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Systematic Review

Facial Emotion Recognition in Obesity and in Fibromyalgia: A Systematic Review

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Abstract: Facial emotion recognition (FER) is extensively investigated in psychological sciences in healthy individuals and clinical conditions. In this paper, we analyzed those studies in which FER was assessed in the case of obesity or fibromyalgia, in relation to the levels of alexithymia. Crucially, these two conditions frequently co-occur; however, no study has explored FER considering both fibromyalgia and obesity. Studies were identified using the electronic search engine of PubMed. The last research was run on 23 July 2021. Two independent lists were generated for the two clinical conditions. Six records were reviewed about obesity, while three records about fibromyalgia. The evidence relative to FER in obesity was not conclusive, whereas the evidence about an altered FER in fibromyalgia seemed more straightforward. Moreover, the role of alexithymia on FER in these clinical conditions was not extensively investigated. In our discussion, we highlighted those factors that should be carefully addressed in investigating FER in these clinical conditions. Moreover, we underlined methodological criticisms that should be overcome in future research.

Keywords: obesity; fibromyalgia; facial emotion recognition; emotions

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1. Introduction

The recognition of others' emotions via facial expressions has a survival role for humans. Complex cognitive functions and processes, such as communication, empathy, and social cognition ground on this ability. In addition, individuals efficiently adapt their behavior to the environmental changes [1] according to the others' emotional expressions [2]. Because of its crucial role in human experience, facial emotion recognition (FER) is extensively investigated in psychological sciences in healthy individuals and clinical conditions.

Obesity (i.e., an abnormal or excessive accumulation of body adiposity, [3]) and fibromyalgia (i.e., a clinical condition characterized by chronic widespread musculoskeletal pain, with an unknown etiology, [4]) are often coupled, even though they are two distinguishable clinical conditions [5,6]. Obesity is very often associated with pain diagnoses, including fibromyalgia [7,8]; on the other hand, individuals who report widespread pain tend to be overweight [6,9–13]. Further, those individuals with fibromyalgia and obesity experience severe functional limitations owing to the combination of two issues: persistent pain related to fibromyalgia and restricted movement imposed by obesity. The chronic pain and fatigue associated with fibromyalgia can lead to sedentary behavior, physical inactivity, and weight gain, which can negatively impact physical health and pain status, creating a vicious cycle [14]. Crucially, these two conditions shared some alterations: those bodily dysregulations and vulnerability, such as biomechanical and structural changes [6,15], alterations in immunological and endocrine systems [6,15], nociception [16], autonomic nervous system [16], sleep, psychological and cognitive functioning [17–19], that are generally described in fibromyalgia, are usually observed also in obesity [5,6]. Indeed, Varallo et al. [14] suggested to consider the interplay between genetic/biological and psychosocial factors to explain the development and maintenance of obesity in the case of associate fibromyalgia.

From a psychological perspective, both obesity [2,20–22] and fibromyalgia [23–28] are characterized by altered emotional processing, with negative side-effects on psychological well-being and social interactions; also, emotional difficulties interfere with healing, as they facilitate the maintenance of malaise [2] and play as trigger of the disease [22,23,29–31]. Specifically, it is well-recognized that individuals affected by obesity and individuals with fibromyalgia [20,22,32–36] show higher levels of alexithymia [36], meaning difficulties in identifying and describing feelings, accompanied by an external oriented thinking coping style [37]. Crucially, alexithymia impacts on the recognition of the somatic manifestations: thus, alexithymic individuals misattribute the origin of their bodily experience [38], showing maladaptive emotional strategies (i.e., avoidance) and poor emotional regulation [39]. In the literature, there are some even though preliminary evidence about alexithymia influencing and altering the ability to recognize efficiently others' facial expressions [40–42].

As in our knowledge, no previous study has explored FER in individuals affected by both obesity and fibromyalgia. Thus, in this exploratory paper, we reported two systematic reviews. We aimed to provide an accessible summary of (*i*) previous evidence about FER in obesity, and (*ii*) in fibromyalgia, (*iii*) linking the behavior with the level of alexithymia. Through this review, we sought to verify possible points of contact between these two conditions, and then to offer some methodological considerations.

2. Materials and Methods

This study was based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [43]. Since this study was a review of published studies, ethical approval was not required. Obesity and fibromyalgia were investigated independently: two different researches were conducted, following the same rationale.

Eligibility Criteria. The inclusion criteria were: (*i*) only experimental studies, in which the performance of an experimental group (i.e., individuals affected by obesity/fibromyalgia) was statistically compared with the performance of a control group; (*ii*) use of FER task: by definition, a task in which human faces showing emotional expressions were used; (*iii*) emotions (such as, happiness, sadness, disgust, fear, surprise, anger) (*iv*) participants diagnosed with obesity/fibromyalgia. Reviews, book chapters or conference abstracts were not included.

Search Strategy. Studies were identified using the electronic search engine of PubMed (all years). The last research was run on 23 July 2021. For obesity, the following search terms were used "Obesity; facial emotion recognition"; for fibromyalgia, "Fibromyalgia; facial emotion recognition". Additionally, all of the available reviews related to FER task were manually screened for any additional possibly relevant studies. Only studies in English were included.

Study Selection. Two independent reviewers (G.V. and F.S.) screened the papers according to the titles and abstracts. Studies potentially relevant according to the eligibility criteria were selected. No disagreement between the two reviewers emerged.

Data Extraction. A summary chart was prepared to highlight mandatory information that had to be extracted from each report The two independent reviewers extracted the following data: author(s); year of publication; characteristics of samples; visual stimuli; tested emotions; measurement of alexithymia, if present; and results (Table 1).

Statistical Analysis. Considering the aim of the present review, no statistical analysis was performed.

3. Results

3.1. Obesity

3.1.1. Eligible Studies

According to the search strategy, 34 results were identified (Figure 1, left panel). No duplicates were found.

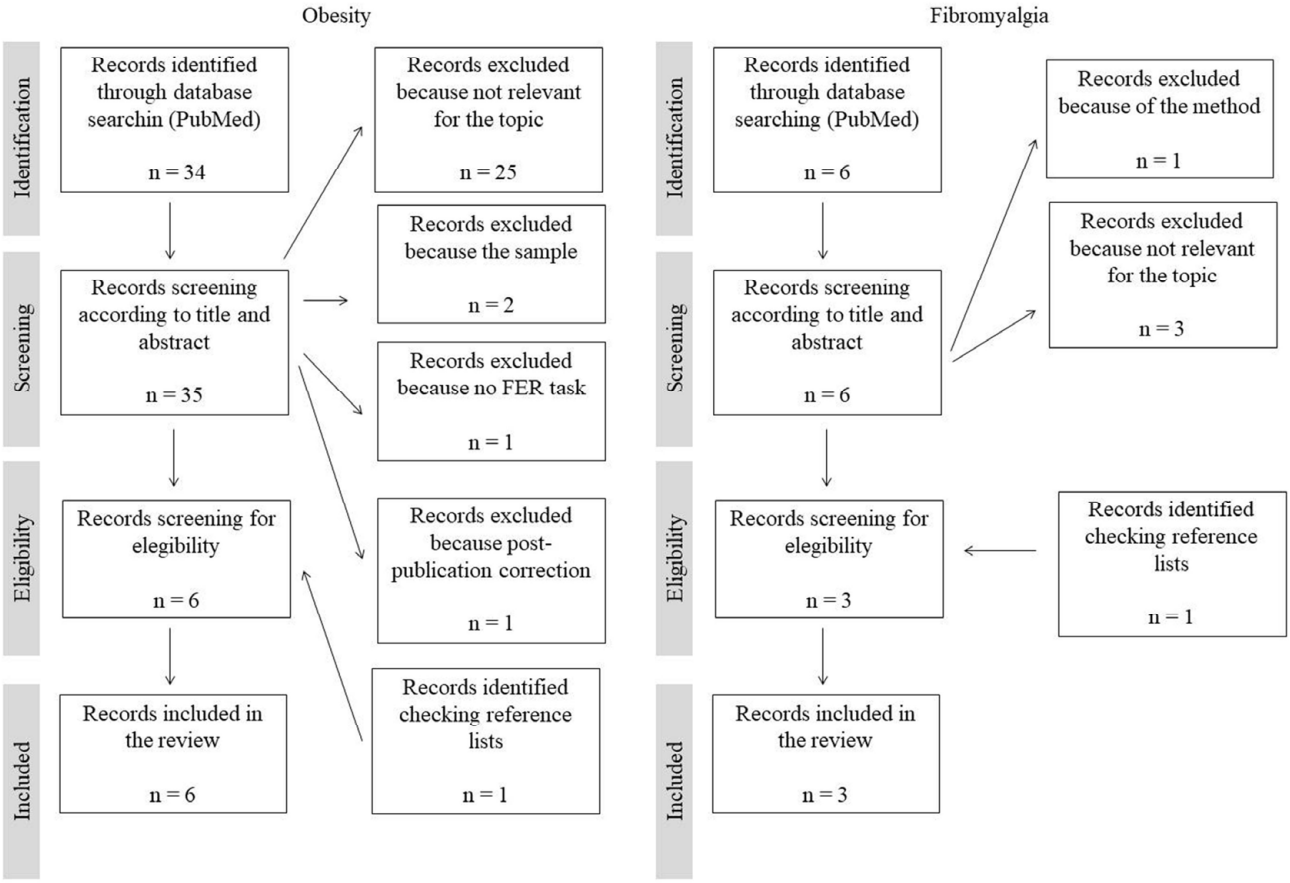

Figure 1. Flow diagram relative to the process of records selection.

Overall, twenty-nine papers were excluded. Twenty-five papers were excluded because they were not relevant for the topic [44–68]. In addition, two papers were excluded because of the sample [69,70] and one [71] because of the method: words (instead of faces) were used as visual stimuli in the experimental task. Finally, one article was the post-publication correction relative to another article [72]. Inspecting one article [34], the two reviewers found the reference to Baldaro and colleagues' study [73], in which the FER task was used. However, since the authors did not explicitly report "facial emotion recognition" as a keyword, the article did not automatically appear in the electronic search engine. Considering that this article was judged as appropriate, it was included in the review. Overall, six articles were reviewed (Table 1).

Table 1. Summary of the data extracted from the records.

Reference	Samples	Visual Stimuli	Targeted Emotions	Assessment of Alexithymia (If Available)	Results
	Records relative to obesity				
Koch and Pollatos [2]	33 children (mean age: 8.59 years): • 13 overweight (BMI > 90th percentile); • 15 obesities (BMI > 97th percentile); • 5 severe obesities (BMI > 99.5th percentile). [C] 37 normal weight children (mean age: 8.94 years), with ≥25th to ≤75th BMI percentile of normative distribution.	Karolinska Directed Emotional Faces database	happiness; anger; sadness; neutral expression.	-	Overweight children ↓ accuracy than [C], especially for angry and neutral expressions.
Baldaro et al. [73]	21 children affected by obesity (mean age: 10.7 years) with percentage of weight excess ≥ 40%. [C] 21 normal weight or moderately overweight children (mean age: 10–11 years), with 24.9 % of weight excess.	Max Planck Institute of Munich database	happiness; anger; sadness; fear.	-	Overweight children ↓ accuracy than [C].
Percinel et al. [74]	30 pre-adolescents and adolescents (age 11–18 years) with obesity; BMI greater than the 95th percentile. [C] 30 pre-adolescents and adolescents (age 11–18 years) with no chronic medical illness and body mass index ranging from >25th to <75th percentile of normative data.	Ekman and Friesen database (1976)	happiness; sadness; surprise; anger; disgust; fear; neutral expressions.	-	Affected individuals ↓ accuracy than [C].
Surcinelli et al. [34]	30 preadolescents and adolescents (mean age: 12.3 years) affected by obesity (BMI between 1.63 and 2.64 standard deviations from the 50th percentile of the population of Italian children). [C] 30 normal weight preadolescents and adolescents (mean age: 12.4 years), with mean of weight excess 4.2%.	Ekman and Friesen database	happiness; sadness; surprise; anger; disgust; fear; neutral expressions.	Emotional Awareness Scale	Affected individuals = accuracy than [C]. Adolescents ↑ level of alexithymia than [C].
Bergmann et al. [75]	73 mothers (mean age: 30.77 years) affected by obesity (BMI ≥ 30). [C] 73 normal-weight mothers (mean age: 31.74 years), with a BMI ≤ 24.9.	Radboud Faces database	happiness; sadness; surprise; anger; disgust; fear; neutral expressions; contempt $^{\Phi}$.	-	Affected mothers = accuracy than [C].

Table 1. *Cont.*

Reference	Samples	Visual Stimuli	Targeted Emotions	Assessment of Alexithymia (If Available)	Results
	Records relative to obesity				
Scarpina et al. [72]	20 women affected by obesity (mean age: 55 years); mean BMI 43.79. [C] 20 healthy-weight women (mean age: 47 years); mean BMI 22.17.	Ekman and Friesen database (1976)	angry; fear; neutral expression.	Toronto Alexithymia Scale	Affected individuals ↓ accuracy than [C] only for fear, but not anger. Patients = level of alexithymia than [C].
	Records relative to fibromyalgia				
Weiß et al. [76]	35 affected women (mean age: 58.5 years). [C] 35 healthy women (mean age: 57.3 years).	Karolinska Directed Emotional Faces database	happiness, anger; sadness; disgust; neutral expression; anxiety $^{\Phi}$.	Toronto Alexithymia Scale	Patients ↓ accuracy than [C]. Patients ↑ level of alexithymia than [C].
Di Tella et al. [23]	40 affected women (mean age: 51.75 years). [C] 41 healthy women (mean age: 51.83 years).	Ekman and Friesen database	happiness; sadness; disgust; fear; surprise; anger; neutral expression.	Toronto Alexithymia Scale	Patients ↓ accuracy than [C] only for anger and disgust. Patients ↑ level of alexithymia than [C].
Muñoz Ladrón de Guevara et al. [77]	Fifty-two fibromyalgia patients (mean age: 51.25 years); mean BMI: 28.29. [C] thirty-two healthy individuals (mean age: 52.94 years); mean BMI: 26.49	Ekman and Friesen database	happiness; sadness; anger; fear; surprise; disgust.	-	Patients ↓ accuracy than [C].

Note. [C] indicating the sample used as control group; ↓ accuracy indicating lower level of accuracy; = accuracy indicating equal level of accuracy. $^{\Phi}$ indicating a feeling.

Four articles investigated the FER ability in children and adolescents affected by obesity [2,34,73,74]. Surcinelli and colleagues [34] observed that children with obesity were accurate in recognizing primary emotions. On the contrary, Baldaro and colleagues [73], Koch and Pollatos [2], and Percinel and colleagues [74] found that affected children and adolescents with obesity showed lower levels of accuracy in comparison with the controls, than did participants with a healthy weight. Moreover, Koch and Pollatos [2] observed this difficulty in relation to the emotion of anger, as well as in the case of neutral expressions (i.e., when the faces do not show emotional expressions). Baldaro and colleagues [73] and Koch and Pollatos [2] specified that the difficulty pertained the quality (i.e., what emotion), and not the intensity (i.e., how much) of the emotional expressions.

Two studies [72,75] focused on the FER ability in adults, with different results. While Scarpina and colleagues [72] found a selective difficulty in recognizing the emotion of fear in individuals affected by obesity compared with healthy-weight controls, Bergmann and colleagues [75] reported no difference between the two groups. However, it should be specified that the sample analyzed by Bergmann and colleagues [75] was made up of mothers.

Focusing on the levels of alexithymia, Surcinelli and colleagues [34] and Scarpina and colleagues [72] assessed this component with different methods, reporting contrasting results. Regarding the method, Scarpina and colleagues [72] used the Toronto Alexithymia Scale-20 [78] to assess the level of alexithymia, although Surcinelli and colleagues [34] used the Emotional Awareness Scale [79]. Scarpina and colleagues [72] registered no statistical differences between the individuals affected by obesity and the controls in terms of level of alexithymia, in contrast with also previous evidence in the literature [20,22,32–35]. In contrast, Surcinelli and colleagues [34] found that the level of alexithymia was higher in affected participants in comparison with controls; however, this difference was not linked to the FER capability, about which no difference emerged between groups.

3.1.2. Comments

Regarding obesity, only two studies investigated the FER ability in adults [72,75]: Scarpina and colleagues [72] reported a selective difficulty in recognizing the emotion of fear, although Bergmann and colleagues [75] found no difference between participants with obesity and healthy-weight controls in recognizing facial emotions. However, since Bergmann and colleagues [75] tested only mothers, the results are particularly relevant for the mother–child affective relationship, but they cannot be generalized to adults. On the other hand, Scarpina and colleagues [72] tested only two primary emotions, which were fear and anger. Overall, we may conclude that there was not enough evidence regarding FER in adults affected by obesity. The other four reviewed records focused on children and adolescents affected by obesity. All the studies [2,73,74], except for Surcinelli and colleagues [34], pointed out the presence of behavioral alterations. All these reviewed studies agreed in underlying the importance to recognize precociously difficulties in FER in younger people when affected by clinical conditions. Indeed, in the case of obesity, food may be used as a component of relief from illness and distress, especially in the case of difficulties in accessing or regulating emotional expressions, with long-term after-effects on global emotional processing [80,81]. Thus, the early recognition of FER difficulties might be crucial to avoid the development of eating disorders, and to promote the psychological well-being through ad-hoc interventions as well as educational counseling. FER might crucially impact on the relationship with adults, and specifically on the early caregiver–child interaction [2,34,73,74], as also suggested by Bergmann and colleagues [75]. This is the direction in which the results from the records should be read, considering that in all of them, pictures of adult's faces were used as experimental targets. However, in childhood and adolescence, the relationships with peers also play a fundamental role in social and emotional development: some experiences, such as cooperation and competition [82], reciprocity and equality in interaction [83], are critical for the ability to correctly identify emotions. However, the FER in the case of peers' faces was not investigated; thus, we

strongly encourage future research in which pictures with facial emotions expressed by peers, rather than only by adults will be used.

3.2. Fibromyalgia

3.2.1. Eligible Studies

Six records [76,77,84–87] (Figure 1, right panel) were identified. No duplicates were found. Three studies were excluded because they were not experimental studies, or they were not relevant for the topic [84–86]. Moreover, Di Tella and colleagues' study [87] was excluded because pain, and not emotions, was the experimental target. However, inspecting this article, the two reviewers found the reference to Di Tella and colleagues [23]: in this work, the FER task was used to investigate the recognition of the primary emotions in fibromyalgia; then, this article was judged as appropriate for the topic of our review, thus this study was included. Overall, three articles were reviewed (Table 1).

Weiß and colleagues [76] and Muñoz Ladrón de Guevara and colleagues [77] reported a reduced level of accuracy for all the primary emotions. Instead, Di Tella and colleagues [23] reported that women affected by fibromyalgia had difficulties in recognizing correctly only the facial expressions of anger and disgust, in comparison with controls (i.e., women with no pain symptoms).

Focusing on the levels of alexithymia, both Weiß and colleagues [76] and Di Tella and colleagues [23] used the Toronto Alexithymia Scale 20 [78], reporting that participants with fibromyalgia showed higher level of alexithymia in comparison with the control sample. Specifically, in Di Tella and colleagues [23], participants with fibromyalgia reported higher scores in the subscales describing difficulties in identifying feelings and difficulties in describing feelings [78]. In Di Tella and colleagues [23], the relationship between the level of alexithymia and the performance of the FER task was not studied; instead, such a relationship was reported in Weiß and colleagues [76], but it was found to be not significant.

3.2.2. Comments

We recorded three studies [23,76,77] in which the FER task was applied. They agreed in suggesting a lower performance of women affected by fibromyalgia, when compared with healthy individuals. However, although Di Tella and colleagues [23] reported specific difficulties in the recognition of facial expressions of anger and disgust, Weiß and colleagues [76] and Muñoz Ladrón de Guevara and colleagues [77] reported a more generalized effect. The three studies offered two different hypotheses about such an alteration: Di Tella and colleagues [23] and Muñoz Ladrón de Guevara and colleagues [77] underlined the role of cognitive difficulties in fibromyalgia, especially in executive domains; Weiß and colleagues [76] underlined the role of the subjective pain. Overall, the previous literature, even though not extensive, suggests the presence of FER alterations in fibromyalgia.

4. Discussion

In this paper, we summarized evidence about the performance of individuals affected by obesity or by fibromyalgia in the traditional FER task. Our results seemed clear-cut: there is not enough evidence concerning FER in obesity in the literature, whereas the evidence regarding an altered FER in fibromyalgia seemed more straightforward. Thus, we offered some considerations about what components should be included in future studies investigating FER in obesity and/or fibromyalgia.

4.1. Pain

Pain is pervasive in affected individuals' experience, not only in the case of fibromyalgia, but also in the case of obesity. No recorded studies about obesity reported any subjective or objective pain-related measures, nor they specified if the enrolled participants suffered from any peripheral neuropathies or altered sensory-motor processing [88]. Regarding fibromyalgia, Di Tella and colleagues [23] and Weiß and colleagues [76] registered the subjective level of physical pain of their sample, although Muñoz Ladrón de

Guevara colleagues [77] did not assess the subjective or objective level of pain. Different methods were used to measure the level of pain, leading to heterogonous results: Di Tella and colleagues [23] used the traditional Fibromyalgia Impact Questionnaire [89], which investigates the effect of the disease on different components of quality of life, including pain symptoms. Instead, Weiß and colleagues [76] used the McGill Pain Questionnaire [90], which is a self-reporting measure of pain validated for different pain-related clinical conditions, allowing to assess both quality and intensity of subjective pain. Di Tella and colleagues [23] did not observe any significant relationship between the scores reported at the Fibromyalgia Impact Questionnaire [89] and the behavior at the FER task, whereas Weiß and colleagues [76] crucially observed that the score at the McGill Pain Questionnaire [90] significantly predicted the level of FER accuracy, sustaining the hypothesis of a possible role of pain experience on emotional processing. Both the questionnaires used in these studies register the subjective level of physical pain, with no objective measurements. However, it should be considered that individuals affected by fibromyalgia generally rate their physical pain as more disabling compared to other chronic pain conditions with identifiable somatic origins [38], as well as they showed higher levels of pain catastrophizing [91] (i.e., the tendency to exaggerate and ruminate on pain experiences, combined with the tendency to feel helpless during pain episodes), leading to fear of movement and activity aversion [92]. Interestingly, higher levels of pain catastrophizing were also registered in obesity [93–95], as well as in individuals affected by both obesity and fibromyalgia [14]. Moreover, in the case of alexithymia, the tendency to misrecognize and misattribute the origin of their somatic symptoms [38], such as pain, is enhanced. An experimental work by Di Tella and colleagues [87] underlines that the difficulties registered in FER in fibromyalgia might be linked to pain processing. Specifically, the authors observed that their affected individuals erroneously attributed the feeling of pain to angry faces [87]. From a neuroanatomical perspective, the cerebral networks related to pain processing and those related to face recognition partially overlap [96]. Specifically, the amygdala plays a crucial role in decoding emotional expressions, via the link with the fusiform gyrus (i.e., devoted to facial recognition [97]), and the insular cortex (i.e., processing the emotional stimuli valence [98]). Nevertheless, the amygdala and the insular cortex are parts of the cerebral network underlying pain, decoding the affective dimension of pain perception [99,100]. Thus, altered subjective pain perception may imply higher demands on such anatomical structures, thereby reducing processing resources for other processes, such as the recognition of emotional expressions [96]. As a consequence, the assessment of individual levels of pain might be crucial when we are investigating FER in clinical diseases characterized by painful symptoms. Thus affective, autonomic, cognitive, and behavioral factors components, together with the sensory processing, shape the subjective experience of affected individuals [101,102]: they are not only subjective, but in addition, objective assessments about pain symptoms should be included to verify a possible mismatch between these two components.

4.2. Anthropomorphic Measures

They represent another crucial factor that should be included in the case of studies involving participants affected by obesity as well as fibromyalgia. Indeed, only one study relative to fibromyalgia [77] reported participants' body mass index. In another study about obesity [76], it was only specified that individuals with metabolic abnormalities were excluded from the enrollment, without any additional details. A higher prevalence of overweight and obesity was registered in fibromyalgia [6,9,10]; then, the level of obesity should be addressed also in this study in which participants with fibromyalgia are enrolled.

4.3. Alexythimic Traits and Interoception

Alexithymia, reported in both fibromyalgia [23,36,38,76,87,103,104] and obesity [20,22,32–35], may be described not only as a marker of global emotional difficulties [105], but also as a general failure of interoception (i.e., the ability in perceiving and recognizing the internal

state of the body [20,106–108]). In other words, because of the presence of alexithymia, individuals might misattribute the origin of their bodily experience [38] and/or showed difficulties in converting own somatic sensations in feelings and cognitions [106]; this difficulty may in turn interfere also with the ability to identify others' emotional states [76,109–114], with effect on the emotional contagion and empathy (as preliminary observed in fibromyalgia [23,115] and obesity [116]). Indeed, it should be considered that the recognition of facial emotions in others automatically activate a representation of a similar psychophysiological state in the observer [117]. Bodily sensations, in turn, modulate the affective/internal state elicited by the observation, shaping the individual emotional experience. Because of the possible role of interoception in emotional processing [118], we should suggest exploring primarily, the emotion of disgust: similar to other primary emotions, disgust has a characteristic facial expression and an appropriate behavioral reaction (distancing the self from an offensive object) [119,120], linked to the brain activities in insula and basal ganglia [121–124]. Crucially, it also has peculiar physiological manifestations (such as nausea) together with a proper feeling state (revulsion) [125], suggesting its interoceptive nature. Di Tella and colleagues [23] reported a lower level of accuracy for disgusted expression, together with angry expression, in patients affected by fibromyalgia. Focusing on the records about obesity, the two studies relative to adults [72,75] did not furnish enough evidence to explore this hypothesis in the collected data. However, preliminary results about altered process of disgust [126,127] as well as altered interoception [108,128] in obesity can be traced in the literature.

4.4. The Level of Awareness

Most of the recorded study (except for Scarpina and colleagues [72]) adopted explicit measures to assess the emotional processing, such as the FER task, as well as the Toronto Alexithymia Scale 20 [78] and Emotional Awareness Scale [79]. Because of their explicit nature, these methods might not measure the individuals' emotional processing, but the subjective experience [129]. When individuals are expected to suffer of altered emotional processing, especially in the case of alexithymia, *implicit* measures of emotional processing might be preferable [129]. Indeed, while the implicit feature refers to the stage before those any deliberate control strategies come into force, the explicit is probably influenced by higher cognitive processes in terms of volition and behavioral control [130]. The implicit/explicit distinction can be mirrored in the method adopted to measure cognitive processes [131]: different tasks require different levels of awareness, as they require different amounts of cognitive monitoring [131,132]. In our review, only one study focusing on obesity [72] proposed an implicit task to measure FER capability, associated with the traditional Toronto Alexithymia Scale 20 [78]: the authors reported a mismatch between the implicit (i.e., the behavior in the experimental paradigm) and the explicit (i.e., the subjective evaluation of one's own emotional capability) components of the affected individuals' emotional processing. Indeed, participants with obesity described the same levels of alexithymia (i.e., the explicit measures) registered in the controls, even though they differed in the recognition of the emotion of fear (i.e., the implicit measure). Another example of implicit assessment of emotional processing can be traced in González-Roldán and colleagues [133], in which neurophysiological responses associated to FER were assessed in individuals with fibromyalgia. Interestingly, the implicit neurophysiological responses seemed to be out-of-line with the subjective rating about valence and arousal of the emotional stimuli, overall, these two previous studies suggested the importance to assess both implicit and explicit components in the same samples to verify possible differences. Even though neurophysiological measurements require structured settings, they may shed light on the possible discrepancy between implicit/objective capability (i.e., how I feel) and explicit/subjective rating (i.e., how I think I'm feeling).

5. Conclusions

According to our systematic reviews, the evidence about FER in obesity was few and not conclusive, whereas that relative to fibromyalgia seemed more straightforward in suggesting a possible alteration. However, the role of alexithymia on FER in these clinical conditions was not extensively investigated in the previous literature. Crucially, no study had explored FER considering both fibromyalgia and obesity, even though they are generally coupled. Thus, we proposed to extend the results relative to these two conditions together, comparing the performances of individual affected by both the conditions with patients affected by only fibromyalgia or obesity. In our paper, we proposed some components which should be included in future research; nevertheless, other components (not directly mentioned in this work), such as global cognitive functioning, depressive and anxiety symptoms, and personality, might be investigated in the context of FER in obesity and fibromyalgia. Identifying emotions is a crucial skill for social cognition [2]; also, emotional dysregulations could interfere with healing, facilitate the maintenance of malaise [2] and play as a trigger of the clinical diseases [22,23,29–31]. Adequate rehabilitative approaches and their long-term positive outcome might be enhanced, only by facing the emotional fragilities hidden behind these diseases, beyond their somatic symptoms and signs.

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