Alexithymia and psychological distress in fibromyalgia: prevalence and relation with quality of life

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ABSTRACT

Objective. *Fibromyalgia (FM) is a chronic syndrome characteris ed by widespread musculoskeletal pain associated with other symptoms like fatigue, stiffness, non-restorative sleep and psychological distress that strongly affects the quality of life in FM patients. While the psychological distress has been widely explored in FM, only a few studies investigated alexithymia, an emotional dysregulation trait.*

Aims. *Evaluate the prevalence of alexithymia and psychological distress and their impact on patients quality of life.*

Methods. *A battery of tests assessing alexithymia, depression, anxiety, emotional distress symptoms and the health related quality of life (HRQoL) was filled out by 55 female FM patients. After having analysed their prevalence, two regression analyses were performed in order to evaluate the role that alexithymia, depression, anxiety, emotional distress and pain characteristics have on quality of life of FM patients.*

Results. *Results showed that a clinically relevant level of psychological distress was present in more than half of our sample, whereas alexithymic traits were present in 20% of the patients. Regression analyses showed that pain intensity, depression and current pain were the variables that best contribute to explain the physical component of the HRQoL while anxiety, depression and pain intensity were the variables that mainly contributed to explain the mental component of quality of life.*

Conclusions. *These results underline the high prevalence of alexithymia in FM patients and the great impact of psychological symptoms on FM patients HRQoL. Wholistic care of FM patients which addresses both physical and psychological symptoms is needed.*

Introduction

Fibromyalgia (FM) is a chronic syndrome characterised by widespread musculoskeletal pain with specific regions of localised tenderness, in the absence of apparent organic disease to justify it (1-3). While the etiology is still unclear, accumulating data suggests that FM is a central sensitisation syndrome in which dysfunctional central pain processing plays a key role in the pathogenesis of symptoms (4). Its prevalence is estimated to be between 3–6% of the world population (WHO, 2008), with predominance for the female sex (3.4% F *vs*. 0.5% M) (5).

Pain, characterised by hyperalgesia and allodynia, is often accompanied by a heterogeneous series of other symptoms, including fatigue, stiffness, disrupted or non-restorative sleep, irritable bowel, headache, psychological distress and cognitive impairment (1). High levels of emotional distress, as well as a large number of lifetime psychiatric diagnoses were found to be strongly associated with FM (5). High prevalence of depressive (between 20 to 80%) and anxiety (13 to 63.8%) disorders had been reported (7).

While the psychiatric comorbidities and the psychological distress had been widely explored in FM, only a few studies focused on alexithymia, a multifaceted personality construct that affects the regulation of emotions (8-11). Alexithymia is characterised by a difficulty in identifying and describing subjective feelings, a difficulty distinguishing between feelings and the bodily sensations of emotional arousal, constricted imagination capacities, such as paucity of fantasies, and an externally oriented cognitive style (12). Alexithymia has been associated with various psychiatric and medical disorders (13), including chronic pain (14-17) and FM (8, 9, 18, 19). In particular,

it has been suggested that the inability of adequately identifying physical sensations such as the somatic manifestations of emotions makes alexithymic individuals susceptible to incorrectly attributing innocent physical symptoms to physical disease (20).

The physical and psychological distress experienced by FM patients strongly interferes with social and work performance and affects quality of life (21). Understanding the role of alexithymia in FM syndrome is therefore important not only for a better understanding of the disease etiology but also for psychological treatment.

The present study aimed at addressing two objectives. The first goal was to evaluate the prevalence of alexithymia, as well as psychological distress (depression, anxiety and emotional distress symptoms) and the health related quality of life (HRQoL) in a sample of FM patients. Secondly, a regression analysis was run in order to analyse the role of alexithymia, depression, anxiety, distress and pain characteristics on the quality of life of FM patients. We speculated that the presence of alexithymic trait could negatively influence the impact that fibromyalgic symptoms had on daily quality of life.

Patients and methods

The study was carried out on a consecutive series of FM patients referred to the Fibromyalgia Integrated Outpatient Unit (FIOU), a multidisciplinary unit based on the collaboration between rheumatologists, psychologists and psychiatrists at the San Giovanni Battista University Hospital of Turin. Only female patients with a main diagnosis of fibromyalgia, made by an expert rheumatologist (E.F.), were recruited for the study. Exclusion criteria were less than 18 years old, low educational level (<5 years) or insufficient knowledge of the Italian language that would prevent filling out the questionnaires.

Procedure

The usual clinical practice for FM patients presenting themselves at our rheumatologic unit includes a first visit with the rheumatologist that made/confirm the diagnosis of FM and a second visit with a psychologist and a psychiatrist together with the rheumatologist in order to formalise the patient care by the FIOU. Out of the 81 consecutive FM patients taken in care during the period January 2011 – January 2012, 13 refused to participate in the study and 13 were excluded according to the exclusion criteria. 55 patients composed the final sample.

During a separate session, subjects filled out psychological scales after a clinical and psychological interview that assessed socio-demographic and clinical characteristics. The study was approved by the ethic committee and all the patients gave a written informed consent.

Measures

Socio-demographic and clinical characteristics

For each subject, socio-demographic and clinical information were collected on a predisposed data sheet. Severity of disability due to FM was measured with the Italian version of the Fibromyalgia Impact Scale (FIQ) (22, 23). The questionnaire includes 20 items that measure physical functioning, number of days that patient felt well and that failed to work in the last week, work capacity, pain, fatigue, morning tiredness, stiffness, anxiety and depression. The overall score range from 0 to 100, with the highest score corresponding to the higher level of impairment.

Alexithymia

Alexithymic features were assessed using the Italian version of the 20-Item Toronto Alexithymia Scale (TAS-20) (24, 25). Subjects were asked to indicate the extent to which they agreed or disagreed with each statement on a five-point Likert scale. The results provide a TAS-20 total score and three subscale scores measuring different facets of alexithymia: the subscale "Difficulty identifying feelings" (F1) measures the inability to distinguish among specific emotions and between emotions and the bodily sensations of emotional arousal; the "Difficulty describing feeling" subscale (F2) measures the inability to verbalise one's emotions to other people; and the "Externally-oriented thinking scale" (F3) concerns the difficulty focusing on inner affective experience. Cut-off points were used to divide patients into non alexithymic (total score ≤51), borderline (total score between 51 and 61) and alexithymic (total score ≥61) (13).

Psychological distress

Distress has been defined as a multidimensional construct that extends along a continuum, ranging from normal feelings of vulnerability, sadness and fears to problems that can become disabling, such as depression, anxiety, panic, social isolation and existential crisis (26). Presence of depressive and anxiety symptoms were assessed using the Italian version of the Hospital Anxiety and Depression Scale (HADS) (27, 28). It consists of 14 items on a 0 to 3 range. It is divided into two subscales, one for depression and one for anxiety. Each subscale score range from 0 to 21 and a score of 8 or more suggests a clinically relevant level of depression/anxiety symptoms (29). The level of emotional distress was measured using the Distress Thermometer (DT) (30). It is composed by a scale ranging between 0 (No distress) and 10 (Extreme distress). A score equal or greater than 4 indicates a clinically relevant distress (31).

Throughout the paper, we will refer to depression, anxiety and emotional distress scales globally with the term "psychological distress". The term "emotional distress" will be used for DT.

Pain

As index of the pain intensity (PI), the item "Pain" of the FIQ, that assesses the average intensity of pain in the last week on a scale ranging between 0 and 10, was used. The intensity of current pain (CP) was instead measured using a visual analogue scale (VAS), ranging from 0 (No pain) to 10 centimeters (Extreme pain).

Health related quality of life (HRQoL)

The health related quality of life was assessed with the Italian version of the Short-Form 36 Health Survey (SF-36) (32, 33). It consists of 36 items divided into two main sub-scales: the Physical Component (SF36-PC) and the Mental

Component (SF36-MC). The SF36-PC is composed by the dimensions Physical Functioning (PF), Physical Role Functioning (RP), Bodily Pain (BP) and General Health (GH). The SF36-MC includes Vitality (VT), Social Functioning (SF), Emotional Role Functioning (RE) and Mental Health (MH). The final score for each dimension and for the two components ranges from 0 to 100, with the highest score corresponding to a better condition.

Statistical analyses

Normal distribution was assessed using Kolmogorov-Smirnov test. Only three subscales of the SF-36 (RP, SF and RE) were not normally distributed (p-value <0.01). These scales were excluded from the following analyses.

Alexithymic traits and HRQoL were analysed and compared with normative data from Italian healthy population (24, 33). The standardised scores of each scale and subscale of the TAS-20 and the SF-36 were calculated according the formula (subject score – population mean score) / population standard deviation. One-sample t-tests were then used in order to verify if the means of each of these new variables were different or equal to zero. If data of our sample were comparable with normative data of the Italian healthy population, the means should not be significantly different from zero, and the results of the one-sample t-tests should be not significant.

As appropriate, Spearman or Pearson bivariate correlations were used to analyse the relationship between alexithymia and demographical variables (age and educational level), psychological variables (depression, anxiety and distress), pain (pain duration, pain intensity and current pain) and HRQoL.

Hierarchical multiple regression analysis was used to investigate if alexithymia was a significant contributing factor for the explanation of HRQoL in FM patients, controlling for other potentially confounding and competing predictor constructs. As dependent variables, Physical Component and Mental Component scores of the SF-36 were used. The predictor groups were entered into the regression model according to the following schema: potentially confounding variables (age and educational level), alexithymia, and competing predictors (depression, anxiety, distress, pain duration, pain intensity and current pain). Stepwise method was used for variables inclusion of competing predictors.

To avoid unnecessary reductions in statistical power, confounding and competing predictors variables were included in the regression models only when they were significantly correlated with the dependent variables (p-value <0.05). All the variables introduced into the regression models were normally distributed. Collinearity was assessed by the statistical factor of tolerance and Variance Inflaction Factor (VIF). All the analyses were performed with the software SPSS 17.

Table I. Demographical and clinical characteristics of the 55 patients.

Variable		Mean (SD)	n (%)	Range
Age		52.8 (10.5)		29-72
Pain duration (months)		98.7 (81.6)		4-384
Current pain (CP)		5.5 (2.7)		0-10
Pain intensity (PI)		6.9 (2.3)		2-10
FIQ		60.2 (16.3)		26-86
Severe FM (FIQ >70)			17 (30.9)	
Educational level	Primary School		8 (14.5)	
	Secondary School		25 (45.5)	
	Higher School		17 (30.9)	
	University		4 (7.3)	
Marital status	Single		5 (9.1)	
	Living together		2 (3.6)	
	Married		40 (72.7)	
	Divorced		5 (9.1)	
	Widowed		3 (5.5)	
Work status	Employed		30 (54.5)	
	Unemployed		3 (5.5)	
	Retired		11 (20)	
	Non-working / Housewife		11 (20)	

FIQ: Fibromyalgia Impact Scale.

Results

Data on the socio-demographic and clinical variables are presented in Table I.

Psychological variables

Alexithymia

Data regarding alexithymia are presented in Table II. About half of the sample reported the presence of alexithymic trait at a clinical (11 patients) or subclinical (15 patients) level. After having been standardised using mean and standard deviation of Italian healthy normative population, one sample t-tests were performed on the standardised total score (TAS-20 std) and on the standardised three factors scores (TAS-F1 std, TAS-F2 std, TAS-F3 std). The results showed a significant p-value for the total score (0.002) and for the subscale F1 (<0.001), both presenting a mean greater than 0 (Table II). These analyses showed that FM patients had a mean score significantly higher than normative sample on the alexithymic trait and that this result was due in particular to the F1 factor. For this reason, only F1 factor ("Difficulty identifying feelings") was used in the following analyses.

Psychological distress

As shown in Table III, a clinically relevant level of depression, anxiety and distress was present in more than half of our sample.

Concerning the HRQoL, the subscales of the SF-36 presented low average values, tending towards the worse condition (Table III). All these scores were lower than the normative data of Italian healthy population. The one sample t-tests applied on the standardised scores presented p-values smaller than .001 and these results underlined a significantly worse quality of life in

Table II. Toronto Alexithymia Scale (TAS-20) results and comparisons with the normative data on Italian healthy population.

	Mean (SD)	n (%)	Normative data Mean (SD)	T	df	*p*-value
TAS-20	49.9 (11.9)		44.7 (11.3)	3.29	54	0.002
Non-alexithymic		29 (52.7)				
Borderline		15 (27.3)				
Alexithymic		11 (20)				
TAS-F1	19.31 (6.9)		14.6 (6.0)	5.03	54	<0.001
TAS-F2	13.05 (4.5)		13.1 (4.8)	-0.07	54	0.94
TAS-F3	17.62 (4.8)		17.1 (4.9)	0.79	54	0.43

Data of the total score of the Toronto Alexithymia Scale (TAS-20), the relative categorical distribution and of the three subscales (TAS-F1, TAS-F2, TAS-F3).
Non-alexithymic: TAS-20 score between 20-51; Borderline: TAS-20 score between 52-60; Alexithymic: TAS-20 score higher than 60.
One sample *t*-tests, applied on the corresponding standardised scores (TAS-20 std, TAS-F1 std, TAS-F2 std and TAS-F3 std), were used for the comparison with the normative data on Italian healthy population.

Table III. Psychological distress, health related quality of life and comparisons with the normative data on Italian healthy population.

	Mean (SD)	n (%)	Range	Normative data Mean (SD)	T	df	*p*-value
HADS							
Global score	17.6 (8.4)		2–31				
Depression (HADS-D)	8.8 (4.6)		1–18				
Depressed (score≥8)		*33 (60)*					
Anxiety (HADS-A)	8.8 (4.5)		1–18				
Anxious (score≥8)		29 (52.7)					
DT	5.5 (2.7)		0–10				
(score≥4)		40 (72.7)					
SF-36							
Physical Functioning	49.4 (22.3)		0–100	84.5 (23.2)	-11.6	54	<0.001
Physical Role Functioning	23.4 (29.5)		0–100	78.2 (35.9)			
Bodily Pain	31.2 (17.1)		0–68.9	73.7 (27.6)	-18.4	54	<0.001
General Health	37.1 (20.5)		5–87	65.2 (22.2)	-10.2	54	<0.001
Physical Component	35.3 (17.6)		7.5–83.4				
Vitality	33.2 (17.6)		5–70	61.9 (20.7)	-12.1	54	<0.001
Social Functioning	50.7 (21.8)		0–100	77.4 (23.3)			
Emotional Role Functioning	44.2 (41.1)		0–100	76.2 (37.2)			
Mental Health	51.5 (20.9)		0–92	66.6 (20.9)	-5.3	54	<0.001
Mental Component	44.9 (20.7)		7.5 – 90.5				

HADS: Hospital Anxiety and Depression Scale; DT: Distress Thermometer; SF36: Short-Form 36 Health Survey.

FM patients. Also the three subscales not normally distributed (RP, SF and RE) showed a score lower than the normative data. Overall HRQoL results showed a worse quality of life of FM patients in all the dimensions measured by the SF-36.

Correlations and regressions

Results of bivariate correlations are presented in Table IV. Age and educational level were not significantly correlated with the other variables, so they are not shown in the table.

Higher scores on alexithymic F1 factor were significantly correlated with higher scores on the three scales measuring psychological distress (depression, anxiety and emotional distress) and negative correlated with both the physical and mental component of the SF-36. No correlations were found between alexithymia and variables assessing pain. Pain duration was correlated only with the depression scale, whereas current pain and pain intensity showed a negative correlation with the two components of the quality of life.

To investigate if alexithymia was a significant predictor of quality of life in FM patients, two hierarchical multiple regression analyses were performed. In the first model, the Physical Component Score of the SF-36 was used as dependent variable whereas the Mental Component Score was used in the second. Since the variables of age, educational level and duration of pain did not correlate with the criterion, they were no longer included in the regression analyses.

Regarding the Physical Component, alexithymia ceased to be a predictive factor when depression was entered into the analysis. The final model (Table V) explained the 65% variance of the SF36-PC and pain intensity appeared to be the strongest contributor (β= -0.406, *p*-value <0.001), followed by depression (β=-0.345, *p*-value <0.001). HADS-A and DT did not contribute in a significant way in the explanation of the variance.

Concerning the Mental Component of the SF-36, alexithymia ceased to be a predictive factor with the introduction of anxiety into the model (Table VI). In this case, anxiety (β= -0.384, *p*-value <0.01) and depression (β=-0.252, *p*-value <0.05) were the strongest contributors of the final model, that explained 67% of the variance.

In both the regression analyses, the statistical factors of tolerance and Variance Inflaction Factors (VIF), that assessed collinearity, showed that there were no interfering interactions between the variables.

Discussion

The present study aimed at addressing two main issues. Firstly, we investigated the prevalence of alexithymia among a consecutive series of 55 FM patients. Afterwards we analysed the specific impact that alexithymic trait, together with pain and other psychological symptoms including depression, anxiety and emotional distress could have on the patients' quality of life, as for its mental and physical components.

Results showed that alexithymia was present in 20% of the patients; the percentage increased to 47% when patients with alexithymic trait at a

Table IV. Pearson correlations among pain, psychological distress, quality of life and alexithymia.

	1	2	3	4	5	6	7	8
Pain duration	-							
PI	0.190							
CP	0.103	0.620**						
HADS-D	0.370**	0.354**	0.275*					
HADS-A	0.225	0.411**	0.297*	0.694**				
DT	0.175	0.366**	0.379**	0.674**	0.736**			
SF36-PC	-0.247	-0.688**	-0.587**	-0.592**	-0.509**	-0.513**		
SF36-MC	-0.261	-0.479**	-0.372**	-0.674**	-0.760**	-0.641**	0.653**	
TAS-F1	0.095	0.171	0.092	0.427**	0.598**	0.425**	-0.332*	-0.571**

PI: Pain Intensity; CP: Current Pain; HADS-D and HADS-A: Depression and Anxiety subscales of the Hospital Anxiety and Depression Scale; DT: Distress Thermometer; SF36-PC and SF36-MC: Physical and Mental Component of the Short-Form 36 Health Survey; TAS-F1: Difficult identifying feelings factors of Toronto Alexithymia Scale.
*<0.05. **<0.01.

Table V. Hierarchical multiple regression with Physical Component of Quality of life (SF36-PC) as dependent variable.

Model	Predictor	R^2	Adj R^2	F	ΔR^2	F-change	β	T	*p*-value
1		0.11	0.09	6.57*	0.11	6.57*			
	TAS-F1						-0.33	-2.56	0.013
2		0.52	0.50	28.29**	0.41	44.61**			
	TAS-F1						-0.22	-2.27	0.027
	PI						-0.65	-6.68	<0.001
3		0.62	0.60	27.58**	0.10	13.04**			
	TAS-F1						-0.08	-0.88	0.385
	PI						-0.55	-5.89	<0.001
	HADS-D						-0.36	-3.61	0.001
4		0.65	0.62	23.37**	0.03	4.72*			
	TAS-F1						-0.09	-1.02	0.313
	PI						-0.41	-3.70	0.001
	HADS-D						-0.35	-3.53	0.001
	CP						-0.23	-2.17	0.035

TAS-F1 was entered in the first block, whereas depression, anxiety, distress, current pain and pain intensity were entered in the second block with the stepwise method. At each step the model introduced the variable showing the higher correlation with the criterion and stopped when no other variables significantly improved the model.
TAS-F1: Difficult identifying feelings factors of Toronto Alexithymia Scale; PI: Pain Intensity; HADS-D: Depression subscales of the Hospital Anxiety and Depression Scale; CP: Current Pain.
*p-value <0.05. **p-value <0.01.

subclinical level were included. These percentages were found to be significantly higher with respect to the ones of the general population, estimated between 6 and 8% (19). The difference was mainly due to difficulties in identifying feelings in FM patients, whereas the other subcomponents of the TAS-20, "Difficulty describing feeling" and the "Externally-oriented thinking", were not significantly different from normative data. To date, only a few studies have evaluated the prevalence and the role of alexithymia in FM patients (7, 10, 11, 19, 20). Our results are in line with a precedent study in which Huber and colleagues found a significant difference between a sample of female FM patients and the Italian healthy normative data only on the "Difficulty identifying feeling" factor of the TAS-20 (10). In another study, Steinweg and colleagues, comparing FM patients with rheumatoid arthritis and general medicine patients found a similar result, showing a high prevalence of alexithymia in the FM group. Also in this case, the difference between groups was significant only for the "difficulty identifying feelings" subcomponent (19).

The association between FM and psychological distress has been analysed in a growing number of studies (7). Generally, the reciprocal influence between pain and depression, both in its somatic and emotional components, has been widely discussed in previous studies (34). From a biological standpoint, it is well known that depression and stress are related to a hyperactivation of the hypothalamic-pituitary-adrenocortical (HPA) axis and, consequently, the increased production of corticotropin-releasing factor (CRF) can result in an increased pain perception.

Our results showed that FM patients presented a clinically relevant depressive (60%) and anxiety (52%) symptomatology. The perceived level of emotional distress experienced in the last week, as measured by the DT, was found to be relevant in 72% of the patients, confirming the high level of emotional distress affecting FM patients.

The chronic pain and psychological distress experienced by FM patients strongly affect HRQoL that refers to the influence that a disease and/or its treatment has on the emotional, physical and social aspects of the daily experience (35, 36). Data in the literature highlighted that FM causes more severe disability in daily activities than other chronic disorders and rheumatic conditions and has a severe negative impact on the HRQoL (37-42). Our patients presented a low HRQoL both for its physical, psychological and social components.

Taken together these results showed that FM patients are affected by a high level of psychological distress. In addition we pointed out that alexithymia, an emotional dysregulation trait poorly studied in FM patients, was significantly more present in our patients with respect to the normative healthy population.

As for the second goal of this study, we investigated whether alexithymia was a contributing factor for the explanation of physical and mental HRQoL in FM patients performing two hierarchical regression analyses. Psychological distress variables and pain characteristics were used as potentially confounding and competing predictor constructs of the model, whereas the SF36-PC and

Table VI. Hierarchical multiple regression with Mental Component of Quality of life (SF36-MC) as dependent variable.

Model	Predictor	R^2	Adj R^2	F	ΔR^2	F-change	β	T	*p*-value
1		0.33	0.31	25.69**	0.33	25.69**			
	TAS-F1						-0.57	-5.07	<0.001
2		0.60	0.58	38.84**	0.27	35.34**			
	TAS-F1						-0.18	-1.66	0.103
	HADS-A						-0.65	-5.95	<0.001
3		0.64	0.62	30.10**	0.04	5.66*			
	TAS-F1						-0.18	-1.69	0.098
	HADS-A						-0.46	-3.49	0.001
	HADS-D						-0.28	-2.38	0.021
4		0.67	0.64	25.47**	0.03	4.81*			
	TAS-F1						-0.20	-1.97	0.054
	HADS-A						-0.38	-2.91	0.005
	HADS-D						-0.25	-2.22	0.031
	PI						-0.20	-2.19	0.033

TAS-F1 was entered in the first block, whereas depression, anxiety, distress, current and overall pain intensity were entered in the second block with the stepwise method. At each step the model introduced the variable showing the higher correlation with the criterion and stopped when no other variables significantly improved the model.
TAS-F1: Difficult identifying feelings factors of Toronto Alexithymia Scale; HADS-A and HADS-D: Anxiety and Depression subscales of the Hospital Anxiety and Depression Scale; PI: Pain Intensity.
*p-value <0.05. **p-value <0.01.

the SF36-MC were used as dependent variables. Two pain indices were introduced into the analyses: the current pain and the average pain intensity of the previous week. Pain duration showed to be positively correlated with depression but not with the HRQoL. For this reason, it was not introduced into the regressions.

Concerning the SF36-PC, pain intensity and depression were the variables that best explain the variance of the dependent variable, followed by the current pain. The presence of anxiety and depressive symptoms were, instead, the variables that mainly explain the variance of SF36-MC, followed by pain intensity. Since chronic pain is the main symptom in FM, it is not surprising that pain intensity was the main explaining factor of the physical component of HRQoL and this result is in accordance with the data present in the literature (43, 44). Furthermore the fact that psychological variables played a key role on the mental component of quality of life is in accordance with results reported by previous studies (43-46). What is new is the fact that depressive symptoms played an important role also on the physical component of HRQoL of FM patients. This last result is in contrast with a previous study in which only pain intensity, but not depression, explained the physical components of HRQoL (44). Although it has been shown that pain intensity and pain persistence in FM are independent from a coexistent depression (47) or a concomitant psychological distress (48), our results seem to suggest that both these variables have a similar weight on the FM patients' physical disability. This finding underlines once again the multidimensionality of FM and the multiplicity of factors that contribute to the disability caused by this pathology. Moreover, it has an important implication on the treatment of FM, underlining the importance of wholistic care that addresses both the physical and mental symptoms of FM. A multidimensional approach that includes the assessment of psychological aspects is important in order to provide a patient-tailored therapy, aiming at optimising treatment efficacy, and at minimising costs and risk due to use of ineffective therapies.

Although alexithymia was present with a high prevalence in FM patients, our study showed that it does not seem to be a factor that directly influences the quality of life. In fact in both the regression analyses performed, alexithymia ceased to significantly contribute to the explanation of HRQoL variance when the psychological distress variables (depression for the physical component and anxiety for the mental component of HRQoL) were added as competing predictors. This suggests that the relationship between FM and alexithymia is partially mediated by the presence of psychological distress. It is possible that the inability to identify accurately their own subjective feelings, not only limits individuals with high degrees of alexithymia in their ability to reflect on and regulate their emotions, but also in the verbal communication of psychological distress, with a failure in the enlistment of other people for aid or comfort (13). This could enhance the isolation and the feeling of not being understood and have a negative impact on depression and anxiety levels.

The present study has three main limitations. First of all, given the limited number of patients, our results have to be interpreted and generalised with caution. Secondly, only female patients were included in the study, so it is not possible to generalise our results to male FM patients. Thirdly, we did not include a control group of patients. Further studies comparing FM patients to patients with rheumatoid arthritis – a pathology with chronic pain but with a low psychosomatic component- should be carried out.

Conclusions

In conclusion, the present study, besides confirming the high presence of psychological distress, suggests that, in order to treat FM patients and improve their quality of life, it is important to also take into consideration these aspects. In fact, results of regression analyses showed that the daily disability and the low quality of life present in these patients were explained also by the presence of psychological distress and not merely by pain intensity. Depressive and anxiety symptoms were the factors that better explained the impact that FM had on the mental components of quality of life, such as the vitality level. In addition, our results showed that depression was important also in the explanation of the physical components of quality of life, affecting for instance physical and work activities.

Furthermore, our study provided evidence about the high prevalence of

alexithymia in FM patients, confirming the importance of including the evaluation of this emotional dysregulation trait in the clinical practice (19).

Although alexithymia seems not to have a direct impact on the health related quality of life of FM patients, it seems, however, to have an indirect effect on the quality of life, partially mediated by the psychological distress. In fact, not only alexithymic traits interfere with the daily ability to identify accurately their own subjective feelings, but they make it difficult for patients to report their psychological distress symptoms so that they could remain underestimated and underdiagnosed and, consequently, undertreated. The inclusion of alexithymia in the psychological screening of FM patient would allow clinicians to avoid this bias, and will allow them to plan the better pharmacological and/or psychological treatment in order to improve the quality of life of FM patients (49-52).

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Author contribution

Study designed by LC, PSP, RT; data collected by EF, MB and FC; data analysed by VT; paper written by LC and VT; interpretation of data made by SM and PL; results and paper discussed and final version approved by all authors.

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