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Somatoform Dissociation and Traumatic Experiences in Patients with Rheumatoid
Arthritis and Fibromyalgia

Preprint of an article that appeared in

Clinical and Experimental Rheumatology 2007; 25: 872-877.

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Abstract

Objective. Trauma and dissociation tend to be interrelated. The objective of this study was to examine the frequency of traumatic experiences and somatoform dissociation in patients with fibromyalgia syndrome (FMS) or rheumatoid arthritis (RA), two conditions that are both characterized by pain and disability.

Methods. Patients with a diagnosis of FMS (2 male, 26 female; mean age 42 ± 11 years) or RA (5 male, 46 female; mean age 46 ± 10 years) completed the Fibromyalgia Impact Questionnaire (FIQ), the Somatoform Dissociation Questionnaire (SDQ), and the Traumatic Experience Checklist (TEC).

Results. Patients with FMS reported significantly higher levels of various forms of traumatization and dissociation than patients with RA. In patients with FMS, but not in patients with RA, there was a significant correlation between traumatization and dissociative symptoms. A possible dissociative disorder was indicated in 10% of the patients with FMS and 2% of the patients with RA.

Conclusions. Traumatization experiences are frequent in FMS, but as compared to conversion disorder or dissociative identity disorder only a small subgroup of patients with FMS or RA shows the combination of traumatization and somatoform dissociation. The observation of somatoform dissociation calls for a broad treatment approach with a special role of the psychologist or psychiatrist.

Mesh descriptors: Arthritis, Rheumatoid psychology; Fibromyalgia psychology; Child Abuse psychology; Violence psychology; Accidents, Occupational; Crime Victims psychology

Somatoform Dissociation and Traumatic Experiences in Patients with Rheumatoid
Arthritis and Fibromyalgia

Fibromyalgia syndrome (FMS) comprises chronic nonarticular musculoskeletal pain in the absence of inflammatory or structural musculoskeletal abnormalities and hypersensitivity of tender points, often accompanied by several non-specific symptoms. Although there are no studies that permit the conclusion that trauma causes FMS, trauma may be an initiating or perpetuating factor in a subgroup of patients. The onset of fibromyalgia has been associated with a history of physical (1, 2) or psychological (3, 4) trauma, and a high frequency of post traumatic stress disorder (PTSD) (5) and PTSD-like symptoms (6) has been observed in FMS.

The high level of stress during and after a trauma may lead to incomplete or maladaptive processing of the event that in turn may result in the information processing deficit 'dissociation' (7), that is, "disruption of the usually integrated functions of consciousness, memory, identity, or perceptions of the environment" (8). Dissociative symptoms are commonly described as psychoform and in the domain of memory, identity, consciousness, or perception (9). The last decade stressed the somatic consequences of traumatization, i.e., the sensorimotor organization of traumatic memories (10, 11) and somatoform symptoms (12-14) that pertain to sensory and motor components of experience, e.g., hearing, seeing, feeling, speaking, and moving (15). Somatoform symptoms may also include pain symptoms that may require specific psychotherapeutic treatment. The frequency of these somatoform dissociative symptoms in patients with FMS is unknown.

The DSM-IV (8) states that a trauma involves a threat to one's life or physical integrity and gives rise to a subjective response of fear and helplessness, but dissociative symptoms have been studied in the context of a wide range of potentially traumatizing events such as emotional neglect, emotional abuse, physical abuse, sexual harassment, and sexual

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abuse (16). Many clinicians endorse the idea that fibromyalgia can be triggered by several types of physical or emotional trauma (17).

The validity of self-reported trauma is an issue that received attention. While retrospective reports in normal subjects may underestimate the occurrence of abuse and neglect (18), in patients with a diagnosis of a dissociative disorders some forms of psychotherapy seem to be able to foster false memories (19). Pain has been observed to lead to recall of both negative and pain-related life-events (20). This factor can be adjusted for by comparing the frequency of traumatic experiences in patients with FMS and patients with another pain disorder like rheumatoid arthritis (RA).

A trauma can result in an anxiety disorder as PTSD in some patients, but it can also lead to a range of psychoform or somatoform symptoms. In patients with FMS, high levels of psychoform dissociative symptoms were reported (21), but the frequency of somatoform symptoms has not been investigated yet. The observation of somatoform symptoms in patients with FMS can lead to more appropriate clinical care. The aim of this study was to examine the frequency of traumatic experiences and somatoform dissociation in patients with FMS or rheumatoid arthritis.

Patients and Methods

Recruitment and data collection

With the approval of the local ethics commission, 50 patients who fulfilled the classification criteria of FMS (22) and 80 patients with a RA (23) diagnosis were invited by letter to participate in a research project about the consequences of various diseases. All were younger than 65 and attended the St Maartenskliniek Department of Rheumatology as outpatients. Twenty-eight patients with FMS, 2 men and 26 women, and 51 patients with RA, 5 men and 46 women, returned the questionnaires. The response rate of the patients with FMS and RA did not differ significantly, 56 % vs 64 % respectively.

Questionnaires

Patients completed the Fibromyalgia Impact Questionnaire (FIQ), the Somatoform Dissociation Questionnaire (SDQ), and the Traumatic Experience Checklist (TEC)

Impact of the disease (FIQ). The impact of the disease was measured with the Fibromyalgia Impact Questionnaire (FIQ; (24-26)). In the questionnaire, the word fibromyalgia was replaced by the word 'your illness'. The FIQ measures limitations, and physical and psychological well-being. The FIQ consists of 10 items. The first item contains 10 questions on activities of daily living, each of which are scored in a Likert format from 0 (*always able to do*) to 3 (*never able to do*). The scores are added and divided by the number of valid scores to yield one score for physical functioning. Item 2 is the number of days (0–7) felt good during the past week. Item 3 asks for the number of days off work during the past week (0–5). Items 4–10 (ability to do job, pain, fatigue, morning tiredness, stiffness, anxiety and depression) are measured by 100 mm visual analogue scales. The scores of each item are standardized on a scale ranging from 0–10 with higher scores indicating greater impairment

Somatoform dissociation was measured with the Somatoform Dissociation

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Questionnaire (SDQ-20; (27)). The SDQ-20 is a 20-item questionnaire that includes the negative symptoms anesthesia, analgesia, and motor inhibitions, and the positive symptoms localized pain, alternation of taste and smell preferences/aversions. Examples of sensory losses are analgesia ('Sometimes my body, or a part of it, is insensitive to pain'), kinesthetic anesthesia ('Sometimes it is as if my body, or a part of it, has disappeared'), and motor inhibitions ('Sometimes I am paralyzed for a while'; 'Sometimes I cannot speak, or only whisper'). Anesthesia also pertains to visual ('Sometimes I cannot see for a while'), and auditory perception ('Sometimes I hear sounds from nearby as if they were coming from far away'). Positive symptoms include 'Sometimes I have pain while urinating,' and 'Sometimes I feel pain in my genitals (at times other than sexual intercourse)' (14). Five-point scales are used to indicate to what degree the statements apply. The total score ranges from 20 to 100. The reliability of the scale is high and the construct validity is good (28).

Traumatization was assessed using the initial version of the Traumatic Experiences Checklist (TEC; (12)). A slightly extended version of the TEC was shown to have good psychometric properties (16). The TEC is a self-report questionnaire inquiring about 25 types of potential trauma, including criterion A events of PTSD ('the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others', APA, 1994, p. 427), as well as other potentially overwhelming events: loss of significant others; life threat by disease or assault; war experience; emotional neglect, emotional abuse, physical abuse, sexual harassment, and sexual trauma. With respect to emotional neglect, emotional abuse, physical abuse, sexual harassment, and sexual abuse, patients can indicate at which age (in years) it happened and, as appropriate, the period for which it continued. Patients indicated how much impact the event still had on their present life on a 5-point scale ranging from '*not at all*' to '*very seriously*'. Sexually abused respondents indicated their relationship to the person

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mentioned in the answer (e.g., father, brother, friend, teacher, stranger), and they added if the person(s) was (were) at least 4 years older than the subject at the time of the experience. The TEC total score involves the endorsed number of potentially traumatizing events (0-25). For each of the trauma areas emotional neglect, emotional abuse, physical abuse, sexual harassment, and sexual abuse composite scores (range 0-12) can be calculated. This is done by raising the incidence score based upon information about each of the following aspects: the duration of the traumatic experience, the relationship to the person causing it, the indicated severity of the experience, and the person's age at the start and end of the experience. This procedure makes composite scores especially sensitive for traumatic experiences until the age of 18. A trauma area composite total score results from summing up these five scores (0-60). The two types of scoring enable an assessment of frequency and impact of a wide range of potentially traumatizing events.

Statistical Analysis

With Fisher's exact test we tested the relationship between categorical variables. For every subscale of the FIQ, the scores of the two patient groups were compared using Student's *t*-test. Because the composite scores for traumatization TEC and scores on the SDQ were not normally distributed, these scores were compared using the nonparametric Mann-Whitney U test. For the purpose of calculating Pearson correlations these scores were subsequently transformed to achieve normality. We raised TEC scores by 1 and then took the natural logarithm. SDQ scores were transformed by subtracting 20 from the raw score and then taking the square root (29). After transformations both TEC and SDQ were normally distributed. The relation between the SDQ scores (dependent variable) and diagnosis and traumatization was examined by analysis of variance. Cohen's effect size score (*d*) was computed to quantify group differences on the SDQ in standard deviation units (30).

Results

Table 1 compares demographic features of the FMS and RA groups. No significant differences between the groups were found.

Insert Table 1 about here

Impact of the disease. The impact of the disease as measured with the Fibromyalgia Impact Questionnaire is given in Table 2. The patients with FMS reported significantly more impact of the disease than patients with RA regarding limitations and physical and psychological well-being. Self-reports of ‘number of days felt alright’ and ‘number of days not worked’ did not differ between the groups of patients.

Insert Table 2 about here

Traumatizing events. The number of patients reporting at least one traumatizing event, was higher in FMS, 23 (82%), than in RA, 31 (61%), $\chi^2(1) = 3.81, p = .051$. Frequencies of separate categories of reported events are given in Table 3. Patients with FMS significantly more often reported emotional neglect emotional abuse, and sexual harassment than patients with RA. The reported frequency of physical abuse and sexual abuse did not differ significantly between FMS and RA. Patients with FMS also reported significantly more (total) traumatizing events than patients with RA, 4.25 ± 3.75 and $1.88 \pm 2.98, U = 487.0, p < .001$.

The TEC score also incorporates the scores on the two questions about experiences of

a life-threatening experience through illness, surgery, motor vehicle accidents or other accidents. In an additional analysis the answers on these two questions were separately scored as absent or present. Patients with FMS did not report more of these experiences than patients with RA, 40.7% and 31.4% respectively, $\chi^2(1) = .69, p = .41$

An index of the severity of the possible traumatization is given by the composite scores on the TEC (Table 3). Patients with FMS had significantly higher scores than patients with RA on composite scores of emotional neglect, emotional abuse, and sexual harassment. Composite scores on physical abuse and sexual abuse did not significantly differ between the two groups.

Insert Table 3 about here

Somatoform dissociation. The patients with fibromyalgia had significantly higher scores than the patients with rheumatoid arthritis on the SDQ, 25.27 ± 7.11 vs 21.41 ± 2.47 , respectively, $p = .001, d = 0.79$. Three patients with FMS, 10%, and one with RA, 2%, had a score of 30 or higher on the SDQ, which indicates a possible dissociative disorder, $\chi^2(1) = 2.88, p = .125$.

Relation between trauma, somatoform dissociation and impact of the disease.

The correlation between the transformed TEC (trauma) and SDQ (somatoform dissociation) scores for all patients was $r = .45, p < .001$. This correlation calculated for the patients with FMS was $r = .48, p = .01$ and $r = .24, n.s.$, for patients with RA.

We performed additional analyses to assess the relation between diagnosis, trauma and somatoform dissociation. A 2 Traumatization (yes/no) x 2 Diagnosis (FMS/RA) analysis of variance on SDQ scores indicated that Traumatization was a marginally significant predictor

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of somatoform dissociation, $F(1, 75) = 3.30, p = .073$, and Diagnosis a significant predictor, $F(1, 75) = 5.65, p = .02$. In fibromyalgia more somatoform dissociation was observed..

Neither the correlations between the total FIQ score and the transformed TEC (trauma) score (FMS: $r = .12$, RA: $r = .04$) nor the correlations between the total FIQ score and the transformed somatoform dissociation score (FMS: $r = .13$, RA: $r = .03$) were significant.

Discussion

Patients with FMS report significantly higher levels of traumatization and somatoform dissociation than patients with RA. The percentages of sexual abuse in FMS and RA, 21.4% vs 7.8%, are comparable to previously observed percentages (31). The incidence of adult life-threatening experiences such as motor vehicle accidents is equally high in both groups. Our findings replicate and extend previous findings (3) of more self-reported victimization and dissociation in patients with FMS than in patients with RA.

It has been suggested that adult stress may be a contributing factor to the development of FMS (1, 3, 4), while the role of stress in the etiology of RA is unclear and unproven (32). In a prospective study, workplace bullying, high workload and decision latitude were associated with the development of FMS (33). For both FMS and PTSD abnormal stress system function has been observed (34, 35), but a major dilemma exists in interpreting the source of this altered functioning. It may reflect an impairment that is constitutional or acquired by being exposed to severe trauma in the past, but it is also possible that reduced stress responsiveness reflects the current consequences of stress, low physical fitness, sleep disturbance, or pain (35). Our current study observed that *adult* traumatic experiences are equally often reported in FMS and RA, while *childhood* trauma was more often reported in FMS than RA. This suggests that childhood trauma may predispose to the development of fibromyalgia, a suggestion that needs confirmation in prospective studies.

Possible results of childhood traumatization were outlined in recent theories on the reactions to traumatic stress. In these theories two major patterns in response to trauma were identified: dissociation and hyperarousal (36). A study on the influence of age of traumatization revealed that children respond to trauma more often with dissociative reactions than with hyperarousal. Our group of patients with FMS reported especially more childhood traumatization and consequently dissociative reactions may have occurred. This does,

however, not explain why especially women develop FMS. It is known that women have a higher risk to experience sexual harassment and sexual abuse (37). Women also have higher perceptions of threat or control loss and it was suggested that this may enhance their risk of developing PTSD (37). The number of men in our study is unfortunately, too low to address the influence of gender properly. Future studies should also try to include more men to take the gender issue into account.

Our study did not include a control group of the general population or other disease groups, but some indication about the frequency of somatoform dissociation can be derived from other studies. Patients with FMS have a moderately higher mean score on somatoform dissociation (25.3) than the patients with RA (21.4), patients with bipolar mood disorder (22.9) (14), or Dutch non-patients comparable in age to the patient groups in the present study (23.20) (29). As the scores of the patients with FMS are much lower than the mean levels in conversion disorder (31.9) or dissociative identity disorder (51.8) (14), somatoform dissociation is not characteristic of fibromyalgia.

The correlation between traumatic experiences and somatoform dissociation was significant in FMS and nonsignificant in RA, which showed a correlation comparable to an aselect sample of adults (29). Only some FMS patients show high levels of both traumatic experiences and somatoform dissociation. One study observed psychoform dissociation in 30% of FMS patients and 7% of RA patients and proposed that dissociation might be a fruitful perspective for understanding FMS (38). Our study observed somatoform dissociation in 10% of the FMS patients and 2% of the RA patients. Results of both studies suggest that some patients with fibromyalgia have distinct dissociative psychopathology that requires further diagnostic attention (38). For this specific subgroup a PTSD like treatment may offer help.

In accordance with a previous study (39), the impact of the disease as measured with

the Fibromyalgia Impact Questionnaire reveals highly significant differences between the two patient groups. Several mechanisms may explain this difference among which an abnormality in self-monitoring mechanisms (40). Our analyses showed that the impact of the disease was not correlated to trauma or somatoform dissociation scores. The answer to the question whether trauma or dissociation may play an initiating or a perpetuating role is beyond the scope of the current study, but our analyses do suggest that the quality or quantity of perceived disease impact is independent of past trauma or somatoform dissociation.

The hypothesis that childhood victimization may play an etiological role in chronic pain has been challenged (41). An explanation for the higher memory of past traumas might be that especially patients that have a biomedically invisible disease may start to look for events in their past that help them understand why they have complaints (42). A recent review on the validity of adult retrospective reports of adverse childhood experiences proposed that false negatives are more common than false positives (18). The issue of the the accuracy of memories of past trauma is controversial and only truly prospective studies in population samples can confirm or reject the hypothesis about the etiological role of childhood trauma. However, whatever the answer to this question, the observed high frequency of the perception of past trauma in fibromyalgia is important, because it is the current reality of individuals.

Some use labels such as somatization, somatoform disorders, and functional somatic symptoms to refer to somatic symptoms that cannot be explained in terms of a conventionally defined medical disease (43). Somatoform dissociation is, however, certainly not just another label for medically unexplained symptoms, which can be demonstrated by comparing the items that are used to assess these constructs (38). The concept of somatoform dissociation provides a framework to understand somatization disorder, hypochondriasis, and conversion disorder (44)

Fibromyalgia is one of a number of syndromes where patients frequently report a

history of childhood maltreatment and abuse. Also in this study patients with FMS reported significantly higher levels of traumatization. Only a small part of patients with FMS or RA in our study reported not only trauma experiences but also somatoform dissociation. This combination seems to point to somatoform consequences of traumatization that call for a broad treatment approach or a special role of psychologist or psychiatrist (43).

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Table 1. Demographic features of patients with fibromyalgia and rheumatoid arthritis

| | Fibromyalgia (<i>N</i> = 28) | Rheumatoid Arthritis (<i>N</i> = 51) | <i>p</i> value |
|---------------------|----------------------------------|--|----------------|
| Female | 92.9 % | 90.2 % | .52 |
| Age | 42.0 (10.8) | 45.6 (9.6) | .13 |
| Disease duration | 4.8 (4.6) | 5.4 (3.2) | .51 |
| Living with partner | 89.3 % | 86.2 % | |

Table 2. Mean scores on the Fibromyalgia Impact Questionnaire for the two patient groups

| | Fibromyalgia (<i>N</i> = 28) | Rheumatoid Arthritis (<i>N</i> = 51) | <i>p</i> value |
|-----------------------------|----------------------------------|--|----------------|
| Part 1 (10 subitems) | | | |
| Physical functioning | 12.20 (5.21) | 7.01 (5.84) | <.001 |
| Part 2 (2 items) | | | |
| # days OK | 3.07 (2.14) | 2.96 (2.59) | .839 |
| # days not worked | .43 (1.17) | .18 (.82) | .317 |
| Part 3 VAS scales | | | |
| Job ability | 7.36 (2.56) | 4.34 (3.15) | <.001 |
| Pain | 7.12 (1.96) | 5.87 (2.99) | .028 |
| Fatigue | 8.40 (1.18) | 6.11 (2.57) | <.001 |
| Morning Fatigue | 7.85(1.99) | 4.98 (2.38) | <.001 |
| Stiffness | 7.64(1.70) | 4.48 (2.47) | <.001 |
| Anxiety | 4.07 (2.44) | 2.43 (2.28) | .004 |
| Depression | 3.47 (2.61) | 1.98 (2.10) | .007 |
| FIQ Part 2 | 5.50 (3.81) | 4.86 (4.37) | .523 |
| FIQ Part 3 | 46.17 (9.17) | 31.05(12.80) | <.001 |

Note: A higher score reflects a higher impact of the disease

Table 3. Frequency of reported trauma and traumatization composite indices from the TEC in the two patient groups.

| | Fibromyalgia | Rheumatoid Arthritis | p value |
|---|--------------|----------------------|---------|
| Trauma; frequencies and percentages | | | |
| At least One Event | 82.0 % | 61.0 % | .051 |
| Emotional Neglect | 35.7 % | 17.7 % | .047 |
| Emotional Abuse | 32.1 % | 11.8 % | .037 |
| Physical Abuse | 21.4 % | 9.8 % | n.s. |
| Sexual Harassment | 35.7 % | 13.7 % | .047 |
| Sexual Abuse | 21.4 % | 7.8 % | n.s. |
| Traumatization composite indices; means (\pm sd) | | | |
| Total # of Events | 4.25 (3.75) | 1.88 (2.98) | .002 |
| Composite Score | 7.57(10.93) | 3.27 (8.55) | .008 |
| Emotional Neglect | 2.61 (4.19) | 1.12 (3.04) | .029 |
| Emotional Abuse | 1.96 (3.39) | .92 (2.82) | .037 |
| Physical Abuse | 1.43 (3.06) | .78 (2.80) | .163 |
| Sexual Harassment | .89 (1.37) | .31 (.95) | .020 |
| Sexual Abuse | .68 (1.42) | .14 (.53) | .062 |

Note. For frequencies χ^2 is reported, for composite scores Mann-Whitney U test

Note. A higher score reflects more traumatization