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RISK FACTORS RELATED TO THE DEVELOPMENT AND PERSISTENCE OF PAIN IN ADOLESCENTS: A DELPHI STUDY

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aged 11, 13 and 15 years in 42 countries, revealed that 44% of adolescents report chronic weekly pain in the previous six months².

Despite paediatric pain has gained attention in recent decades and a multitude of studies are being conducted on this phenomenon, a consensus on the primary risk factors (RFs) for the development and persistence of pain in adolescents has not been reached yet. This study aims to establish a consensus among experts on the most significant RFs for the onset and persistence of pain in adolescents.

Materials and Methods

A modified international e-Delphi study consisting of 4 rounds was conducted. A panel of experts in paediatric pain and/or pain risk factors was recruited. The experts were provided with two lists of potential RFs (one for the onset, one for the persistence of pain) and were asked to rate the importance of each RF on a 5-point Likert scale: "not important", "low importance", "neutral", "important", "very important". After the first round, the experts had the opportunity to suggest further items to be added to the list. In each subsequent round, experts were asked to reconsider their answers in light of other experts' evaluations and comments. It was defined a priori that the study would have been terminated after four rounds and that each item would have reached consensus when at least 70% (\geq) of the experts would have provided the same rating. Furthermore, each item that did reach the minimum level of consensus was excluded from the list for the next round.



		Round 1	Round 2	Round 3	Round 4
Socio domographic factore	Older age –				
Socio-demographic factors	Female sex –				1
	Geographical background				
	Lower socio-economic status				
School factors	Perceived poor school performance –				
Lifestyle factors	High screen time –				
	Lack of social support –				
	Low sleep quality –				
	Non-participation in sport –				
	Poor diet –			I	1
	Sedentary life style				
	Smoking –	i			
Psychosocial factors	Anxiety				
	Gender identity –				
	Low self-esteem				
	Negative emotions –	i			i
	Perceived poor quality of life				
Attitudes and baliefs about pain	Limited concent/knowledge of pain				
Attitudes and beners about pain	Previous (acute/recurrent/chronic) pain				
Physical factors	Exposure to overtraining/overuse –				i i
	Low muscle endurance				
	Low muscle strength –				
	Poor motor skills				
Genetic factors	Cognitive disability/impairment				
	Communication limitations –				i i
	Joint hypermobility				
Treatment	History of treatment and medication for pain				I
	Previous untreated pain				
	Recent surgery –				
Other factors	Chronic medical condition –				
	History of abuse or interpersonal violence				
	Iron deficiency –				
	Low-oxygen environment –				<u> </u>
	Obesity / High BMI –				
	Previous major traumatic event –				i i
Family factors	Anxiety of the parents –				
	Depression of the parents –				
	Limited concept/knowledge of pain of the parents				
	Maladaptive pain coping skills of the parents				
	Occupational factors of the parents				
	Family history of chronic pain				1
	Perfectionism of the parents				

Results

The process of this international modified e-Delphi study is summarised in Figure 1.

Forty-six RFs (out of 74) reached consensus for pain onset: four were considered very important, twenty-nine important and thirteen neutral. Regarding the persistence of pain, consensus was reached on 56 out of 88 RFs. Eleven of these were found to be very important, thirty important and twelve neutral.

Figure 2 and Figure 3 show the evolution of agreement for the items that reached consensus for onset and persistence of pain, respectively.

Conclusions

This study led to a consensus among experts on the importance of several risk factors for the development and persistence of pain in adolescents. Final rating: 🔳 very important 🔲 important 📋 neutral

Figure 2: Evolution of consensus for the items that reached consensus for pain onset.

Figure 3

		Round 1	Round 2	Round 3	Round 4
Socia domographic factors	Older age				
Socio-demographic factors	Cultural background				
	Female sex				
	Geographical background				
School factors	Lower socio-economic status				
	Poor school satisfaction				
Lifestyle factors	Lack of participation in leisure activities				
	Lack of social support				
	Low sleep quality –				
Psychosocial factors	Non-participation in sport				
	Poor diet				
	Anxiety –				
	Child illness identity				
	Depression –				
	Emotion regulation –				
	Gender identity –	İ			
	Negative body image – Negative emotions –				
	Perceived poor guality of life				
	Personality traits				
	Poor self-efficacy-				
	Stress –				
Attitudes and beliefs about pain	Catastrophizing beliefs about pain				
		I			
Clinical factors	High current pain intesity				
	High number of pain sites				
	High pain frequency –				
	Long-lasting pain –				
	Presence of an inflammatory process				
	Previous (acute/recurrent/chronic) pain –				
Physical factors	Exposure to overtraining/overuse				
	Low muscle strength				
	Poor motor skills –				
Treatment	History of treatment and medication for pain –				
	Inappropriate diagnostic imaging				
	Inappropriate pharmacotherapies				
	Previous untreated pain				
Other factors	Low-oxygen environment				
	Previous major traumatic event				
Family factors	Depression of the parents –				
	Employment status of the parents				
	Limited concept/knowledge of pain of the parents				
	Low self-esteem of the parents				
	Occupational factors of the parents				
	Parents modelling of pain behaviours				
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This consensus will be valuable in informing the design of future longitudinal studies and preventive interventions.

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Figure 3: Evolution of consensus for the items that reached consensus for pain persistence.