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# The grapes of war

## Somatoform pain disorder and history of early war traumatization in older people

According to the US National Institute on Aging, approximately 500 million people worldwide were at least 65 years old by 2006. This number represents 12% of the world's population. By 2030, the figure is expected to climb to 20%. As health conditions also improve in developing countries, life expectancies will generally rise, and the number of people with mental problems due to age-related processes will accordingly increase.

Since the concept of “gerontopsychosomatics” was created in 1990, there has been increasing interest in the bio-psychosocial implications of mind–body interactions during the aging process in the second half of adulthood. However, integrated treatment strategies that involve psychotherapy adjusted for elderly patients with “psychosomatic diseases” such as somatoform disorders are lacking [48].

Irrespective of age, good health does not imply an absence of symptoms. Experiencing symptoms is part of daily life and an endemic human experience. Of the general population, 80–90% report ≥1 symptom per week, and a typical adult has 1 medically unexplained symptom every 5–7 days. Of college students, 80% report ≥1 symptom within 3 days and about 70% of adults complain of back pain during their lifetime. However, only a small minority require medical consultation [8].

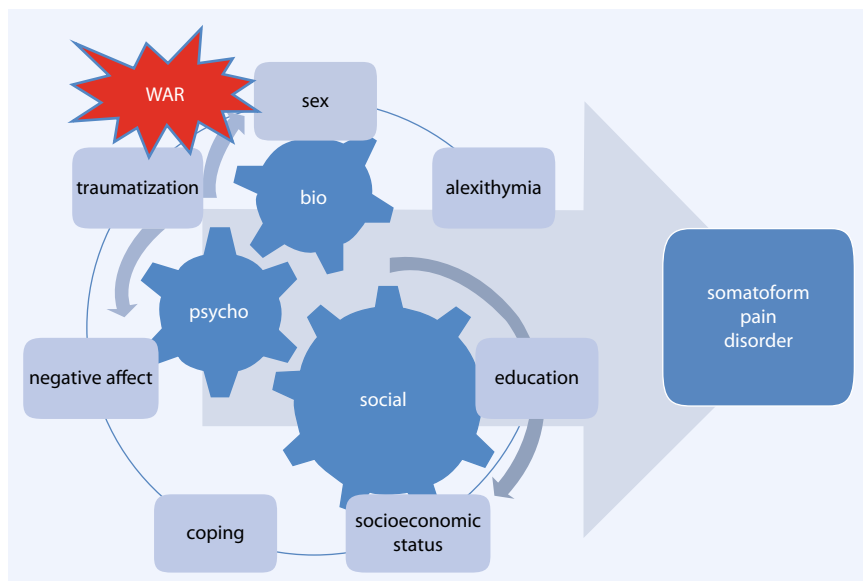
Various labels have been given to medically unexplained symptoms, including “functional somatic symptoms,” “somatization,” and “somatoform disorders” [52]. It seems as though each medical specialty has at least one “functional syndrome,” and it has been suggested that the existence of specific somatic syndromes is largely an artifact of medical specialization. For example, for gastroenterologists, abdominal pain with altered intestinal habit is labeled irritable bowel syndrome (IBS), and for rheumatologists, chronic widespread pain, allodynia, and fatigue is considered fibromyalgia [52].

In this context and reflecting the old-fashioned dualistic dichotomy between “body” and “soul,” the official classification systems distinguish between somatic (“functional”) and mental (“somatoform”) symptoms and disorders, respectively (in terms of a double classification of human diseases) [33]. The main feature of somatoform disorders is the repeated presentation of physical symptoms along with persistent requests for medical investigations, in spite of repeated negative findings and reassurances by physicians that the symptoms have no physical basis [33]. If physical disorders are present, these disorders do not explain the nature and extent of the symptoms or the patient's distress [13] and preoccupation. In

this context, severe and disabling symptoms of pain that remain medically unexplained after in-depth examination (symptoms that also cannot be explained fully by the direct effect of a substance or attributable to another mental disorder (i.e., panic disorder)) are referred to as somatoform pain disorder [32]. These patients frequently consult primary care providers. In specialized clinics, 30–40% of patients in the gastroenterology and neurology departments and up to 66% of those in the gynecology department suffer from somatoform pain disorder [52]. The German national survey on psychiatric disorders, conducted as part of the national health survey of 1999, indicated that somatoform disorders are among the leading mental disorders (after anxiety and affective disorders), with a 4-week cross-sectional prevalence of 7.5% [53]. Internationally, the prevalence of the disorder ranges between 9% and 20% [38]. In a representative study of 630 persons older than 60 years who were asked to complete the SOMS 2 (*Screening for Somatoform Symptoms*) questionnaire, 71.8% reported at least one symptom, 50.5% experienced at least four symptoms, and 23.4% suffered from at least eight symptoms. Patients with medically unexplained physical symptoms are so-called high utilizers of the health care system, incurring costs

Hier steht eine Anzeige.





**Fig. 1** ▲ Vulnerability factors for the development of somatoform pain disorder in older people are female gender, low education level, trauma, poor coping strategies, negative affect, and alexithymia. *Alexithymia* refers to a state of deficiency in understanding, processing, or describing emotions. Adapted from [48]

that are up to 10 times higher than those of average patients. Adjusting the findings for the presence of mental and somatic comorbidity had relatively little effect on this association [4].

Considering multimorbidity and aging, there is a strong relationship between chronic somatic diseases and mental disorders such as somatoform disorders. Psychiatric morbidity is generally high, and many patients have chronic psychosocial problems. In a geriatric acute hospital, a minimum of 20% of the patients aged 60 or older fulfill the case criteria for a psychogenic illness. As intelligence is negatively associated with the number of somatoform symptoms, reported symptoms increase with decreasing cognitive performance, as indicated by the Mini-Mental State Examination (MMSE). Moreover, somatoform disorder has a high comorbidity with major depression and anxiety disorders [34, 39], and there seems to be an association between somatoform and substance use disorders [22]. Research has suggested that the frequency of somatoform symptoms is much higher in people over 60 years than in persons who are younger than 60 [48]. Multimorbidity and polypharmacy are common problems in older people and are significantly correlated with higher mortality, increased disability, and functional decline. In a study

identifying multimorbidity patterns using exploratory tetrachoric factor analysis based on claims data of 63,104 males and 86,176 females in the age group 65+ years, the following three multimorbidity patterns were identified:

- cardiovascular/metabolic disorders (prevalence: female 30%, male 39%),
- anxiety/depression/somatoform disorders and pain (34%, 22%), and
- neuropsychiatric disorders (6%, 0.8%) [47].

Somatoform complaints and disorders occur more frequently in elderly women than in elderly men [48].

It has been estimated that 50% of older people who live independently and 75% of those who live in nursing homes suffer from chronic pain. However, the etiology of this persistent pain is often not entirely clear. Among the somatoform symptoms, pain complaints such as back pain, joint pain, pain in the limbs, and headache or facial pain are the most frequent [24]. In the German general population, the lifetime prevalence of pain-predominant somatoform disorders is 33.7%, with 12.3% of these individuals being significantly impaired. The prevalence of pain was found to be greater with increasing age, lower education, lower income, rural residency, and residency in Eastern Germa-

ny. Although the prevalence of somatoform pain is high, the majority of patients do not receive adequate psychotherapeutic care but are inadequately treated by somatic treatments, e.g., reflected by so-called doctor (s)hopping [24]. Altogether, somatoform pain disorder is both a frequent and neglected condition in older people [19].

## Characteristics of somatoform pain disorder in older people

Reports indicate that the characteristics of older adults with chronic pain may differ from those of younger persons [37]. For example, pain in older people is more often localized in several body regions [37], and symptoms often do not become clinically prevalent until middle age [44]. Moreover, elderly patients tend to report more somatic complaints and avoid expressing the emotional dimension of distress. When examining the differences between “young olds” and “old olds,” somatoform pain increases with increasing age [25], e.g., in chronic widespread pain [2]. A study of 115 geriatric in-patients that aimed to identify links between regions of experienced pain, subjective pain intensity, and psychological variables revealed that 61.7% of the study sample reported intense pain in at least one body region. These patients differed significantly from those with less pain in terms of their level of functional capacity and need for assistance in daily activities. They also displayed a significantly more negative attitude towards aging than patients with minimal pain. Furthermore, emotional distress (like pain itself), but also comorbid depression and anxiety play important roles in memory complaints in patients with chronic pain, as well as rumination, actually the intrusive component of catastrophizing. Finally, earlier pain experiences (e.g., in the context of a physical disorder or traumatic events during war) may “pave the way” for somatoform pain syndromes [10].

## Burden of traumatization of early war experiences

Somatoform symptoms are more prevalent in traumatized patients than nontrau-

matized patients [43]. From a lifespan perspective, sexual or physical abuse in early life is associated with psychopathology in later adulthood [29], especially the severity of somatization [41] and chronic pain [18]. Against the background of World War II, the extent and long-term effects of war-related traumatic experiences (e.g., experiences during military war service, bombing, or wartime rape) in the elderly generation are of special interest [36]. An investigation of the long-term effects of the British evacuation of children during World War II on the mental health of the now older people found significant associations between early experiences and lifetime mental health [46]. A recent study examining the occurrence of traumatic experiences and the prevalence rates of post-traumatic stress disorder (PTSD) and partial PTSD, defined according to the DSM-IV, in a randomly selected sample of the German general population aged 60 years and over showed that PTSD was apparent in 3.4% of the sample. When partial PTSDs were included, the total rose to 7.2% of the elderly population. It is important to note that the most frequently mentioned traumatic incidents of the generation examined in this study were war-related traumas experienced as a child or early adolescent during World War II. As a person's age increased, the prevalence of war-related traumatic experiences also increased from 19.2% in those aged 60–64 up to 59.7%(!) in those who were 75 and older [17]. Much lower prevalence rates were found in the Swiss older people who largely escaped war-related trauma [35]. An examination looking at a more recent conflict found that Persian Gulf War veterans' reports of traumatic events [14] were clearly associated with somatoform diagnoses. Veterans who handled dead bodies had a 3-fold higher risk of receiving a diagnosis of somatoform disorder [31]. A higher proportion of veterans of the Persian Gulf War of 1991 reported symptoms of pain than did military comparison groups [50]. In fact, reports of pain symptoms could be easily continued with regard to refugees [27], child soldiers [30], prisoners of war [11], the "unspoken secret" of sexual violence in World War II [28], and veterans of former and recent conflicts [1, 26].

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## The grapes of war. Somatoform pain disorder and history of early war traumatization in older people

### Abstract

Persistent pain is not a normal part of aging. Nevertheless, many older patients have long-lasting, more or less medically unexplained pain symptoms and, consequently, are often severely disabled, incur high health care costs, and have high comorbidity rates. Moreover, the effects of early traumatization, especially due to wars, and even below the level of posttraumatic stress disorder (PTSD) are apparent. However, the developmental and neurobiological underpinnings of somatoform pain disorder, especially in pain-prone elderly patients, and its correlations with a history of war traumatization even decades

after the incident remain unclear. Furthermore, a management strategy for this disorder tailored to older people and their special needs is lacking. Adequate therapeutic regimens such as adjusted psychotherapeutic procedures for elderly patients can only be promoted through a better understanding of the neurobiological and biographical underpinnings of this still controversial disorder.

### Keywords

Somatoform disorders · Chronic pain · Posttraumatic stress disorders · Aged · Neurobiology

## Die Früchte des Krieges. Somatoforme Schmerzstörungen und Vorgeschichten von früher Kriegstraumatisierung bei Älteren

### Zusammenfassung

Anhaltende Schmerzen sind kein normaler Bestandteil des Alterns. Dennoch haben viele ältere Patienten dauerhaft eine mehr oder weniger medizinisch nicht erklär-bare Schmerzsymptomatik. Sie sind damit oft schwer beeinträchtigt, verursachen hohe Kosten im Gesundheitswesen und zeigen eine hohe Komorbiditätsrate. Auch sind die Folgen früher Traumatisierungen, insbesondere durch Kriege und sogar unterhalb der Ausprägung einer posttraumatischen Belastungsstörung (PTSD), offensichtlich. Jedoch bleiben die Entstehungs- und neurobiologischen Grundlagen der somatoformen Schmerzstörung, vor allem in schmerzgeneigten, älteren Patienten, und ihre Zusammenhänge mit einer Vorgeschichte von Kriegstraumatisierung – sogar Jah-

rzehnte nach dem Ereignis – unklar. Darüber hinaus fehlt für diese Erkrankung eine Behandlungsstrategie, die auf ältere Menschen und ihre besonderen Bedürfnisse zugeschnitten wäre. Adäquates therapeutisches Vorgehen, wie angepasste psychotherapeutische Prozeduren für ältere Patienten, können nur durch ein besseres Verständnis der neurobiologischen und biographischen Grundlagen dieser nach wie vor kontroversen Störung gefördert werden.

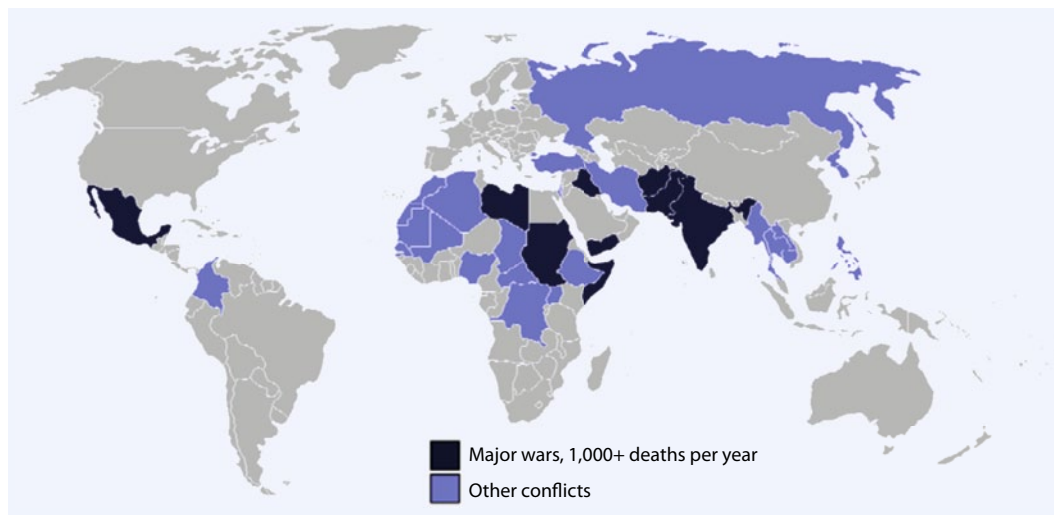
### Schlüsselwörter

Somatoforme Störungen · Chronische Schmerzen · Posttraumatische Belastungsstörungen · Alte Menschen · Neurobiologie

In addition to developmental and psychological considerations, the (neuro)biological links between somatoform pain disorder and histories of early traumatization have been intensely researched [7, 42]. For example, dysfunctions of the hypothalamic–pituitary–adrenal stress axis are described. However, the mechanisms still remain largely unclear (■ Fig. 1).

## Neurobiology of somatoform pain disorder and a history of early traumatization

Reaching a greater neurobiological understanding of aging and disease prevention strategies seems to be crucial for maintaining brain health. However, the neural mechanisms of non-nociceptive pain have rarely been studied through positron emission tomography (PET), SPECT, or functional magnetic resonance imaging



**Fig. 2** ◀ Ongoing conflicts worldwide 2010. Adapted from [54]

(fMRI). In this context, a dysfunction of neural pain processing circuits has been suggested as one underlying pathophysiological factor in somatoform pain disorder [6]. A fMRI study that investigated the cerebral processing of noxious heat stimuli as an objective marker of pain sensation in 12 middle-aged women with somatoform pain disorder showed a pain-related hypoactive state of the ventromedial prefrontal/orbitofrontal cortex and a hyperactive state of the parahippocampal gyrus, amygdala, and anterior insula in the patient group compared to the control group. These findings of altered cerebral processing of experimentally induced pain in patients with somatoform pain disorder support the hypothesis of dysfunction in the pain matrix, especially in affect-regulating regions [21]. Remarkably, altered pain processing has also been found in veterans with PTSD [16]. Independent of dementia processes, middle-aged patients with somatoform pain disorder show gray-matter loss in pain-processing structures [51]. To date, only two neuroimaging studies in the “grey area” between somatoform pain and early traumatization (and, furthermore, only in the middle age) have been performed. Comparing the neural substrates of empathy-induced pain in multisomatoform pain patients “with vs. without” a history of sexual abuse during childhood revealed higher activations in left lateral and medial superior frontal gyrus as well as a nonsignificant activation of the right supplementary motor area in abused patients. The nonabused partici-

pants showed a higher activation of the left hippocampus [42]. Ringel et al. [45] found that pain ratings during rectal distension in patients with IBS are associated with the activation of dorsal cingulate regions implicated in homeostatic afferent processing, and prior abuse enhances this activation. Patients with IBS and a history of abuse report more pain, greater activation in the posterior and middle dorsal cingulate subregions, and reduced activity in the left supragenual anterior cingulate cortex, a region implicated in pain inhibition and arousal. Again, these findings suggest a possible explanation for the clinical observation of greater pain reporting and poorer outcomes in IBS patients with a history of abuse [45]. It should be noted, as an important point, that also the epigenetic transmission of the impact of early stress (like traumatization) across generations has recently been discussed [15].

### Treatment options

To date there are no evidence-based recommendations for the treatment of somatoform disorders in general for older people, nor in primary and secondary care, or for psychotherapy [48]. Against this background, there is a similar lack of treatment options for somatoform pain disorder. In general, there is little available evidence on the use of psychosocial interventions by general practitioners beyond depression and with patients over 65 years of age. Remarkably, the Cochrane review “Effectiveness and cost effectiveness

of counseling in primary care” excluded “psychosomatic problems such as pain” [5]. Treatment seems to be more effective in patients in secondary care than in primary care. This may be because secondary care patients have more severe disease, receive a different treatment regimen, or have a more closely supervised intervention. The few controlled studies in middle-aged patients [40] seem to favor cognitive-behavioral therapy (CBT) in group settings. Of note, Arnold et al. [3] showed that the acceptance of CBT is significantly higher in older people. Furthermore, special psychotherapeutic treatments for traumatization such as EMDR (eye movement desensitization and reprocessing) may be also efficacious in the treatment of chronic pain [20, 49], but further research is urgently necessary. In general, non-pharmacological treatments that involve the active participation of patients, such as exercise and psychotherapy, seem to be more effective than those that involve passive physical measures such as massage, injections, and operations. Pharmacological agents with CNS action are more consistently effective than drugs aimed at the restoration of peripheral dysfunction. A careful balance between biomedical, organ-oriented, and cognitive interpersonal approaches might be the most appropriate intervention. Especially for chronic low back pain, it has been shown that an expressly “intensive multidisciplinary bio-psycho-social rehabilitation with a functional restoration approach improves pain and function”. Finally, the iatrogenic component in

the maintenance of somatoform pain disorder should also be considered, for which reason the dynamics of the patient–doctor relationship should not be overlooked [23].

## Need for further research

With Eric Kandel and having psychotherapy in mind, we would claim:

*“The need for a biological perspective is self-evident. [...] We would argue that research is ... needed into the mechanisms of psychotherapeutic action on the biological, cognitive, and behavioural levels, yet psychotherapy research lags far behind that on pharmacotherapy. [...] This is in part due to the cost, inconvenience and difficulty of conducting and evaluating a complete course of psychotherapy under controlled conditions” [12].*

Regrettably, 70 years after World War II, there remains insufficient evidence-based and scientific knowledge about how to treat these older patients adequately and effectively [48]. Moreover, considering the 80 ongoing wars and (permanent) conflicts worldwide (e.g., in Lebanon, Afghanistan, Iraq, and Sudan (■ Fig. 2)), the prevention of somatoform disorders is a challenge. The investigation of the neurobiological link between somatoform pain disorder in older people and a history of early traumatization using both biological (such as fMRI and genetics) and psychological (such as questionnaires and the study of behavior) instruments is ambitious, but it could lead to a better scientific understanding of this mental disorder and improved clinical decision-making. The development of both tailored and optimized, differential intense psychotherapeutic procedures could ease a great deal of pain in a growing group of patients who have been neglected thus far.

## Conclusion

**The burden of medically unexplained pain, especially in older people, urgently requires further research. As histories of early traumatization (e.g., war experiences) already below the level of PTSD play an important role in the etiology of chronic pain disorder, both the “forgot-**

**ten” elderly who suffer from historical war experiences and younger individuals who take part in conflicts [9], genocides (e.g., in Rwanda), and migration in a globalizing and still militant world should be considered**

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**Conflict of interest.** On behalf of all authors, the corresponding author states that there are no conflicts of interest.

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