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SOCIAL SUPPORT AND PHYSICAL ACTIVITY AMONG

CKD PATIENTS IN HOSPITAL USM

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by

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Social Support and Physical Activity among CKD Patients in Hospital USM

ABSTRACT

Social support is a wide construct that describes the social network resources that an individual receives, and it is described as the perception and reality an individual has been cared for, as assistance and support from society. Social support is a component that can increase a person's motivation to engage in physical activity. The objective of this study is to determine social support and physical activity among CKD patients in Hospital USM. A cross-sectional study design was used in this research. Questionnaires were given and collected using the face-to-face method at the CKD Resources Unit and Klinik Pakar Perubatan (KPP). Descriptive statistics were used to describe respondents and identify the level of social support and physical activity of CKD patients in USM Hospital. *Pearson Chi-square* was used to test the association between variables. The majority of respondents have moderate social support and moderate physical activity. The results show that there is no relationship between social support and physical activity with a coefficient of p<0.05. There is a need to provide exposure to family members of CKD patients in providing them with enough social support as well as increasing the patient's awareness to do physical activity and hold a physical activity program by providing a physical activity guide that suits their health condition.

Sokongan Sosial dan Aktiviti Fizikal dalam Kalangan Pesakit Buah Pinggang Kronik di Hospital USM

ABSTRAK

Sokongan sosial digambarkan sebagai sumber rangkaian sosial yang diterima oleh seseorang individu, ia digambarkan sebagai persepsi dan realiti seseorang individu itu dijaga dan mendapat bantuan serta sokongan daripada masyarakat. Sokongan sosial merupakan komponen yang boleh meningkatkan motivasi seseorang untuk melibatkan diri dalam aktiviti fizikal. Objektif kajian ini untuk mengetahui sokongan sosial dan aktiviti fizikal pesakit buah pinggang kronik di Hospital USM. Reka bentuk kajian keratan rentas telah digunakan dalam penyelidikan ini. Soal selidik diberikan dan dikumpul menggunakan kaedah bersemuka di CKD Resources Centre dan Klinik Pakar Perubatan (KPP). Statistik deskriptif digunakan untuk menggambarkan responden dan mengenal pasti tahap sokongan sosial dan aktiviti fizikal pesakit yang menghidapi penyakit buah pinggang kronik di Hospital USM. *Pearson Chi-square* digunakan untuk menguji perkaitan antara pembolehubah. Majoriti responden mempunyai sokongan sosial yang sederhana dan aktiviti fizikal yang sederhana. Keputusan menunjukkan bahawa tidak terdapat hubungan antara sokongan sosial dan aktiviti fizikal dengan nilai p<0.05. Terdapat keperluan untuk memberi pendedahan kepada ahli keluarga pesakit buah pinggang kronik dalam memberikan sokongan sosial yang mencukupi serta meningkatkan kesedaran pesakit untuk melakukan aktiviti fizikal dan mengadakan program aktiviti fizikal dengan menyediakan panduan aktiviti fizikal yang bersesuaian dengan keadaan kesihatan mereka.

Contents

List of Table

List of figures

CHAPTER 1: INTRODUCTION

1.1 Background of Study

Social support is a wide construct that describes the social network resources that an individual receives, it is described as the perception and reality an individual is cared, and has assistance and support from society (Dixon, 2012). According to Morowatisharifabad et al. (2019), environmental factors are the most important factors in forming a person's attitude, such as social support, which can influence a person's performance in physical activity. According to a previous study, social support will directly and indirectly impact physical activity levels among chronic kidney disease (CKD) patients, as low social support is often associated with low physical activity levels (Ren et al., 2020).

The present of social network gives a sense of security, belonging, and community to the individual. One study conducted in Brazil showed that CKD patients have high social support (Márcia et al., 2016). It is reported CKD patients get social support from family, friends, and significant others. They receive support in instrumental and emotional form (Alshraifeen et al., 2020; Márcia et al., 2016). Social support plays a positive role in the health of CKD patients by forming good self-management behaviour and disease management outcomes (Chen et al., 2018). In the study by Kendrick et al. (2019), social support plays a crucial role in supporting physical activity in patients with CKD. Social support is said to influence a person's physical activity behaviour with evidence of performance improvements, self-efficacy, enjoyment, motivation and by enabling physical activity (Laird et al., 2018). Although CKD is irreversible and cannot be cured, the combination of appropriate medication and good self-management behaviour, such as physical activity, can delay the progression and complications of CKD (Chen et al., 2018).

Physical activity is body movement produced by skeletal muscle contraction that raises energy expenditure above the resting metabolic rate (Mehta et al., 2020). Physical activity is classified into several domains: recreation, employment, transportation, and household activities (Talmizi et al., 2021). In the domains, types of physical activity intensity consist of three types: low, moderate and vigorous (Better Health Channel, 2015). People who have CKD demonstrate a high level of physical inactivity (Wilkinson et al., 2021). The level of PA decreases with the progression of CKD (Hiraki & Yasuda, 2022). In CKD patients, the most active stage in physical activity is stage 1 and stage 2 (34% sufficiently active), followed by stage 3 (17% active) (Wilkinson et al., 2021). The Kidney Disease Improving Global Outcomes (KDIGO) guideline recommends CKD patient engage in physical activity at least 30 minutes 5 times per week of intensity physical activity such as aerobic exercise (Mallamaci et al., 2020; Milam, 2016; Zhang et al., 2022) In a study in China, higher levels of physical activity slowed down the progression of CKD as evidenced by a slower rate of eGFR decline (Clyne & Anding-Rost, 2021). Physical activity is able to reduce the mortality rate, improve physical function and maintain physical activity independence among CKD patients (MacKinnon et al., 2018; Zhang et al., 2022).

In CKD patients, low physical activity can cause non- communicable diseases such as heart disease and death worldwide (WHO, 2018). Hence, it is precisely in this context that aims to determine CKD patients' social support and physical activity. In particular, this proposed study aims to determine social support and physical activity among CKD patients in Hospital USM. This study must be carried out so that the healthcare team can offer alternative or practicable solutions to patients who have problems from the aspect of social

support and physical activity in CKD patients. This study is the first step in addressing the problem that arises.

Chronic kidney disease (CKD) is abnormal kidney function or gradual kidney function loss for at least 3 months. This disease can be detected by a decrease in glomerular filtration rate (GFR) of less than 60 ml/min per 1.73 m2 or through the presence of persistent albuminuria (Webster et al., 2017). CKD is a public health problem caused by the increase in disease factors such as diabetes and hypertension (Kefale et al., 2019). This worldwide, and approximately two million people suffer from end-stage renal failure and require renal replacement therapy (Zhang et al., 2022). In the United Kingdom, 6- 8% of people have suffered from CKD (Teresa et al., 2017). The prevalence of CKD in Malaysia in 2018 was 15.48%. This shows an increase that started in 2011 (Saminathan et al., 2020).

1.2 Problem Statement

There is association between social support and physical activity in chronic disease patients (Han & Won, 2022). In chronic diseases, it was found that social support can contribute to improving self-management behaviours and reducing factors influencing disease progression. A systematic review showed the provision of social support by family and surrounding people had shown more involvement of individuals in physical activity (Mendonça et al., 2014). Physical activity is important for people with CKD because CKD is an independent factor in the occurrence of cardiovascular disease (CVD) and death (Alani, 2014).

Globally, the number of people affected by CKD shows increase, and in 2019, approximately 843.6 million were affected (Kovesdy, 2022). In Malaysia, over 40,000 patients suffer from kidney diseases, and about 8,000 patients are reported to be diagnosed annually. There is an expected increase of 106,000 patients who need dialysis by 2040. (Nuradzimmah Daim, 2022.) The rise of CKD development is due to physical inactivity, and it is one of the modifiable factors (Jang et al., 2023).

National Health and Morbidity Survey (NHMS) 2015 revealed the physical inactivity prevalence among the adult population in Malaysia aged 16 years and above was 33.5% (NHMS, 2019). Physical activity adherence may increase in individuals when social support is a contributing factor (Tian & Shi, 2022). Social support may affect an individual's physical activity, and then their health condition will also be affected. Thus, social support needs to be attention to prevent low physical activity or physical inactivity that can lead to unfavorable health outcomes such as CVD or death.

A study in Malaysia indicated the level of physical activity remains low among CKD patients. One of contributing factor of low physical activity is social support. In study by Han & Won (2022), social support and physical activity had shown a positive association in Coronary Artery Diseases. There is limited study regarding association between social support and physical activity among CKD patients. Most of the related study was conducted abroad, such as in western and middle east-countries (Alshraifeen et al., 2020; Morowatisharifabad et al., 2019). In Malaysia, the researcher found a related study on the topic but the population among hemodialysis patients (Shukri et al., 2020).

Physical activity among this patient be high concern because physical activity able to affect deterioration of physical function and stage of CKD progression but guidelines for physical activity and type of exercise for CKD patient is still debated. This study was conducted to generate new data about criticality of physical activity among CKD patient and association of social support and physical activity.

1.3 Research Question

1. What is the social support level among CKD patients in Hospital USM?

2. What is physical activity level among CKD patient in Hospital USM?

3. Is there any association between social support level and physical activity level among CKD patients in Hospital USM?

4. Is there any association between selected sociodemographic factors (Gender, age and education level) and physical activity level among CKD patients in Hospital USM?

1.4 Research Objective

1.4.1 General Objective

To study the relationship between social support and physical activity among CKD patients in Hospital USM.

1.4.2   Specific Objective

1. To determine social support level among CKD patient in Hospital USM.

2. To determine physical activity level among CKD patient in Hospital USM.

3. To determine the association between social support level and physical activity level among CKD patient in Hospital USM.

4. To assess the association between selected socio-demographic data (Age, Gender, and Educational Level) and physical activity among CKD patient in Hospital USM.

1.5 Research Hypothesis

1.5.1 Hypothesis 1

1. There is no significant association between social support level and physical activity level among CKD patient in Hospital USM. (H_0)

2. There is a significant association between social support level and physical activity level among CKD patient in Hospital USM. (H_A)

1.5.2 Hypothesis 2

1. There is no significant association between selected sociodemographic factors (Age, Gender, and education level) and physical activity level among CKD patients in Hospital USM. (H_0)

2. There is a significant association between selected sociodemographic factors (Age, Gender, and Education level) and physical activity level among CKD patients in Hospital USM. (H_A)

1.6 Conceptual and Operational Definitions

Term	Conceptual Definition	Operational Definition
Social Support	Refer to the provision of help or consolation to others, commonly to assist them in addressing biological, psychological, and social stressors. (Baloch et al., 2021)	Perception and actuality where the persons are cared for by family, friends and significant others that able to affect physical activity.
Physical Activity	Physical activity is body movement produced by skeletal muscles contraction that raises energy expenditure above the resting metabolic rate. (Fynmore, 1902) Physical activity classified into several domains: recreation, employment, transportation, and household activities. (Talmizi et al., 2021)	Body movement that happens at any intensity by performing activity involving recreation, employment, transportation, and household activities
Physical Activity Level	Physical activities are commonly quantified by determining the energy expenditure in kilocalories or by using the metabolic equivalent (MET) of the activity. Another common method is to compute how much time a person spends in different physical activity intensity categories on a	Physical activity includes activities which performed at any intensity at all times. The physical activities include leisure time physical activity, domestic and gardening activities, and work-related and transport-related physical activity.

	given day or over a given week (Strath et al., 2013).	
Chronic Kidney Diseases	Chronic kidney disease (CKD) is abnormal kidney function or gradual kidney function loss that is present for atleast three months duration (Webster et al., 2017).	A condition where the kidney is unable to operate properly. In this study, stage 1,2 and 3 CKD patients will be the participants.

1.7 Significance of the Study

The study is crucial to be conducted as this study concern about social support and physical activity among CKD patients. The finding of this study will show evidence of social support level, physical activity level, and the association between social support and physical activity among CKD patients. This study can provide benefits to various communities by providing new knowledge related to the variables. The knowledge can improve the health status of CKD patients by increasing awareness and encouraging them to be involved in physical activity and not only rely on medicines or hospital treatment alone. In addition, this result of study can increase awareness among family members of CKD patients or relative to involve themselves in the care of CKD patients by providing social support to encourage them to engage in physical activity. Lastly, this can acknowledge healthcare providers regarding the relationship between these 2 variables, so that they can emphasize lifestyle changes to patients. Therefore, appropriate action in improving CKD patient's health can be planned and implemented by healthcare providers towards this population and other healthcare providers, by holding awareness programs,

providing guidelines to patients, or designing effective educational strategies in improving

social support, physical activity, and CKD patient's health outcome.

CHAPTER 2: LITERATURE REVIEW

In the literature review, the topic of Social Support and Physical Activity Level Among Chronic Kidney disease (CKD) patients will be explained in detail. Social support and physical activity level among CKD will be discussed by referring to previous research. The outcome of the previous study related to the association between social support and physical activity will be concluded by giving the main idea. This is intended to gain an understanding and knowledge about the study. The conceptual framework chosen to support the research study will be shown and explained.

2.1 Chronic Kidney Diseases

Chronic kidney disease (CKD) is abnormal kidney function or gradual kidney function loss that is present for at least three months duration. This disease can be detected by a decrease in glomerular filtration rate (GFR) of less than 60 ml/min per 1.73 m2 or through the presence of persistent albuminuria. (Webster et al., 2017) CKD is a health problem of public health that is caused by the increase in disease factors such as diabetes and hypertension (Kefale et al., 2019).

This disease is a lifelong disease that has affected the lives of 750 million people worldwide, and approximately two million people suffer from end-stage renal failure and require renal replacement therapy (Zhang et al., 2022). In the United Kingdom population, 6-8% of people have suffered from CKD (Teresa et al., 2017). The prevalence of CKD in Malaysia in 2018 was 15.48%; this shows an increase that started in 2011 (Saminathan et al., 2020). In 2020, the estimation of stage 1 CKD was 3.8%; 4.82% experience stage 2 CKD and 6.48% have stage 3 CKD. While for stages 4 and 5, the CKD percentage is 0.33% (Saminathan et al., 2020).

Table 2.1 KDIGO Stages of chronic kidney by eGFR (Winnicki, 2019).

Stage	eGFR (ml/min/1.73m^2)
1	≥90
2	60–89
3a	45–59
3b	30–44
4	15–29
5	≤15

Chronic kidney disease is divided into five stages based on levels of kidney function. The stage of CKD is determined by the Estimated Glomerular Filtration Rate (eGFR). In stage 1 and 2 CKD, damage to the kidney is mild, but at stage 2, it's critical to make dietary and lifestyle changes. Next, stage 3 of CKD has sub-stages based on eGFR (Refer to Table 2.1). This stage is considered the middle stage of kidney disease, where the occurrence is mild to moderate and moderate to severe kidney damage. Stage 4 is severe kidney damage, and for the final stage, the kidneys are almost not working or have stopped working (Winnicki, 2019). People with CKD are at risk of having a severe impact on their quality of life, cardiovascular morbidity, and premature mortality (Kefale et al., 2019). The prevalence of patients who suffer from cardiovascular disease is 50%, and the premature death risk is 20 times higher than in the general population or non-CKD patients (Cozzolino et al., 2018). Patients with CKD have a high risk of death and hospitalization (Cozzolino et al., 2018). In 2017, CKD was the 12th leading cause of death worldwide, and 1.2 million deaths occurred (Carney, 2020).

2.2 Social Support in CKD Patient

Social support is a wide construct that describes the social network resources that an individual received, and it is described as the perception and reality an individual has been cared for, for, and as assistance and support from society (Dixon, 2012). The term social network refers to the link of social relationships which surround individuals (Dixon, 2012). This social support is offered in various forms, such as the form of encouragement, forming connection, providing accountability, and modeling. Resources of support are available from interpersonal relationships in social networks, such as family members, friends, caregivers, or anyone from support groups. The presence of social networks in a formal or informal form gives the individual a sense of security, belonging, and community (Primary Health Care, 2017).

There are four categories of social support that can be given or received. The first category is emotional support, and the support can be verbally or nonverbally processed. Emotional support happens by individuals who show the behaviours of care and concern to others by offering comfort, empathy, and acceptance (APA Dictionary of Psychology, n.d.). The next category is physical support, where someone provides help in a tangible way or support that can be touched and felt like a real substance. Besides that, advice is a form of support called informational support, and it refers to delivering messages containing knowledge. Finally, appraisal support is usually provided by peers by offering judgment or opinion and encouragement in improving personal qualities (Dixon, 2012).

Social support is essential for health by contributing to positive emotional and physical health (Living Healthier, 2020). This is because social support in CKD patients is able to improve the coping mechanisms of patients, control or reduce stress, enhance

psychosocial functionality, and comply to therapy, including diet. It able to maintain good physical and mental health by helping people work toward a lasting healthy lifestyle. To improve health and maintain healthy, it is important to lead a healthy lifestyle because lifestyle is a predictive independent factor that causes multiple chronic diseases (Javadifar et al., 2016). Social support is associated with health and mortality in CKD patients because it is able to affect patients' adherence to treatment and undergoing a healthy lifestyle (Márcia et al., 2016). This shows that social support is important for CKD patients.

Social support is an important factor in the health of CKD patients, in a study in Greece shows social support among this population is high (Theodoritsi et al., 2016). The highest support comes from family and their significant others and less from their friends. Social support was highest from family due to participants being married and have a family. Besides that, most of the participants are above 70 years old; in this age range, they felt less support from their friends because they spend more time with their families. On the other hand, friends are unable to provide appropriate support and help to patients. The finding shows patients who have the disease under six years felt receiving more support from others, family, and friends.

In a study conducted in India by George et al. (2022), about 54% and 26% of CKD respondents reported having moderate and high levels of social support. The remaining respondents reported 20% have low social support. The social support studied in this study is from family members and friends. The majority of respondents who get social support from family members have a high level of social support, with a percentage of 50%. Concerning social support from friends, 80% of respondents have a low social support

level. A low level of support from friends indicates that the respondent's social life is restricted and decreased, where they have a high dependence on family members. Therefore, CKD patients in this study had high social support; family is the main contributor that provides social support.

Social support in the two studies that were mentioned stated different results. A study in Greece showed that CKD patients have high social support, and in India, respondents reported having moderate and high levels of social support. These two studies have shown different results due to several factors influencing the results, such as marital status, surrounding environment, and social life.

2.3 Physical Activity in CKD Patient

Physical activity refers to all movement produced by skeletal muscles that increases energy expenditure resulting in energy expenditure above the resting level (Kanosue et al., 2015). Physical activity can either be classified as structured or incidental. Accordingly, promoting physical activity has become a priority of public health worldwide (WHO 2010). Physical activity has been identified as a major behaviour that contributes to health. Physical activity refers to all movement, including during leisure time, movement using transport, or a person's work. In general, physical activity level is classified according to four domains. Those domains are leisure-time, employment, transportation, and domestic (Strath et al., 2013).

The physical intensity of the activity involves moderate and vigorous activity. This physical activity is usually evaluated by measuring the amount of time a person spends in the specified threshold range of physical activity (Strath et al., 2013). Moderate-intensity physical activity is an activity that involves fast and strong movement, such as brisk walk,

water aerobics, and riding a bike on a flat surface or with a few hills (CDC, 2022). Vigorous-intensity physical activity is an activity that requires great effort, and this activity will result in a high heart rate and rapid breathing, involving physical activities such as running and swimming (CDC, 2022). According to WHO physical activity guidelines, moderate-intensity and vigorous-intensity physical activity for aged between 18-64 years should be between 150-300 minutes and 75-150 minutes, respectively (WHO, 2020).

People who suffer from CKD are always associated with low physical activity (Wilund K.R & Thompson, 2021).   This is caused by behavioural and disease-related factors. In disease-related factors, CKD has negative effects on skeletal muscle structure and function that are caused by deterioration in mitochondrial function, oxidative stress, inflammation, metabolic acidosis, and other uremia-related factors. These conditions may promote muscle protein catabolism and muscle wasting, and deteriorate muscle strength, physical performance, and cardiorespiratory fitness. Moreover, the high burden of comorbid disease resulted in patient fatigue, injury fear, and poor exercise self-efficacy. All of these conditions cause patients to lead a sedentary lifestyle, leading to a disease cycle, and disability further will compromise the patient's health condition.

Physical activity deteriorates as the CKD condition worsens. This is caused by the physical function decreased according to the progression of CKD. In Hiraki & Yasuda (2022) study, the physical function index was significantly higher in CKD stage 2 and 3 patients than in CKD stage 4 or 5 patients. The impairment of physical function is due to muscle weakness, less mobility, and exercise intolerance, able to reduce the ability activity perform of daily living (Vanden Wyngaert et al., 2020; Havard Health Publishing, 2016).

Muscle weakness can happen when deterioration of muscle mass occurs; reduced muscle mass is associated with reduced creatinine clearance (Wilkinson et al., 2017). The other researcher found that lower eFGR had worse walk time, low extremity performance, grip strength, and knee extension strength (Johansen & Painter, 2012).

In England, the prevalence of CKD participants who were physically inactive was high and worsened with disease progression. The percentages of participants who are active are low, which is 6- 34%. There are several factors that affect the level of physical activity; among them are increasing age, being female, and having many other diseases or co-morbidities. Patients with CKD stages 1 to 2 are mostly sufficiently active than other stages, which is as much as 34%. A pattern of decline can be seen for CKD stage 3, where only 17% are active and 11% for CKD Stage 4 to 5 (Wilkinson et al., 2021). Physical inactivity is high due to more advanced disease and increased presence of symptoms. In addition, physical conditions such as physical function reduction and psychology are causal factors for physical inactivity.

The low level of physical activity is high in this cross-sectional study Wong et al. (2011). In Malaysia, the respondents who reporting with low physical activity level are 80% The highest achievement of physical activity level in this population is a moderate level. The percentages of respondents who had low and moderate physical activity levels were 81.4% and 18.6%, respectively. In this population, the most dominant type of activities that they do is involving transport-related walking and household chores, while participation in leisure activities is very limited. About 76.9% below the age of 60 recorded low levels of physical activity, and 87.1% over the age of 60 had low levels of physical activity. One of the key findings of the study showed that sitting or reclining was

the highest activity engagement of participants (Wong et al., 2011). The majority of this population has a low level of physical activity compared to a moderate level.

2.4 Association between Social Support and Physical Activity among CKD Patients

Social support or psychological component is a predictor of physical activity of the individual (Xiao et al., 2019). According to a study in Iran, the increase in social support scores has increased the physical activity of patients with type 2 diabetes (Morowatisharifabad et al., 2019). The percentages of an inactive group is 46.8%, and social support in this group is low. High social support has promoted the level of physical activity from inactive to minimal active, with a 1.17 times higher chance more likely having minimal activity. This is because social support can affect a person's attitude and success in doing something. The study concluded that social support in diabetic patients is important because it is able to influence one's attitude in performing physical activities.

In coronary artery diseases, social support for physical activity has shown a positive association. (Han & Won, 2022) The social support factor has a positive effect and relationship with physical activity; this means it may be showing the same relationship among chronic kidney diseases and also shows a positive relationship. The association of social support and physical activity has shown statistically significant with a p-value <0.001. The results show that the higher level of social support from healthcare providers has positively influenced physical activity, as well as social support from family and peers, which it can help chronic patients in physical activity adherence. Based on Han & Won, (2022) study, social support can increase physical activity adherence and shows that both of the variables have a positive association.

In Studies at the Nephrology Clinic at the Hospital Universiti Kebangsaan Malaysia (HUKM), study results show that social support can be associated with a high quality of life. This study has involved all stages of CKD patients (Ibrahim et al., 2015). Physical activity is also a contributor to a high quality of life. This can be proven by previous studies where the frequency of physical activity can improve the quality of life of the elderly who are physically active (Alexandre Fet, 2019). Here, social support has an association with physical activity, where both are contributing factors to the quality of life and are capable of influencing each other. Therefore, social support is able to influence the level of physical activity.

2.5 Association between Socio-Demographic Data and Physical Activity among CKD Patients

In certain studies, the results show that physical activity is influenced by educational level, age, and gender. According to Wong et al. (2011), there were found a number of factors associated significantly with the respondent's physical activity, one of which is the educational level. A higher level of education was predicted to have a high physical activity level with a P value below 0.01. In this article, the population of participants with a low level of education is large. 12.9% of participants with no formal education, while approximately 30% of participants have an education level at the primary school level. In this cross-sectional study, physical activity was high, with approximately 80% of participants reporting low physical activity. Educational level is a contributing factor to the prevalence of low physical activity.

The level of physical inactivity is high among CKD patients in a study in the United Kingdom. This physical inactivity is high across all stages of CKD; the percentages of respondents who have low physical activity are 6-34%. Increasing age has shown the result that a person becomes physically inactive. Respondents who are>61 years old are 5.5 times to be physically inactive compared to respondents who are ≤ 61 years old. Indeed, increasing age affects the physical activity of respondents in this study (Wilkinson et al., 2021).

Studies in Iran show that 46.8% of patients are from the inactive group. The decision was influenced by social support and a number of sociodemographic factors, namely gender. Men have a higher minimum activity than women; they have 4.18 times the minimum physical activity (Morowatisharifabad et al., 2019). The results showed that male predictors

for promoting physical activity levels in patients ranged from inactivity to minimal activity. Results showed that gender was a predictor of physical activity.

In conclusion, education level can influence a person's physical activity, in the present study show education, age, and gender had a significant effect on physical activity. Education may increase a person's level of ability to understand and obtain the information needed to do physical activities. Increasing age can affect the performance of physical activity. In a gender context, men are more active than women.

2.6 Theoretical and Conceptual Framework of the Study
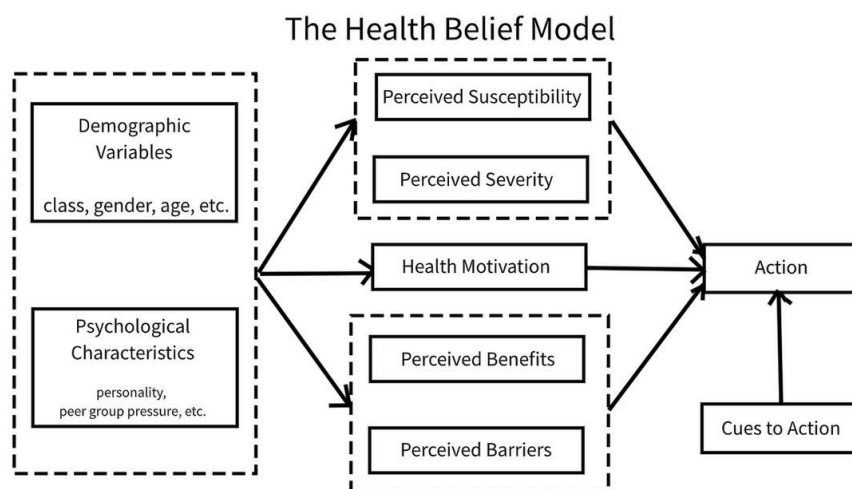
The Health Belief Model

Figure 2.1 Theoritical of framework of health belief model

The Health Belief Model (HBM) is a social and psychological health behavioural change model designed to describe and predict health-related behaviours. HBM was developed by Hochbaum & Rosenstock in the 1950s. This model was selected to build a conceptual framework to guide this study. This model explains that a person's perception of the threat of disease, and the belief in the effectiveness of the behaviour in becoming healthier will cause the possibility that a person will adopt that behaviour.

22

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┌─────────────────────┐
│ Socio-demographic   │
│ factors             │
│                     │          ┌──────────────┐    ┌──────────────────┐
│ ➢ Age               │ ───────▶ │  Perception  │ ─▶ │ Physical Activity│
│ ➢ Gender            │          └──────────────┘    └──────────────────┘
│ ➢ Educational Level │
└─────────────────────┘
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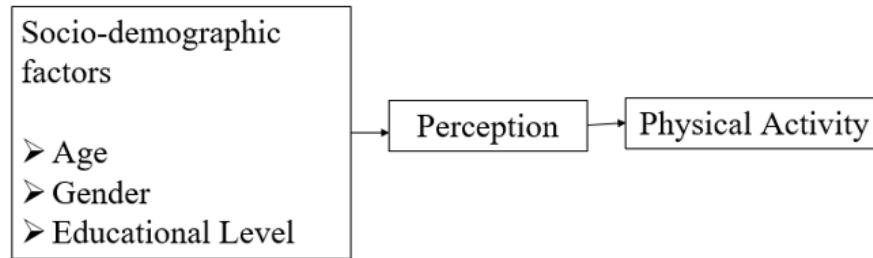
Figure 2.2 Conceptual framework of social support and physical activity modified from Hochbaum & Rosenstock, (1950).

In this conceptual framework, the actual model was modified. However, this framework still applies the same concept, which is the perception of illness and behaviour capable of causing someone to change their behaviour by adopting the behaviour that is considered positive. The sociodemographic factor is a modifying factor. Sociodemographic factors that will influence the study results are gender, age, education, and income. Physical activity is a dependent variable classified as behavioural changes, whereas sociodemographic factors and social support are independent variables. Sociodemographic factors and social support can lead to behavioural changes. This means that sociodemographic will influence physical activity, and social support can also cause changes in physical activity.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the chosen research methodology and the rationale for its selection will be discussed in detail. This aims to understand the most appropriate research design used so that the objective of the study can be achieved correctly. Description of the research population and setting, sampling plan, participant selection criteria, sample size determination, instrumentation, variables and data collection plan is written. The final section explained the method for data analysis, ethical consideration and expected research outcome.

3.2 Research Design

In this research, cross-sectional study design was used. It is observational study design, which able to collect data from different individual at single point in time. The study design was chosen because the study allows researcher to compare many different variables at the same time.

3.3 Study Location

This study conducted at CKD Resource Centre and Klinik Pakar Perubatan (KPP) of Hospital USM, Kubang Kerian, Kelantan.
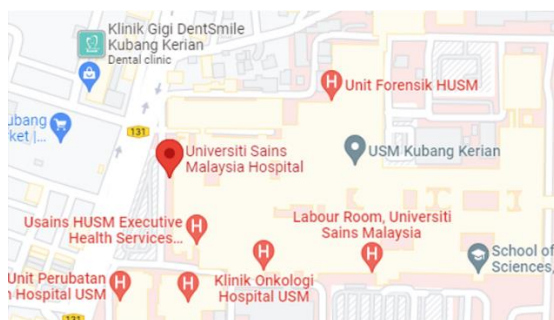

Figure 3.1 Location of CKD Resource Centre and Klinik Pakar Perubatan, Hospital USM