Depression and Self-Efficacy among Patients with Multiple System Disorder

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Abstract

Background: Multiple system disorder is a life-threatening with high mortality and morbidity associated with the number of organs dysfunction, and excess utilization of health care resources. Multiple system disorder affects the daily lives of many patients confronted by changes in mental health status, lifestyle, and leading to impaired self-efficacy to manage medical condition. **Aim of the study:** the study aimed to assess depression and self-efficacy among patients with multiple system disorder. **Design:** A descriptive design was utilized in carrying out this study**. Settings:** The study was conducted at cardiovascular outpatient clinics affiliated to Ain Shams University Hospital. **Study subjects:** A purposive sample composed of 100 patients with multiple system disorder, the study duration was six month. **Data collection tools:** Patient Interview Questionnaire, Beck Depression Inventory and Self-Efficacy for Managing Chronic Disease Scale. **Results:** Revealed that less than half of studied patients had moderate depression and more than half of studied patients had high self-efficacy. Also, there was a negative correlation between self-efficacy and levels of depression. **Conclusion:** Although patients with multiple system disorder suggested from depression, they had high level of self-efficacy**. Recommendations:** Health educational program to provide knowledge with disease process to enhance their life style. Psychosocial counselling to facilitate dealing with depression, improve mental health and self-efficacy.

Key words: Multiple system disorder, Patients, Depression, Self-efficacy.

Introduction:

Multiple system disorder also known as multiple organ dysfunction syndrome or multi-system dysfunction is defined as a syndrome characterized by the development of physiologic derangement in two or more organ systems such that organ function was inadequate to meet the needs of the host with-out exogenous support. The common predisposing factors that can potentially trigger multiple system disorder and need to be controlled or prevented as early as possible. Include sepsis, infection, hypo-perfusion, microcirculatory failure and cardiovascular instability **(Asim et al., 2020)**.

A strict connection exists between cardiac and other organ functions. Cardiac dysfunction is a frequent complication in critically ill patients and contributes to organ hypo-perfusion and poor outcome mediated by hemodynamic, humeral, and immune mechanisms. Heart, lungs, kidneys and other splanchnic organs such as the gut and liver influence each other's function in a bidirectional way this organ crosstalk must be regarded as a key aspect in multi-organ dysfunction **(Kozakov et al., 2022).**

Multiple system disorder has severed effect on life changing event associated with physical, psychological condition, affecting on interpersonal relationships, socio-occupational functioning and financial situation. The distress levels may depend on number of organ dysfunction. Most patients may suffer from psychological problems in varying degrees.it may be part of reaction to the diagnosis, but in many patients, it will persist, causing an added burden during treatment and leading to more difficulty with general management and symptoms control **(Cheng et al., 2019).**

Lifelong treatment and self-care is crucial for managing disease, and patients own efforts are particularly important because of the demands of continuous self-care. Patients often have to adjust aspirations, lifestyle, and employment. Many grieve about predicament before adjusting to it. But others have protracted distress and may develop psychological problems, most commonly depression **(Daré et al., 2019)**.

The most common complication of long a term health condition is depression. It's a disorder characterized by feeling down, depressed, sad, having little interest or receiving little pleasure in doing things and feeling hopeless. It is especially likely to occur when the illness causes pain, disability or social isolation. Depression in turn can intensify pain, fatigue, and the self-doubt that can lead the person to avoid other people. **(Birk et al., 2019)**.

Individuals with a serious medical condition are suffered from depression, which reduces a person's motivation to gain access to medical care and to follow treatment plans. Depression also undermines the patient's ability to cope with pain and may exert a corrosive effect on family relationships. Furthermore, the development of depression in people with a medical illness has been linked to adverse physical outcomes and substantial increases in disability. Identifying and managing depression are important parts of self- efficacy with multiple system disorder **(Battalio et al., 2020).**

Self-efficacy is described as a cognitive process, through environmental influence and social influence. Individuals learn new behaviors that affect their ability to improve future events .Promoting self-efficacy can improve the outcomes for patients living with chronic diseases (Bartlett et al., 2020).There is a relationship between self-efficacy to manage disease and health-related quality of life. Where patients with high self-efficacy in coping with diseases reflect a perceived ability to manage challenges related to diseases and a sense of control over lives **(Peters et al .,2019)**.

Significance of the study:

Multiple system disorder is primarily associated with morbidity and mortality in patient's higher mortality (27%–100%) the rate of mortality and length of hospital stay correlated with the number of organs involved and the severity of multiple system disorder **(Asim et al., 2020)**. The prevalence of multiple system disorder in patients with acute heart failure is 36% of patients presented with single organ dysfunction (cardiac, kidney or liver) and 47% patients presented with two or three organs dysfunction **(Zymliński et al., 2019)**.

People who have psychological problems and another medical illness tend to have more severe symptoms of both illnesses. These patients with multiple system disorder may have more difficulty managing to medical condition, and have high medical costs. So patients with multiple system disorder feel stressed or concerned about treatment outcomes and the future. It may be hard to adapt to a new reality and to cope with the changes and ongoing treatment that come with the diagnosis **(National Institute of Mental Health, 2021)**.

So that, self-efficacy is away to manage with the chronic illness by allowing the patients to improve ability to develop knowledge and skills to manage illness and improve mental health so the study aims to assess the psychological problems and self-efficacy among patients with multiple system disorder**.**

Aim of the study:

The study aims to assess depression and self-efficacy among patients with multiple system disorder through the following:

-Assessing the levels of depression among patients with multiple system disorder.

-Assessing the levels of self-efficacy among patients with multiple system disorder.

Research Questions:

1-What are the levels of depression among patients with multiple system disorder?

2-Is there a relation between self-efficacy of patients with multiple system disorder and levels of depression?

Operational definition:

Multiple system disorder among cardiac patients: this is a dysfunction syndrome characterized by the development of physiologic derangement in two or more organ systems; one of them is cardiovascular system **(Schwinger, 2021)**.

Subjects and methods:

The methodology pursued in conducting the study is presented under: technical design, operational design, administrative design, and statistical design.

(I) Technical design:

It entails the design, setting, subjects and tools for data collections

1. Research design:

A descriptive research design was utilized to achieve the aim of this study.

2. Setting:

This study was conducted at cardiovascular outpatient clinics affiliated to Ain Shams University Hospital.

Cardiovascular outpatient clinic is specialized in medical condition of cardiovascular disease. It includes a room that has two beds with the presence of a consultant, two deputies present to examine patients and two qualified nursing staff helps patients in entered. The workdays; Sunday, Tuesday and Thursday per week from 8am to 2pm.

3. The study subjects:

A purposive sample composed of 100 patients with multiple system disorder has the following **Inclusion criteria**:

-Adult patient.

-Both gender.

-Primary diagnosed with cardiovascular disorder.

-Patients have two or more organ systems dysfunction.

-Patients able to communicative and following with therapeutic regimen.

Exclusion criteria:

-Patient with sever cognitive dysfunctions and disability.

-Completely irreversible organ failure.

Sampling size:

n= z 2 p q /d 2

(Daniel & Cross, 2018).

- **n**= Sample size.
- **z**=the ordinate on the normal curve corresponding to the alpha level.
- **p**=assumed proportion.
- **q**=1-pand.
- **d**=error margin.

4-Data collecting tools:

The following tools were used to fulfill the study aim.

I: Patient Interview Questionnaire: it was developed by the investigator in an Arabic language after reviewing the recent and relevant literature.

It was divided into two parts:

Part one: Socio-demographic characteristics of the patients: such as gender, age, level of education, employment status, marital status, residence and presence of care givers.

Part two: Patient clinical health assessment: includes information such as diagnosis, number of organ dysfunction, presenting symptoms and degree of pain mild-moderate-severe based on numeric pain rating scale **(McCaffery& Pasero, 1999).** Scoring system zero equal no pain, one to three mild pain, four to six equal moderate and seven to ten equal severe pain.

Tool II: Beck Depression Inventory (BDI):

This tool developed by **(Beck et al., 1987)** ,translated into Arabic by **(Nouf, 2000)** and adopted by the investigator., was used to measure the severity of depression among patients with multiple system disorder .It includes 21 items distributed into 3 domains; affective (grief, pessimism of the future, dissatisfaction, the existence of suicidal thoughts and social withdrawal), cognitive (lack of decisiveness, sense of failure, change the image of the body , sense of remorse, expect punishment, self-hatred and self-condemnation) and somatic (low level of efficiency, fatigue, decreased weight ,influenced by sexual energy, crying, arousal, sleep disorders, anorexia and concern for health) expression of depression. It included twenty-one questions by counting the number to the right of each question marked.

The scoring system:

Include the 21 questions each answered by the patient through items including four responses with specific criteria ranged as following no equal zero, mild equal one, moderate equal two or severe equal three to select the option that best represents them.

Score of =1-10 these ups and downs are consider normal.

Score of =11-20 Mild depression.

Score of =21-30 Moderate depression.

Score of =31-40 Severe depression.

Tool III: Self-Efficacy for Managing Chronic Disease Scale (SEMCD):

This tool developed by **(Lorig et al., 2001)** and adapted by the investigator, was used to measure level of self-efficacy among patients with multiple system disorder. It includes six –Items Scale and translated into Arabic language.

The scoring system:

Include the 6 questions each answered by the patient through choose the number from one to ten that corresponds to confidence that can do the tasks regularly at the present time. The score for each item is the number circled. If two consecutive numbers are circled, code the lower number(less

self-efficacy).if the numbers are not consecutive, do not score the item .the score for the scale is the mean of the six items. If more than two items are missing, do not score the scale. Higher number indicates higher self-efficacy where Low self–efficacy < 60% High self- efficacy ≥ 60 %. The investigator r deducts the numbers for each item as following degrees.

1-4 Low degree.
5-7 Moderate degree.
8-10 High degree.

(II) Operational Design:

The operational design included three phases namely: preparatory phase, pilot study and fieldwork.

1.Preparatory phase:

It includes reviewing the related literature and theoretical knowledge of varies aspects of the study using books, articles, periodicals, magazines, internet the data collection tools including the socio demographic, depression and self -efficacy among patients with multiple system disorder.

Tool validity:

It was ascertained and tested through jury of five expert's two professors and three assistant professors in the field of psychiatric mental health nursing- Faculty of Nursing, Ain Shams University who reviewed the content of the tools for comprehensiveness, accuracy, clarity, relevance and necessary modifications was done accordingly.

Tool reliability:

The tools were measured to ensure that an assessment tool produces stable with consistent result overtimes. The reliability coefficient for the study tools were calculated using the correlation coefficient Cronbach's alpha test as:

Tool	No of questions	Cronbach's Alpha
Beck Depression Inventory (BAI)	21	0.90
Self-Efficacy for Managing Chronic Disease Scale (SEMCD)	6	0.91

2-Pilot study:

It was carried out on ten patients (10% of the total number of patients) after developing the tool and before starting the data collection to evaluate the clarity, applicability and to estimate the needed time to fill out of the study tools. No necessary modifications were done. Therefore, the pilot study samples were included in the total sample.

3-Fieldwork:

-The sample of the study was recruited according to the inclusion and exclusion criteria.

-The investigator started data collection by introducing to the patients and explains the aim of the study and takes their approval to participate in the study prior to any data collection.

- The investigator assesses patient's levels of depression with multiple system disorder.

- The investigator assesses patient's levels of self-efficacy with multiple system disorder.

-The investigator distributed the questionnaire to the patients, took about 20-30 minutes for each patient to complete the questionnaire.

-Data collection was done 3 days per week (Saturday & Tuesday and Thursday); it took about 4 hours from (9 am to 1 pm) it took six months starting from the first of August 2023 up to the end of January 2024.

(III)Administrative design:

An approval to carry out this study was obtained from director of outpatient clinics affiliated Ain Shams University Hospital. An Issued litter from the dean of Faculty of Nursing at Ain-Shams University.

Ethical consideration:

Ethical Approval was obtained from the scientific, ethical committee of the Faculty of Nursing– Ain Shams University. The purpose of the study was explained to the patients before conducting the study and oral consents were obtained from them to participate in the study

The studied patients were given an opportunity to withdraw from the study at any time without giving any reason and they were assured that anonymity and confidentiality of

information were protected. Ethics, values, cultures and beliefs were respected.

(IV) Statistical design:

All data were collected, tabulated and subjected to statistical analysis. Statistical analysis is performed by SPSS in general (version 20), while Microsoft office Excel is used for data handling and graphical presentation. Quantitative variables are described by the Mean and Standard Deviation (SD).Qualitative categorical variables are described by frequencies and Percentages. Chi-squared test and Fisher exact tests are used for contingency tables. Pearson correlation coefficient is used for correlation analysis

Significance of results was considered as follows:

Not Significant (NS) $p \geq 0.05$

Significant (S) $p < 0.05$*

Highly Significant (HS) $p < 0.01$**

Results:

Table (1): shows that, 73.0% of the studied patients their age ranged between 65≥45years with mean and standard deviation age 47.55 ± 8.8years, 59.0% of them were females, 58.0% of them were married. Regarding educational level, 50.0% of studied patients had secondary school. Also, 82.0% of the studied patients didn't have work, 73.0% of studied patient were living near from hospital and 73.0% of studied patients have care givers.

Table (2): shows that, 23.0% of studied patients were diagnosed with cardiovascular disease and pulmonary disease, followed by cardiovascular disease and kidney disease 18% and cardiovascular disease, kidney disease and abdominal disease with the same percentage. Regarding number of organ dysfunction, 72.0% of studied patients had two organs dysfunction and 51.0% of studied patients were presented with tachycardia.

Figure (1): illustrates total level of pain among studied patients. It shows that, 53.0% had moderate pain, followed by 39.0% had severe pain and 8.0% had mild pain.

Table (3 A): shows that, the highest percentage 26.0% of the studied patients suffer from severe depression regarding, the existence of suicidal thoughts, and 34.0% of the studied patients suffer from moderate depression regarding, pessimism of the future, while 45.0% of the studied patients suffer from mild depression regarding, social withdrawal.

Table (3 B): shows that, the highest percentage 45.0% of the studied patients suffer from severe depression regarding, change the image of the body and shape, and 35.0% of the studied patients suffer from moderate depression regarding, sense of remorse or guilt, while 55.0% of the studied patients suffer from mild depression regarding, expect punishment.

Table (3 C): shows that, the highest percentage 32.0% of the studied patients suffer from severe depression regarding, concern for health, 29.0% of the studied patients suffer from severe depression regarding, influenced by sexual energy, and 45.0% of the studied patients suffer from moderate depression regarding, low level of efficiency and work, 33.0% of the studied patients suffer from moderate depression regarding, fatigue and exhaustion, while 43.0% of the studied patients suffer from mild depression regarding, sleep disorders.

Figure (2): illustrates total level of depression among studied patients. It shows that, 46.0% had of them moderate depression, 27.0% had of them severe depression and 20.0% had of them mild depression.

Table (4): shows that, the highest percentage 32.0% of the studied patients had low degree of self-efficacy regarding manage with tasks and activities, 29.0% of the studied patients had low degree self-efficacy regarding manage without medication, while 59.0% of the studied patients had moderate degree self-efficacy regarding emotional distress, and 51.0% of the studied patients had moderate degree self-efficacy regarding other symptoms or health problems.

Figure (3): illustrates total level of self-efficacy among studied patients. It shows that, 60.0% had of them high self-efficacy and 40.0% had of them low self-efficacy.

Table (5): shows that, there is a statistically highly significant relation between depression and number of organ dysfunction P <

0.01 where the proportion of three organs with severe depression 32.1% is higher than with two organs 25.0% the difference has high statistical significance. Statistically non-significant relation between self-efficacy with number of organ dysfunction P > 0.05 but the proportion of two organs with high self-efficacy 65.3%.

Figure (4): Shows that, there is a strong negative correlation statistically highly significant between self-efficacy with depression (R -0.8, p-v 0. 000).

Table (1): Frequency and percentage distribution of studied patients according to their socio-demographic characteristics (n=100).

Socio- demographic characteristics	No.
Age/ years	
30≥15	6
45≥30	21
65≥45	73
Mean ±SD 47.55 ± 8.8	
Gender	
Male	41
Female	59
Marital status	
Married	58
Single	9
Divorced	19
Widower	14
Level of education	
Illiterate	12
Read and write	18
Secondary school	50
University	20
Employment status	
Work	18
Not work	82
Residence	
Near from hospital	73
Far from hospital	27
Presence of care givers	
Yes	73
No	27

Table (2): Frequency and percentage distribution of studied patients according to clinical health assessment (n=100).

Clinical health assessment	No.
Diagnosis	
Cardiovascular disease and pulmonary disease	23
Cardiovascular disease and kidney disease	18
Cardiovascular disease and liver disease	15
Cardiovascular disease and abdominal disease	9
Cardiovascular disease and neurological disease	7
Cardiovascular disease, kidney disease and abdominal disease	18
Cardiovascular disease , liver disease and abdominal disease	10
Number of organ dysfunction	
Two organs	72
Three organs	28
Presenting symptoms	
Nausea , vomiting	20
Chest pain	45
Tachycardia	51
Hypertension	49
Shortness of breathing	33
feverish	20
Difficult of movement	19
Swollen feet	32
Pain Urinating and blood in urine	16
Yellowish skin and eyes	22

The number is not mutually exclusive.

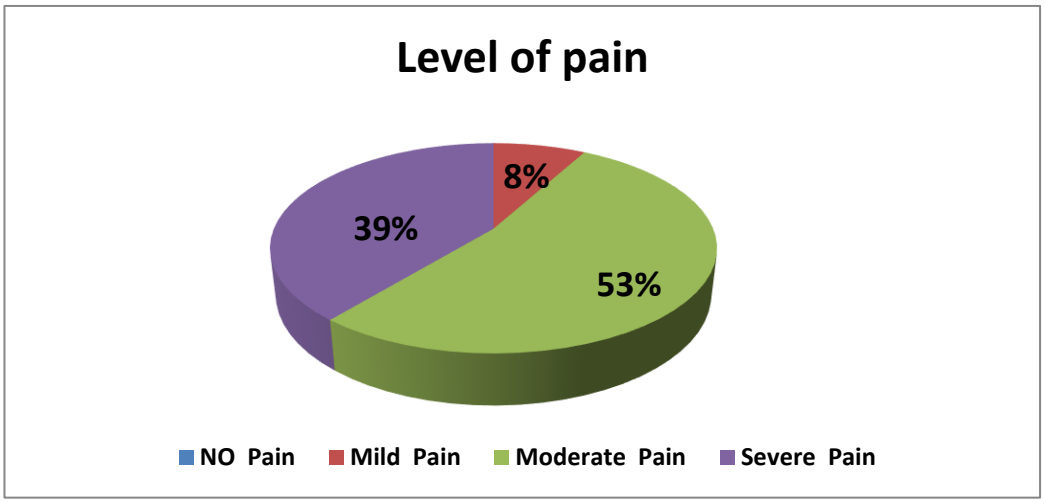

Figure (1): Percentage distribution of total level of pain among studied patients (n=100).

Table (3 A): Frequency and percentage distribution of studied patients according to their domain of depression regarding affective domain (n=100).

Affective domain	Not At All No.	mild No.	Moderate No.	Severe No.
1-Grief	22	38	29	11
2-Pessimism of the future	29	25	34	12
3-Discontent and dissatisfaction	28	39	24	9
4-The existence of suicidal thoughts	42	13	19	26
5-Social withdrawal	28	45	14	13

Table (3 B): Frequency and percentage distribution of studied patients according to their domain of depression regarding cognitive domain (n=100).

Cognitive domain	Not At All No.	mild No.	Moderate No.	Severe No.
1-Frequency and lack of decisiveness	25	30	18	27
2-Sense of failure	32	24	28	16
3-Change the image of the body	12	18	25	45
4-Sense of remorse or guilt	38	13	35	14
5-Expect punishment	45	55	0	0
6-Self-hatred	56	27	9	8
7-Self-condemnation	49	28	17	6

Table (3 C): Frequency and percentage distribution of studied patients according to their domain of depression regarding somatic domain (n=100).

Somatic domain			Not At All No.	Mild No.	Moderate No.	Severe No.
1-Low level of efficiency and work			18	15	45	22
2-Fatigue and exhaustion			9	36	33	22
3-Decreased weight			34	42	18	6
4-Influenced by sexual energy			8	40	23	29
5-Crying			52	29	17	2
6-Arousal and psychological instability			48	30	12	10
7-Sleep disorders			12	43	29	16
8-Anorexia			12	39	26	23
9-Concern for health	0	40	28		32	

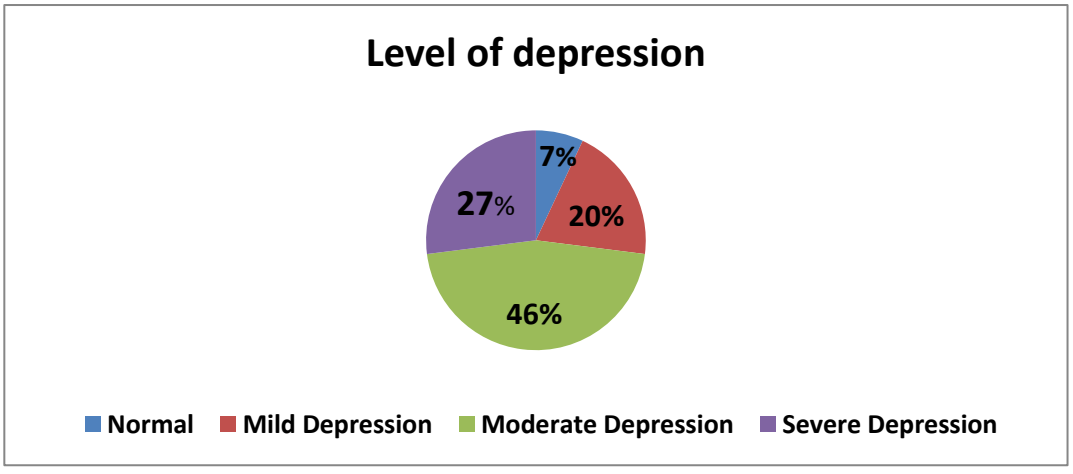

Figure (2): Percentage distribution of total level of depression among studied patients (n=100).

Table (4): Frequency and percentage distribution of studied patients according to self-efficacy for managing chronic disease (n=100).

Items Dealing with the following:	Low Degree No.	Moderate Degree No.	High Degree No.
1-Fatigue	26	37	37
2-Physical discomfort or pain	27	45	28
3-Emotional distress	18	59	23
4-Other symptoms or health problems	20	51	29
5-Manage with tasks and activities	32	36	32
6-Manage without medication	29	41	30

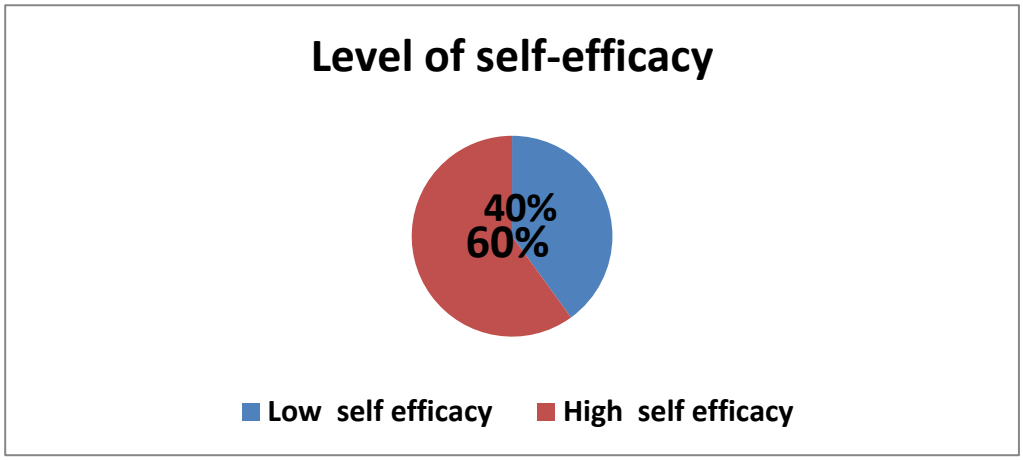

Figure (3): Percentage distribution of total self-efficacy for managing chronic disease among studied patients (n=100).

Table (5): Relation between number of organ dysfunction with depression and self-efficacy among studied patients (n=100).

	Depression				
	Normal to mild depression	Moderate depression	Severe depression	Total	Fisher exact test probability
Two organ	26 36.1%	28 38.9%	18 25.0%	72 100.0%	
Three organ	1 3.6%	18 64.3%	9 32.1%	28 100.0%	0.0185 P < 0.001** H S
Total	27 27.0%	46 46.0%	27 27.0%	100 100.0%	
	Self- efficacy			Chi squared	p-valued
	Low self-Efficacy	High self-Efficacy	Total		
Two organ	25 34.7%	47 65.3%	72 100.0%		
Three organ	15 53.6%	13 46.4%	28 100.0%	2.98	0.08407 P > 0.05 NS
Total	40 40.0%	60 60.0%	100 100.0%		

***Significant at p ‹0.05.** ****Highly significant at p ‹0.01.** **Not significant at p>0.05**

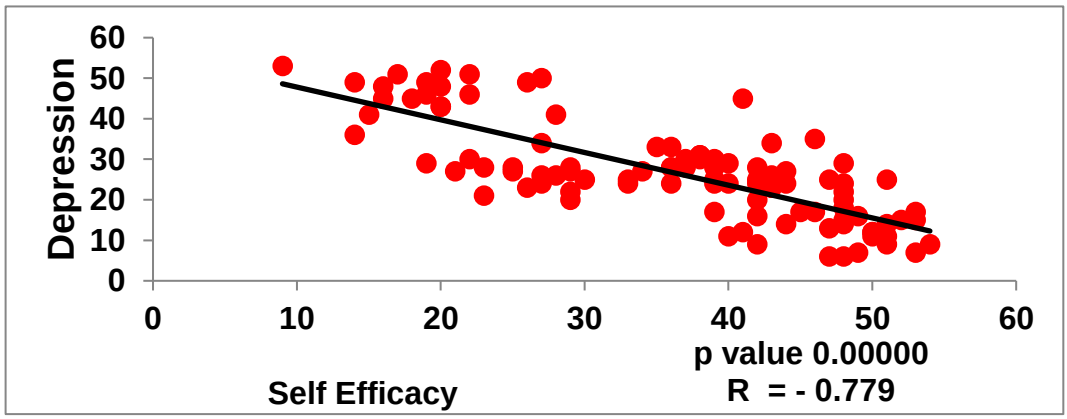

Figure (4): Correlation between self-efficacy with depression among studied patients (n=100).

Discussion:

Multiple system disorder among cardiac patients is a dysfunction syndrome characterized by the development of physiologic derangement in two or more organ systems, one of them the cardiovascular system. Clinical consequences of an interplay between dysfunction of different organs with cardiac dysfunction, where cardiac dysfunction is a

frequent complication in critically ill patients and contribute to organ hypo-perfusion and poor outcome **(Zymliński et al., 2019).**

Long-term health conditions make patients more likely to develop a mental health condition. It is common to feel sad, fear of death or fear of becoming non-self-sufficient or dependent on others. Patients may be facing new limits on what patients can do and may feel stressed or concerned about treatment outcomes and the future. It may be hard to adapt to a new reality and to cope with the changes and ongoing treatment that comes with the diagnosis **(Conversano., 2019).**So self-efficacy is the ability of patients to develop knowledge and understanding in relation to illness and self-care to manage excitement in a way that allows patients to continue to live with illness (**Bartlett et al., 2020)**.

Concerning socio-demographic characteristics of the studied patients, the current study revealed that, more than half of studied patients with multiple system disorder were in age between 45-65years; more than half of them were females. From the investigator point of view; this might be related to that multiple system disorder is long- term health a condition, so most of patients were age between 45-65years. The majority of patients were married. Furthermore, half of them had secondary school educational level, more than three quarters of the studied patients have no job, less than three quarters of studied patient were living near from hospital and patients have care givers.

This study finding in agreement with **Welsh., (2020)** who conducted a study about "Psychological distress and cardiovascular disease: An investigation into the epidemiological evidence " and reported that

more than half of studied patients age ranged from 45-65 years. This finding supported by **Sharif et al., (2021)** who conducted a study bout "Evaluation of Multiple Organ Dysfunction Score and the Sequential Organ Failure Assessment score as in-hospital outcome predictors among cases of hydrogen cyanamide exposure" and revealed that more than half of studied patients were married. Also, this result on the same line with **Durante et al., (2019)** who conducted a study about "Caregiver contribution to self-care in patients with heart failure" and reported that more than of studied patients have care givers.

Regarding clinical health assessment, the present study revealed that, less than one quarter of studied patients diagnosed with cardiovascular disease and pulmonary disease were studied followed by one fifth of them diagnosed with cardiovascular disease and kidney disease and other one fifth were diagnosed with cardiovascular disease, kidney disease and abdominal disease. Furthermore, less than three quarters of studied patients have two organs dysfunction, half of them suffered from tachycardia.

From the investigator point of view; this might be related to the prevalence of multiple system disorder in patients with cardiovascular disease is associated with two or three organs dysfunction (pulmonary, kidney or abdominal).This result finding in agreement with **Verbrugge et al., (2020)** who conducted a study about "Altered hemodynamics and end-organ damage in heart failure" and reported that more of third of studied patients were diagnosed as cardiovascular disease and kidney disease. This result on the same line with **Rosano et al., (2021)** who conducted a study about " Patient profiling in heart failure for tailoring medical therapy "and reported that the majority of studied patients suffered from tachycardia.

Regarding total level of pain, the present study revealed that, more than half of studied patients had moderate pain, more than quarter of them had severe pain and less than one fifth of them had mild pain. From the investigator point of view; most the patients with multiple system disorder had moderate pain because patients under control by medications.

This result finding in agreement with **Vaidya & Salvi., (2019)** who conducted a study about "gastrointestinal and hepatic manifestations and outcome in dengue multi-organ dysfunction syndrome" and reported that less than half of studied patients suffer from severe pain. This result finding in disagreement with **Barham et al., (2019)** who conducted a study about cardiac "self-efficacy and quality of life in patients with coronary heart disease" and reported that more than half of studied patients suffer from mild pain.

Concerning level of depression regarding affective domain with multiple system disorder, the present study reported that, one quarter of the studied patients have severe level of the existence of suicidal thoughts, moreover, more than one quarter of them have moderate level of feel pessimism of the future, but less than half of them have mild level of feel social withdrawal. From the investigator point of view; patients had the existence of suicidal thought because suicide ideation to put an end to the suffering them. This result fining in agreement with **Korkmaz et al., (2019)** who conducted a study about "suicide risk in chronic heart failure patients and its association with depression, hopelessness and self-esteem" and reported that more than one quarter of the studied patients had severe depression and had The existence of suicidal thoughts.

Concerning level of depression regarding cognitive domain with multiple system disorder, the present study reported that, less than half of the studied patients have severe level of change the image of the body and shape, moreover, more than one quarter of them have moderate level of sense of remorse or guilt, but more than half of them have mild level of expect punishment. This may be due to the studied patients, who reported that this disorder makes the patient their image of their body and shape changes to a sense of guilt. This result finding in agreement with **Vu& Smith ., (2023)** who conducted a study about "the pathophysiology and management of depression in cardiac surgery patients" and reported that less than half of the studied patients had severe depression and had change the image of the body and shape.

Concerning level of depression regarding somatic domain with multiple system disorder, the present study reported that, more than one quarter of the studied patients have severe level of concern for health, moreover, less than half of them have moderate level of low level of efficiency and work, but less than half of them have mild level of sleep disorders. This may be due to the studied patients, who reported that this disorder makes the patient low level efficiency, work and daily activities. This result finding in agreement with **Shao et al., (2020)** who conducted a study about "depression and cardiovascular disease" and reported that less than half of the studied patients had severe depression and had concern for health.

Regarding level of total beck depression inventory scale, the present study revealed that, less than half of studied patients had moderate depression, more than one quarter of studied patients had severe depression and fifth of them had mild depression. From the investigator point of view; most of the patients with multiple system disorder had moderate depression where patients reported that this disorder makes the patient feel frequency and lack of decisiveness. These result findings in agreement with **Li et al., (2019)** who conducted a study about "Depression in the context of chronic diseases in the United States and China " and reported that patient with chronic disease who had moderate depression were less than half of them.

Concerning level of self-efficacy for managing chronic disease among patients with multiple system disorder , the present study reported that, patients who had low degree of self-efficacy regarding managing with tasks and activities were less than half, and patients who had low degree of self-efficacy regarding managing without medication were more than one quarter, while patients who had moderate degree of self-efficacy regarding emotional distress were more than half and patients who had moderate degree self-efficacy regarding other symptoms or health problems were half of them.

From the investigator point of view; most the patients with multiple system disorder had low self-efficacy where difficult to manage with tasks and activities without medication because patients had two or three organ dysfunctions. This result finding in agreement with **Peters et al., (2019)** who conducted a study about "self-efficacy and health-related quality of life: a cross-sectional study of primary care patients with multi-morbidity "and reported that patients who had moderate degree self-efficacy were more than half of them.

Regarding level of total self-efficacy for managing chronic disease scale, the present study revealed that, more than half of studied patients had high self-efficacy, and less than half of studied patients had low self-efficacy. This may be due to the studied patients, who reported that this disorder makes the patient visit outpatients' clinic regularly and talk with doctors about how to manage the disease. These result findings in agreement with **Gouw et al., (2019)** who conducted a study about "effectiveness of internal Qigong on quality of life, depressive symptoms and self-efficacy among community-dwelling older adults with chronic disease "and reported that patient with chronic disease who had high self-efficacy were more than half of them.

The present study reported that, there was highly statistically significant relation between depression with number of organ dysfunction where the proportion of three organs with severe depression is higher than with two organs. While statistically non-significant relation between self-efficacy with number of organ dysfunction but the proportion of two organs with high self-efficacy were more than half. From the investigator point of view; most the patients with multiple system disorder had severe depression and low self-efficacy especially patient's had three organs dysfunctions where, this may be due to the studied patients, who reported that this disorder makes the patients wait for death at any time.

This result finding in agreement with **Mulugeta et al ., (2020)** who conducted a study about "association between major depressive disorder and multiple disease outcomes" and mentioned that there was a statistically significant relation between patients level of depression and number of organs dysfunction and this result on the same line with **Kim& Seo., (2022**) who conducted a study about "effects of health status, depression, self-efficacy, and social support on healthy aging in the older adults with chronic diseases" and mentioned that there was a statistically non-significant relation between patients level self-efficacy and number of organ dysfunctions.

Regarding correlation between self-efficacy and depression among patients with multiple system disorder, the present study reported that, there was strong negative correlation between self-efficacy with depression. It means that patients with multiple system disorder who have low self-efficacy already suffer from severe depression where self-efficacy helps patients to manage disease and decrease psychological problems associated with disease. This result finding in agreement with **Chen et al., (2020)** who conducted a study about "the role of health literacy, depression, disease knowledge, and self-efficacy in self-care among adults with heart failure" and mentioned

that there was negative correlation statistically between self-efficacy with depression.

Conclusion:

In the light of the present study findings, less than half of patients had moderate depression, more than half of patients had high self-efficacy. Also, the study showed that there was statistically significant relation between age, presence of care givers and level of total depression of studied patients, highly statistically significant relation between depression and number of organ dysfunction and statistically non-significant relation between self-efficacy with number of organ dysfunction. Furthermore, there is a strong negative correlation statistically between self-efficacy with depression. These findings answer the research question which stated that "What are the levels of depression among patients with multiple system disorder? And Is there a relation between self-efficacy of patients with multiple system disorder and degree of depression".

Recommendations:

The following suggestions are put forward considering the study's results:

- Multiple system disorder patients are in need of comprehensive booklet (How to stop worrying and start living).
- Design an educational program to patients with multiple system disorder to provide knowledge with disease process to enhance their life style.
- Psychosocial counseling should be provided by specialist for patients to facilitate dealing with depression, improve mental health and self-efficacy.
- Further research studies on multiple system disorder or multi-organ dysfunctions.

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