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Somatic complaints in adolescence

Queixas somáticas na adolescência

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Abstract

Objective

The objective of this study was to identify the prevalence of somatic complaints in adolescents from São Paulo and to verify the correlation with other emotional problems.

Method

The study consisted of databases obtained from different surveys carried out from 2004 to 2019, comprising 2,228 Youth Self Report protocols (inventory for tracking behavioral and emotional problems), completed by adolescents aged 11 to 18 years. The focus was on the "Somatic Complaints" syndrome scale.

Results

It was observed that more girls and High School students check-marked items related to somatic symptoms. There was a correlation between somatic complaints and internalizing behaviors and time of survey completion (newer protocols had more complaints marked than older protocols).

Conclusion

Physical symptoms should not be ignored when detecting mental health problems. The uniqueness of adolescence requires attention to both physical and mental health.

Keywords: Adolescent; Medically unexplained symptoms; Psychopathology; Somatoform disorders.

Resumo

Objetivo

O objetivo do trabalho foi identificar a prevalência de queixas somáticas em adolescentes paulistanos e verificar a correlação com outros problemas emocionais.

Método

O estudo foi composto por bancos de dados provenientes de diversas pesquisas realizadas no período de 2004 a 2019, perfazendo 2.228 protocolos do Youth Self Report (inventário para rastreamento de problemas comportamentais e emocionais), preenchidos por adolescentes de 11 a 18 anos. O foco foi o agrupamento "Queixas Somáticas".

Resultados

Observou-se mais meninas e estudantes do Ensino Médio assinalando itens referentes aos sintomas somáticos. Houve correlação entre queixas somáticas e comportamentos internalizantes e época de preenchimento (protocolos mais recentes tinham mais queixas assinaladas que protocolos mais antigos).

Conclusão

Sintomas físicos não devem ser ignorados na detecção de problemas de saúde mental. A singularidade do período da adolescência exige atenção em relação à saúde, tanto física quanto mental.

Palavras-chave: Adolescente; Sintomas inexplicáveis; Psicopatologia; Transtornos somatoformes.

Epidemiological studies show that somatic symptoms without an adequate medical explanation constitute a significant rate of cases seen by health professionals in both primary care and specialized care. About 25% of children and adolescents experience these symptoms to some extent (Rask et al., 2018).

Most scholars believe that somatization is the expression of unrecognized psychic suffering that manifests itself in the form of physical symptoms. This group of patients complains of symptoms in any part of the body or organ system (Cheng et al., 2019). Symptoms may occur singly (e.g., dizziness), in syndromes (e.g., fibromyalgia) or a combination of both, most of which are transient in nature. Most studies show that the prevalence of somatic symptoms is higher in females and increases with age (Baceviciene et al., 2019; Körbele, 2014; Rask et al., 2018; Tingstedt et al., 2018; Yavuz et al., 2019; Zhang et al., 2015).

Adolescence is defined as a period of growth and development that comprises, according to the World Health Organization (2014), the second decade of life, that is, from 10 to 20 incomplete years. During this period, key development experiences take place. In addition to physical and sexual maturation, these experiences include movement towards social and economic independence and identity development, acquisition of skills necessary for adult relationships and roles, and the ability to reason abstractly (Schoen, 2018).

Pain is the most common complaint among adolescents. Headache, and musculoskeletal pain as well as fatigue are reported (Klavina et al., 2021; Rask et al., 2018). Fehér et al. (2019) state that 10 to 30% of children and adolescents report the occurrence of headache episodes in a week, 10 to 25% complain of recurrent abdominal pain and 5–20% of them experience musculoskeletal pain. These physical symptoms may or may not involve a detectable physiological dysfunction. Some of them are entirely subjective, and may represent bodily metaphors, in which the patient expresses his discomfort or emotional conflict. In other cases, an organic disease is actually present, but the patients' complaints are considered exaggerated (Tófoli et al., 2011). The prevalence of somatic complaints such as backache, neck and shoulder pain has been increasing in adolescents since the 1970s (Baceviciene et al., 2019). This may be explained by the growing popularity of screen-based activities and the sedentary lifestyle.

A Swedish household survey carried out during 2000-2003, covering a sample of 5390 adolescents aged 10-18 years, found that girls reported recurrent headache and abdominal pain more frequently than boys, and such differences were more pronounced with age. Economic stress at home has been associated with headache and difficulty falling asleep (Östberg et al., 2006). Fehér et al. (2019) grouped their study's participants into prepubertal (8 to 10 years of age), pubertal (11 to 14 years) and postpubertal (15 to 17 years). They also found an increase with age of the psychosomatic complaints assessed. Overall, symptoms of nervousness and fatigue were the most common psychosomatic symptoms in the age group studied.

Steinhausen and Winkler Metzke (2007) reviewed some works on somatic complaints in adolescence and observed a variation in the prevalence of symptoms, such as dizziness (2.4–41.5%), tiredness (9.3–40%), pain and suffering (12–31.5%), headaches (8.6–47%), nausea (0.9–29.7%),

stomach pains (5.3–45%) and vomiting (0.9–11.6%). This variability may be due to differences in the age or gender composition of the sample and the assessment procedure.

A Chinese study (Zhang et al., 2015), with adolescent survivors of a traumatic event (earthquake), observed that adolescents with symptoms of Post-traumatic Disorder had more somatic symptoms, namely sleeping difficulties (83.2%), tiredness or low energy (74.4%), stomach pain (63.2%), dizziness (58.1%) and headache (57.7%). In Brazil, Magalhães (2019) observed persistent somatic complaints or even worsening over time in children and adolescents facing drought.

The main physical symptoms reported by elementary school adolescents in the northeastern United States of America (Ruchkin & Schwab-Stone, 2014) were pain in general, headaches, malaise, being concerned about their health, stomach pain, rash problems, nausea and/or vomiting. Anxiety disorders and mood disorders often produce physical symptoms. Adolescents in this study stated that, when worried, they felt “butterflies in the stomach”, tachycardia, tension, tremor, sweaty or cold hands and/or shortness of breath. Almost all of these somatic symptoms were significantly more present in girls.

A study carried out by Pikó et al. (1997), among Hungarian university students aged between 18 and 31 years, revealed that, out of the psychosomatic symptoms, sleep disturbances, chronic fatigue and backache were the most common. Among female students, two symptoms were more exacerbated: tension headache and chronic fatigue.

Ruchkin and Schwab-Stone (2014) observed an association of physical symptoms without medical explanation with internalizing problems, such as anxiety; these results were similar to those of other studies (Baceviciene et al., 2019; Martins, 2017; Rask et al., 2018; Yavuz et al., 2019). In the same direction, a strong association was observed between somatic complaints and internalizing psychopathology (depression and anxiety) among Russian and Czech adolescents (12 to 17 years of age) (Tingstedt et al., 2018). Klavina et al. (2021) observed an association between somatic complaints and problematic internet use.

A study carried out in Lithuania (Baceviciene et al., 2019) observed that 64% of adolescents reported at least one somatic complaint without medical explanation during the previous week (male 55.3%; female 72.2%). The complaints assessed were headache, stomach pain, backache, dizziness and psychological symptoms such as “irritation”, “nervousness”, “dismay” and “difficulty sleeping”.

A study in São Paulo, Brazil (Sarmiento et al., 2010), observed that a larger number of obese adolescents (14.8%) reported having somatic complaints compared to eutrophic adolescents (12.4%), although without statistical difference ($p=0.636$).

Adolescence is a time of rapid psychological, physical (growth spurt, development of secondary sexual characteristics, among others) and social changes, which can trigger psychosomatic complaints. The objective of this study was to identify the prevalence of somatic complaints in adolescence, by gender, age, education and time of completion of the instrument, of adolescents living in São Paulo, Brazil, and to verify if there is a correlation with other emotional or behavioral problems.

Method

Participants

The study involved 2,228 Youth Self Report (YSR) protocols. These protocols originated from different surveys carried out using the instrument, during the period 2004–2019. Adolescents

aged 11 to 18 years, 953 boys and 1,275 girls, participated in those surveys. The surveys were carried out in different locations, such as schools, sports competitions, health clinics, parents' workplace, extracurricular courses and even queues (queues to buy a transport pass, entrance in a cinema/show, enrollment in outpatient clinics) in the São Paulo municipality.

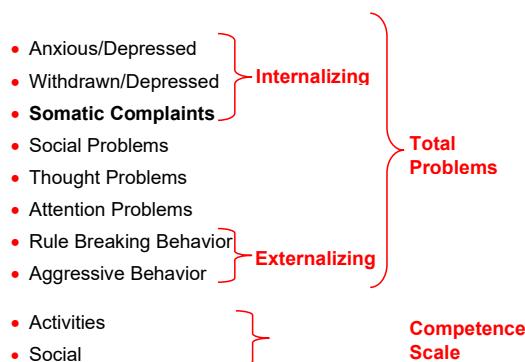
All 2,228 protocols had T-scores from the Syndromes clusters and internalizing, externalizing and total problems scales; 1,861 protocols had the Social Competence scale and groupings; in 1,098 protocols, it was possible to obtain the answers of the items that make up the syndrome scale "Somatic Complaints".

Instrument

Youth Self Report (Achenbach & Rescorla, 2001): The YSR is a self-administered instrument widely used to assess the emotional and behavioral functioning of individuals aged 11 to 18 years, with a validation study in Brazil (Jordan et al., 2016; Monzani, 2012). The instrument is marketed in this country by ASEBA Brasil, Curitiba, PR. The participant's answers should refer only to the six months period prior to the date of the form completion. The YSR is composed of two parts: the first about social competence (the higher the score, the better the competence) and the second part is formed by statements about behavioral/emotional problems. Adolescents responded to 118 items on a 3-point Likert-type scale [0 (not true), 1 (somewhat/sometimes true) and 2 (very/often true)]. The original empirical-exploratory measurement framework of the YSR (Figure 1) consists of Total Problems, Internalizing, and Externalizing scales, which are derived composites of eight syndrome scales. Alternative groupings were developed based on the DSM-V, but which were not used in this study. In the clusters, the score for the non-clinical category must be less than 65; in relation to the total disorder, internalizing and externalizing scale; this index should be less than 60 for the non-clinical category; for the individual scales of social competence, the non-clinical score is greater than 35; on the total scale of social competence, the non-clinical score should be greater than 40.

Syndrome scale of Somatic Complaints: As part of the Youth Self Report there are eleven items of somatic complaints: 47: I have nightmares; 51: I feel dizzy or lightheaded; 54: I feel overtired without good reason; 56: Physical problems without known medical cause [a: aches or pains (not stomach or headaches); b: headaches; c: nausea, feel sick; d: problems with eyes (not if corrected by glasses); e: rashes or other skin problems; f: stomachaches; g: vomiting, throwing up; and h: other]. In the present study, the sub-items of item 56 were reviewed together (an average of all items was calculated). Two scores were derived from this scale, namely the frequencies of different symptoms and the total score for this syndrome scale.

Figure 1
Scheme of the groups and scales that make up the Youth Self Report



Procedure

We carried out an active search for studies in which we participated as researcher and in which the YSR was used, so that the databases of the different studies (for example, Sarmiento et al., 2010, Schoen-Ferreira et al., 2009, Valverde et al., 2012), from 2004 to 2019, were unified. In some works, only the T-scores were retrieved, in others, in addition to the T-scores, we could also retrieve the responses to the items. A spreadsheet was developed containing the variables age, education, gender, year of completion of the instrument and the T-scores of the eight syndromes, the three scales and the social competence part, in addition to the items that make up the “Somatic Complaints” syndrome.

Data Analysis

The following non-parametric statistical tests were used: Shapiro Wilks test (normality was not assured); Spearman correlation (between clusters and scales); Mann-Whitney test (comparison of the demographic variables); Kruskal-Wallis test (comparison of the demographic variables). This is part of a network project, approved by Universidade Federal de São Paulo, CAAE: 23983119.5.0000.5505, under No. 3.831.330.

Results

The number of protocols reviewed was different according to the variable involved. When studying the Syndrome groupings and the scales, the 2,228 protocols were used; when studying social competence, the T-scores originated from 1,861 protocols were used and when reviewing the items that make up the “Somatic Complaints Syndrome” scale, data from 1,098 protocols were made available.

Reviewing the 2,228 protocols, the average T-score in the “Somatic Complaints” syndrome scale was 57.1 (non-clinical). In this sample, it was the second cluster of emotional or behavioral problems with the lowest T-score [Anxiety/Depression – 59.9; Sociability issues – 58.5; Thoughts issues - 58.2; Withdrawal/Depression – 58.1; Attention issues - 57.5; Aggressive Behavior – 57.4; and Violation of Rules – 56.4]. It was observed that 167 (7.5%) adolescents had the T-score classified in the clinical category (with the highest T-score); 239 (10.7%) adolescents with a T-score in the borderline category; and 1,822 (81.8%) in the non-clinical category (the adolescent positively marked fewer items in this cluster, yielding a lower T-score).

Regarding gender, it was observed that female adolescents obtained higher scores in the “Somatic Complaints” syndrome (57.48) compared to male adolescents (56.54). The same occurred in each of the items that make up this cluster (Table 1). As to the girls, 1,009 (79.1%) had the T-score classified as non-clinical; 161 (12.7%) the T-score was classified in the borderline category; and 105 (8.2%) in the clinical category. Regarding boys, the T-score of 62 (6.5%) boys was high enough to be classified in the clinical category; 78 (8.2%) in the borderline category; and 813 (85.3%) in the non-clinical category.

There was no correlation between age and Somatic Complaints ($r = 0.032$; $p = 0.129$). The same in relation to the items that make up the grouping: item 47 – I have nightmares ($r = 0.023$; $p = 0.454$); item 51 – I feel dizzy or lightheaded ($r = 0.186$; $p < 0.001$); item 54 – I feel overtired without good reason ($r = 0.191$; $p < 0.001$) and mean of item 56 ($r = 0.170$; $p < 0.001$).

Table 1

Mean T-score in the Somatic Complaints group (2,228 protocols) and responses to the items (1,098 protocols) that make up the group, by gender

| Gender | M | SD | 95% CI | p-value* |
|--------------------|-------|------|--------|----------|
| Somatic complaints | | | | |
| Female | 57.48 | 7.61 | 0.42 | 0.002 |
| Male | 56.54 | 7.51 | 0.48 | |
| Item 47 | | | | |
| Female | 0.77 | 0.69 | 0.05 | < 0.001 |
| Male | 0.59 | 0.67 | 0.06 | |
| Item 51 | | | | |
| Female | 0.79 | 0.76 | 0.06 | < 0.001 |
| Male | 0.47 | 0.65 | 0.06 | |
| Item 54 | | | | |
| Female | 1.10 | 0.81 | 0.06 | < 0.001 |
| Male | 0.81 | 0.84 | 0.08 | |
| Mean 56 | | | | |
| Female | 0.41 | 0.37 | 0.028 | < 0.001 |
| Male | 0.26 | 0.30 | 0.029 | |

Note: *Mann-Whitney test. CI: Confidence Interval.

Regarding the time of completion, in this study a worsening of somatic complaints was observed; that is, when comparing the protocols completed between 2004 and 2010 with the protocols completed between 2011 and 2019, it was observed that more adolescents from this most recent decade responded affirmatively in the items that make up the “Somatic Complaints” syndrome scale (Table 2). Regarding the first decade (2004-2010), 1,166 (87.1%) had the T-score classified as non-clinical; in 106 adolescents (7.9%), the T-score was classified in the borderline category; and 67 (5.0%) in the clinical category. In the second decade (2011-2019), the T-score of 100 (11.2%) adolescents was higher to the point of being classified in the clinical category; 133 (15%) in the borderline category; and 656 (73.8%) in the non-clinical category.

In this work, it was observed that more High School students answered affirmatively in the items 51, 54 and 56 of the Youth Self Report (Table 3). Regarding grade 1-5 students, 61 (76.3%) had their T-score classified as non-clinical; 13 (16.2%) the T-score was classified in the borderline category; and 6 adolescents (7.5%) in the clinical category. We found 392 grade 6-9 students (85.0%) with T-scores in the non-clinical category, 46 (10%) in the borderline category, and 23 (5%) in the clinical category. In High School, the T-score of 133 (8.2%) students was high enough to be classified in the clinical category; 175 (10.8%) in the borderline category; and 1,308 (81.0%) in the non-clinical category.

The T-score of the Somatic Complaints syndrome scale was positively correlated with other clusters of behavioral and emotional issues, especially Anxiety/Depression and the Internalizing Problems Scale and Total Problems (Table 4). It is important to emphasize that, in relation to Social Competence, there was no correlation.

Regarding item 47 (I have nightmares), 13.0% of the adolescents answered “often true” and 44.2% “sometimes true”; in item 51 (I feel dizzy), 15.9% check-marked 2 (often true) and 35.5% check-marked 1 (sometimes true); and regarding item 54 (I feel overtired without good reason), 34.1% checked option 2 (often true) and 30.9% checked option 1 (sometimes true).

Table 2

Mean *T*-score in the Somatic Complaints group (2,228 protocols) and responses to items (1,098 protocols) that make up the group, by time of completion

| Completion | <i>M</i> | <i>SD</i> | <i>n</i> | 95% CI | <i>p</i> -value* |
|--------------------|----------|-----------|----------|--------|------------------|
| Somatic complaints | | | | | |
| 2004-2010 | 56.15 | 6.95 | 1,339 | 0.37 | < 0.001 |
| 2011-2019 | 58.48 | 8.24 | 889 | 0.54 | |
| Item 47 | | | | | |
| 2004-2010 | 0.73 | 0.67 | 208 | 0.09 | 0.509 |
| 2011-2019 | 0.70 | 0.69 | 889 | 0.05 | |
| Item 51 | | | | | |
| 2004-2010 | 0.48 | 0.62 | 208 | 0.08 | < 0.001 |
| 2011-2019 | 0.72 | 0.75 | 888 | 0.05 | |
| Item 54 | | | | | |
| 2004-2010 | 0.64 | 0.74 | 206 | 0.10 | < 0.001 |
| 2011-2019 | 1.07 | 0.83 | 889 | 0.05 | |
| Mean 56 | | | | | |
| 2004-2010 | 0.234 | 0.27 | 208 | 0.037 | < 0.001 |
| 2011-2019 | 0.384 | 0.36 | 890 | 0.024 | |

Note: *Mann-Whitney test. CI: Confidence Interval.

Table 3

Mean *T*-score in the Somatic Complaints grouping and responses to the items that make up the grouping, by level of education

| Level of education | <i>M</i> | <i>SD</i> | <i>n</i> | 95% CI | <i>p</i> -value* |
|--------------------|----------|-----------|----------|--------|------------------|
| Somatic complaints | | | | | |
| Grade 1-5 | 58.35 | 7.54 | 80 | 1.65 | |
| Grade 6-9 | 56.82 | 7.02 | 461 | 0.64 | 0.149 |
| High School | 57.11 | 7.75 | 1,616 | 0.38 | |
| Comp 47 | | | | | |
| Grade 1-5 | 0.81 | 0.79 | 36 | 0.26 | |
| Grade 6-9 | 0.67 | 0.71 | 222 | 0.09 | 0.521 |
| High School | 0.71 | 0.68 | 785 | 0.05 | |
| Comp 51 | | | | | |
| Grade 1-5 | 0.32 | 0.63 | 37 | 0.20 | |
| Grade 6-9 | 0.44 | 0.67 | 222 | 0.09 | < 0.001 |
| High School | 0.76 | 0.74 | 783 | 0.05 | |
| Comp 54 | | | | | |
| Grade 1-5 | 0.76 | 0.83 | 37 | 0.27 | |
| Grade 6-9 | 0.71 | 0.84 | 221 | 0.11 | < 0.001 |
| High School | 1.09 | 0.81 | 783 | 0.06 | |
| Mean 56 | | | | | |
| Grade 1-5 | 0.20 | 0.23 | 37 | 0.076 | |
| Grade 6-9 | 0.26 | 0.29 | 222 | 0.038 | < 0.001 |
| High School | 0.39 | 0.36 | 785 | 0.026 | |

Note: *Kruskal-Wallis test. CI: Confidence Interval.

Table 4

Correlation of Youth Self Report clusters and scales with the Somatic Complaints cluster

| Syndrome scales | Somatic Complaints | |
|----------------------------|--------------------|-----------------|
| | <i>r</i> | <i>p</i> -value |
| Anxiety/Depression | 0.472 | < 0.001 |
| Withdrawal/Depression | 0.333 | < 0.001 |
| Problems with Sociability | 0.399 | < 0.001 |
| Problems with Thinking | 0.434 | < 0.001 |
| Problems with Attention | 0.371 | < 0.001 |
| Violation of Rules | 0.251 | < 0.001 |
| Aggressive Behavior | 0.307 | < 0.001 |
| Internalizing | 0.731 | < 0.001 |
| Externalizing | 0.333 | < 0.001 |
| Total Problems | 0.630 | < 0.001 |
| Competence in Activities | 0.012 | 0.609 |
| Social Competence | -0.086 | < 0.001 |
| Total of Social Competence | -0.059 | 0.011 |

Discussion

The consumer culture, the development of technologies, educational requirements and the changes in the family system make adolescents experience challenges to their subjective well-being, causing greater psychosocial suffering, which can lead to psychosomatic health complaints (Baceviciene et al., 2019; Klavina et al., 2021). Medically unexplained physical symptoms are frequently mentioned by adolescents in clinical and normative samples. Excessive somatic complaints and associated illnesses can cause serious developmental problems when accompanied by school absences, academic failure, and withdrawal from typical social activities of Adolescence (Jalan et al., 2019). The objective of this study was to identify the prevalence of somatic complaints in adolescents living in a megalopolis over a period of 16 years (instruments completed from 2004 to 2019); to that effect a large number of mental health screening protocols (YSR), completed by adolescents in different frameworks was clustered, allowing an analysis of data originated from different dates of completion.

The mean of the “Somatic Complaints” syndrome scale was classified as non-clinical (57.1); this was the second lowest mean cluster. It is noteworthy that 18.2% of adolescents whose T-scores were classified in the clinical or borderline category (with more problems in this category) were found. This result is within the range that the literature presents adolescents with somatic complaints, according to the different symptoms studied (Fehér et al., 2019; Rask et al., 2018; Steinhausen & Winkler Metzke, 2007). Investigation using this same instrument (YSR) found that 10% of adolescents obtained scores in the clinical range in Somatic Complaints (Valverde et al., 2012) In another study, 14.8% obese adolescents and 12.4% eutrophic adolescents were in the clinical range (Sarmiento et al., 2010).

Although several authors state that somatic complaints increase with age (Fehér et al., 2019; Tingstedt et al., 2018), there are studies that report a decline in somatization symptoms with aging (Jalan et al., 2019; Meesters et al., 2003). In our study, no correlation with age was detected.

There was an association between the “somatic complaints” syndrome scale and female gender, and also between the different items that make up this subscale (Table 1). This result is in line with previous studies that show that girls generally report higher levels of somatization symptoms compared to boys (Baceviciene et al., 2019; Cheng et al., 2019; Klavina et al., 2021; Körbele, 2014; Tingstedt et al., 2018; Yavuz et al., 2019). This difference between genders may be due to the influence of reference standards, social variables, the presence of other psychiatric disorders and/or cultural factors (Martins, 2017). In the work by Fehér et al. (2019), it was observed that the frequency of girls who constantly complained of fatigue increased at the end of the study period. The same may have occurred with the participants of this investigation, with a greater attribution of tasks and social demands to girls which reflects in this overload of somatic complaints. It is possible that girls are more ready to recognize and reveal discomfort, while boys feel uncomfortable in recognizing and communicating health problems (Ruchkin & Schwab-Stone, 2014).

High School students had significantly higher scores on items 51 (I feel dizzy), 54 (I feel overtired) and 56 (average of a few complaints) compared to students from other educational levels (Table 3). The work by Cheng, et al. (2019) found that students in the 3rd year of High School had more somatic symptoms than those in other grades. There may be several reasons for such result. One that is often mentioned in the literature is changing schools - an unfamiliar environment, more distant from home, longer school period, new academic and social challenges (Agarwal et al., 2019; Das et al., 2018; Jalan et al., 2019). In general, teenagers in High School study in schools that

are further away from their homes (when compared to previous educational levels), which requires them to wake up even earlier to get to school on time, so it is possible that the school schedule affects the adolescent's need for sleep, and that he feels very tired, as he does not get enough sleep. Educational demands can also be felt by some adolescents as being very heavy especially because they do not have emotional or cognitive repertoire or family support to cope with these tasks, so that stress may not be managed constructively and, therefore, ends up being somatized.

Peer relationship issues, such as bullying, have consistently been associated with somatic complaints (Malhi & Bharti, 2021). In the study by Chernyshov et al. (2020), conflicts with teachers were stressors associated with somatic complaints. Cheng et al. (2019) state that teacher support can be especially important, as at this stage students are dealing with stressful life events – acute and ongoing stressors (Agarwal et al., 2019), including academic pressure, dealing with new social demands and with coping skills still under development. A good classroom climate can attenuate the reactivity to stress that this educational level causes and can decrease anxiety in relation to tasks.

Our study detected the worsening of somatic complaints over time; in fact, the protocols completed between 2011 and 2019 had significantly higher scores than those completed in the first decade of the twentieth century (Table 2). This result is in line with what was stated by Baceviciene, et al. (2019) and by Eckhoff et al. (2017). Unfavorable changes have been taking place in the adolescents' world, in relation to patterns of leisure activities with a decrease in physical activity and a tremendous increase in the use of information and communication technology. The changes that occurred in relation to the family should also be highlighted. Jalan et al. (2019) note that there is more pressure on adolescents from nuclear families, as the social and emotional support provided by the presence of grandparents and uncles will be absent, and there is also less opportunity to exercise social skills, as there are no siblings or cousins to play with and learn to resolve conflicts. Different authors state that the overprotection that currently exists in some families is also a risk factor for somatic complaints (Agarwal et al., 2019; Chernyshov et al., 2020; Das et al., 2018; Jalan et al., 2019), as it helps protecting adolescents against adverse experiences and prevent them from making mistakes or experiencing setbacks thus developing a behavioral repertoire for coping with and solving problems.

Academic changes may also influence the increase in somatic complaints, due to the many activities and tasks, pressure to succeed, concentration difficulties, little understanding of teacher's lessons, less free time (Eckhoff et al., 2017). It is important to note (Table 2) the increase in the mean of item 54 (I feel overtired without good reason). Most likely, tiredness is not without reason – there are many tasks to be accomplished (academic, domestic), and what the teenager thinks about is rest such as playing video games, watching series which, in fact, is no rest, as it requires concentration, attention and the use of other cognitive skills. Technological changes should be highlighted (Klavina et al., 2021), especially the use of screens (smartphones, tablets, computers, television), which keep adolescents awake later, besides reducing the time they sleep and increasing difficulties with sleep (difficulty falling asleep, waking up frequently at night, waking up tired), leading to fatigue, musculoskeletal pain, dizziness, and eye problems.

It is important to note the increase in adverse life events such as drug problems, problems with parents and also with peers such as bullying and aggression (Eckhoff et al., 2017; Malhi & Bharti, 2021). Another vulnerability indicator has been observed: feelings of psychological loneliness – even though they are connected through technology, many teenagers feel lonesome, without friends, without support. In the work by Chernyshov et al. (2020), more than half of the patients reported this feeling. They felt misunderstood by their parents (or other adults), with little chance of receiving

peer support. Perceived social support is often associated with fewer somatic symptoms (Grigaitytė & Söderberg, 2021).

This difficulty in perceiving (or even having) a support network or feeling too pressured for success or perfection makes many adolescents feel that they must, albeit they are unable to, meet the expectations of their relatives (Chernyshov et al., 2020), or have unrealistic expectations about school or the future (Jalan et al., 2019; Meesters et al., 2003). Chernyshov et al. (2020) observed that one in four adolescents had a sense of meaninglessness in relation to their own lives. Thus, a gap opens up for the tendency to experience and communicate psychological suffering in the form of somatic symptoms, that is, the bodily metaphors with which the adolescent expresses anguish or conflicts (Cheng et al., 2019); this condition has been enhanced in the most recent decade compared to the previous decade. It seems unquestionable, in addition to genetic issues, the significant role of contemporary lifestyle, stress and environmental factors in the development, recurrence and exacerbation of somatic symptoms (Fehér et al., 2019; Klavina et al., 2021; Malhi & Bharti, 2021).

The study by Steinhausen and Winkler Metzke (2007), also using the YSR, involving only participants who marked the items as “often true” (score 2), found in 2004 in participants aged between 10 and 17 years a higher frequency of skin problems (6.2%), followed by headache (5.9%), tiredness (3.0%); stomach pain (3%); different aches (2.9%); nausea (1.5%); dizziness (1.2%); eye problems (1.2%); and vomiting (0.5%). In 1997 (participants aged between 13 and 20 years), the most common complaint was headaches (8.3%), followed by skin problems (7.1%); tiredness (6.7%); stomach pain (2.5%); nausea (1.9%); eye problems (1.7%); dizziness (1.3%); pain in general (1.0%) and vomiting (0.2%). In 2001 (participants aged between 19 and 24 years), the most frequent complaint was tiredness (6.4%), followed by skin problems (5.7%); headaches (5.6%); stomach pain (3.0%); pain in general (2.4%); nausea (1.2%); eye problems (1.0%); vomiting (0.8%); and dizziness (0.7%). Headaches were the symptom that showed a pattern of continuity over time and for girls, also tiredness. This is similar to the results found in the present study.

The work by Dhossche et al. (2002), with Dutch adolescents responding to the YSR, observed that, in 1989 (participants aged between 12 and 16 years) indicated more headaches (scores 1 or 2) (30%); followed by tiredness (24%); stomach pain (22%); dizziness (19%); skin problems (16%); pain in general (12%); nausea (10%); vomiting (5%); and eye problems (3%). In 1997 (participants aged 18 to 24 years), the complaint that those young adults reported most was tiredness (40%); followed by headaches (37%); stomach pain (21%); skin problems (18%); dizziness (15%); nausea (14%); pain in general (12%); vomiting (6%); and eye problems (5%). Somatic complaints were associated with the internalizing and externalizing scales. The number of somatic-functional symptoms was associated with gender, but not with age, as in the present study, and was associated with a diagnosis of depressive disorders and anxiety disorders. Fatigue ought to be highlighted, a condition similar to that found in our study.

There is a strong association between somatic complaints and psychiatric problems, especially anxiety and depression (Tingstedt et al., 2018). In this work, the Somatic Complaints syndrome cluster correlated with the Total Problems scale and the Internalizing scale (Table 4), similar to the work by Dhossche et al. (2002). Among the syndrome scales, the best correlation was with the Anxiety/Depression syndrome. This result is in line with the findings of epidemiological studies that show that there is comorbidity between somatization disorder and anxiety and depression disorders (Cheng et al., 2019; Meesters et al., 2003; Ruchkin & Schwab-Stone, 2014). For Tingstedt et al. (2018), in depressed adolescents, multiple somatic symptoms reflect greater severity of depression. Ruchkin and Schwab-Stone (2014) argue that somatic symptoms can be considered a

way of dealing with unresolved anxiety or even as a normal and relatively unemotional preparatory response to a future event. Somatic complaints may represent a way of experiencing emotional distress and communicating it to oneself and to others. These symptoms would represent the negative consequences of anxiety, leading to decreased performance, since adolescents focus on their bodily sensations and not on the task/event they need to accomplish or experience; this has a negative impact on their quality of life. Somatic complaints are also associated with poor academic performance and school absenteeism, which can lead to greater social isolation (Tingstedt et al., 2018), although in the present study there was no correlation with the social competence scales.

Somatic symptoms in adolescence can predict severe mental disorders in adults (Bohman et al., 2018). If they have a persistent impact on adult life, it is important to be aware of somatic complaints, both from a health and economic point of view (Klastrup et al., 2021; Steinhausen & Winkler Metzke, 2007).

Limitations and strong points

This study used adolescents' self-reports; although they are reliable, the possibility of memory bias and false reports cannot be disregarded. There is also no information about the physical health of the respondents, that is, there is no way to exclude the possibility that the reported symptoms be explained as being a medical condition. Finally, the cross-sectional nature of the study does not allow drawing conclusions about the causality or the direction of the relationship between somatic complaints and the other variables studied. Somatization may have been the manifestation of a transient stress response, having occurred as an acute response to a disturbing event in life, tending to dissipate as the adversity that triggered it fades away. However, as the instrument requires that the respondent indicate whether the item was true in the last six months, it is computed, but it cannot be said that it is a lasting or temporary complaint. The strengths of this study are the sample size and the diversity of the participants, in addition to the period of the protocols assessed (16 years).

Conclusion

The aim of this study was to identify the prevalence of somatic complaints in adolescence. The mean of the Somatic Complaints syndrome scale was in the non-clinical range (57.1) with a prevalence of 18.2% of the protocols considered clinical or borderline. More girls and more High School students checked-marked the items referring to somatic complaints. Just as there were more adolescents in the most recent decade (2011 to 2019) reporting somatization behaviors. There was no correlation of items or clusters with age. In our study, somatic symptoms were correlated with other mental health issues, especially internalizing behaviors such as anxiety and depression.

Somatic complaints can be the "tip of the iceberg", drawing attention to other mental health issues, but also denouncing a rather stressful lifestyle, as is the case today, and it can get worse, especially with the advent of COVID-19 and the different restrictions imposed to control the pandemic. Physical symptoms that cannot be explained by organic factors can occur with a complex interaction of psychosocial stressors.

Although somatization is a common phenomenon, it impacts, in the short or long term, the individual's health and functioning, impairing development, family life, friendships, mental health, school attendance and academic performance. Physical symptoms, such as pain, fatigue, eye problems, among others, should not be ignored in the early detection of mental health problems.

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