

Positive affect as a factor of resilience in the pain—negative affect relationship in patients with rheumatoid arthritis

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Abstract

Objective: The purpose of this study is to examine positive affect (PA) as a factor of resilience in the relationships between pain and negative affect (NA) in a sample of patients with rheumatoid arthritis. **Methods:** Forty-three patients (30 women; mean age, 57 years) were interviewed weekly by telephone for 8 weeks. Multilevel modeling was applied to study the within-week relationships among the variables. **Results:** There was a Pain×PA interaction effect on NA ($\beta=-0.05$, $P<.01$) indicating a weaker relationship between pain and NA in weeks

with more PA. Pain ($\beta=0.37$, $P<.002$), interpersonal stress ($\beta=2.42$, $P<.001$), depression ($\beta=0.26$, $P<.01$), average perceived stress ($\beta=10.80$, $P<.001$), and also weekly PA ($\beta=-0.1$, $P<.01$) had a main effect upon NA. **Conclusion:** Positive affect is most influential in reducing NA during weeks of higher pain and may be a factor of resilience, helping patients experiencing pain fluctuations as less distressful than at lower levels of PA.

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Introduction

In this paper, we ask whether the stressful impact of chronic pain is lessened by the presence of positive emotions for patients with rheumatoid arthritis (RA). Chronic pain is reported as the most widespread and challenging symptom for patients with RA [1] and a high priority for physician's attention [2]. Pain in RA is also a potential stressor not only because it is a highly aversive bodily experience but also because the pain intensity and duration fluctuate in a relatively unpredictable and uncontrollable way.

Pain varies between individuals and across situations in intensity and duration, and patients differ in the extent that

arthritis pain gives rise to emotional distress. Although there is a well-established association between pain and negative affect (NA) [3,4], both interpersonal stress and also depression play a role in a patient's vulnerability to pain [5–11]. For RA patients, negative affective responses to pain may influence illness course, increasing the frequency of painful flares, lowering pain thresholds, intensifying pain behaviors, and deteriorating coping [12–19]. Thus, identifying factors that may diminish the established connection between pain and NA may be of considerable value to the health as well as the mental health of RA patients.

A shift in focus in pain research to explore an RA patient's capacities for resilience as well as their vulnerabilities to pain appears warranted at this juncture. The concept of resilience refers to the person's ability to bounce back from negative emotional experiences and show a flexible adaptation to the changing demands of stressful experiences [20]. These attributes are of considerable importance for sustaining health and well being [21,22]. Positive emotions may be

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essential factors in the process of resilience following adverse events [23–27], including adverse experiences with chronic pain [28]. Tugade and Fredrickson [29] found that high-resilient individuals tended to report positive emotions even when under stress, and that these positive emotions contributed to recovery from stress-related negative effects. Their “Broaden and Build” theory of positive emotions [30] posits that persons with higher positive affect (PA) have greater capacity to recover psychologically and physiologically to stressful events. Positive emotions may expand the range of cognitions and behaviors to build an individual’s physical, intellectual, and social resources [29–31].

The role of PA in persons with chronic pain has been examined by Zautra et al. [28,32]. In their dynamic model of affect (DMA), they suggest that the relationship between PA and NA changes as a function of context [33–35]. Dynamic model of affect posits that stressful events change the degree of independence between the affective states so they become less differentiated, that is, more bipolar. Thus, according to the DMA, people who can sustain higher levels of PA at the time of the stressor would show significantly less NA [35]. In one longitudinal study of arthritis (RA) patients, they found that the presence of positive affective states reduced the size of the relationship between the patient’s reported weekly “average pain” and NA [32]. Weekly registrations of pain and affect were employed for a period of 12 to 20 weeks. In this study, they examined the role of PA in the relationship between pain and NA, and with mood clarity as a confounder. So far, no study other than Zautra et al.’s [32] has explored this relationship with a combined within- and between-person design, and advanced statistical methods such as multilevel modeling.

Stress is highly related to the environmental context—especially interpersonal events [25]. For patients with RA, stress in interpersonal relationship is associated to increased disease activity, depression, and pain [8,17]. In this group of patients, the PA–interpersonal stress interaction on NA has not, as far as we know, been examined. In the current study, we also explore interpersonal stress, that is, the patient’s perceived stress in friends, family, and spouse/partner relationship.

The current study is a replication of Zautra et al.’s study [32] only in so far as it tests the relationships among pain, PA, and NA. We have also added tests of the role of interpersonal stress, which was not included in the prior study. We also studied “worst pain” during the past week, which was another departure from prior research that relied on reports of last week’s average pain. The bipolarity of the affects and the resilience factor are both stress-related phenomenon. Bipolarity in affects is according to DMA, a consequence of stressful events. For resilience to display, there need to be aversive states to bounce back from, and because the worst pain more closely identifies a stressful event, we rely on this pain rating in our study.

To date, the role of PA as a source of resilience has not been studied in patients with RA. This study aims to bridge

that gap and expand our understanding of the affect interrelationships in RA.

Norms for experiencing and expressing emotions differ widely between countries, even between countries that on most dimensions may appear similar and share many sociocultural features [36], such as Norway and the United States. It is therefore valuable to test the effects of PA on NA among RA patients who reside in these countries other than the United States.

In this paper, we examine data on a sample of Norwegian patients with RA on the association between pain fluctuations, elevations in interpersonal stress, and NAs. We also address the question of how PA influences these relationships. Finally, we explore individual differences in depression and perceived interpersonal stress as vulnerability factors in the experiences of NA during chronic pain.

Method

Subjects

The sample consisted of 43 patients with RA included in a 10-year follow-up of the Norwegian EURIDISS cohort (European Research in Incapacitating Diseases and Social Support [11]). At entry into the cohort 10 years prior, patients had been diagnosed with RA within the last 4 years. They were asked to take part in the current study when they came to the hospital for the 10-year follow-up examination. Of the 238 patients originally included in the EURIDISS study at T1 (1992), 35 patients had died. Forty-two individuals refused to take part in the follow-up, and 12 patients did not take part in the follow-up for other reasons (could not be located, had moved, etc.). Thus, 149 (63% of 238) patients took part in the 10-year follow-up.

Of these 149 patients, 43 participated in the current study. The present sample consisted of 30 (70%) woman and 13 (30%) men. The mean age was 57.5 (S.D.=13.1) with a range from 33 to 80 years. Of the 43 patients, 26 (60%) were married or living with a partner, 33 (75%) had one or more children, and 10 (23%) were in a full-time job, 5 (12%) had a part-time job, and the rest [28 (65%)] were on age or disability pension. A comparison of this sample to the EURIDISS cohort on age, education, sex, Steinbrocker (physical function), Physician global clinical evaluation (VAS), SF-36, Nottingham Health Profile, HAQ, and GHQ revealed significant differences only in age and education. The current sample was younger and had longer education than the EURIDISS cohort.

Overall, the current sample was functioning at a relatively high level for RA patients. Of the 43 patients, 80% had a Steinbrocker score (a global measure of function) of 2 on a scale ranging from 1, which is no impairment, to 4, which signifies extensive handicap such as using a wheelchair or staying in bed. None of the RA patients had a score on IV.

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