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Fear of Pain and Its Association with Past Painful Experiences and Childhood Adversities

Eleni Bartzou[1], Konstantina Dimou[1], Georgios Tsitsas[2], Kalliopi Kounenou[3], Agapi Batiridou[1], Stefanos Mantzoukas[4], Elena Dragioti[1], Mary Gouva[1]

[1]Department of Nursing, School of Health Sciences, Research Laboratory Psychology of Patients, Families and Health Professionals, University of Ioannina, Ioannina, Greece
[2]Department of Economy and Sustainable Development, Harokopio University, Athens, Greece
[3]School of Pedagogical and Technological Education (ASPETE), Athens, Greece
[4]Department of Nursing, School of Health Sciences, Research Laboratory of Integrated Health, Care and Well-Being, University of Ioannina, Ioannina, Greece
Email: tsitsas@yahoo.com

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Abstract

Childhood adversities and past painful experiences are mediators of adult fears. The purpose of the study was to investigate the effects of childhood trauma and past painful experiences on the fear of pain, as expressed through their Fear of Pain Questionnaire III. Eight hundred and thirty-one healthy individuals (262 men and 569 women) from the general population, aged 36.35 (12.86) years old, were enrolled in the study. They were asked to fill out the Fear of Pain Questionnaire (FPQ-III) and to report any adverse events in their childhood. A score of childhood adversities was created by summing the stressors. The presence and intensity of painful experiences were significantly associated with the total FPQ score. Participants who had at least one painful experience or a total pain experience score above its median value differed statistically significantly in total FPQ score when compared with their counterparts without any childhood adversity or lower adversities ($p < 0.05$). The FPQ total score was significantly correlated with the adversities score. This study underlines the associations of common childhood adversities with the fear of pain, quantifying their effect. A higher FPQ score mirrors a higher childhood stressors' burden and informs the clinician about the adult's psychological background, thus allowing prompt and proper interventions.

Keywords

Pain, Fear, Childhood, Experience, Abuse

1. Introduction

The emotion of fear may result from a traumatic condition and adhesion to the phobic element. Trauma is the situation that arises when there is no anxiety to trigger the function of defense. The traumatic neuroses (e.g., because of war, rape) are derived from the fact of an attack on the subject who does not have time, not only to defend themselves, but to feel anxious, i.e., to predict the risk (Freud, 1920). As with fear (a temporary but similar situation), the wound redirects the violent incident upon the same information and prevents their processing, thus seeking to stay on (Jones, 2005). For many contemporary psychoanalysts, trauma refers to a general reaction to inner conflicts, the source of which can be either internal or external and, therefore, involves the concept of signal rather than the concept of risk (Naso, 2008).

The central role of the emotion of fear in different forms and manifestations of human relations appears in relation to painful experiences ranging from purely medical-centered to the family ones. It is difficult, not only to understand the pain as a feeling but also to assess it objectively. This is due to its placing, more than all the emotions, to the limits of normal, regular functioning of the ego. As such, one can reasonably wonder about the relation of such a marginal feeling with other emotions and especially the relationship of fear with pain. Fear of pain is also both a "basic form" and expression of the emotion of fear (Hollander, 2004).

We can argue, then, that we will experience pain and fear throughout life, and as we suffer, we experience pain. This is because pain acts as a threatening stimulus and seems to cause an avoidance response, as an ameliorative response to fear-generating and painful stimulus. The threat of pain is not only an addition to our sensory system or just arising from our sensory functions. Instead, it is a primary and central component of our analgesic behavior (Eccleston, 2001). However, a general attitude beyond the many fears of pain can be translated into a kind of "meta-fear", which is nothing more than the fear of any person in connection to the deterioration of physical and mental state—or what Frank defines as the "fear of a lower, marginal strength point" in pain (Frank, 2007).

Fear of pain may have serious effects on health care quality, and several questionnaires have already been developed for the assessment of fear in relation to pain, and various treatment strategies have been developed to reduce fear of pain and subsequent disability (Balderson, Lin, & von Korff, 2004; Waddell et al., 1993). However, the interpretation of fear of pain and its relation to past adverse experience is still under investigation (Lyby, Aslaksen, & Flaten, 2011).

The purpose of the present study was to investigate the effects of childhood trauma and past painful experiences on the fear of pain, as expressed through their Fear of Pain Questionnaire III.

2. Material and Methods

The total number of individuals was eight hundred and thirty-one (831), healthy individuals (262 men and 569 women) who were a) either undergraduates or

postgraduate students at Greek Universities, or administrative employees at these Universities, b) both public servants and/or employees in private sectors, and c) relatives and friends of the above individuals. The average age of these participants was 36.35 (12.86). All subjects had at least graduated from primary school, and they had no history of mental disorders, nor did they require psychiatric medication. Those 831 individuals were divided into two groups based on their responses to experienced negative life events: one with 448 individuals (53.9%) and another with 383 individuals (46.1%).

Next, all participants answered the Fear of Pain Questionnaire (FPQ) which is used to measure fear of pain and is based on the work of Lethem et al. (1983) and further developed by McNeil & Rainwater 3rd (1998). It has been linguistically validated in Greek by Dragioti (2008). The present FPQ version (FPQ-III) consists of a total number of 30 items. The FPQ items are statements briefly describing painful situations, and the patient is asked to mark the "amount of fear" on a scale of 1 (not at all) to 5 (extreme) for each item. Three subscales are reported: fear of minor, severe, and medical pain. The FPQ total score is used in the present study (McNeil & Rainwater 3rd, 1998). Moreover, for each FPQ question, we added another one, referring to the past experience of the fact mentioned in the particular question. If that fact had actually happened, one point was assigned to the individual. The sum of points mirrors the number of painful events the individual had experienced in the past, aligned with the FPQ. This total score was called Painful Experience Score (PES). The participants were further divided into two groups based on their responses to experienced negative pain events. The first group consisted of 185 individuals (22.3%) who reported being exposed to at least one painful event. The second group consisted of 646 (77.7%) individuals who reported not being exposed to such experiences. When the PES total score was dichotomized at its median value, two new groups were created: one with 348 (41.9%) individuals and another with 483 individuals (58.1%).

All the participants who fulfilled the study's requirements and accepted to participate in it were informed about the procedure of the study. A self-report questionnaire, asking for certain sociodemographic information (e.g., gender, age, education, etc.), was enriched with a closed question about traumatic experience during childhood: a) have you ever experienced a traumatic life event as a child?—the answer to this question determined the formation of the two primary groups in the present study—and an open-ended question asking b) if the answer to the above closed question was yes, they then had to describe the event and indicate when it occurred. According to this, the survey authors selected some types of traumatic life events: domestic violence, physical and emotional abuse, separation, and loss of significant others. Twenty-four adverse events were reported.

3. Statistics

Descriptive and inferential statistics were performed. If an adverse event was reported, one point was assigned to the individual and a total score (sum of painful

events points) was created. The total score ranged between zero (no event) to 24 (all possible adverse events set). Further, this total score was dichotomized at its median (11 points). The students' t-test was used for comparisons and Pearson's r for correlation. Internal consistency was evaluated by Cronbach's alpha and was exceptional: a = 0.94. Statistical significance was set at $p = 0.05$. Statistics were performed with the Statistical Package for Social Science (SPSS 22.0).

4. Results

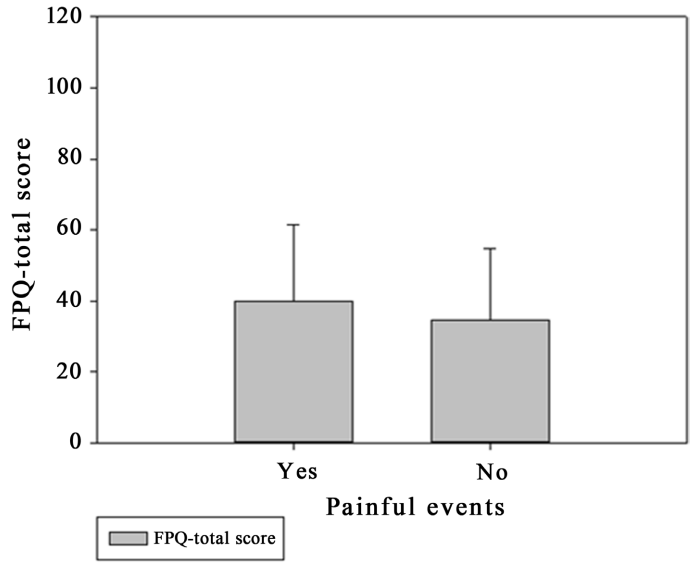
Women comprised 68.5% of the sample. Unmarried participants accounted for 48.8%, while 45.9% were married. Most participants lived in an urban environment (77.8%), and they were university graduates (50.8% in total, including post-graduates) (Table 1). The presence and intensity of childhood adversities were significantly associated with the total FPQ score. Participants who had at least one painful event differed statistically significantly in total FPQ score when compared with their counterparts without any childhood adversity (32.31 ± 19.21 vs 39.17 ± 21.50 respectively, $t(829) = -3.915$, $p < 0.001$) (Figure 1). Moreover, participants with the PES above its median value differed statistically significantly in total FPQ score from those with fewer adversities (34.54 ± 20.23 vs 39.89 ± 21.60 respectively, $t(829) = -3.614$, $p < 0.001$—data not shown). When the 831 individuals were divided into two groups based on the presence or absence of adverse childhood events, those who reported at least one childhood adverse event had statistically significantly higher FPQ values than those who had not (39.89 ± 20.52 vs 34.96 ± 21.96 respectively, $t(829) = 3.180$, $p = 0.002$) (Figure 2). The FPQ total score was significantly correlated with the adversities score ($r = 0.179$, $p < 0.001$) (Figure 3).

Table 1. Demographic characteristics of the sample.

Variables (N = 1237)	Counts	% of Total
Gender		
Man	262	31.5
Woman	569	68.5
Total	831	100.0
Family status		
Unmarried	405	48.8
Married	381	45.9
Divorced	32	3.9
Widowed	13	1.4
Total	831	100.0
Dwelling		
Village	184	22.2
Town	353	42.5
City	294	35.3
Total	831	100.0

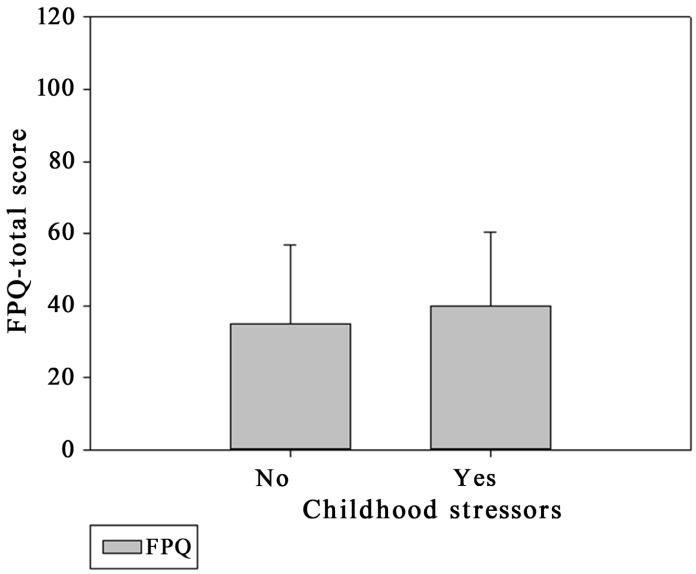
Continued

Educational level		
Primary education	30	3.7
Junior High School	27	3.3
High School	179	21.9
Student	171	20.9
University Graduate	317	38.7
Post Graduate degree	94	11.5
Total	818	100.0



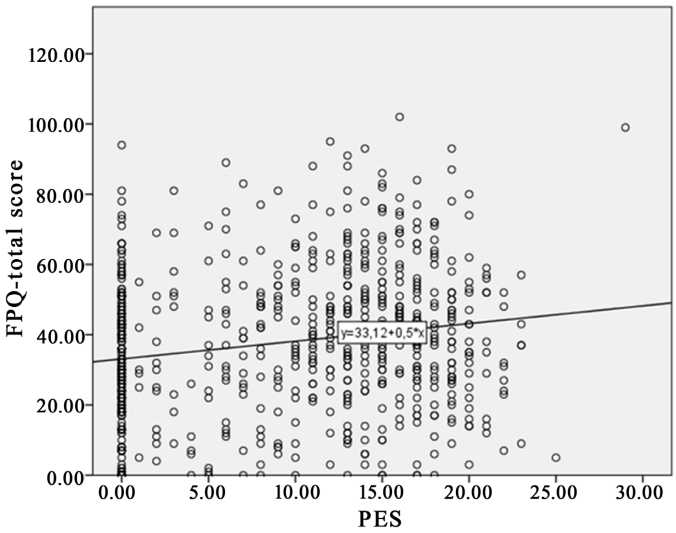
FPQ: (Fear of Pain Questionnaire).

Figure 1. FPQ total score depending on the presence of past painful experiences.



FPQ: (Fear of Pain Questionnaire).

Figure 2. FPQ total score depending on the presence of adverse childhood events.



FPQ: (Fear of Pain Questionnaire).

Figure 3. FPQ total score and PES association.

5. Discussion

According to the findings of the present study, severe childhood stressors, irrespective of their nature, were associated with the fear of pain. In addition, past pain experiences were associated with the fear of pain. This association persisted after the painful experiences score was dichotomized at its median value, being more prevalent when individuals were in the upper half of the distribution. A strong positive correlation was found between the fear-of-pain questionnaire score and the number of painful past experiences, indicative of a linear relationship between the two. These findings further enhance the perception of the multidimensionality of pain origin, embracing a large panel of negative childhood and past painful experiences.

Childhood adverse events affect brain development and the learning and memory pathways. Pain and, more precisely, the fear of pain is an emotional state stemming from a variety of origins, including stimuli vulnerability and past pain experiences, as well as neuroticism, rooted in early life. Studies have shown that neuroticism is associated with reduced placebo or nocebo analgesia, and that high levels of fear of pain are shown to decrease placebo analgesic responses (Lund et al., 2015; Peciña et al., 2013). Neuroticism encompasses elements of anxiety, depression, anger, irritation, rumination, and vulnerability. As negative emotions increase pain, individuals with high neuroticism arising from a childhood abuse background might be more prone to develop and express fear of pain; they might be more easily affected by suggestions of pain increase compared to those with no such history (Kadimpati et al., 2015).

Pain is widely accepted today as a multidimensional phenomenon; biological, psychological, and social factors seem to be involved in its dynamics (Nicassio et al., 1997; Truchon, 2001). For example, the concept of self-efficacy has been associated with pain management (Arnstein, 2000). Goubert, Crombez, and Van

Damme (2004) showed that neuroticism mediates between pain intensity and destructive thoughts about pain. They concluded that neurosis is conceptualized as a vulnerability factor against pain, which appears to lower the threshold for the perception of pain and the development of impending doom (Goubert et al., 2004). We perceive, therefore, the extent of the pain field, which extends far beyond a strictly neurophysiological perception, and we understand why it is necessary to open new pathways in research to determine the share of the ego inside the painful field (Naso, 2008). The perspective of pain may thus represent a potential loss of ego integrity, a threat to the ego, causing fear, indicative of psychological insecurity due to adverse past events. The perspective of pain may act as a reminder of psychologically or even bodily "painful" past experiences, and the individual may be trapped in a vicious circle of painful memories and a current unfavorable perspective, both generating anxiety, further reducing the threshold of fear and pain (Ferris et al., 2019).

The fear of pain, which is empirically separable from the concepts of stress and negative influence, refers to the fear of physical pain following a variety of area events, e.g., from biting the tongue while eating to breaking a neck (Lightsey Jr. et al., 2008). Because fear is a natural consequence of pain, the avoidance of a phobic event is logical for acute pain but can act as a barrier to recovery from chronic pain. In chronic pain, relative to pain anxiety and fear, they may actually accentuate the experience of pain (Crombez, Vlaeyen, & Heuts, 1999). The feeling of fear of pain, in particular, is actively involved with pain, playing an important role in people's painful experience and in their response to pain (Vowles et al., 2006). The role of past painful experiences appears to be a critical factor in both the development and maintenance of fear. As Rachman and Eyrl (1989) proposed, fear acquisition occurs when a neutral stimulus is paired with a fearful or pain-producing state, with repetitions of the pairing (frequency) as well as the intensity of fear or pain during these experiences contributing to the subsequent levels of fear.

However, fear of pain, as a construct, has begun to develop conceptually only. The terms "algophobia" and "odynesphobia" were created just to describe this fear of pain (McNeil & Rainwater 3rd, 1998). The fear and anticipation of pain include cognitive-perceptual processes, guided not only by the actual sensory experience of pain and can exert a significant impact on the level of pain tolerance. In particular, the response to pain is increased only when fear occurs due to the pain or the possibility of pain (Weisenberg et al., 1984).

Novel approaches have revealed that the hippocampus plays a key role in the chronicity, severity, predictability, and controllability of stressors (Suri & Vaidya, 2015). The exposure to stressors may cause maladaptive consequences to neuronal circuits expressed in the hippocampus, where they also appear to influence hippocampal-dependent cognitive function and emotionality. Early life stress also elicits a wide range of structural and functional responses, which often exhibit life-long persistence and might be the biological link between a social-family behavior or stressor and adult response to an impending hazard (i.e.,

pain). The greater the burden of stressors, the greater might be the biological consequences, mirroring the early life adverse experiences to adult life, as suggested by the linear relationship between the total stressor score and fear of pain score (Smith & Pollak, 2020).

6. Limitations

The participants mentioned the childhood adversities, but the subjective trauma to the child was not evaluated. Also, there was no testing for any subtle cognitive deficits in the participants of the study. Recall deficits might also affect our results, while not all participants were willing to precisely define the stressors.

7. Conclusion and Clinical Implementation

This study underlines the associations of common childhood adversities with the fear of pain, quantifying their effect. A higher FPQ score mirrors a higher burden of childhood stressors and informs the clinician about the adult's psychological background, thus allowing for non-pharmacological pain-reducing approaches. As exposure to adversities in childhood and adolescence is predictive of fear of pain in adulthood, understanding all kinds of associations and underlying mechanisms is of crucial importance for effective and prompt interventions.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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