

Illness Perception and Alexithymia in Women with Fibromyalgia and Its Relationship to Psychological Distress

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Abstract

Background: People with Fibromyalgia had difficulty in identifying, reflecting and regulating their emotions. Alexithymia and negative illness perception could make difficult for them to communicate verbally so they may develop psychological distress as depression and anxiety. **Aim of the study:** To determine the relationship between illness perception, alexithymia and psychological distress in women with Fibromyalgia. **Study design:** A descriptive-correlated design was utilized in this study. **Study setting:** The study was conducted at rheumatology outpatient clinic at Benha University Hospital in Benha City, Qalyubia Governorate. **Subjects:** Convenience sample of 80 women with Fibromyalgia from the previous study setting. **Tools for data collection:** Tool (1) Structured Interview Questionnaire to collect demographic and clinical data of the studied sample, Tool (2) Toronto Alexithymia Scale, Tool (3) Illness Perception Questionnaire, and Tool (4) Hospital Anxiety and Depression Scale. **Results:** Two thirds of the studied women with fibromyalgia had alexithymia, more than half had negative level of illness perception, less than half had moderate level of anxiety and depression. Also, a statistically significant positive correlation between total alexithymia and total psychological distress, and a statistically significant negative correlation between total illness perception, total alexithymia and total psychological distress. **Conclusion:** The study concluded that, alexithymia had strong positive associations with anxiety and depression. Also, there is a significant negative predictor of illness perception with anxiety and depression among the studied women. In other words, increasing alexithymia and negative illness perception among women with fibromyalgia associated with more severe depression and anxiety symptoms. **Recommendation:** The study recommended psycho-educational intervention programs for such group of women to reduce the consequences of fibromyalgia.

Keywords: Alexithymia, Fibromyalgia, Perception, Distress & Women

Introduction:

Fibromyalgia (FM) is a chronic syndrome that is characterized by widespread musculoskeletal pain and other symptoms as fatigue, gastrointestinal symptoms, somatic symptoms, cognitive dysfunction and joint stiffness (Siracusa et al., 2021 & Wolfe et al., 2016). FM affects 61% to 90% of women and has an estimated incidence of 2%-4% in the overall population (Sarzi-Puttini et al., 2020 & Wolfe et al., 2018). Its pathophysiology is unclear; however, it appears to be influenced by a number of variables that vary across people as physical, psychological, behavioral, cognitive, and environmental elements may all be present. Stressful experiences, emotional and physical trauma, a lack of social support, and specific personality traits may be linked to the start of FM and an increase in perceived pain and psychological suffering (Romeo et al., 2023).

Fibromyalgia has considerable socioeconomic expenses for both the health system as (medical visits, specialist consultations, diagnostic tests, medications, and other therapies) as well as with the workforce including (sick leave, increased absenteeism, and

impaired work-related productivity) (Arnold et al., 2016 & Galvez-Sanchez et al., 2019). Other consequence, Life with FM among women causes significant psychological distress because of the wider impact on employment, socializing, relationships and family life (Galvez-Sanchez et al., 2020). Literatures suggest that women with FM usually suffered from elevated levels of mental disorders in nearly 97% of them. Anxiety symptoms among such group of women range from 20 to 80%, while depression symptoms range from 13-64%, respectively (Miki et al., 2018 & Chang et al., 2015). Sechi et al., (2021) indicated that a higher prevalence of depressive symptoms was among 59% of women reporting moderate to severe symptoms. Other studies for patients with FM illustrated that there is a susceptibility to suffer from psychological distress, i.e., depression and anxiety (Geller et al., 2022 & Vucurovic et al., 2020). Also, Serrano-Ibáñez et al., (2020) stated that women with FM who suffer from persistent pain were at a higher risk of increase their psychological distress. Severe pain, negative illness perceptions, dysfunctional coping techniques,

personality characteristics (e.g., neuroticism or alexithymia), female gender, and lesser education have all had been investigated longitudinally as risk factors for the emergence of depression and anxiety (**Jkremo et al., 2017 & Batista et al., 2022**).

Depression and chronic pain often coexist, with up to 60% of among patients with chronic pain and depression (**Armbrecht et al., 2020 & Hooten, 2016**). In addition, the combination of chronic pain and depression results in worse treatment outcomes and overall functioning than either illness alone. Depression and chronic pain had been identified as two of the top three major causes of worldwide disability over the last three decades (**Dhanju et al., 2019**).

Anxiety is also one of the most common psychological symptoms reported among patients with FM. It has been claimed that patients with FM and significant anxiety symptoms engage in less physical exercise and engage in more sedentary habits. Despite the prevalence, anxiety among patients with FM is still poorly researched, compared to depression, which indicated among 60% of patients (**Kharko et al., 2020 & Gutierrez et al., 2022**). Also, the fact that patients with FM who had depression or anxiety symptoms, they frequently seek care owing to their broad discomfort. This is assumed to be because suffering unable them to understand or to express their feelings and developed poor illness perception (**McDowell et al., 2017**).

So, regarding their potential impact on pain outcomes, illness perceptions, or people's views about their condition, they had recently attracted a lot of interest (**Fors et al., 2022**). Furthermore, according to the Common-Sense Model of self-regulation (CSM), how sick one feels which might affect how sick one gets. The model holds that each person develops their own set of beliefs and concepts (illness representations) regarding own condition. These representations of illness divided into emotional and cognitive representations, which affect emotional responses and behavior as well as coping mechanisms and plans of action. This had an impact on patient's mental health and illness (**Hagger & Orbell, 2022**).

Patients' illness perception of fibromyalgia had a crucial influence on their coping mechanisms, treatment adherence, and functional adaptability. Although illness perceptions had been proven to be essential, on patients incorporation into clinical assessment and care of patients requires additional development and research. A maladaptive coping among patients with FM is linked to poor illness perceptions, which are associated with depression and anxiety symptoms (**Farzadkia et al., 2023**).

When patients with FM, are presented with an illness or symptoms, construct a model and representation of

the sickness or symptoms (illness perceptions) in order to make sense of or manage the illness and its symptoms. Each patient will have own thoughts regarding the illness or symptoms' identification, treatment, timing, and consequences. Attributions are made in this process to explain the cause for the symptoms, for example, psychological attributions such as stress or a medical attribution such as rheumatism (**Van-Ittersum et al., 2022**). In people suffering from persistent widespread pain in multiple locations like FM, they develop negative views about their condition, such as how it will influence their emotional well-being. Also, the patients may show unfavorable attitudes about their illness's repercussions such as developing psychological distress over time (**De Heer et al., 2017**).

A part from the link between illness perceptions and psychological distress, there is also important issue of alexithymia. Individuals suffering with alexithymia may misunderstand their emotional condition as an indication of physical sickness. Alexithymia is a personality characteristic that shows a weakness in cognitive processing and emotional control. It could be due to the illness's symptoms, aggravating the symptoms, or as stable personality traits which causing the symptoms. Studies which demonstrated alexithymia is highly prevalent among patients with FM, so between 48% and 68% of patients with FM who exhibit alexithymia had a negative impact on both physical and psychological wellbeing (**Aaron et al., 2019 & Tesio et al., 2018**). Patients with FM who had high level of alexithymia characterized by difficulties distinguishing subjective sensations, with a limited imaginative process, and an externally oriented cognitive style. Difficulty in recognizing and describing sensations were found to be substantially connected to worse sleep quality, higher anxiety, sadness, increased pain catastrophizing and fear of pain (**Ghiggia et al., 2017**).

Alexithymia not only interferes with patients' capacity to appropriately recognize their own subjective experiences on a daily basis, but it also makes it difficult for patients to describe their psychological distress symptoms. There is a substantial link between alexithymia and depressive symptoms, according to the data collected in a study done by (**Romeo et al., 2022 & Horta-Baas et al., 2020**). Horta-Baas and colleagues postulated that alexithymia might exacerbate depressed symptoms by causing misunderstandings of bodily sensations. According to other research, alexithymia, depression, and anxiety are all highly linked together (**Sagar et al., 2021**). The research about alexithymia and illness perceptions among patients with FM is important because alexithymia could interfere with the perception of emotional sensations, resulting in an

overestimation of psychosomatic symptoms, including sadness and anxiety, as well as an overuse of medical care (Horta-Baas et al., 2020 & Galvez-Sánchez et al., 2020).

In a study done by Tella et al., (2018) who reported that people with FM had a greater frequency of alexithymia than the general population and other causes of chronic pain nevertheless. Other study did not show these differences. As a result, pain, depression, anxiety, alexithymia, and negative illness perceptions may be linked and impact on patients with FM quality of life. To the best of our knowledge, no study had analyzed these variables together in woman with fibromyalgia. The function of psychological processes is offering the possibilities for therapies targeted at pain reduction or management with special interest to psychologists. Thus, the aim of this study was to determine the relationship between illness perception, alexithymia, and psychological distress among woman with fibromyalgia (Calsius et al., 2015).

Significance of the Study:

Fibromyalgia is a chronic disorder characterized by widespread pain, substantial mental discomfort, and functional impairment that primarily affects women (Ramos-Henderson et al., 2021). Pain and disability associated with poor illness perceptions disrupt physical, mental, social activities and job performance. These factors in turn, diminish mental health and cause psychological distress as depression and anxiety (Farzadkia et al., 2023).

People with fibromyalgia are more likely to had difficulty in detecting and describing their emotions. People who had a high level of alexithymia have tended to describe events rather than express emotions. Because of the reducing the capacity to recognize and explain emotions, physiological correlates of emotions are misconstrued as symptoms of sickness. At the same time, alexithymia is frequently connected with increased psychological distress such as depression, anxiety, and stress. Negative beliefs about the patient's disease, impact on emotional well-being, which leads to the development of negative mental outcomes. In other side, emotional awareness and good illness perception are essential for efficient emotion regulation and coping with the illness (Scarpina et al., 2022). However, no research was conducted in Egypt to investigate the perception of illness and alexithymia in women with fibromyalgia and its association with psychological distress. As a result, the current study aimed to determine the relation between illness perception, alexithymia and psychological distress in women with Fibromyalgia.

Aim of the Study:

The purpose of this study was to determine the relationship between illness perception, alexithymia and psychological distress in women with Fibromyalgia.

Research Questions:

1. What are the levels of illness perception, alexithymia, psychological distress in women with fibromyalgia?
2. Is there a relationship between illness perception, alexithymia and psychological distress in women with fibromyalgia?

Subject and Methods:

Research Design:

This study employed a descriptive-correlational design. The goal of descriptive correlational research is to describe the connection between variables rather than to infer cause and effect correlations. Correlation study is useful for explaining how one phenomenon is connected to another and indicating how one variable might predict another (Lappe, 2000).

Research Setting:

The study was conducted at the rheumatology outpatient clinic at Benha University Hospital, Benha City, Qalyubia Governorate. This hospital is affiliated to the Ministry of Higher Education. This setting was particularly chosen because the flow rate of women with FM is satisfactory for the study.

Research Subjects:

A convenience sample of 80 women with FM from the previous mention study settings.

$$n = \frac{N}{1 + N(e)^2}$$

-n= size of a sample

-N= size of the population

-d= 0.05 is the error rate

-z= The standard score for the significance level is 0.95, which equals 1.96.

-p= property availability and neutral=0.50

Data Collection Tools:

Data for this study were gathered by using four different tools:

Tool (1): Structured Interview Questionnaire:

The questionnaire was developed by the researcher based on scientific review of literature to elicit data about demographic and clinical data (age, level of education, marital status, employment, years with symptoms of FM, diagnosis of FM, and pain medication frequency.

Tool (2): Toronto Alexithymia Scale (TAS-20):

The alexithymia scale is a self-report measure created by Bagby et al. (1994) to examine the elements of alexithymia. It consists of 20 items, each of which is

assessed on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The TAS-20 had three subscales: Difficulty describing feelings "5 items" (2, 4, 11, 12, 17) (i.e., the inability to distinguish among emotions and between them and the bodily sensation of arousal), difficulty identifying feelings "7 items" (1, 3, 6, 7, 9, 13, 14) (i.e., the inability to verbalize one's emotions), and externally-oriented thought "8 items" (5, 8, 10, 15, 16, 18, 19, 20) i.e., the difficulty in focusing on internal emotional experience). Five of the items are scored in reverse order: 4, 5, 10, 18, and 19. The total alexithymia score is the sum of all 20 replies, whereas the score for each subscale element is the sum of those responses. Total scores could vary from 20 to 100, with higher values suggesting more impairment/difficulties (alexithymia).

The TAS-20 uses cutoff scoring:

- Scores of <60 indicates no Alexithymia.
- Scores of ≥ 61 indicates Alexithymia.

Tool (3): Illness Perception Questionnaire (IPQ)-R:

Illness perception questionnaire revised version, developed by **Moss-Morris et al., (2002)** to assess patients' perception to their illness. The IPQ-R is a 70-items questionnaire which comprises 9 dimensions of illness perceptions. The IPQ-R is divided into three domains: identity domain (14 items), 7 cognitive dimensions (38 items), and causal domain (18 items). The first section evaluates the (illness identification domain), perceived symptoms, and their likely relation to the disease. It consists of a list of "14 symptoms." Participants assess whether the symptom had occurred since their sickness (yes/no) and if the symptom is connected to their disease (yes/no). A high sum suggests a strong belief that the symptoms are part of the patient's disease.

The second section (illness beliefs domain), which focuses on seven cognitive dimensions, includes "38 items" about beliefs relating (timeline acute/chronic), a cyclical timeline, perceived consequences of the illness, and beliefs about personal control, treatment control, illness coherence, and emotional representations). Higher scores reflect more negative illness perception (e.g., more consequences or a longer timeline) for the dimensions (consequences, timeline, identity, and emotional representation). Higher scores reflect more positive illness perception (e.g., greater personal control or more treatment control) for the dimensions (personal control, treatment control, and coherence).

The third section (causal domain) has "18 items" focuses on illness causes. This domain is separated into four dimensions: "psychological attributions (6 items), risk factor attributions (7 items), immune attributions (3 items), and accident or chance attributions (2 items).

Subjects were given 5 responses for all dimensions except the identification dimension, which were transformed to a 5-point Likert-type scale for results analysis: (1) strongly disagree, (2) disagree, (3) neither agree nor disagree, (4) agree, and (5) strongly agree. There were two responses for the identification dimension: symptom ascribed to FM "Yes" = (1) and symptom not attributed to FM "No" = (0). Higher scores for each dimension suggest greater beliefs about the dimension under consideration. Total scores could range from 58-304. The total higher scores of illness perception questionnaire reflect more negative illness perceptions.

Tool 4: Hospital Anxiety and Depression Scale (HADS):

It developed by **Zigmond & Snaith (1983)** (HADS) to measure psychological discomfort "the severity of depressive (HADS-D) and anxiety (HADS-A) symptoms". This scale has 14 items, seven for anxiety, such as "I feel tense or 'wound up,'" and the other seven for depression, such as "I still enjoy the things I used to enjoy." Each question includes four responses, each with a score ranging from 0 (not at all) to 3 (very often) for questions (1-2-3-6-7-10-11-12) and reverse questions (4-5-8-9-13-14). Each subscale's total score varied from 0 to 21. Higher scores are indicating the greater frequency of symptoms depression and anxiety.

HADS uses cutoff scoring:

An examination of the two subscale scores (depression and anxiety) confirmed the classification of each mood state into four levels:

- Scores of 0-7 indicates normal level.
- Scores of 8-10 indicates mild level.
- Scores of 11-14 indicates moderate level.
- Scores of 15-21 indicates sever level.

Procedures:

This study involved a preparatory phase, tools content and face validity, tools reliability, a pilot study, and fieldwork.

The preparatory phase:

Began with a review of the national and international related literature using journals, periodicals, textbooks, the internet, and theoretical knowledge of the various aspects concerning the topic of the study, followed by translation of the tools into Arabic language format for better understanding then back translation was done to ensure accuracy.

Tools content and face validity:

The research instruments' content and face validity were assessed to ensure that they measured what they were designed to measure. It was rigorously evaluated before being presented to a jury of three Psychiatric and Mental Health Nursing professors to be tested for its content and face validity.

Tools Reliability:

The Cronbach's alpha coefficient test was used to measure the internal consistency and reliability of the study tools. Cronbach's alpha for the Illness Perception Questionnaire was 0.83, for the Toronto Alexithymia Scale was 0.84, and for HADS-A/HADS-D was 0.93 and 0.90, respectively. These results corroborate the scales' dependability.

Administrative approval:

Ethical approval was obtained from the Scientific Research Ethics Committee, Faculty of Nursing, Benha University (REC-PSY.N-P1). After that official approval was taken from the director of Benha University Hospital for collection of data.

Ethical considerations:

Participants were interviewed to explain the study's purpose and process. They were informed that they had the right to withdraw from the research at any time and for any reason. It was also stated that the study does not cause any physical or emotional harm to the subjects. Furthermore, all data was coded to ensure the subjects' confidentiality and anonymity.

A pilot study:

Pilot study carried out on 10% of the patients (8 women with FM). The pilot research's goal was to determine the clarity, application, and relevance of the of the study instruments, as well as to estimate time needed to fill in the study tools. Following the pilot study, it was discovered that the Arabic version tools were clear and relevant. So, all the women who participated were included in the pilot study.

Fieldwork:

Data was collected during a three-month period, from November 2022 to the end of January 2023. After an explanation of the purpose of the study to the hospital authorities and taken an official permission for data collection through meeting the studied women during their waiting at the rheumatology outpatient clinic. Prior to data collection the researcher introduced herself to the participant; then explained to them the aim of the study after that oral consent was taken from every one of them before data collection.

Data were collected according to the availability of the studied women through 2 days/week; the numbers of women interviewed were ranged from 3 to 4 every day. The time required to fill in the tools were 10 minutes for both structured interview questionnaire and the alexithymia scale and from 10-15 minutes for IPR-R scale and HADS. To minimize missing data, the completed tools were gathered on time and updated to ensure their completeness. Finally, the

researchers expressed gratitude to the patients for their assistance.

Statistical Data Analysis:

To evaluate data, the social science statistical tool SPSS version 25 was used. To characterize socio-demographic data and the levels of study variables, descriptive statistics such as percentages, frequencies, means, weighted means, relative weights, and standard deviations were utilized. Pearson's correlation coefficients were utilized to evaluate the relationship between the variables in the research. $P \leq 0.05$ was significant, while $P < 0.01$ was considered extremely significant.

Results:**Table (1): Demographic and clinical characteristics of the studied women (n=80).**

Demographic Characteristics	No.	%
Age (years)		
20 < 30 years	9	11.3
30 < 40 years	11	15.0
40 < 50 years	42	52.5
≥50 years	17	21.2
Mean ±SD	45.11±10.87	
Level of education		
Primary education	23	28.7
Secondary education	39	48.8
Graduate education	18	22.5
Marital status		
Single	6	7.5
Married	62	77.5
Divorced	9	11.3
Widow	3	3.7
Employment		
Employee	52	65.0
House wife	16	20.0
Retired	12	15.0
Years with symptoms of FM		
< 1 year	11	13.7
1 year	8	10.0
2 years	20	25.0
≥3 years	41	51.3
Diagnosis of fibromyalgia		
less than month	7	8.7
1 - 6 months ago	10	12.5
6 months - 1 year	13	16.3
1 - 5 years	32	40.0
> 5 years	18	22.5
Pain medication frequency		
1-2 times daily	52	65.0
>3 times daily	15	18.7
0- ≤1 time weekly	4	5.0
2-6 times weekly	9	11.3

Table (2): Mean scores and standard deviations for the Alexithymia among the studied women (n=80).

Alexithymia	Possible score	Min.	Max.	Mean ± SD
Difficulty Describing Feelings	7-35	9	28	20.97± 8.04
Difficulty Identifying Feelings	5-25	12	20	17.68± 2.14
Externally-Oriented Thinking	8-40	15	30	24.46±5.31
Total Score	20-100	36	78	63.12±14.03

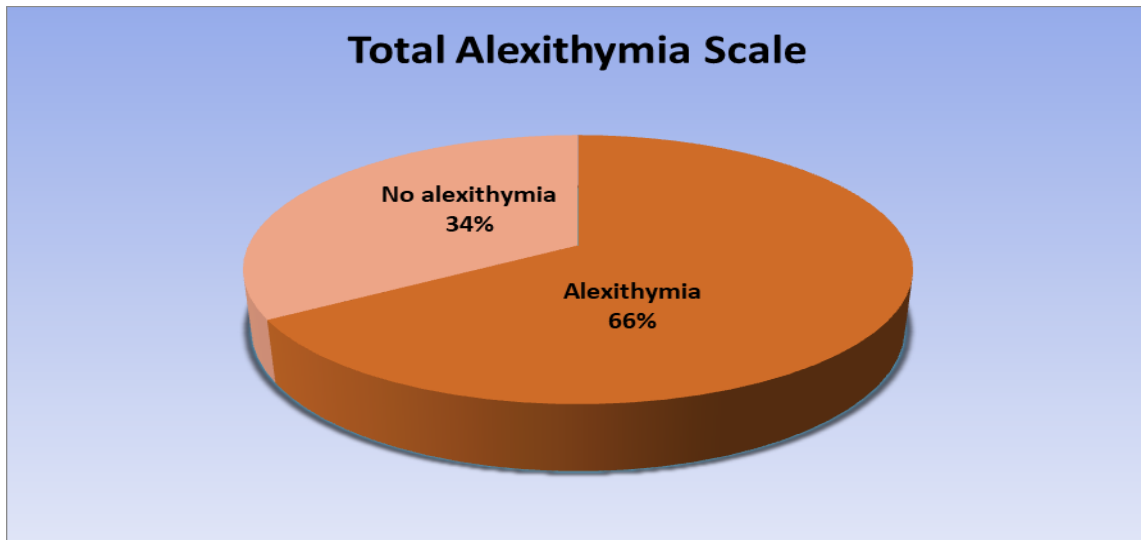


Figure (1): Distribution of the studied women regarding to level of alexithymia (n=80).

Table (3): Mean scores and standard deviations for the illness perception among the studied women (n=80).

Illness Perception Scale	Possible score	Min.	Max.	Mean ± SD
Illness identity domain				
Identity	0-14	7	11	9.03± 1.82
Illness beliefs domain				
Timeline (acute/chronic)	6-30	6	24	17.63± 5.56
Consequences	4-20	5	16	12.13±2.93
Personal control	6-30	6	16	10.47± 3.93
Treatment control	6-30	6	22	13.76± 7.51
Illness coherence	5-25	5	15	9.42± 4.13
Timeline cyclical	5-25	5	15	10.86± 3.82
Emotional representations	6-30	10	25	18.30± 4.47
Causal domain				
Psychological attributions	6-30	6	18	12.25±5.27
Risk factors dimension	6-30	8	20	13.45±5.96
Immunity dimension	6-30	6	14	10.45±3.29
Accidence or chance dimension	2-10	4	6	5.50±0.84
Total Illness Perception	58-304	75	200	143.28± 42.25

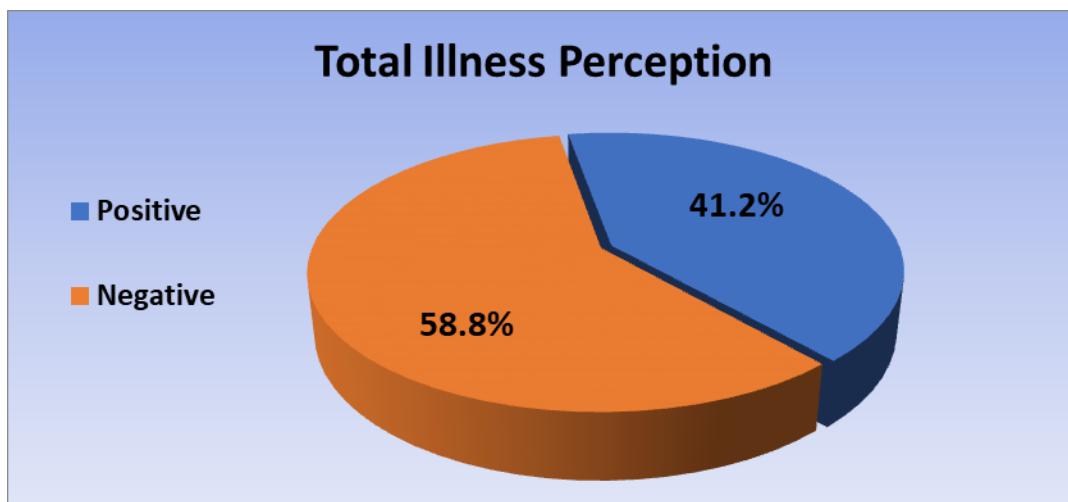


Figure (2): Distribution of the studied women regarding to total level of illness perception.

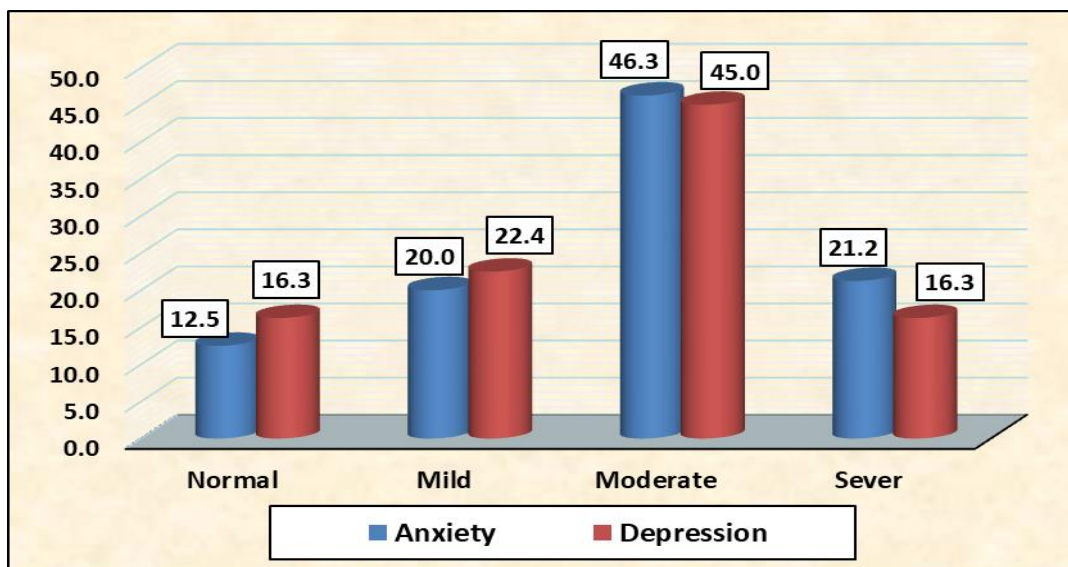


Figure (3): Distribution of the studied women regarding to levels of anxiety and depression.

Table (4): Mean scores and standard deviations for anxiety and depression among the studied women with Fibromyalgia (n=80).

Variables	Alexithymia		Illness perceptions	
	r	p-value	r	p-value
Psychological distress				
- HADS-Anxiety	0.920	0.000**	-0.849-	0.000**
- HADS-Depression	0.941	0.000**	-0.892-	0.000**
Alexithymia	-	-	-0.888-	0.000**

** Statistically significance $p \leq 0.001$

Table (5): Correlations between total alexithymia and total illness perception as well as total psychological distress (anxiety and depression) (n=80).

Psychological distress	Possible score	Min.	Max.	Mean ± SD
HADS-Anxiety	0-21	4	18	11.61± 3.07
HADS-Depression	0-21	6	16	11.45± 2.92

Table (6): Prediction role of alexithymia and illness perception on anxiety by using liner regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.095	1.405	-	2.914	.005
Alexithymia	.152	.015	.723	10.428	.000
Illness perception	-.014-	.004	-.245-	-3.530-	.001

Dependent Variable: Anxiety

** Statistically significance $p \leq 0.001$

Table (7): Prediction role of alexithymia and illness perception on depression by using liner regression

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4.582	1.522	-	3.010	.004
Alexithymia	.141	.016	.704	8.947	.000
Illness perception	-.015-	.004	-.266-	-3.382-	.001

Dependent Variable: Depression

** Statistically significance $p \leq 0.001$

Table (1): Showed that more than half (52.5%) of the studied women their age ranged from 40 to < 50 years with mean age of 45.11 ± 10.87 years old, while less than half (48.8%) had secondary education level, more than three quarters (77.5%) were married, and about two thirds (65.0%) were employed. Results also illustrated that, more than half (51.3%) of the participants had symptoms of FM disease for a period greater than ≥ 3 years. Forty percent (40.0%) of the participants had been living with fibromyalgia for up to 1-5 years. Concerning the frequency of pain medications, about two thirds (65.0%) of the studied women were taking the medication from 1–2 times daily.

Table (2): Illustrated the highest mean score of alexithymia subscales was 24.46 ± 5.31 for the subscale externally oriented thinking, next, come the difficulty describing feelings subscale with the mean of 20.97 ± 8.04 . The sample's lowest mean score was difficulty identifying feelings with mean and SD (17.68 ± 2.14), while the overall mean score of alexithymia among the studied women was 63.12 ± 14.03 .

Figure (1): Showed that two thirds (66.3%) of the studied woman had alexithymia, while one third (33.7%) of them were free.

Table (3): Illustrated that the highest mean scores were the emotional representations dimension with 18.30 ± 4.47 , followed by mean score of timelines (acute/chronic) dimension with 17.63 ± 5.56 , while the mean score of treatment control dimension was 13.76 ± 7.51 . Concerning the consequences dimension, it was 12.13 ± 2.93 , while 10.86 ± 3.82 for timeline cyclical and 10.47 ± 3.93 for personal controls dimensions. Furthermore, the lowest mean score for illness identity domain was 9.03 ± 1.82 and 9.42 ± 4.13 for illness coherence dimension. Regarding to illness perception of the studied woman about possible causes of fibromyalgia, the highest mean score for risk factors dimension with 13.45 ± 5.96 followed by psychological attributions with mean score of 12.25 ± 5.27 , followed by the mean score of immunity dimension which was 10.45 ± 3.29 while, the lowest mean score for accident or chance dimension was 5.50 ± 0.84 .

Figure (2): Revealed that more than half (58.8%) of the studied woman had negative level of illness perception, while less than half of them (41.2%) had positive level illness perception.

Table (4): Showed that the overall mean score was 11.61 ± 3.07 for anxiety among the studied woman, while the overall the mean score for depression among the studied woman was 11.45 ± 2.92 .

Figure (3): Demonstrated that less than half (46.3%) of the studied woman had moderate level of anxiety, while about one fifth (21.2%) had severe level of

anxiety. The result also revealed that, less than half (45.0%) of the studied woman had moderate level of depression, and less than one fifth (16.3%) of them suffer from severe level of depression.

Table (5): Showed a statistically significant positive correlation at $p \leq 0.001$. Also, at $p \leq 0.001$, there is a statistically significant negative correlation between total illness perception and total psychological distress (anxiety and depression), as well as a statistically significant negative correlation was found between the total illness perception and total alexithymia.

Table (6): Illustrated that both alexithymia and illness perception had a statistically important prediction about role on anxiety.

Table (7): Showed that both alexithymia and illness perception had a statistically important prediction about role on depression.

Discussion

Fibromyalgia is a multifaceted condition which affects mainly women. The etiology of FM is still in need to be well studied. Psychological distress is one of the primary factors that contribute to the disability induced by this disorder and must thus be investigated. People with FM may develop symptoms as a result of psychological distress. Alexithymia also is an emotional dysregulation trait, largely observed and could play an important role in FM. It is also correlated with anxiety and depression. Individuals with alexithymia are unable to distinguish bodily sensations such as somatic expressions of emotions and may misunderstand their emotional excitation as indicators of disease. This could amplify the negative perception of illness which positively correlates with psychological distress. Illness perception is critical to determining illness because patients act on their views (Daffin et al., 2021).

Regarding the demographic characteristics of the studied women with FM. The current study results illustrated that the mean age of the studied women was (45.11 ± 10.87) years old, which is consistent with the finding of a study done by Fidel et al., (2022), who reported that the mean age of their study sample was (45.60 ± 9.82). However, the finding of the current study is inconsistent with the finding of a study done by Gutierrez et al., (2022), who found that the average age of participants was (56.91 ± 8.94). Concerning the educational level, less than half of the participants had secondary level of education. This result is inconsistent with the finding of a study done by Gutierrez et al., (2022), who stated that most participants had primary education. Also, this reported study is inconsistent with the finding of a study done by Sechi et al., (2021), who reported that most of the women participated in the study possessed a high school diploma.

More than three-quarters of the studied women were married; this finding is consistent with the finding of a study done by **Romeo et al., (2022)**, who reported that most participants in FM group were married. Result of the current study is inconsistent with the finding of a study done by **Vespa, et al., (2015)**, who stated that the majority of the participants were single. Also the current result disagrees with the finding of a study done by **Shuster et al., (2009)**, who reported that the majority of the women in the FMS group were divorced. In addition, the current study finding revealed that about two thirds were employee. This result agrees with the finding of a study done by **Reig-Garcia et al., (2021)**, who reported that half of the sample was actively employed. The finding of the current study is inconsistent with the finding of a study done by **Martinez et al., (2021)**, who reported that more than half of the study sample was unemployed. This result is also inconsistent with the finding of a study done by **Berk et al., (2020)**, who discovered that almost half of the participants were housewives.

Regarding the clinical characteristics of the studied women with FM, the current study results showed that also more than half of the sample had the symptoms of FM for more than ≥ 3 years. This result consistent with the finding of a study done by **Lee et al., (2017)**, who stated that the average symptom duration, was 8.31 years. Additionally, about two fifths of the studied samples were diagnosed fibromyalgia for 1-5 years. This result was consistent with the finding of a study done by **Ramos-Henderson et al., (2021)**, who stated that more than one third of their sample had been diagnosed for greater than 3 years. However, result was inconsistent with the finding of a study done by **Romeo et al., (2022)**, who concluded that patients had the illness for an average of 9 years. The result also disagrees with the finding of a study done by **Van Overmeire et al., (2008)**, who stated that, years of diagnosis of fibromyalgia among the studied participant were more than 5 years.

According to the mean scores for alexithymia women with Fibromyalgia, the current results revealed that the highest mean score of alexithymia subscales for externally-oriented thinking (EOT), followed by difficulty describing feelings (DDF), while lowest mean score was seen among the difficulty identifying feelings (DIF). These findings were point to the prevalence of a more externally oriented cognitive style as well as difficulties identifying and expressing emotions. Alexithymia had higher mean scores and standard deviations among in all the three TAS-20 dimensions. This finding was congruent with the finding of a study done by **Akay et al., (2022)**, who discovered that "difficulty articulating emotions and

externally-oriented cognition" dimensions of alexithymia were elevated among patients with FM followed by difficulty identifying feelings. Moreover, **Martinez et al., (2021)**, who illustrated those women with fibromyalgia, had much greater difficulty identifying and characterizing sensations than healthy women, but had less externally oriented thinking.

The current reported study's results were inconsistent with the finding of a study done by **Di Tella et al., (2018)**, who observed that people with FM have high scores in alexithymia (difficulties in identifying and describing subjective feelings together followed by external-oriented thinking). This result also, inconsistent with the finding of a study done by **Marchi et al., (2019)**, who stated that patients with FM had higher DIF scores, then DDF, and high in EOT than healthy subjects. In the same side, **Yüksel et al. (2021)**, who found that the TAS-20 subscale scores were as follows: 28.81 4.06 for difficulties identifying feelings, 16.97 3.07 for trouble articulating emotions, and 29.76 4.49 for expressive thinking.

Concerning to distribution of the studied women regarding total level of alexithymia, about two thirds of the studied women had alexithymia; this might be due to that woman with fibromyalgia unable to distinguish their bodily feelings, such as somatic expressions of emotions, and may misunderstand their emotional arousal as indicators of sickness. The current result is congruent with the finding of studies done by **Di Tella et al., 2018; Aaron et al., 2019 & Tesio et al., (2018)**, who reported that alexithymia is more common among patients with FM and also found that more than one-quarter of the study sample had alexithymia characteristic at the clinical level.

The reviewed evidence indicated that alexithymia was highly prevalent among patients with FM, compared to the population as a whole and individuals suffering from various types of chronic pain (**Martinez et al., 2020; Galvez-Sánchez et al., 2020 & Tella et al., 2018**). Overall, the findings of this study indicated that patients with FM had greater degrees of alexithymia and trouble connecting to their own bodies when compared to patients with other conditions and even those who did not have any ailment, indicating a higher level of morbidity among those patients. Major Alexithymia indices were also seen among patients with FM especially women (**Romagnoli et al., 2016**). On other side, **Calsius et al., (2015)**, who reported that no difference in alexithymia scores between patients with FM and healthy subjects.

Regarding the scores of the illness perception domains, the findings illustrated that, women attributed a low proportion of their symptoms to their illness (illness identity) and low illness understanding

(illness coherence). Participants with FM had a low illness identity score, indicating that they had limited personal grasp of their disease's symptoms. Participants with FM had a poor disease coherence score, indicating that they do not had a clear image of their condition. This means that low illness coherence was strongly related to low identity of the symptoms of their disease.

Additionally, the emotional representations, timeline acute/chronic, treatment control and consequences dimensions; were the highly evaluated four dimensions of illness beliefs domain. The women in our study experienced fibromyalgia as a chronic illness (timeline acute/chronic), and were unstable emotionally thus provoked a stronger response. So that; they had great faith in the treatment's ability to reduce symptoms and cure their illness (treatment control). Furthermore, they experienced various negative feelings as a result of their FM, such as emotional representations of being angry, nervous, or depressed. Because FM is a chronic illness, these findings are not surprising, leading to the perception that the illness and symptoms would last for a long time or even forever.

These finding were could be due to that, more than half of the studied women had symptoms of their FM disease for ≥ 3 years and about two fifths of them diagnosed with fibromyalgia from 1-5 years. Concerning the consequences, the patient feels that their sickness will have a significant impact on their physical, social, and psychological functioning (consequences). During the course of FM for a long period of FM; the patients went through widespread pain over the entire body which affected home, work and relationship with others. This resulted in increased anxiety and depression level.

The results of the present study were consistent with the finding of a study done by **Wilgen, (2008)**, who discovered that patients viewed FM as a chronic disorder with risks consequences. The results were inconsistent with a study about "Do cultural differences exist in the impact of illness perception and fibromyalgia on female patients from Spain and the Netherlands?" who founded those Spanish ladies outperformed than the Dutch females regarding the characteristics of "identity, timeline (acute/chronic), consequences, cyclical timeline, and emotional representation." Females in the Netherlands scored higher in personal control, disease coherence, and treatment control dimensions than Spanish females (**Montero et al., 2015**).

Perceptions examination of the study's patients about the causes of illness revealed that hereditary, diet, poor medical care in the past, behavior, smoking, alcohol use, and aging were the most common risk factors of the disease. Psychological attributions as stress,

mental attitude, family problems, overwork, personality, and emotional state were the second most common causes. This means that patients who reported more psychological attributions for their FM, such as stress or "emotional state," also had greater risk factor attributions, such as dietary habits, alcohol use, or heredity. This finding is in line with the finding of a study done by **Wilgen, (2008)**, who suggested that FM-specific attributions were connected to the psychological and risk factor attributions in a substantial way. The findings of a previous research revealed that, despite growing understanding of FM, the disease's etiopathogenesis remains unknown. Additionally appeared that there are several factors including genetic, psychological, immunological, hormonal, and environmental influences (**Albrecht et al., 2019 & Atzeni et al., 2019**).

The current study results were consistent with the finding of a study done by **Goldenberg, (2022)**, who noted that the etiology of fibromyalgia was unknown; nevertheless, many physical or mental factors such as infection, injury or stress may have a role in initiating symptoms, despite the fact that many patients had a life-long history of chronic pain. Also, in previous review fibromyalgia seems to run in families, other risk factors such as emotional and physical abuse, anxiety and depression or an infection raises the chances of getting fibromyalgia. The psychological attributions may an indicator to societal trends in which individuals had been found to be unable of dealing with challenges in an increasingly stressful life, and where life problems had been somatized and medicalized.

Concerning the participants' total scores of illness perception, the current study finding revealed that more than half of the studied woman had negative illness perception. Also, the current result illustrated high scores of the emotional representations, timeline acute/chronic, treatment control and consequences dimensions, while showed moderate scores for timeline cyclical and personal control dimensions and lastly the lowest scores were related to illness identity and illness coherence dimensions. This indicates that the patients in the current study had a poor comprehension about their condition and symptoms as a result of it, as well as had greater emotional manifestations, such as anxiety and depression, strong beliefs about the chronicity of the disease and its harmful implications due to FM. However, they also reported that they had fewer control on the treatment, personal interventions in managing their illness and cyclical nature of their condition. They also expressed lower beliefs regarding the number of symptoms associated with the illness and negative beliefs of their own personal understanding about their condition.

In the current study, it was shown that fewer than half of the women investigated had a moderate degree of anxiety when assessing the level of psychological distress (anxiety and depression). One-fifth of those polled experienced severe anxiety. This might be because FM was characterized by pain in various sites; it is a chronic and severe illness that could have a terrible impact on the lives of patients. As a result, it impacted patients' capacity to work, as well as their engagement in daily activities, and to form relationships which could directly affect the overall patient's quality of life and also the life of their dependents. This makes the patients vulnerable for anxiety. This result was consistent with the finding of a study done by **Muhammad & Ishaq, (2019)**, who illustrated a higher incidence of anxiety among patients with FM than healthy control group. On the other hand, this result is inconsistent with the finding of a study done by **Gutierrez et al., (2022)**, who found that those participants in the study had mild levels of anxiety.

The current result also revealed that, less than half of the studied women had a moderate level of depression, and less than one fifth of them had a severe level of depression. This might be due to persistent deep muscular pain, which is one of the major symptoms of FM, as it could occur early and lead to tension, anxiety, and social isolation. Chronic and recurrent pain lowers patient's mood and eventually leads to depression. These findings were consistent with the finding of a study done by **Sechi, (2021)**, who observed that the incidence of depressed symptoms among this population was increased, as more than half reporting moderate to severe depression symptoms. In the same vein, the finding of a study done by **Sarzi-Puttini et al., (2020)**, who noted that depression is common among patients with fibromyalgia and could have a significant role in illness development and severity. **Bruce, (2022)**, also suggested a link between fibromyalgia and depression. In fact, people with fibromyalgia are up to three times at higher risk of having depression at the time of their diagnosis than someone without fibromyalgia. Depressive symptoms worsen when the degree and duration of pain worsen.

High levels of anxiety and depression had been seen among the finding of many other studies with lots of variation regarding its prevalence. Fibromyalgia is a multidimensional illness that is accompanied by physical pain, psychological distress, and mental problems such as anxiety and depression (**Ismail & colleagues, 2022**). Previous studies also supported our current result regarding patients with fibromyalgia who had higher scores of anxiety and depression (**Cappe 2020; Galvez-Sánchez et al., 2020; & Geller, (2022)**). Women with FM demonstrated higher levels of anxiety and depressive

symptoms compared to healthy people. **Akay et al., (2022)**, who also stated in their study that, mild-moderate depressed and moderate-severe anxiety symptoms were present among patients with fibromyalgia. Depression and state anxiety were more prevalent among patients with FM compared to the other groups (**Vucurovic et al., 2020**).

Anxiety symptoms accompany a substantial proportion of depressive illnesses, just as depression and anxiety which frequently appear with multiple painful manifestations or induce painful manifestations or intensify depressed and anxious expressions. There is a lot of evidence that pain and depression had pathophysiological, neurophysiological, and technical imaging similarities (**Arango-Dávila & Rincón-Hoyos, 2018**). The reason for such variation in the prevalence of both anxiety and depression among different studies finding could be due to the use of different measurements scales to measure the levels of anxiety and depression, cultural differences, coping strategies or difference among the familial and social support. According to the current study findings, people with fibromyalgia syndrome had significant levels of depression and anxiety, indicating the existence of substantial psychological distress.

Concerning to Pearson's correlation between total scores of alexithymia and total psychological distress (anxiety and depression) among the studied women; the result illustrated that there was a statistically significant positive correlation between total alexithymia and total psychological distress (anxiety and depression). This may be due to inability of the studied women to identify and determine their own sensations properly restrict not only their capacity to manage their emotions, but also verbal expression about psychological discomfort, which could have a negative influence on anxiety and depression levels. Also, another condition that alexithymia could worsen anxiety and depressive symptoms as well as discomfort.

This result was consistent with the finding of a study done by **Montoro et al., (2016)**, who reported that alexithymia was more closely linked with clinical variables as pain, anxiety, depression, and QoL among healthy patients than among the FM group. Additionally, the present findings were consistent with the finding of a study done by **Horta-Baas et al., (2020)**, who found that nearly two thirds of the studied women had alexithymia and the prevalence was higher among women with depression. Female patients with FM and alexithymia had higher pain intensity, anxiety and depression levels, impairment perception, and a worse quality of life than those with FM alone.

The finding of a study done by **Di Tella et al. (2018)**, who also, demonstrated that patients with FM and alexithymia had greater levels of psychological distress than those without alexithymia. The current study's findings also showed a strong correlation between alexithymia specifically, regarding the difficulty identifying feelings and the affective aspect of pain perception. This finding supported to the idea that among people with chronic muscular diseases, alexithymia is more closely linked to the unpleasant affective aspect of pain than the sensorial one. Especially anxiety especially served as a mediator in the regarding relation between alexithymia and pain.

Concerning to the relation between overall illness perception and total psychological distress. The present study illustrated that there was a statistically significant negative correlation between total illness perception and total psychological distress (anxiety and depression). This was might be due that negative illness perception correlated with anxiety and depression. This result consistent with **Costa et al., (2016)**, who also concluded similar finding which noted that people suffering from chronic widespread pain may had unfavorable thoughts about their sickness (the illness affecting their emotional well-being). These variables were discovered to be linked with an increase in depressed and anxious symptoms. Cross-sectional research had also found that more severe pain and negative illness perceptions were associated with depression and anxiety among patients with chronic pain and rheumatic disorders (**Ligthart et al., 2014 & Järemo et al., 2017**).

This conclusion supported the main results of the finding of a study done by **Sagar et al., (2021)**, who stated that alexithymia and depression were highly correlated. Individuals with alexithymia had difficulties connecting their emotional states to the causes that produce these emotions. As a result, patients with alexithymia are unable to control and cope well with unpleasant emotions following stressful situations, resulting in the continuation of negative feelings, which may lead to depressive symptoms. In other words, those with alexithymia were more likely to experience undifferentiated unpleasant emotional feelings.

With regard to the correlation between total illness perception and total alexithymia, there was a statistically significant negative correlation between total illness perception and total alexithymia. This was might be agreed with the results of the present study about illness perception that represent weak beliefs about symptoms attributed to the illness and negative beliefs about the personal understanding of the condition as well as experiences emotional representations (greater emotional distress). Furthermore, weak beliefs regarding cyclical

identification of disease and little personal interventions in managing the illness all together lead to negative illness perception which correlates significantly with presence of alexithymia among the studied woman with FM. Previous study has shown that alexithymia had strong positive connections with depression and anxiety.

Alexithymia exhibited substantial positive associations with anxiety and depression once all data was fitted. In other words, higher levels of alexithymia will aggravate the patients' depression and anxiety levels. This might be because Alexithymia may affect emotional adjustment, focus, processing, and appraisal of cognitive and emotional information. As a result, people with alexithymia struggle to deal with stressful situations, notably illnesses. This reinforced feelings of inadequacy among such group and exacerbates unpleasant emotions such as anxiety and sadness. The current study's findings were consistent with earlier research on alexithymia and anxiety and depression. According to **Nekouei et al., (2014)**, who reported similar result that alexithymia has substantial positive correlations with depression and anxiety. Similarly, **Marchi et al., (2019)**, who confirmed in their study that there is substantial link between alexithymia and psychological discomfort among FM.

The present study represents a significant negative predictor of illness perception with anxiety and depression. Meaning, increased negative illness perception among patients with fibromyalgia was associated with more severe depression and anxiety symptoms. This finding was similar with the findings of a study done by **De Heer et al. (2017)**, who proposed that negative cognitions regarding the disease and the initial degree of affective symptoms were more relevant risk factors regarding the development of later depressed and anxious symptomatology. On the other hand, this result agrees with the finding of a study done by **Järemo et al., (2017)**, who noted that restricting illness beliefs among patients with chronic widespread pain was associated with lower health status, particularly in situations of a high number of physical or mental symptoms, negative consequences beliefs, or when illness hurting them emotionally.

Conclusion:

It was concluded that negative illness perception and alexithymia among women with fibromyalgia are significantly associated with anxiety and depressive symptoms. Therefore patient's illness perception should be managed as well as level of alexithymia in order to improve FM symptoms for better psychological status.

Recommendations:

1. Psycho-educational intervention programs for such group of women to reduce the consequences of fibromyalgia.
2. Stress management program for women with fibromyalgia to decrease their psychological distress.
3. Awareness programs to increase illness perceptions among patients with FM.
4. Skills-based therapies such as cognitive behavioral therapies may be very beneficial for persons suffering from alexithymia.
5. Further study with large group and male patients in order to generalize the results.

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