

Assess Level of Knowledge about the Disease in Rheumatoid Arthritis Patients

Mona Hassan Ibrahim¹, Soad Salem Soliman², Shereen Abd El-Moniem Ahmed³

(1) Assistant Professor of medical surgical nursing, Faculty of Nursing, Suez Canal University

(2) Demonstrator of medical surgical nursing, Faculty of Nursing, Suez Canal University

(3) Assistant Professor of medical surgical nursing, Faculty of Nursing, Suez Canal University

Abstract

Background: Rheumatoid arthritis is a common health problem, as it is a systemic autoimmune inflammatory disease, causing synovitis in multiple joints especially hands and legs, joint destruction and graduate disability. **Study aim:** this study aimed to assess the level of knowledge about the disease in patients with Rheumatoid Arthritis. **Design:** A descriptive design was used in this study. **Setting:** This study was conducted at the rheumatoid clinic in Suez Canal university hospitals. **Sample:** A purposive sample of 67 patients with rheumatoid Arthritis were included. **Tools:** A structured interview questionnaire consisted of four parts: Part (1): Demographic characteristics, Part (2): Medical history, Part (3): Associated comorbid diseases and Part (4): patient's knowledge level about disease. **Results:** the results in this study revealed that: 56.7% had unsatisfactory level of knowledge about disease and its treatment. There was high statistical significant difference between knowledge with relation to residence and income. **Conclusion:** the study concluded that; having unsatisfactory level of knowledge about disease and its treatment. There was high statistical significant difference between knowledge with relation to residence and income. **Recommendation:** Educational guidelines for patients with rheumatoid arthritis to improve their knowledge level was recommended.

Key words: Education, Knowledge, Rheumatoid arthritis.

1. Introduction

Rheumatoid arthritis (RA) is a widespread medical condition. The third most prevalent kind of arthritis, RA is characterized by symmetric polyarticular distribution of synovial tissue inflammation. This inflammation causes stiffness and soreness and can damage joints over time, cause

deformities, and impair joint function (Carbone, 2020). An autoimmune and inflammatory illness, RA results in inflammation in the body's afflicted areas when the immune system mistakenly targets healthy cells (Landau, 2021).

The prevalence of rheumatoid arthritis is estimated to range from 0.1% to 2.0%

worldwide (Almutairi et al., 2020). In the United States, 1.3 million people have RA (Deane & Holers, 2021). The prevalence of rheumatoid arthritis is 0.3% in Egypt (Msenbo, Kramer, & Musekiewa, 2015). Within ten years of the disease's inception, RA may result in devastating bone erosions, and at least 50% of patients in wealthy nations are unable to work a full-time job due to the condition (Burmester, Lin, & Patel, 2017).

Because having enough information may help patients make decisions about their course of treatment, follow complicated instructions, and take care of themselves. Less information consequently affects patient state, follow-up, prognosis, and complication rate (Broeder, Herwaarden & Bemt, 2018).

Education is very crucial for patients to cooperate with the treatment, to change behaviors and therefore to prevent disability. The determination of a patient's level of knowledge is crucial because it helps to strike a balance between what the patient needs and what needs to be taught when choosing the topics for training programs (Bao, 2019). If the needs of RA patients are not considered when creating the curriculum, the education will only be used as a routine program by healthcare professionals and will not be effective (Paul, Kandy, & Krishnan, 2017).

Significance of the study:

Rheumatoid arthritis not only affects the joints, but can also affect internal organs thus causing permanent disability in many instances. Currently, there is no cure for this autoimmune disease Rheumatoid arthritis is a progressive disease; symptoms typically get worse. If left untreated, it can cause severe damage to the joints and serious complications in the major organs (Ungprasert, Srivali, & Cheungpasitporn, 2015).

The aim of the study: The current study aims to assess the level of knowledge about the disease in patients with Rheumatoid Arthritis.

Research question:

Are patients with rheumatoid arthritis have satisfied level of knowledge.

2. Subject and Methods

Study design: A descriptive design was adopted in the present study.

Study setting: The present study was conducted in rheumatology outpatient clinic at Suez Canal University Hospitals, it

composed of three rooms; one of them was waiting room for patients where the researcher interviewed with them, in the outpatient clinic, one nurse works in it and she helped the researcher more in persuasion the patients in collecting data process.

The sample of the study: A purposive sample of 67 patients, admitted in the previous mentioned setting at the time of data collection with specify inclusion and exclusion criteria were included in this study. Inclusion criteria include: Patient with confirmed diagnosis of rheumatoid arthritis, and adult patients aged more than 20 years old. Exclusion criteria include Patients with altered conscious level.

Sample size:

Sample size was determined to be 67 patients based on the patients flow rate throughout the years according to the following equation by (Yamane, 1973):

$$n = N / [1+N(e)^2]$$

Where:

n = sample size

N = population size

e = sampling error (.05)

^ = raised to the power of

Tools of data collection:

Tool (1): A structured interview questionnaire:

It included four parts: **The first part** was deal with demographic characteristics which composed of ten items about age, sex, marital status, work, education level, place of residence, income, finance of treatment fees and history of smoking; **the second part** was concerned with medical data which composed of presence of comorbid disease, sleep duration, duration of disease, body mass index, psychological stress and psychological counseling, **the third part** concerned with associated symptoms which composed of GI symptoms, musculoskeletal symptoms, cardiovascular symptoms and neurological symptoms . **The forth part** was relation to patient's knowledge about the disease, which contain seven items about definition of rheumatoid arthritis, causes, manifestations, treatment, prevention and complications.

Scoring system:

For the knowledge items (part 4), the correct response given 1 and the incorrect response given 0. The total score of the knowledge was 7 grades. These scores were converted into a percent score. Knowledge was considered satisfactory if the percent score was 70% or more which equaled 5/7 grades and

unsatisfactory if less than 70%. Which mean that the total grades were < 5 (Abd Allah, 2012).

Validity of Tools:

It was established by a jury of five Experts (two Medical-Surgical Nursing Professors and three rheumatologist Professor) who reviewed the instruments for clarity, relevance comprehensiveness, understanding, applicability and easiness for administration. Minor modifications were performed in tool I, as tool II was used as it is without modifications because it is standardized tool.

Reliability of the Tools:

Reliability was done by Cronbach's Alpha Coefficient Test, which revealed that each item of the utilized tools consisted relatively homogeneous items. A commonly accepted rule of thumb for describing internal consistency using Cronbach's alpha for the; knowledge questionnaire was 0.7. It demonstrated good level of reliability.

Pilot Study

A pilot study was conducted on 7 male and female patients with rheumatoid arthritis who represent 10% of the total sample to ensure the clarity, applicability, relevance and feasibility

of the tools, in order to identify the difficulties that may be faced during the application and to estimate the time required to fill the forms. According to the results of the pilot study, minor modifications were done. Patients who participated in the pilot study were included in the main study sample.

Field work:

Data were collected through period of 7 months from beginning of February 2021 to the end of August 2021. The researcher visited the clinic for 2 days per week (Saturday & Thursday) from 9 am to 12pm, with the rate of follow up 2-4 patients a day. However, in some visits the researcher hadn't found the needed subject with desired inclusion and exclusion criteria. The researcher used the previous mentioned tools to collect the data, the questionnaire was administered to patients individually in the clinic, and each patient needed about 10-15 minutes to complete the questionnaire.

Administrative design:

This was done by submission of a formal letter from the vice Dean of the faculty of Nursing to them explaining the objectives of the study. Meeting and discussion were held between the researcher and the nurse who

worked in the outpatient clinic to make her aware about the aim of the study.

Ethical considerations:

To carry out this study, ethical approval was obtained from Research Ethics Committee with code 82/7/2020. At the initial interview, each patient was informed about the nature, purpose and benefits of the study and informed that his/her participation was voluntary. Confidentiality and anonymity of the subject were also assured through coding all data. The researcher assured that, the data collected would be confidential and would be used only to improve their health and for the purpose of the study.

Statistical design:

After the collection of data, it was revised, coded and fed to statistical software statistical package for the social sciences (SPSS version 23). T - test was used for difference between means of two groups. Correlations were used to test relationships between different variables.

3. Results:

Table (1): shows distribution of the studied patients according to demographic characteristics that, the Mean \pm SD age of

studied patients was (44.56 \pm 11.76). Regarding to gender, (76.1%) was female patients. Regarding to residence, (53.7 %) of the studied patients were lived in rural areas. Regarding to marital status, (70.1%) of them were married.

Table (2) showed the occupation, economic and treatment expenses. It revealed that (64.2%) of the studied patients do not working. The occupation don't need physical efforts in (56.7%) of patients, but need mental effort (43.3%). While (50.7%) of studied patients have not enough income, and about (58.2%) depended on the state of expense to cover their treatment.

Table (3) showed the smoking history and revealed that (85.1 %) of the studied patients did not smoke and (95.5%) had no history of previous smoking but (95.5%) of the studied patients are no family smoking.

Figure (1) Showed the level of education, and showed that (50.7%) of studied patients had secondary or technical education, followed with (17.9%) were illiterate, (14.9%) read and write, while (10.4 %) had high educational level and (6%) got primary education.

Table (4) showed the associated comorbid disease, revealed that (49.3%) of studied patient were obese, there is (41.8%) of the studied patients had Psychological Stress and there is (35.8 %) of the studied patients have Duration of disease.

Table (5) showed the level of knowledge, the studied patients and showed that (52.2%) of the studied patients have known definition of rheumatoid arthritis, (68.7 %) have identified signs and symptoms of rheumatoid arthritis, (94 %) of studied patients known the nature of disease and (64.2%) have known life style modification and its effect on the disease. Also (52.2%) of the studied patient's reported incorrect answer about treatment of the disease and (76.1%) studied patient's reported incorrect answer about most common complication of rheumatoid arthritis.

Figure (2) Showed the total level of knowledge, and showed that there was (56.7%) of the studied patients had unsatisfactory knowledge level about rheumatoid arthritis. While, only (43.3%) of the studied patients had satisfactory level of knowledge about rheumatoid arthritis.

Table (6) showed the associated symptoms with disease, there is (52.2%) of the studied patients have associated symptoms with

(82.9%) of the studied patients have Neurological symptoms such as (numbness, loss of concentration, loss of balance) while (34.3%) of patients had Cardiovascular symptoms such as (Headache, dizziness, Hypertension, palpitations & hypocholesteremia).

Table (7) shows high statistical significant difference between knowledge and residence with p value .001, and statistical significance difference between knowledge and income with p value .013.

4. Discussion

The present study revealed that, more than the half of studied patients, age ranged from 40 to less than 60 years. This finding agreed with the (American College of Rheumatology, 2021 ; Jins et al., 2017) in a study about "Chinese Registry of rheumatoid arthritis Prevalence and risk factors of major comorbidities in Chinese patients with rheumatoid arthritis." In addition to (Abu alfadl et al., 2021) in a study about "Impact of COVID-19 pandemic on rheumatoid arthritis from a multi-Centre patient-reported questionnaire survey: influence of gender,

rural–urban gap and north–south gradient" reported that more than half of patients ranged in age from 40 to less than 60 years. But this finding disagreed with **(Reed, 2017)** in study about autoimmune reactions in rheumatoid arthritis, as reported that the disease occurs later in life.

As regards to gender; the current study revealed that more than three-quarters of the studied patients were females. This finding was in harmony with **(Favalli et al., 2019)** in a study about " Sex and Management of Rheumatoid Arthritis.", reported that three-quarters of patients were females. Also, **Al-Jabi et al. (2021)** in study about "Impact of socio-demographic and clinical characteristics on functional disability and health-related quality of life in patients with rheumatoid arthritis" reported that more than half of patients were females.

Also, this finding agreed with **(Chandrashekara et al., 2017)** in a study about " Comorbidities and related factors in rheumatoid arthritis patients of south India-Karnataka Rheumatoid Arthritis Comorbidity study.", which reported that about more than three-quarters of patients were females. The researcher's point of view, females more exposed to hormonal changes and more liable

to stress which in turn enhance incidence of RA.

In relation to marital status; the present study showed that the most of the studied patients were married. This finding was in accordance with **(Moghadam, & Nazarinia, 2018)** in a study about " The Effect of Educational Program on Self-efficacy of Women with Rheumatoid Arthritis" and reported that the majority of the studied patients were married. This finding may be due to the study sample age ranged from 40 to 60 years and this age was the reproductive age. In the other hand, this finding disagreed with **(Huang et al., 2020)** in a study about "Marital Status in Rheumatoid Arthritis" who reported that the majority of the studied patients were divorced.

Concerning the occupation, the finding of the present study showed that nearly two-thirds of the studied patients were not working. This finding agreed with **(Naqvi , Hassali, & Aftab, 2019)** in a study about " Epidemiology of rheumatoid arthritis, clinical aspects and socio-economic determinants in Pakistani patients", which reported that the majority of the studied patients were not working.

Regarding to educational level this study represented that about half of the studied patients were secondary/ technical education, This finding agreed with **(Gamal, et al., 2021)** in a study about "effect of education on disease activity and functional status in rheumatoid arthritis patients ", who reported that about two-thirds of the studied patients were primary and technical education. The researcher's think that the decrease of economic status and nature of residence that is commonly rural in the present study, in addition to culture of the families in the rural area concerning the education of male more than the female give reason for results of this study.

The result of the present study portrayed that about two-thirds of the studied patients were lived in rural area. This finding agreed with **(Gjevre et al., 2018)** in a study about "Geographic variation in incidence and prevalence rates for rheumatoid arthritis in Saskatchewan, Canada 2001–2014", and reported that about half of the studied patients were lived in rural areas. This may be due to unhealthy practices, lack of medical care and follow - up. But this finding disagreed with **(Ilar et al., 2018)** in a study to evaluate "Occupation and Risk of Developing Rheumatoid Arthritis ", and reported that urban

patients were represented two - quarters of the studied patients.

Concerning the income, the finding of the current study showed that more than half of the studied patients had an insufficient income. This finding was in accordance with **(Elmalky, Atia, & Emara, 2020)** in a study about Effectiveness of Psychiatric Nursing Intervention on Pain and Depressive Symptoms among Rheumatoid Arthritis Patients", reported that about more than three-quarters of studied patients were had low income. This may be due to patients' employment status, high cost of therapy and transportation expenses.

But this finding disagreed with, **(Ahmed, El-Zeftawy & Mohamed, 2021)** in a study about "Relation between Functional Status and Quality of Life of the Elderly with Rheumatoid Arthritis ", reported that more than three-quarters of the studied patients had an enough income. This may be due to patients' employment status.

Concerning the treatment expenses, the finding of the present study represented that more than half of the studied patients depended on ministry of health insurance for cost coverage. This finding agreed with **(Movahedi et al., 2019)** in a study about "Impact of

residential area on the management of rheumatoid arthritis patients initiating their first biologic DMARD", who reported that cost of treatment were expensive. The researcher's point view explained that decrease economic status of patient to cost of treatment so depends on state expenses.

In the other hand, results of the present study disagreed with **(Nyarko, & Hamad, 2019)** in a study titled "Prevalence of comorbidities and their associations with health-related quality of life and healthcare expenditures in patients with rheumatoid arthritis", as they reported that about half of the patients were treated by private service.

Regarding associated comorbid disease; the present study reported that around half of the studied patients were obese and have psychological stress. This finding was agreed with **(Izadi, Li, & Evans, 2021)** in a study about "Socioeconomic Disparities in Functional Status in a National Sample of Patients With Rheumatoid Arthritis", as they reported that the majority of the studied patients had affected by Socio economic-related factors. Also, **(Sharif, 2018)**, in a study about "The role of stress in the mosaic reported that the half of studied patient affected by stress; the researcher's think that this related to

the incorrect life style, low income that affect follow-up and decrease economic status, increase costs of treatment and effect of disease on functional health status.

The present study showed that majority of the studied patients didn't smoke, had no past history or family history of smoking. This finding was agreed with **(Myasoedova et al., 2019)** who studied trends in Prevalence of Functional Disability in Rheumatoid Arthritis Compared With the General Population and **(McBeth et al., 2022)** in a study about "Sleep Disturbance and Quality of Life in Rheumatoid Arthritis: Prospective Health Study" as they reported that more than half of the studied patients were don't smoking. The researcher's point of view, in this finding may be due to more than three-quarters of the studied patients were females and living in rural area.

On the other hand; the result of this study disagreed with **(Schmajuk et al., 2019)** in a study about "Prevalence of Arthritis and Rheumatoid Arthritis in Coal Mining Counties of the United States", reported that the majority of the studied patients were previous smokers.

The current study showed that more than half of the studied patients had unsatisfactory level of knowledge about disease and it's treatment. This finding was agreed with (

Olivo et al., 2018) in a study about "Development and Pilot Testing of Multimedia Patient Education Tools for Patients With Knee Osteoarthritis, Osteoporosis, and Rheumatoid Arthritis", reported that about half of the studied patients had poor level of knowledge about RA. The researcher's point of view, unsatisfactory knowledge may be due to lack clarity of instructions, misunderstanding of information, effect of culture, level of education and residence that stress the need for implementing application of educational guidelines about rheumatoid arthritis for nurses and patients that decrease complications associated with the disease.

On the contrary, with **(Boo et al., 2017)** in a study about "Knowledge and perception of cardiovascular disease risk among patients with rheumatoid arthritis", reported that about half of the studied patients were had average satisfactory level of knowledge.

This study illustrated that, there was high significant difference between knowledge and residence. This finding was agreed with **(Movahedi et al., 2019)** in a study about "Impact of residential area on the management of rheumatoid arthritis patients initiating their first biologic DMARD", which found statistically significant relation between

overall patients' knowledge level and residence. Because of decrease educational level in the rural area, these indicate that illiteracy was always associated with health illiteracy, in addition to wrong beliefs and habits that will lead to poor level knowledge. Point of view, this may be due to their working conditions and the environment in which they work.

The present study revealed that, there was statistical positive correlation between knowledge and income, this finding was agreed with **(Chowdhury et al., 2020)** in a study about "The knowledge level of rheumatoid arthritis patients about their disease in a developing country. A study in 168 Bangladeshi RA patients ", There was statistically significant relation between overall patients' knowledge level and income.

The researcher's point of view low income affect patient knowledge and awareness of disease.

5. Conclusion:

In the light of the current study findings, it can be concluded that, more than half of patients had poor total knowledge level and high significant difference between knowledge and residence with p value .001, and

significance difference between knowledge and income with p value .013.

6. Recommendations:

Based on the results of the present study, the following recommendations were suggested: 1-Conduct educational guidelines

for patients with RA to improve their knowledge level.

2-Periodically assessment for patients' knowledge and practice effecting on patients' ability to performing activity daily living.

3- Assessment of functional health status for patients with RA should be done periodically as a standard of care.

Table (1): Percentage distribution of the studied patients according to their demographic characteristics (n=67)

Variables	Total Sample (n=67)	
	Number	Percentage
Age (Years)		
20 < 40 years	22	32.8
40 < 60years	39	58.2
>60	6	9.0
Mean ± SD	44.56±11.76	
Range	22-67	
Gender		
Male	16	23.9
Female	51	76.1
Residence		
Rural	36	53.7
Urban	31	46.3
Marital status		
Single	6	9
Married	47	70.1
Divorced	3	4.5
Widowed	11	16.4

Table (2): Percentage distribution of studied patients regarding occupation, economic and treatment expenses (n=67)

Variables	Total Sample (n=67)	
	Number	Percentage
Occupation		
Working	24	35.8
Not working	43	64.2
Nature of occupation		
Need physical effort	29	43.3
Need mental effort	38	56.7
Income		
Enough	33	49.3
Not Enough	34	50.7
Treatment expenses		
State expense	39	58.2
Health insurance	14	20.9
Private	14	20.9

Table (3): Percentage distribution of studied patients according to their smoking history (n=67)

Items	Total Sample (n=67)	
	N	%
Smoking		
Yes	10	14.9
No	57	85.1
Cigarette per day (10)		
6:<11	2	3.0
11:<15	2	3.0
16:20	6	9.0
Years of smoking (10)		
6:<11	2	20
11:<15	8	80
Previous smoking		
Yes	3	4.5
No	64	95.5
Family smoking		
Yes	3	4.5
No	64	95.5

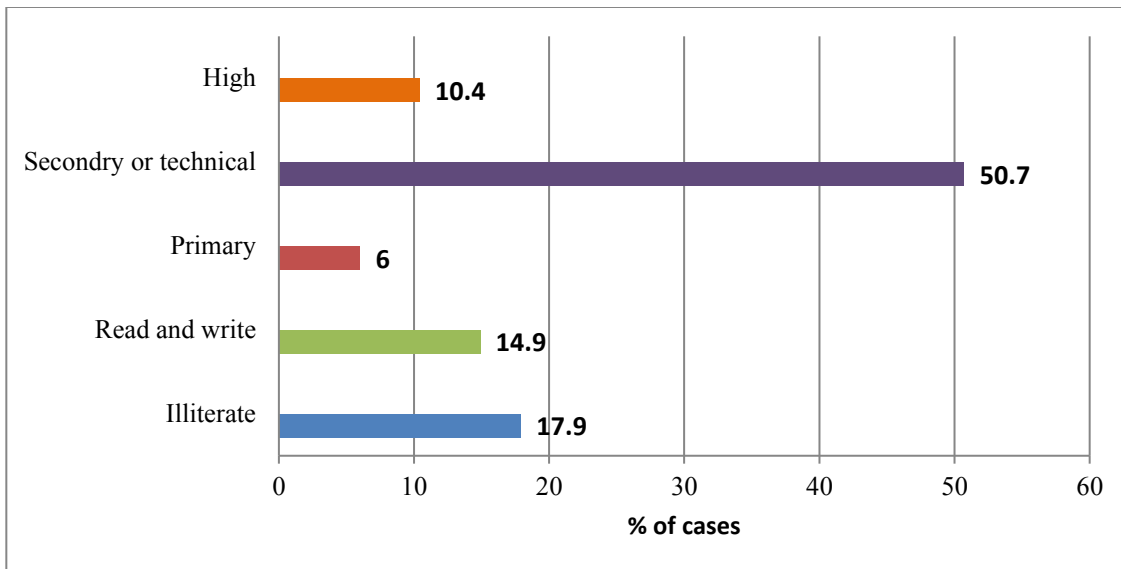


Figure (1): Percentage distribution of the studied patients according their level of education (n=67)

Table (4): Percentage distribution of patients according to medical data (n=67)

Items	Total Sample (n=67)	
	N	%
Presence of comorbid disease	12	17.9
visual problems	8	11.9
Take medication affect movement	3	4.5
Body mass index (BMI) -low weight -normal weight -obese	33	49.3
Duration of disease	24	35.8
Sleep duration	2	3.1
Psychological Stress	28	41.8
Psychological counseling	5	7.5

Table (5): Percentage distribution of the studied patients ' knowledge level regarding their disease (n=67)

Knowledge about rheumatoid arthritis	Correct Answer		Incorrect Answer	
	No	%	No	%
Definition of Rheumatoid arthritis	35	52.2	32	47.8
Signs and symptoms of rheumatoid arthritis	46	68.7	21	31.3
Most common complication of rheumatoid arthritis	16	23.9	51	76.1
Risk factor of rheumatoid arthritis is genetic?	35	52.2	32	47.8
Treatment of rheumatoid arthritis.	32	47.8	35	52.2
Nature of rheumatoid arthritis disease	63	94	4	6
Life style modification and its effect on the disease.	43	64.2	24	35.8
Mean ± SD	4.02±1.3			
95%CI	3.71-4.34			

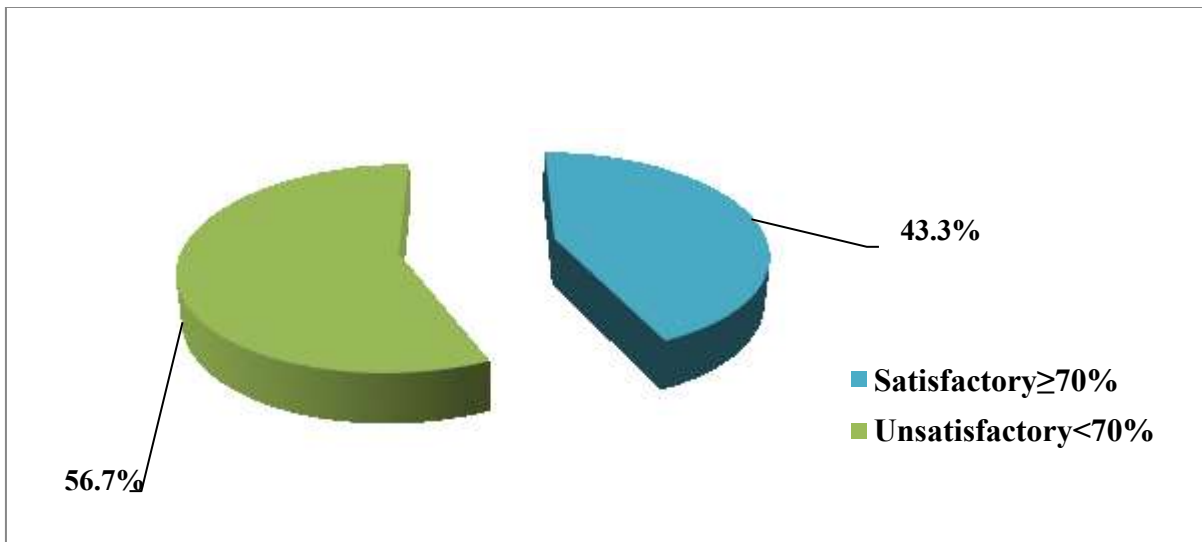


Figure (2): Percentage distribution of the studied patients according to their total level of knowledge (n=67).

Table (6): Distribution of patients according associated symptoms with disease (n=67).

Items	Total sample (67)	
	Mean	SD
Associated symptoms		
Yes	35	52.2
No	32	47.8
If yes (35)		
GI symptoms (nausea, vomiting, constipation & diarrhea)	3	8.6
Musculoskeletal symptoms (muscle spasm)	2	5.7
Cardiovascular symptoms (Headache, dizziness, Hypertension, palpitations & hypocholesteremia)	12	34.3
Neurological symptoms (numbness, loss of concentration, loss of balance).	29	82.9
Respiratory symptoms (tachypnea & orthopnea)	2	5.7
Eye problems	2	5.7

Table (7): Relation between demographic characteristics of patients and their knowledge (n=67).

Variable	Mean ± SD	test	P value
Age			
< 20 years	4.27±1.38	-.216 [#]	.079
20: < 40 years	4.00±1.23		
40: < 60years	3.33±1.26		
Residence			
Rural	3.55±1.38	3.47 ^{\$}	.001*
Urban	4.58±.95		
Income			
Enough	4.42±1.19	2.54 ^{\$}	.013*
Not Enough	3.64±1.29		

[#] is Spearman rho test, ^{\$} is independent t test and P value is significant ≤.05

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