# Factors Affecting Health Promoting Lifestyle Practices among Elderly Patients with Chronic Kidney Disease

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**Abstract**

***Background:*** Health-promoting lifestyle practices, have been shown to have a beneficial effect on CKD progression ***The aim of the study*** was to assess factors affecting health promoting lifestyle practices among elderly patients with chronic kidney disease. ***Research design:*** A descriptive design was utalized. ***Setting:*** This study was conducted at inpatient renal ward in Internal Hospital at Zagazig University Hospital. ***The tool of data collection*** three tools was used ***Tool I***: A structured interview questionnaire sheet consisted of two parts; **Part one:** Demographic characteristics of the studied elderly patients**, Part two:** Health profile of the studied elderly patients**. Part three**: patients′ knowledge about chronic kidney disease. **Part four:** perceived social support assessment ***Tool II***: self-efficacy scale ***Tool III:*** Health-Promoting Lifestyle Profile II. ***The results*** of the current study revealed that studied elderly patient's age ranged between 60 and 79 years, with mean 66.50 ± 4.24. (77%) of studied elderly had satisfactory knowledge about CKD. 70% of studied patients had Moderate Level of health promotion lifestyle practices. Finally, there was statistically significant difference between health promoting lifestyle practices and age, gender, educational level, history of having hemodialysis, number of chronic diseases, knowledge about disease, self-efficacy and social support with p value (0.005, 0.019, 0.00, 0.018, 0.00, 0.004, 0.00, 0.003 consecutively). ***The study concluded*** that variables affecting the scoring of health promoting lifestyle practices were age, gender, educational level, number of chronic diseases, knowledge about disease, self-efficacy and social support. ***Recommendation:*** implement educational program about health promoting lifestyle practices for CKD.

**Keywords:** factors, health promoting, lifestyle, elderly, chronic kidney disease.

## Introduction

**Grill & Brimble (2018)** define CKD as a spectrum of different pathophysiologic processes in kidney function or structure that is present for more than 3 months and associated with a progressive decline in glomerular filtration rate (GFR) with implications for health.

**Zhou & Yang (2020)** mentioned that the risk factors for CKD are Diabetes, Hypertension, Autoimmune disease, Systemic infection, Urinary tract infection , Urinary stones, Lower urinary tract obstruction, Urolithiasis, Family history of CKD, Recovery from acute kidney injury, Kidney mass reduction, Exposure to certain drugs, Low birth weight, Older age, Race: African American, American Indians and South Asian have a high risk of CKD, Exposure to certain chemical and environmental conditions.

According to **WHO** (**2021**) Health promotion is the process of enabling people to increase control over, and

to improve their health. And define three basic strategies for health promotion. These are *advocacy* for health to create the essential conditions for health indicated above; *enabling* all people to achieve their full health potential; and *mediating* between the different interests in society in the pursuit of health.

According to **Q. Liu et al.** (**2021**) factors affecting health promotion lifestyle are gender, education level, annual income, health affection, and health behavioral intention.

**Amiri et al.**, (**2019**) stated that health-promoting lifestyle has 6 elements of spiritual growth, health responsibility, interpersonal relationships, stress management, physical activity, and nutrition.

Gerntological nurse enhance rehabilitation nutrition though; evaluating patients holistically to assess causes of nutritional deficiency and protein energy malnutrion, sarcopenia, and excessive or deficient nutritional intake in eldery with CKD, conducting rehabilitation nutrition diagnosis and goal setting; using 'nutrition care management with rehabilitation in mind' and 'nutritionally conscious rehabilitation' for patients who are frail older patients, improving nutritional status and frailty, finnally, promoting optimal physical function, activity, participation. (**Okamura et al.**, **2022**)

(**MacLaughlin et al.**, **2022**) stated that elderly patients with CKD should weight loss if obese, Reduce salt and processed foods, Increase physical Activity, Increase fruit and Vegetables ,Reduce saturated Fats, Optimize fluid Intake, Lower animal protein intake ,Increase unsaturated fats and whole grains.

**Significance of the study;**

Chronic kidney disease (CKD) is the most important cause of morbidity and mortality among elderly, that affects >10% of the general population worldwide, according to data from the Korean National Health and Nutrition Examination Survey, CKD prevalence reached 22.6% in participants aged 60 to 74 years and 44.5% in those aged 75 years or more. **Kim et al.**, (**2018**) CKD linked to the risk of development of cardiovascular disease (CVD) and end-stage renal disease (ESRD) with their attendant morbidity, mortality and increased healthcare costs. **Kovesdy**, **(2022**) .In 2017, the Global Burden of Disease (GBD) CKD Collaboration estimated that there were 7.1 million individuals with CKD in Egypt, with an age-standardized prevalence of 106 patients with CKD per 1000 population.

**Aim of the Study**

The current study aimed to assess factors affecting health-promoting Lifestyle Practices among elderly patients with chronic kidney disease.

**Research Questions:**

1. What is the health‑ promoting behaviors among elderly with chronic kidney disease?
2. What are factors related to health promoting behaviors among elderly with chronic kidney disease?

**Research design:** a descriptive design was utilized to conduct the present study. **setting:** the study was conducted at inpatient renal ward in internal hospital at Zagazig university hospitals, Egypt. **subject:** a purposive sample of (100) patients with chronic kidney disease from the above-mentioned setting **who fulfilled the following criteria**: Age: 60 years and older, diagnosed with chronic kidney disease, Free

**Tools for data collection:**

Three tools will be used to collect the required data they are:

**Tool I: A structured interview questionnaire sheet:**

It will be developed by the researcher to collect the necessary data for the study. It will consist of two parts: Demographic Data, Health profile.

**Part one: Demographic characteristics of the studied elderly patients:**

This part will be used to assess the demographic characteristics of the studied elderly patients as age, sex, residence, level of education … etc.

**Part two: Health profile of the studied elderly patients:**It will include the present history, past history and family history of the studied elderly patients.

**Part three: patients′ knowledge about chronic kidney disease (`1-9) questions:**

This tool was developed by researcher based on literature review to assess patients' knowledge about chronic kidney disease. It included nine questions about chronic kidney disease

**Scoring system:**

The total number of questions is nine, for each question several correct answers were allotted, the number

of correct answer ranged from one to five, each correct answer was allotted one grade with total grade for all questions ranged from one to five and zero for wrong answer or don't know. The knowledge score depending on the numbers of grades the participants obtained regarding all questions. The total grade was completed out of (23) grades and knowledge was considered satisfactory if the percent of total score was 60% or more (≥ 13.8 grade) and unsatisfactory if less than 60% (<13.8).

**Part four: perceived social support assessment(zimet, 2016):**

Multidimensional scale of perceived social support was adopted from **(zimet, 2016)**. It was used to assess perceived social support of the elderly patients regarding chronic kidney disease. It had been translated and validated in Arabic**.**

**Scoring system:**

The total number of questions is eight (8) the answers were given a three-point Likert scale**:** agree "3", to some extent "2" and disagree "1". A total perceived social support score was calculated by summing responses ever all eight (8) items with possible score ranging from eight (8) to twenty-four (24) and the total score of perceived social support was considered high if the percent of total score was 60% or more (≥ 14.4) and low if less than 60%(<14.4).

**Tool II: self-efficacy scale (lin et al., 2012):**

Chronic kidney disease self-efficacy scale was developed by **(lin et al., 2012)**. It was used to assess self-efficacy of patient with chronic kidney disease. It had been translated and validated in Arabic. This tool consists of (20 items) divided into four dimensions for CKD self-efficacy as Autonomy (six items), Self-integration (five items), Problem solving (six items) and Seeking social support (three items).

**Scoring system:**

The total number of questions is twenty (20) the answers were given a four point Likert scale**:** rarely "1", to some extent "2", sometimes "3" and often"4". A total self-efficacy score was calculated by summing responses ever all twenty (20) items with possible score ranging from twenty (20) to eighty (80) and the total score of self-efficacy was considered high if the percent of total score was >70% (> 56), moderate if the percent of total score 70%-30% (24-56) and low if less than 30%(<24).

**Tool III: Health-Promoting Lifestyle Profile II:**

This tool established by (**Walker et al.**, **1987**) and recently used and validated by (**Zainab et al.**, **2021**). The tool will be used to assess elderly health promotion lifestyle practices in six domains of nutrition, physical activity, health responsibilities, stress management, interpersonal relationships, and spiritual growth.

**Scoring system:**

The total number of questions is forty-one (41) the answers were given a four point Likert scale**:** never "1", sometimes "2", often "3" and routinely"4". A total health promotion lifestyle practices score was calculated by summing responses ever all forty-one (41) items with possible score ranging from forty-one (41) to one hundred sixty-four (164) and the total score of health promotion lifestyle practices was considered poor if (scores 41 -71), moderate if (scores 72 -102), good if (scores 103 - 133) and excellent if (scores 134 -164).

**Administrative design and Ethical considerations:**

The administrative design implemented through submission of a formal letter containing aim of the study from post-graduate department at faculty of nursing Zagazig university to the director of Zagazig university hospitals, which in turn referred it to the manager of Zagazig university hospitals for final approval.

Firstly, the study proposal was approved by the research ethics committee (Rec) and postgraduate committee of the faculty of nursing at Zagazig university. Then, the elderly received a verbal description of the objectives of the study, and non-participation or withdrawal rights at any time without giving any explanations. The elderly was informed that their involvement in this study was voluntary. They were also assured that any information taken from them would be confidential and used only for research purposes.

**Pilot study:**

A pilot study was carried out on a sample of 10 elderly (10% of the calculated sample). The purposes of the pilot study were to test applicability, feasibility, applicability of the study tool and to determine the time needed to fill out the questionnaire sheet. All participants received a clear clarification for the study

purpose. Since there was no modification in the data collection tools after conducting the pilot study, the pilot elderly patients weren't included later in the main studied sample.

**Validity and Reliability:**

The tools were revised by three experts in the field of nursing administration faculty of nursing, Ain shams university, community health nursing faculty of nursing, Cairo university and medical surgical nursing faculty of nursing, Zagazig university, where the panel reviewed the tools content for relevance, clarity, comprehensiveness and understandability. All recommended modifications were made.

The reliability of tools was tested by measuring their internal consistency. It demonstrated a good level of reliability with Cronbach's alpha and the result was 0.933 for health promotion lifestyle practices, 0.630 for knowledge about disease questionnaire, 0.923 for perceived social support scale and 0.935 for self-efficacy scale.

**Statistical analysis:**

Data entry and statistical analysis were done using spss 22.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. The Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Qualitative categorical variables were compared using a chi-square test ($x^2$). Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, fisher exact test was used instead. The spearman rank correlation was used for assessment of the interrelationships among quantitative variables and ranked ones. In order to identify the independent predictors of the knowledge, perceived social support, self-efficacy and HpLp scores multiple linear regression analysis was used after testing for normality, and homoscedasticity, and analysis of variance for the full regression models were done. Statistical significance was considered at p-value <0.05.

**Result**

**Table (1)** revealed that the elderly patient's age ranged between 60 and 79 years, with mean 66.50 ± 4.24 and (72%) of them were aged between 60 and 69 years, with more men (55%), In addition (53%)of the studied elderly patient were married and (92%) of them were living with family. (76% )of the elderly patients not working, having insufficient income (80%) and (64%) of their income is son assistance.

**Figure (1)** indicates that (53%) of the studied elderly were living in rural areas while (47%) were living in urban areas.

**Figure (2)** shows that (37%) of the studied elderly were illiterate, followed by university education (30%) then who can read and write (14%).

**Table (2)** demonstrates that (98%) of studied elderly patients were having chronic disease, the most common diseases were diabetes (77%), hypertension (70%) and osteoporosis (64%). The table also reveals that the mean number of chronic diseases among the elderly patients was (3.39±1.57). The table also reveals that (68%) of the studied elderly have family history of CKD and (67%) have any hemodialysis or peritoneal dialysis.

**Table (3)** demonstrates that (82%) of studied elderly patients having Creatinine ratio (1.0-3.5). while (18%) having creatinine ratio (3.6-7.00).

**Figure (3)** shows that about three quarter of studied elderly (77%) were having satisfactory knowledge about CKD, while only about one quarter of studied patients (23%) were having unsatisfactory knowledge about CKD.

**Table (4)** explains that the majority of studied elderly patients (90%) had high social support from their family, while (63%) of them had low social support from their friends. finally, more than two third of studied patients (69%) had social support.

The study revealed that most of studied patients (87%) had moderate level of self-efficacy, while (13%) had high level of self-efficacy **(Table 5)**

**Table (6)** simplifies that (70%) of studied patients had Moderate Level of health promotion lifestyle practices. while (16%) had good Level of health promotion lifestyle practices and (14%) had poor Level of health promotion lifestyle practices.

**Table (7)** shows statistically significant relations between health promotion lifestyle practices of studied patients and having any hemodialysis or peritoneal dialysis(p=0.018), number of diseases(p=0.000) and their family history of CKD(p=0.018). It can be noticed that the higher percentages of the studied elderly patients who Having hemodialysis or peritoneal dialysis, having number of disease (1-3) and having Family history of CKD were having moderate health promotion lifestyle practices**.**

**Table (8)** shows statistically significant relations between health promotion lifestyle practices of studied patients and having any hemodialysis or peritoneal dialysis(p=0.018), number of diseases(p=0.000) and their family history of CKD(p=0.018).

**Table (9)** simplifies the correlation between elderly' total mean score of knowledge of CKD, perceived Social Support, self-efficacy and health promotion lifestyle practices. The table indicates statistically significant positive correlation between knowledge of CKD and perceived social support {the higher knowledge score, the higher perceived social support score} (r=0.219), Knowledge and self-efficacy {the higher Knowledge score, the higher self-efficacy score} (r= .582), knowledge and health promotion lifestyle practices {the higher knowledge score, the higher health promotion lifestyle practices} (r=0.581).

Also, there is a statistically significant positive correlation between perceived social support and self-efficacy {the higher perceived social support score, the higher self-efficacy score} (r= .371), perceived social support and health promotion lifestyle practices {the higher perceived social support score, the higher health promotion lifestyle practices score} (r=.445). finally, there is a statistically significant positive correlation between self-efficacy and health promotion lifestyle practices {the higher self-efficacy score, the higher health promotion lifestyle practices score} (r=0.818).

**Table (1)**: demographic characteristics of participants in the study sample (n=100)

| **Demographic characteristics** | **Frequency** | **Percent** |
|---|---|---|
| **Age:** | | |
| 60-69 | 72 | 72.0 |
| 70-79 | 28 | 28.0 |
| **Mean±SD** | 66.50 ± 4.24 | |
| **Rang** | (60 – 79) | |
| **Sex:** | | |
| Male | 55 | 55.0 |
| Female | 45 | 45.0 |
| **Marital status:** | | |
| Married | 53 | 53.0 |
| Un married | 47 | 47.0 |
| **Job (before retirement):** | | |
| Free work | 16 | 16.0 |
| Farmer | 17 | 17.0 |
| Employee | 9 | 9.0 |
| Tradesman | 29 | 29.0 |
| Housewife | 29 | 29.0 |
| **Current work:** | | |
| Working | 24 | 24.0 |
| Not Working | 76 | 76.0 |
| **With whom you live:** | | |
| With family | 92 | 92.0 |
| Alone | 8 | 8.0 |
| **Income:** | | |
| Insufficient: | 80 | 80.0 |
| Sufficient | 20 | 20.0 |
| **Source of income:** | | |
| Pension | 32 | 32.0 |
| Son assistance | 64 | 64.0 |
| Still working | 20 | 20.0 |

| | | |
|---|---|---|
| Property income | 12 | 12.0 |

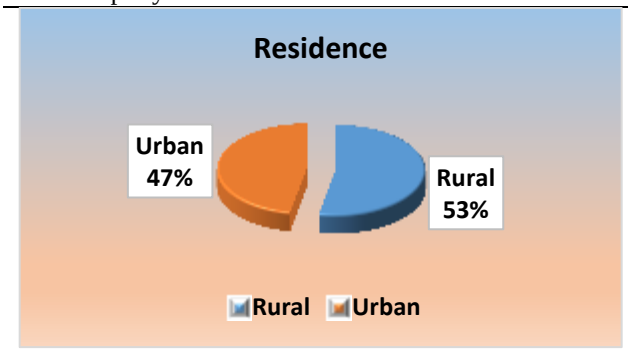


**Figure 1: Distribution of participants according to their residence (n=100)**

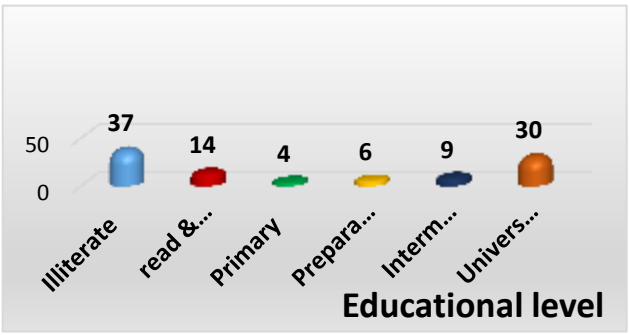


**Figure (2): Educational level distribution among participants (n=100)**

**Table (2):** Medical history of participants in the study sample (n=100)

| Medical History | Frequency | Percent |
|---|---|---|
| **Having any hemodialysis or peritoneal dialysis:** | | |
| Yes | 67 | 67.0 |
| No | 33 | 33.0 |
| **Having any other chronic disease than kidney disease:** | | |
| Yes | 98 | 98.0 |
| No | 2 | 2.0 |
| **Diseases:** | | |
| Diabetes | 77 | 77.0 |
| Hypertension | 70 | 70.0 |
| Heart | 7 | 7.0 |
| Liver | 35 | 35.0 |
| Chest | 11 | 11.0 |
| GIT | 44 | 44.0 |
| Osteoporosis | 64 | 64.0 |
| Anemia | 31 | 31.0 |
| **No. of diseases: n=98** | | |
| 1-3 | 53 | 53.0 |
| 4-7 | 45 | 45.0 |
| **Range** | 0-7 | |
| **Mean±SD** | 3.39±1.57 | |
| **Family history of CKD:** | | |
| Yes | 32 | 32.0 |
| No | 68 | 68.0 |

**Table (3):** Medical history of participants in the study sample (n=100)

| Medical history | frequency | percent |
|---|---|---|
| **Creatinine ratio/mg** | | |
| 1.0-3.5 | 82 | 82.0 |
| 3.6-7.00 | 18 | 18.0 |
| Range | **1-7** | |
| Mean ± SD 2.89 ± .80 | **2.89±.80** | |

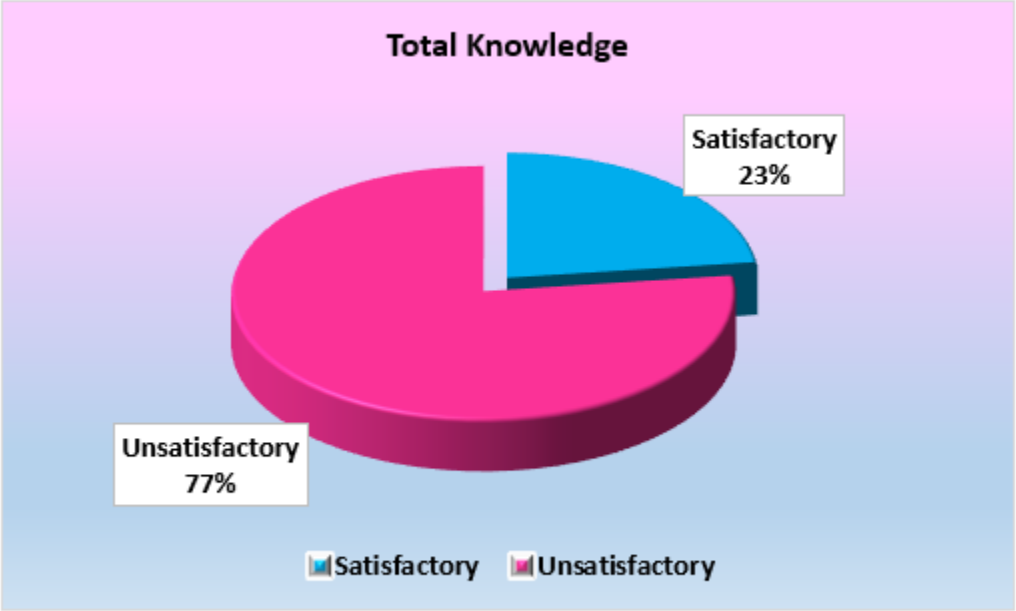


**Figure (3):** Percentage of knowledge among studied participants (n=100)

**Table (4)**: Total social support domains among studied participants (n=100

| Social support domains | Frequency | Percent |
|---|---|---|
| **Family support** | | |
| **High support** | 90 | 90.0 |
| **Low support** | 10 | 10.0 |
| **Friends support** | | |
| **High support** | 37 | 37.0 |
| **Low support** | 63 | 63.0 |
| **Total social support** | | |
| **High support** | 69 | 69.0 |
| **Low support** | 31 | 31 |

**Table (5):** Total level of self-efficacy among studied participants (n=100)

| Level of self-efficacy | Frequency | Percent |
|---|---|---|
| **Low Self-efficacy (scores < 30%)** | 0 | 0.0 |
| **Moderate Self-efficacy (scores 30-70%)** | 87 | 87.0 |
| **High Self-efficacy (scores > 70%)** | 13 | 13.0 |
| **Mean ± SD** | 43.63 ±10.11 | |

**Table (6)**: Total score of health promotion lifestyle practices among studied patients (n=100)

| Level of health promotion lifestyle practices | Frequency | Percent |
|---|---|---|
| Poor (scores 41 -71) | 14 | 14.0 |
| Moderate (scores 72 -102) | 70 | 70.0 |
| Good (scores 103 - 133) | 16 | 16.0 |
| Excellent (scores 134 -164) | 0 | 0.0 |
| Mean ± SD | 87.88 ±14.17 | |
| Rang | 59 - 123 | |

**Table (7): Relation between participants' health promotion lifestyle practices and their demographic characteristics**

| Demographic characteristics | Total health promotion lifestyle practices | | | | | | $X^2$ test | p-value |
|---|---|---|---|---|---|---|---|---|
| | Poor (n=14) | | Moderate (n=70) | | Good (n=16) | | | |
| | No. | % | No. | % | No. | % | | |
| **Age:** | | | | | | | | |
| 60-69 | 5 | 6.9 | 54 | 75.0 | 13 | 18.1 | | |
| 70-79 | 9 | 32.1 | 16 | 57.1 | 3 | 10.7 | 10.74 | **.005*** |
| **Sex:** | | | | | | | | |
| Male | 3 | 5.5 | 41 | 74.5 | 11 | 20.0 | 7.96 | **.019*** |
| Female | 11 | 24.4 | 29 | 64.4 | 5 | 11.1 | | |
| **Residence:** | | | | | | | | |
| Rural | 11 | 20.8 | 36 | 67.9 | 6 | 11.3 | 5.29 | .071 |
| Urban | 3 | 6.4 | 34 | 72.3 | 10 | 21.3 | | |
| **Marital status:** | | | | | | | | |
| Married | 7 | 13.2 | 38 | 71.7 | 8 | 15.1 | .155 | .925 |
| Un married | 7 | 14.9 | 32 | 68.1 | 8 | 17.0 | | |
| **Education:** | | | | | | | | |
| Illiterate | 13 | 35.1 | 23 | 62.2 | 1 | 2.7 | | |
| Read/write | 1 | 7.1 | 11 | 78.6 | 2 | 14.3 | | |
| Primary | 0 | 0.0 | 4 | 100.0 | 0 | 0.0 | 38.43 | **.000*** |
| Preparatory | 0 | 0.0 | 6 | 100.0 | 0 | 0.0 | | |
| Intermediate | 0 | 0.0 | 8 | 88.9 | 1 | 11.1 | | |
| University | 0 | 0.0 | 18 | 60.0 | 12 | 40.0 | | |
| **Current work:** | | | | | | | | |
| Working | 0 | 0.0 | 18 | 75.0 | 6 | 25.0 | | |
| Not Working | 14 | 18.4 | 52 | 68.4 | 10 | 13.2 | 6.13 | **.047*** |
| **With whom you live:** | | | | | | | | |
| With family | 14 | 15.2 | 63 | 68.5 | 15 | 16.3 | 1.67 | .435 |
| Alone | 0 | 0.0 | 7 | 87.5 | 1 | 12.5 | | |
| **Income:** | | | | | | | | |
| Insufficient: | 12 | 15.0 | 58 | 72.5 | 10 | 12.5 | 3.70 | .157 |
| Sufficient | 2 | 10.0 | 12 | 60.0 | 6 | 30.0 | | |

*(*) Statistically significant at p<0.05*

**Table (8): Relation between participants' health promotion lifestyle practices and their Medical history**

| Medical history | Total health promotion lifestyle practices | | | | | | $X^2$ test | p-value |
|---|---|---|---|---|---|---|---|---|
| | Poor (n=14) | | Moderate (n=70) | | Good (n=16) | | | |
| | No. | % | No. | % | No. | % | | |
| **History of kidney disease / diagnosis:** | | | | | | | | |
| < 1 year – 2 years | 0 | 0.0 | 8 | 72.7 | 3 | 27.3 | | |
| 3 years – 8 years | 11 | 13.6 | 57 | 70.4 | 13 | 16.0 | 6.94 | .139 |
| 9 years – 14 years | 3 | 37.5 | 5 | 62.5 | 0 | 0.0 | | |
| **Having any hemodialysis or peritoneal dialysis:** | | | | | | | | |
| Yes | 9 | 13.4 | 52 | 77.6 | 6 | 9.0 | 8.03 | **.018*** |
| No | 5 | 15.2 | 18 | 54.5 | 10 | 30.3 | | |
| **Creatinine ratio \ mg** | | | | | | | | |
| 1.0-3.5 | 11 | 13.4 | 59 | 72.0 | 12 | 14.6 | .890 | .641 |
| 3.6-7.00 | 3 | 16.7 | 11 | 61.1 | 4 | 22.2 | | |
| **Having any other chronic disease than kidney disease:** | | | | | | | | |
| Yes | 14 | 14.3 | 69 | 70.4 | 15 | 15.3 | 1.88 | .391 |
| No | 0 | 0.0 | 1 | 50.0 | 1 | 50.0 | | |
| **No. of diseases: n=98** | | | | | | | | |
| 1-3 | 1 | 1.9 | 39 | 73.6 | 13 | 24.5 | | |
| 4-7 | 13 | 28.9 | 30 | 66.7 | 2 | 4.4 | 20.85 | **.000*** |
| **Family history of CKD:** | | | | | | | 8.05 | **.018*** |
| Yes | 0 | 0.0 | 25 | 78.1 | 7 | 21.9 | | |
| No | 14 | 20.6 | 45 | 66.2 | 9 | 13.2 | | |

*(*) Statistically significant at p<0.05*

**Table (9): Correlation matrix of knowledge, perceived Social Support, self-efficacy and health promotion lifestyle practices**

| Scores | Total Mean score | | | |
|---|---|---|---|---|
| | Knowledge of CKD | Perceived social support | Self-efficacy | HPLP |
| **Knowledge of CKD** | | | | |
| **Perceived social support** | **.219*** | | | |
| **Self-efficacy** | **.582**** | **.371**** | | |
| **HPLP** | **.581**** | **.445**** | **.818**** | |

r (P) Pearson correlation test & P for r test *(*) Statistically significant at p<0.05*

## Discussion

Regarding health promotion lifestyle behaviors, the current study revealed that more than two third of studied patient had moderate level of health promotion lifestyle practices while more than one tenth of them had low and good level of health promotion lifestyle practices. This result in disagreement with (**Suksatan & Ounprasertsuk**, **2020**) conducted at the rural community in Ubon Ratchathani province, Thailand, revealed that half of studied patient had moderate level of health promoting while one third of them had low level of health promoting lifestyle behaviors.

Regarding physical activity behaviors of studied patients, the current study revealed that physical activity among studied patients was the lowest score among other subscales of health promotion practices. In my opinion, this result attributed to the mean age of studied patients were 66.50 ± 4.2 years in our study, affecting the physical strength to engage in sports and leisure activities.

Also, the current study revealed that majority of studied patients didn't engage in regular physical activity plan and didn't take part in light to moderate physical activity. This result in agreement with **D'Alessandro et al.**, (**2018**) in study conducted in Italy showed that about two thirds of the younger seniors and less than three quarters of the older seniors were sedentary/underactive.

Regarding nutritional aspect of health promotion practices the current study revealed that about half of studied patients sometimes Choose a diet that is low in fat, saturated fat, reducing salt intake, Reducing the use of sugars and sugar-containing food, Eat low protein meals from the meat, poultry, fish, dried beans, eggs and nuts every day. This interpreted as about two third of studied patients had satisfactory knowledge about prevention and diet of chronic kidney disease. In contrary of with the low **Khalil & Abdalrahim**, (**2014**) in study conducted in Jordan revealed that only one quarter of studied patients had compliance to low salt, low protein diet plan of CKD. This is attributed to participants of this study had low educational level and low knowledge score about score of CKD.

Concerning health promotion lifestyle practices and demographic characteristics of studied patients, the current study revealed that there was statistical correlation between health promotion lifestyle practices and age, gender, educational level, working state, where older patients, male, higher educated patients, and non-working patients had higher health promotion lifestyle practices score than others.

This finding in agreement with **Korkmaz Aslan et al.**, (**2017**) in study conducted in Turkey revealed that there was statistical correlation between educational level and health promoting lifestyle where with highly educated older adults being more likely to better adhere to health promoting lifestyles practices. These findings might be attributed to the fact that educated people know the importance and benefits of engagement in HPBs, and they have a better access to different health promotion resources. Also, educated people are more aware of the negative consequences of unhealthy lifestyle and practices on their health. (**Thorpe et al.**, **2019**)

Also, **Zheng et al.**, (**2022**) in study conducted in China revealed that there was statistical significant relation between elderly age and health promoting lifestyle practices, where younger elderly had more health promoting lifestyle practices score. In my opinion, this finding attributed to psychological and mental changes that occurs with advancing age and feeling of hopelessness and graving these changes force elderly not to adhere to good lifestyle practices.

Regarding relation between health promotion lifestyle practices and number of chronic diseases the current study reveled that there was statistical significant correlation between health promotion practices and number of diseases where patient with lower number of chronic disease had higher health promoting lifestyle practices. This result consistent with **Rababa et al.**, (**2021**) conducted in Jordan revealed that there was positive statistical correlation between health promotion and chronic diseases where older adults having chronic diseases were more likely to have a lower mean score on the total health promoting lifestyle practices.

Moreover, **Haddad et al.**, (**1998**) in Jordanian study revealed that older adults with no coexisting chronic diseases had better self-actualization, stress management skills, and interpersonal relationships and adequate nutrition.

Finally, variables that have significant statistical correlation on studied patients' knowledge about CKD where Perceived social support, Self-efficacy, HPLP, Education level, number of chronic diseases and Family history of CKD. While perceived social support had statistically significant correlation with Self-efficacy, HPLP, number of chronic diseases and Family history of CKD. Furthermore, self-efficacy had significant statistical correlation with HPLP, Gender, Residence, Education level, number of chronic diseases and Family history of CKD.

By the end of this study, predictors of health promoting lifestyle practices among studied patients during the study was total knowledge about disease, perceived self-efficacy, perceived social support, gender,

residence, educational level, number of chronic diseases and family history of CKD. This result in agreement with **Giena et al.**, (**2018**) that is revealed that the variation in health-promoting behavior among older adults can be explained by six variables, namely, education, knowledge, self-efficacy, perceived barriers, social support and situational influences. Also, **Chantakeeree et al.**, (**2021**) revealed that that older adults in urban districts had higher perceived self-efficacy and health-promoting behaviors than those in rural locations. Perceived self-efficacy and income were predictors of health-promoting behaviors.

**Conclusion**

**Based on the findings of the present study, it was concluded** that approximately more than two third of studied patients with CKD had moderate level of health promotion lifestyle practices and factors affecting health promoting lifestyle practices of the studied elderly patients were age, gender, educational level, residence, current work, having any hemodialysis or peritoneal dialysis, duration of kidney disease, number of chronic diseases , family history of CKD, knowledge regarding CKD, perceived social support and self-efficacy.

**Recommendations**

- Healthcare professionals should provide tailored education and counseling to elderly patients with CKD on health-promoting lifestyle practices, taking into account their age, gender, educational level, and number of chronic diseases.
- Self-efficacy interventions should be developed and implemented for elderly patients with CKD to improve their confidence and motivation to engage in health-promoting lifestyle practices.

Policies and guidelines should be developed to support the implementation of health-promoting lifestyle practices in elderly patients with CKD in both inpatient and outpatient settings.

**Declarations**

**Consent for publication:** I attest that all authors have agreed to submit the work.
**Availability of data and material:** Available
**Competing interests:** None
**Funding:** No fund
**Conflicts of interest:** no conflicts of interest.

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