

Editorial Comment

The relationship between pain and perceived stress in a population-based sample of adolescents – Is the relationship gender specific?

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In the current issue of the *Scandinavian Journal of Pain*, Berit Østerås, Hermundur Sigmundsson and Monika Haga investigate for potential gender differences in the relationship between pain and perceived stress in adolescents, and present interesting findings [1]. Females, both adolescent and adults, report more pain, psychosocial problems and mental health problems than males. On that note, some might consider females to be more vulnerable; that stress and adverse life events to a larger extent influence physical complaints in females. However, in spite of higher reports of pain and stress in females, Østerås et al. find pain to be equally related to stress in male and female adolescents.

The relationship between pain and stress in adolescents – what do we know?

Adolescence may be a stressful period and several psychosocial difficulties are associated with adolescent physical complaints, including pain [2]. The high prevalence of physical complaints in adolescents are considered to be possible manifestations of psychosocial problems [3]. Studies in adolescents have shown a strong relationship between pain and mental health problems, primarily anxiety and depressive symptoms [2]. Well known risk factors of mental health disorders, as stress and adverse life events [4], are less studied factors in relation to pain. However, Østerås et al. recently published findings that showed a clear association between adolescent pain and perceived stress [5], supporting previous studies showing a relationship between pain and stress in adolescents [6–9].

Stress in youth – a turn for the worse?

Adolescence has always been a challenging period with changes and developments on many levels. Through media exposure we get the impression that adolescents today experience high levels of pressure to succeed through social, academic and peer related stress [10,11]. It is uncertain whether this perceived trend is due to a more challenging adolescent period than before. Growing up in other historical periods has surely also been difficult. However, the Norwegian HEMIL-report provides some support to this notion on a short term scale, showing a 73% increase in adolescent reports of substantial school-related stress from 1997 to 2012 [12]. A Finnish adolescent study show increased pain reports in the last decades [13]. One can question if this is related to an increase in adolescent stress, due to the current evidence of the relationship between adolescent pain and stress [1,5–9].

Never the less, the perceived stress is related to pain and other physical complaints [1,5–11], which in turn may lead to contact with health services. These adolescents can range

from highly capable youth struggling with daily stressors and expectations, to youth struggling with serious mental health disorders.

The relationship between pain and perceived stress in adolescents is not gender specific

Østerås et al. found pain complaints and perceived stress to be common in both genders, but females are significantly more troubled [1]. This is supportive of known knowledge. In total, 8.5% of the adolescents reported multisite pain (≥ 3 pain sites), and 21.7% were moderately to severely stressed, defined by the Perceived stress questionnaire (PSQ ≥ 0.45) [1].

The main finding done by Østerås et al. is that the relationship between pain and stress is equally strong in both males and females (Fig. 1). That stress is an important factor related to pain in both genders, alongside adverse life events and mental health problems, is supported by a previous study [6]. An improvement to previous studies examining the relationship between pain and stress in adolescents [6–9], is the use of a validated measure of stress, the Perceived stress questionnaire [1,5]. Another strength of the study is the use of different pain measurements, including pain sites, pain duration, and pain intensity. Perceived stress was significantly associated with all three aspects of pain, in both genders (Fig. 1).

In recent years there has been an increased focus on multisite or widespread pain, which is more strongly associated with psychosocial and mental health problems than single-site pain is [6,14]. Østerås et al. present similar findings showing an increasing degree of stress in relation to the increasing number of adolescent pain sites [1]. Multiple pains might be an easier clinical marker of psychosocial problems than the subjective degree of pain.

The cross-sectional design of the study does not allow the authors to explore any causal direction between perceived stress and pain. There is a lack of longitudinal studies examining a relationship between daily stressors and pain, which should be examined further.

Conclusion and implications

Expectations and pressure to succeed with subsequent stress seems to increase in adolescents in Scandinavia. The most important finding in the current study is that pain complaints are equally related to perceived stress in male and female adolescents. The study adds to the evidence of a relationship between stress and pain, contributing to the multifactorial understanding of pain. Future research should investigate the temporal relationship between stress and pain in adolescents. Health practitioners should be attentive to psychosocial problems in both male and female adolescents troubled with multiple or recurrent pains.

Figure legend

Fig 1 The correlation between perceived stress and pain in male and female adolescents (figure based on results presented by Østerås et al. [1]).

Conflict of interest

None declared.

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