخلاقيات البحث العلمي

اجتمعت لجنة أخلاقيات البحث العلمي بتاريخ ٢٧/ ٢٠٢٢/٤ لمناقشة ودراسة البحث العلمي المقدم من قبل طالبة الماجستير / امل محمد عبد المجيد رحال .

بعنوان:-

" اسباب اعادة ادخال مرضى الربو الى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية"

وبناءً عليه قررت اللجنة الموافقة على إجراء البحث العائد للمذكورة أعلاه مع الالتزام بأخلاقيات البحث العلمي ، وتم التوقيع من قبل أعضاء اللجنة حسب الأصول.

مقرر اللجنة وحدة تنمية الموارد البشرية السيد/ اكرم العناتي	عضو المدير الطبي د. حسين اصريوع	عضو الصيدلاني حنان سرطاوي	عضو أخصائي جراحة عامة د جهاد البربراوي
عضو رئيس قسم الباطني د. يوسف القديمات	عضو مدير مديرية المختبرات د. معاذ بدوي	عضو أخصائي الأطفال د.عصام الخواجا	عضو مدير الشؤون الادارية والمالية والتمريض / د.هاني القضاة

رئيس اللجنة

مدير ادارة مستشفيات البشير

الدكتور علي عزات العبداللات

APPENDIX F:

جامعة الاسراء

عمادة البحث العلمي والدراسات العليا

عزيزي المشترك:

انت مدعو للمشاركة في تجربة البحث العلمي لمعرفة اسباب اعادة ادخال مرضى الربو الى المستشفى من وجهة نظر المريض وكادر الرعاية الطبية في الاردن كمتطلب للحصول على درجة الماجستير من جامعة الاسراء والتي يتم اجراؤها في مستشفيات وزارة الصحة (مستشفى البشير مستشفى الامير حمزة، مستشفى التوتنجي، مستشفى النديم).يرجى اخذ الوقت الكافي لقراءة المعلومات الواردة ادناه قبل ان تقرر المشاركة في البحث العلمي.

سيتم تقديم شرح كامل لبرنامج التثقيف الصحي للمرضى المشاركين ستستمر الدراسة لمدة ستة أسابيع ،يتم خلالها جمع البيانات من خلال الملفات الطبية.جميع البيانات تستخدم للاغراض العلمية فقط ولن يسمح لاحد برؤيتها ولن يذكر اسم المشارك او ما يدل عليه في الدراسة.لا يتلقى المشارك اي مبالغ ماليه نظير مشاركته وليست للدراسة اي تاثير على فترة الاقامه او مدة العلاج او تقديم الخدمة الطبية.

ليس هناك اي أثر ضار على المشارك نتيجة لمشاركته في الدراسة.ان المشاركة في هذه الدراسة طوعية دون اي اجبار او اكراه.يحق للمشارك ترك الدراسة متى شاء دون ابداء الاسباب ودون اي مسائلة قانونية.جميع الاستفسارات والاسئلة المتعلقة بالاستيان يتم الرد عليها عن طريق التواصل مع الباحث على رقم الهاتف او عبر البريد الالكتروني.

الباحث:	المشرف:
امل محمد عبد المجيد رحال	د.عماد حسن سليم الفيومي
0775261456	0796725075
Rahhalamal98@gmail.com	Imad.Alfayoumi@iu.edu.jo

جامعة الاسراء

عمادة البحث العلمي والدراسات العليا

الموافقة المبنية على المعرفة

عنوان البحث

اسباب اعادة ادخال مرضى الربو الى المستشفيات من وجهة نظر المرضى ومقدمي الرعاية الصحية

أنا الموقع ادناه اقر بما يلي:

- مشاركتي في هذه الدراسة تطوعيه ولست بحاجة الى كتابة اسمي في الاستبيان.
- يمكنني الانسحاب من الدراسة في اي وقت ولن يؤخذ هذا ضدي ولن اتعرض للمساءلة القانونية.
- إذا تم تقديم نتائج الدراسة للنشر او العرض، فلن يتم الكشف عن هويتي، وانا على استعداد للمشاركة في الدراسة.

توقيع المشارك