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Alexithymia in Fibromyalgia Syndrome

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1. Introduction

Fibromyalgia Syndrome (FMS) is one of the most frequent rheumatologic conditions, its main characteristic being chronic diffuse musculoskeletal pain and hyperalgesia, likely due to altered central processing of pain (1). Fibromyalgia symptoms are not restricted to pain. Besides the painful setting, these patients often complain of fatigue, sleep disturbances, morning stiffness, and paresthesia on the extremities, subjective edema sensations and cognitive disturbances. Many patients experience cognitive dysfunction known as "fibrofog" which may be characterized by impaired concentration. Cognitive symptoms in these patients may be exacerbated by the presence of depression, anxiety, sleep problems, endocrine disturbances, and pain.

Association with other comorbidities is often found, contributing to the suffering and decline in quality of life of these patients. Among the most frequent comorbidities found, it can be mentioned depression, anxiety, chronic fatigue syndrome, myofascial syndrome, irritable bowel syndrome and nonspecific urethral syndrome (2).

Various researches show that there were relation between chronic pain and cognitive dysfunction in FM patients. Managing chronic pain may take some cognitive effort and this may interfere with performance on cognitive tasks. This is important because even though FMS patients report cognitive symptoms, physicians and scientists must consider the possibility that because FM patients experience many symptoms, there may be a tendency to mistake normal, everyday lapses on cognition as something more serious (3).

2. Relational issues and alexithyma

It has been argued that alexithymia is one of the major disturbances about cognitive difunction. The core disturbance in alexithymia is a deficit in the cognitive processing and regulation of emotions. Thus, some of the emotional and behavioural disturbances associated with fibromyalgia may reflect the presence of alexithymia. (4)

The high rate of alexithymia as well as anxiety and depression may be seen in FMS patients. Several reports reveal the existence of a relationship between alexithymia, depression and anxiety. Hendryx et al. (5) suggested that alexithymia is multidimensional feature. They also reported that alexithymia was related to generalized anxiety and depression. Anxiety and depression are often precedes or manifest after fibromyalgia.

3. The etiology of alexithymia

Although environmental, neurological, and genetic factors are each involved, the role of genetic and environmental factors for developing alexithymia is still unclear.

Alexithymia is considered to be a personality trait. It seems to have a connection with several chronic conditions including FMS. Muftuoglu et al. (6) studied alexithymic features and affective states in migraine patients and found that migraine patients were significantly more depressive, anxious, and alexithymic than the control group. Also Yucel et al. (7) studied depression and alexithymia in patients with tensiontype headache. They found that compared to healthy controls, the subjects with headaches had significantly higher scores on measures of depression and alexithymia. However, to date, a clear correlation between alexithymia and pain has not been established (8).

The term "alexithymia" derived from the Greek words "a" (lack), "lexis" (word), and "tymos" (emotion). It was first introduced by Sifneos in 1972 (9). The original definition of alexithymia is difficulties to identifying and describing feelings (10). Alexithymia is a multifaceted personality construct characterized by a reduced ability the emotions and a tendency to utilize an externally-focused.

Some researchers hypothesized that alexithymia is associated with brain abnormalities (11, 12). Neuroimaging studies found that alexithymia may be associated with a higher level cognitive deficit in estimating emotional inputs rather than a lack of neuronal response in structures representing lower level processing of emotional stimuli (13). Biopsychosocial model including psychological factors as well as factors related to perturbation of the autonomic nervous system and the HPA-axis explained a substantial part of variance of pain in the fibromyalgia patients. Psychological distress was strongly associated with perceived pain, and only affective pain was found to be associated with autonomic reactivity.

An early theory of pain localization in the CNS was the gate control theory (14). A goal of this theory was to provide mechanisms whereby one differentiates between innocuous and noxious stimulation. Inherent to this undertaking was the effort to explain two cognitive domains of pain processing; sensory-discriminative and affective-motivational. The concept of a duality in CNS pain processing was amplified by Albe-Fessard et al. (15) who suggested these domains are differentially localized in the thalamus. The lateral nuclei were thought to mediate sensory-discrimination and the medial nuclei the affective-motivational component of processing. Although its likely these functions are subserved in part by the two thalamic divisions as proposed, accounting for multiple aspects of the conscious experience of pain with thalamic mechanisms alone is difficult. Particularly in light of the prominent projections of the medial and lateral thalamic nuclei to different parts of the cerebral cortex and the role of the cortex in anticipation and memory of many events including those associated with painful experiences. Indeed, one of the main functions of cortical pain processing is integrating the pain experience with other cortical information processing functions. A complete model of the medial and lateral systems, therefore, requires consideration of many cortical areas that are involved in such functions in addition to thalamic sites. (16)

It has long been known that ablations of cingulate cortex (cingulotomy lesions) or its underlying white matter (cingulumotomy lesions) alleviate pain in chronic conditions. In Neurobiology of Cingulate Cortex and Limbic Thalamus (17), it was proposed that projections of the midline and intralaminar thalamic nuclei to Anteror cingulate cortex

provided a cortical substrate for the affective-motivational aspects of pain processing. Nociceptive stimuli may evoke brain responses longer than the stimulus duration often partially detected by conventional neuroimaging. Fibromyalgia patients typically complain of severe pain from gentle stimuli.

Anterior cingulate cortex, for example, has been shown to play an essential role in pain perception and pain control, brain imaging studies in FMS patients point to alterations in regional cerebral blood flow (18, 19).

Early studies showed evidence that there may be an interhemispheric transfer deficit among alexithymics; that is, the emotional information from the right hemisphere is not being properly transferred to the language regions in the left hemisphere, as can be caused by a decreased corpus callosum, often present in psychiatric patients who have suffered severe childhood abuse.

A neuropsychological study indicated that alexithymia may be due to a disturbance to the right hemisphere of the brain, which is largely responsible for processing emotions (20). In addition, another neuropsychological model suggests that alexithymia may be related to a dysfunction of the anterior cingulate cortex (21). These studies have some shortcomings however, and the empirical evidence about the causes of alexithymia remains inconclusive (22). It has been reported that there were strong focus by clinicians on neurophysiological at the expense of psychological explanations for the genesis and operation of alexithymia, and introduced the alternative term "disaffectation" to stand for psychogenic alexithymia. The disaffected individual had at some point "experienced overwhelming emotion that threatened to attack their sense of integrity and identity", to which they applied psychological defenses to pulverize and eject all emotional representations from consciousness (23).

Alexithymia has also been found to be related to dysfunction in the posterior cingulate cortex during various mental imagery conditions (24). Lane et al. (25) stressed the core feature of alexithymia as a deficit in conscious awareness of emotions (e.g., differentiating, symbolizing emotions and appreciating complexity in the experience of self and other). Thus, alexithymia refers to impairment in not only affective but also cognitive emotional processing.

All attempts at elucidating the etiology of alexithymia must be considered theoretical and speculative. Since the clinical criteria and measurement of alexithymia have not been standardized, it seems premature to be focusing exclusively on etiological models. However, theoretical speculations may lead to testable hypotheses, which could then serve to validate the concept itself.

4. Prevalence of alexithymia

In studies of the general population the degree of alexithymia was found to be influenced by age, but not by gender; the rates of alexithymia in healthy controls have been found at: 4.7%-8.3%. Thus, several studies have reported that the prevalence rate of alexithymia is less than 10% (26). A less common finding suggests that there may be a higher prevalence of alexithymia amongst males than females, which may be accounted for by difficulties some males have with "describing feelings", but not by difficulties in "identifying feelings" in which males and females show similar abilities.

Studies reported a distinct gender difference in the prevalence of alexithymia: men were alexithymic almost twice as often as women. A similar gender difference was found in the

previous study using the Beth Israel Questionnaire (BIQ). The study by Parker et al. (27) using the Toronto Alexithymia Scale (TAS), and covering three samples of young adults in Canada, the United States, and Germany, showed similar correlations between alexithymia and gender. On the other hand, the Italian study by Pasini and coworkers **(**28**)** using the TAS showed no gender difference in alexithymia, but it must be pointed out that their study group consisted of healthy volunteers. It seems likely that alexithymia is a personality trait that is more typical of men than women.

5. Clinical approach to alexithymia

Individuals with alexithymia are typically unable to identify, understand, or describe their own emotions. Psychiatric and psychosomatic patients with alexithymia are unable to talk about feelings due to a lack of emotional selfawareness (29). Self-awareness is a fundamental aspect of empathy because the individual's recognition of their own feelings is the basis for identification with the feelings of others.

Alexithymia is defined by Parker

1. difficulty identifying feelings and distinguishing between feelings and the bodily sensations of emotional arousal
2. difficulty describing feelings to other people
3. constricted imaginal processes, as evidenced by a scarcity of fantasies
4. a stimulus-bound, externally oriented cognitive style.

It supposed to be there were two kinds of alexithymia, "primary alexithymia" which is an enduring psychological trait that does not alter over time, and "secondary alexithymia" which is state-dependent and disappears after the evoking stressful situation has changed. These two manifestations of alexithymia are otherwise called "trait" or "state" alexithymia. The study regarding with alexithymia and depression by Steinweg et al. (30) reported that "Aleithymia may be more of a *state* than a *trait*".

Several authors have suggested that alexithymia was elevated in numerous psychosomatic and medical conditions such as rheumatoid arthritis, low-back pain, and hypertension. Furthermore, alexithymia has been shown to prospectively predict the maintenance of summarization over a period of two years. Alexithymia is especially related with medical disorders thought to be primarily caused or maintained by psychological factors.

There is some evidence suggesting that alexithymia is related to chronic pain. In addition to chronic, other aspects of pain such as severity may be related to alexithymia. It has proposed that chronic pain consist two components sensory and affective. Alexithymia is related to the affective-rather than the sensory-dimension of chronic pain, and this association could be mediated by increased depression. Several studies have been reported that affective dimension of the pain was predominant in fibromyalgia. Depressive mood is the best predictor of the affective dimension of the pain, whereas depression is a significant clinical component of fibromyalgia.

Depression has been widely studied in both the chronic pain and alexithymia fields. Chronic pain is often comorbid with depression, and alexithymia is also substantially related to depression and may predispose to it. These observations suggest that depression may mediate the correlation between alexithymia and chronic pain. In a various study relation

was found between alexithymia anxiety and depression, which may indicate that alexithymia scores may be associated with psychological distress. They argued that treatment-seeking behavior may be more commonly. In the light of the several literatures it thought to be the psychiatric evaluation of fibromyalgia patients is as important as the locomotor system evaluation.

Fibromyalgia is considered one of the more difficult chronic pain syndromes to deal with. The chronic pain in fibromyalgia had been severe enough to disrupt all aspects of the patient's life. It has been proposed that abnormal pain sensitivity and pain inhibition in fibromyalgia. Abnormal pain perception might be related to abnormal levels of serotonin and norepinephrine, which are key neurotransmitters in endogenous pain inhibitory pathways.

According to the model of neuropathic pain, sensitivity of pain is reduced when the source is eliminated. In contrast, the source of sensory input among patients with fibromyalgia remains unknown. There is increasing evidence that fibromyalgia is characterized by an augmentation of sensory input that is mediated by central nervous system (CNS) events similar to those associated with neuropathic pain conditions. For this reason, most investigators involved in fibromyalgia research refer to central augmentation of sensory input rather than central sensitization when they discuss the pathophysiology of fibromyalgia.

Patients with fibromyalgia have difficulty to identify self expression. It has been suggested that difficulty to description of complaints may associated with alexithymic personality characterized by inability to differentiate affective from somatic states (31). Patients with alexithymia have also manifest cognitive characteristics such as paucity of fantasy, imagery, or daydreaming. Consequently, due to the difficulty to experience and express emotions, alexithymia has been linked with somatosensory amplification, which is tendency to focus on somatic sensations.

Fibromyalgia is thought to arise from miscommunication among nerve impulses in the central nervous system, in other words, the brain and spinal cord. It has been postulated that a disconnection between neocortex and the limbic system occurs and causes difficulty verbalizing feelings and regulating affect. Alexithymia is thought to impede the regulation of negative emotions, resulting in increased negative affect, sympathetic hyperarousal, and impaired immune status, which may contribute to development or exacerbation of somatic disease and pain (32).

Alexithymia does not emerge as a product of pain, but rather is intrinsic to this illness. Alexithymia has been reported to be associated with enhanced sensitivity not only to somatic sensations, but also to externally induced pain. Increased alexithymia may effects the nature of assessment and treatment the chronic pain.

6. Measurement of alexithymia

Along with the clinical descriptions of alexithymia, there have been attempts to objectify and operationalize the concept in some measurable way.

Alexithymia may be measured as a valid and reliable clinical phenomenon (12). However, it is a difficult concept to operationally and only few instruments are sufficiently reliable and valid. Several scales are used to measure alexithymia but only the Beth Israel Questionnaire

(BIQ) and the Toronto Alexithymia Scale (TAS) can be regarded as having sufficient psychometric properties.

Sifneos (29) devised the Beth Israel Psychosomatic Questionnaire (BIQ) to measure alexithymic characteristics. It is a 17-item forced-choice questionnaire completed by the therapist. The items are derived from the clinical criteria described previously.

The TAS is a 20-item self-report scale with strong psychometric properties (33). Subjects were asked to indicate the extent to which they agreed or disagreed with each statement on a five-point Likert scale. The results are expressed as TAS-20 global scores, as well as three subscales measuring difficulty in identifying feelings and distinguishing them from bodily sensations of emotion, difficulty expressing feelings, and externally oriented thinking.

The TAS-20 has 3 subscales:

1. Difficulty Describing Feelings
2. Difficulty Identifying Feeling
3. Externally-Oriented Thinking

7. Treatment in alexithymia

In treatment situations, therapists find such patients dull and boring (34). Although the concept was derived from experience with patients having classic psychosomatic illness, this clinical presentation has also been described in patients who somatize (35), who have substance abuse disorders (36), and who have experienced severe Psychosomatic condition.

To treatment the alexithymia physicians should focus on developing skills and knowledge (vocabulary for emotions, practicing emotional self-awareness). The suffering associated with fibromyalgia is intense, and physicians continue to struggle with the management even to the extent of prescribing narcotic pain medications where not ideally indicated (37). It proposed that much of this suffering will remain unspeakable and untreated until management strategies actively consider the prevalence of alexithymia and associated mood disorders.

The therapeutic approach to patients with elevated alexithymia in fibromyalgia includes treatment modalities that have the potential for increasing emotional awareness and the capacity to regulate and modulate instinctual tensions and emotional arousal through cognitive process (38). Such as fantasizing, dreaming, as well as reflective thinking and the verbal communication and sharing off feelings.

The basic idea is that during the process of therapy mental representations of difficult situations in patients' lives need to be constructed by putting into words the chain of events that makes up the difficult situation making the patient's appraisal of the difficult situation explicit; and addressing affective responses and discussing the patient's way of dealing with the difficult situation. These three steps reflect principles that should be integrated in therapy. In practice, these three steps necessarily get intermingled, and we advise against considering them in terms of a protocol or in terms of therapeutic phases (33).

The therapist should first start by asking the patient about his actual life and by exploring what goes wrong, with the idea of creating a conversation. Practically speaking, such a

conversation focuses on the concrete situations the patient presents as important and difficult (trouble at home, an incident with a colleague…). In addressing these events, the therapist primarily strives to elicit a factual account that is coherent with the patient's story. The aim is to construct the chain of events that makes up specific difficulties, and to create an elementary narrative about these difficulties. To construct such narrative, the therapist converses with the patient: many open questions are asked, summaries of what has been said are frequently given, and a relaxed atmosphere is established. It is important that the therapist strives to articulate the difficult situation in the patient's own terms; explicitly recognizes the patient's trouble in dealing with the situation; and invites him/her to further investigate this problem in therapy. Therapy itself is defined as a place for the investigation of difficulties in life.

As a result, pain and other physical symptoms may influence by different factors including alexithymia in patients with fibromyalgia. It thought to be treatment of alexithymia can be beneficial in patients with fibromyalgia. Bu it is not possible to fully determine the interaction between fibromyalgia and alexithymia.

Fibromyalgia is a chronic pain syndrome with steadily fluctuating musculo-skeletal pain as the main symptom. However, despite intensive research, the primary mechanisms underlying the etiopathogenesis of fibromyalgia remain elusive.

8. Conclusion and future directions

Alexithymia is a clinical concept that refers to individuals who have difficulty describing feelings, have an impoverished fantasy life, and demonstrate a particular style of interpersonal relationships. Whether these individuals recognize their emotions but cannot express them verbally, or simply cannot recognize these signals from their bodies, is not clearly understood.

The concept itself needs to be more precisely defined, and reliable methods of measurement must be developed and validated. If agreement can be reached upon the clinical definition and measurement, further studies can be undertaken to evaluate which factors are important in the etiology and maintenance of alexithymic behavior.

In patients with FMS who show the alexithymic trait, attention should be given to the establishment of a secure therapeutic alliance. Capacities for regulating emotions on a verbal level can only be acquired within an environment based on trust and perceived by the patient as safe. The high comorbidity of psychiatric disorders underscores the importance of psychiatric interventions in patients with FMS.

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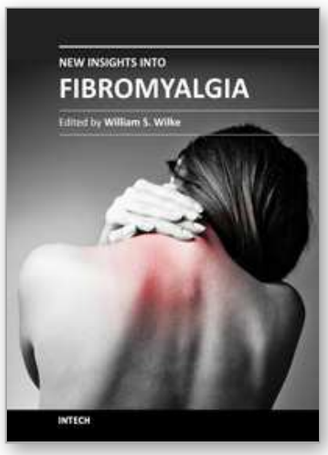
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Given the potential problems that can obscure any scientific enterprise, inconsistent results across studies are bound to occur. How are we to decide what is true? Let's turn to philosophy for a reasonable answer. The mathematician-philosopher Bertrand Russell approached a similar problem in his monograph The Problems of Philosophy (Russell B, 1912). He addressed the following question: How do we know that anything is "real"? Is the only reality subjective and simply in our minds, as Bishop Berkley challenged, or can we mostly believe the objective reality? His pragmatic answer: All possibilities may be true, but when the preponderance of evidence indicates that objective reality and knowledge are the most probable case, go with it. If the preponderance of all evidence about the clinical description of fibromyalgia and it's pathogenic mechanisms and treatment strategies indicate a highly probable interrelated hypothesis, go with it. The direction of the literature on the whole trumps the less likely tangents. At the same time, remember Bertrand Russell and his pragmatic answer, and keep an open mind.

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