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Anxiety and depression predicted by medically unexplained symptoms in Pakistani children: A case-control study☆

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ABSTRACT

Objective: To explore association between medically unexplained symptoms in children in Pakistan with emotional difficulties and functional impairments.
Methods: We conducted a matched three-group case-control study of 186 children aged 8–16 years in Lahore, Pakistan. Cases were 62 children with chronic somatic symptoms for which no organic cause was identified after investigations. Two control groups of 62 children with chronic medical paediatric conditions, and 62 healthy children were identified. Cases and controls were matched for gender, age, and school class. Somatisation was measured with the Children's Somatisation Inventory (CSI-24) while anxiety and depression were measured with the Spencer Children's Anxiety Scale and the Short Mood and Feelings Questionnaire respectively. All questionnaires were translated into Urdu.
Results: Mean age was 11.7 years (SD = 2.1). Cases scored significantly higher on somatisation (CSI-24), anxiety and depression than both control groups. Paediatric controls scored significantly higher than healthy controls on all three measures. Two hierarchical linear regression models were used to explore if somatisation predicted depression and anxiety while controlling for several confounders. Somatisation (higher CSI-24 scores) independently and significantly predicted higher anxiety ($\beta = .37$, $p = .0001$) and depression ($\beta = .41$, $p = .0001$) scores.
Conclusion: This is the first study to show an association between medically unexplained symptoms and anxiety and depression in Pakistani children. This highlights the importance of screening for emotional difficulties in children presenting with unexplained somatic symptoms in this region.

Introduction

Medically unexplained symptoms (MUS) are physical symptoms that cannot be explained by a conventionally defined medical disease after appropriate medical assessment [1]. These symptoms are common in paediatric populations [2,3]. They vary from minor pain and aches which improve without treatment to severe multiple somatic symptoms which leads to significant functional impairment and disability.

Multiple risk factors including individual factors such as increased focus on physical sensations, personal experiences of physical illness, and family factors such as physical and mental health problems, parental somatisation, emotional over involvement are associated with MUS. Environmental circumstances including life events, relationship difficulties, school stressors such as bullying, and academic pressure have also been implicated in somatisation [4].

MUS in children are also linked with a variety of adverse psychosocial outcomes including psychiatric difficulties, and poor school attendance [2,3]. Several studies in developed countries have found up to half of children with somatisation to have associated psychiatric disorders, especially anxiety and depression [5–9]. Other studies have shown longitudinal association between somatisation and later emotional difficulties. For example, children with recurrent abdominal pain at age 6 years had higher rates of anxiety disorders at age 7 years in the Avon Longitudinal study of Parents and children [10]. A greater likelihood of developing psychiatric disorders in adulthood has also been reported in children with somatisation [11]. In addition to mental health and functional impairment for affected children, parents and siblings can also become impaired due to the increased burden of care for the index child [12].

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In addition to adverse mental health outcomes, associations between childhood somatisation and poor functional outcomes are also well established in developed countries. One of the most common functional impairments is school absence [13]. Weitzman and colleagues found that adolescents with somatisation experienced more school absence than those with chronic medical conditions [14]. Similarly, Smith and colleagues found that adolescents with chronic fatigue missed significantly more days of school than children with migraine or healthy controls [15].

Although several studies have now explored somatisation in children, most were from developed countries. Incidentally, the findings may not be generalizable in the different socio-cultural circumstances of developing countries; hence the importance of cross cultural perspectives. Evidence from low and middle income countries (LMICs) indicate that adults are more likely to present with somatic symptoms when seeking help even when they are aware of having psychological symptoms [16–19]. A strong association between somatoform disorders and anxiety and depression in women (with odds ratio ranging from 2.5 to 3.5) was observed in a systematic review covering studies from eight LMICs [20]. In relation to children, Weiss and colleagues demonstrated in a study of American and Thai children that among clinic samples, Thai children reported higher somatic versus depressive symptoms compared with their American peers [21].

Differences in cultural styles of expressing distress, influenced by cultural beliefs and practices, pathways to care and differences in healthcare systems may explain differences in somatisation in different societies. Also stigma associated with emotional problems and psychiatric treatment compared with expression of physical problems as well as consideration of depression and anxiety as moral weakness may also increase tendency towards somatisation in LMICs [22–24]. While somatisation is prevalent among adults in Pakistani society, the prevalence in children may be higher because they are less verbally expressive and may tend to selectively manifest physical symptoms as idioms of psychological distress. There may also be biological reasons to predict higher prevalence of somatisation in Pakistani children. Increasing evidence suggest that activation of the immune system can induce somatisation [25]. For example, Lekander et al (2004) have shown a correlation between blood cytokines and self rated physical symptoms [26]. These findings may be particularly relevant to children in developing countries like Pakistan who have higher exposure to infections and pathogens producing immunological challenges.

Our clinical experiences suggest that somatisation in children is common in Pakistan. However, any associations with mental disorders and functional impairments have not been explored in this setting. We present data on childhood somatisation and child psychopathology in Pakistan. We hypothesized that children with medically unexplained somatic symptoms in this setting will have more anxiety and depressive symptoms and more school absence than children with diagnosed physical illnesses and healthy controls. To our knowledge, this is the first study in South Asia to use a robust three-group case–control design to directly explore the emotional and functional impact of somatisation on children controlling for a wide range of psychosocial confounders.

Methods

The study was conducted in a child psychiatric clinic of a tertiary care hospital in Lahore, Pakistan. Lahore is the capital of Punjab, which is the largest Province in Pakistan. Approval was obtained from the Ethical Review Board of King Edward Medical University (KEMU). Informed consent was obtained from the parent/legal guardian of the eligible children prior to administration of the questionnaires. Children between the ages of 8 and 16 were eligible to participate. A matched case control study design was used. Cases were consecutive children presenting to the outpatient clinic of the Department of Child and Family Psychiatry in Mayo Hospital, Lahore with chronic somatic complaints for which no organic cause has been found following physical examination and appropriate physical investigations. Two control groups were identified. The first controls were children attending paediatric out-patient clinic in the same hospital due to an established diagnosis of a physical disorder such as asthma, diabetes and nephrotic syndrome. Children who met the study criteria were identified in liaison with the paediatricians and then approached by a research team member to obtain their parent's consent for participation. The second control group were healthy children recruited from a local school who had no current diagnosis of a medical or psychiatric disorder. The cases and both control groups were matched for age, gender, and school class or year.

A sample of 186 (62 in each group) was calculated as adequate to identify 0.5 (half) standard deviation difference in depressive symptoms (Short Mood and Feelings Questionnaire FQ score) with 80% power and 5% level of significance between children with medically unexplained somatic symptoms and each of the two control groups [27].

Following written informed consent, the questionnaires were administered to the children and their parents by trained interviewers. In total, 229 parents were approached to get the required sample of 186 children (70 in psychiatric clinics where cases were recruited, 83 in paediatric clinic for first control group and 76 from the school that provided healthy controls). The questionnaires were read out to the parents and children and the children provided a response. Some of the information such as socio demographic data was obtained from parents. Good inter-rater reliability across interviewers was established before actual data collection. All the scales used for children were translated to Urdu by multiple forward translation method and piloted among children in Pakistan to ensure reliability in the local setting prior to the study. This practice is established in previous studies in Pakistan such as the Urdu translation & cultural adaptation of KIDI-SADS [28]. The interviewers were blind to the study hypothesis to avoid information bias.

Measurements

Socio-demographic details

Standard socio-demographic information was obtained as is relevant to Pakistan. This includes family characteristics such as living arrangements, number of siblings, rural or urban dwelling, school enrolment (which is not mandatory in the country) as well as school attendance, life events/stressors in Pakistani context including marital engagement against wishes, and parent's level of education. In order to obtain a reliable index of socio-economic status, information was sought on household incomes, and ownership of high value possessions such as house, car, and coloured TV. A socioeconomic scale was created by combining income categories and the ownership of possessions (with more expensive items such as car and house, weighted by a factor of two and three respectively).

Somatisation

This was assessed with the revised 24-item Children's Somatisation Inventory (CSI-24) [29]. The CSI-24 is a reliable and psychometrically refined version of the original CSI [30]. Items are scored 0–4 and total scores range from 0 to 96. The CSI-24 showed excellent internal consistency in our sample (Cronbach alpha 0.91).

Depressive symptoms

Depressive symptoms were assessed with the Short Mood and Feelings Questionnaire (SMFQ) [31]. This is a brief 13-item measure of childhood depressive symptoms scored on a 3-point Likert scale. The SMFQ has been found to correlate well with the Children's Depression Inventory ($r = .67$) and to discriminate well between clinical and nonclinical samples [31,32]. It has been used successfully in other developing