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The Impact of Chronic Chest trouble on Cognitive Functions, Psychosocial Behavior and Academic Achievement among Egyptian Children

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ABSTRACT

Background: Chronic chest troubles are the most common cause of chronic illnesses. They include bronchial asthma, tuberculosis, bronchiectasis, cystic fibrosis, ciliary dyskinesia and immune deficiency. They can affect the cognitive functions and psychosocial behavior of children. They may also affect the school performance of these children. The aim of the study: is to assess the cognitive functions, psychosocial behavior and school achievement in chronic chest troubles and compare them with healthy children in same age.

Methods: This study was executed in the Chest Clinic at Abou El-Reesh Children's Hospital, Cairo University. The Study was carried out on 27 children, their age ranged between 6-15 years (mean age ± SD = 9.78±2.58). They were suffering from chronic non-asthmatic chest trouble (tuberculosis, bronchiectasis, cystic fibrosis, ciliary dyskinesia, idiopathic pulmonary fibrosis and immune deficiency disorders) as proved by full clinical examination, laboratory and radiological investigations. Children with other non-chest chronic diseases were excluded. Twenty seven other children not suffering from any disease and living under the same socioeconomic conditions were taken as controls. WISC-R and PSCL were used to assess the cognitive and psychosocial adjustment among children while the mid-year scores for Mathematics and Arabic language were used to evaluate the academic performance.

Results: Our results indicated that chronic chest troubles (non-asthmatic) have negative effects on cognitive abilities, psychosocial behavior and academic achievement of such children. There was no difference between children affected by bronchial asthma and those affected by other chronic chest diseases as regards to the mentioned parameters.

Conclusion: Children with chronic chest troubles represent a population at possible high risk for mental and psychosocial maladjustment.

Key words: Children, chronic non-asthmatic chest troubles, cognitive function, psychosocial behavior

Introduction

One conditioning factor that greatly influences developmental outcomes and quality of life is chronic illness (Jackson and Vessey, 2000). The American Academy of Pediatrics (1993) defines pediatric chronic diseases as illnesses that affect a person for an extended period of time, often for life, and that require medical care and attention above and beyond the normal requirements for a child or an adolescent.

Psychosocial factors in chronic illness in the pediatric population may impede optimal outcome. Overt and covert adjustment problems and psychiatric illness may present as unexplained medical symptoms, non-compliance with medical treatment, school refusal and high-risk behaviors. These signs may alert the physician to the presence of underlying issues in the child and/or the family. Before referral to a mental health professional, the doctor should try to identify the presence of underlying issues, focus on family-centered care and schedule well visits to monitor compliance and other issues (Samuel et al., 2010).

Early detection and treatment of psychosocial problems may lead to considerable health benefits. Psychosocial problems have a high prevalence rate and lead to high costs of disease. They also cause substantial restrictions in daily functioning in later life and are the major cause of long-term work disability in young adults (Murthy et al., 2001). Only a minority of children with psychological or psychosocial problems are under treatment (Reijneveld et al., 2005). If untreated, problems are likely to persist in later life and can lead to serious limitations in daily functioning (Verhulst and vanderEnde, 1996). Nelson et al. (2003) stated that early detection and treatment improves these children's prognosis substantially, but a complete analysis of its cost effectiveness has yet to be carried out.

Primary care settings are a critical site for the early recognition of children with psychosocial dysfunction and evolving psychiatric disorders. Epidemiological studies indicate that many parents come with psychosocial concerns, and approximately 10% of 4-16 years old have significant dysfunction (Kelleher et al., 1997).
The aim of this study was to assess the cognitive functions, psychosocial behavior, and school achievement in children with chronic non-asthmatic diseases and compare them with healthy children of the same age and socioeconomic standards.

Subjects & Methods:

This case-control study had been carried out on 54 Egyptian children (27 patients and 27 controls). The two groups were examined and evaluated medically and psychologically, to find whether ill children have more psychological problems than healthy controls. Their age ranged from 6-15 years with a mean± of 9.6±2.67 years.

The 27 children previously diagnosed to have chronic non-asthmatic chest disease and randomly selected. They regularly attended the chest clinic at Abu El-Reesh Children’s Hospital, Cairo University. Inclusion criteria included children previously diagnosed to have non-asthmatic chest troubles (tuberculosis, cystic fibrosis, bronchiectasis, ciliary dyskinesia, interstitial lung fibrosis and immune deficiency), age range between 6-15 years and of both sexes. Exclusion Criteria included children less than 6 years old and those more than 15 years old, neurological diseases e.g. cerebral, mentally retarded children and asthmatic chest diseases. The control group included 27 healthy children matched for age, sex, educational level, and socio-economic. They were selected from the brothers and sisters of the patients group. The controls were free from any chronic illness especially chronic asthmatic chest diseases.

All studied cases were subjected to the following:

History taking: including personal history (age, sex), past history (onset and duration of the disease).

Clinical examination: full clinical examination was done including general examination and local chest examination in order to diagnose chronic chest disease and exclude any other diseases. Diagnosis of chronic chest disease was confirmed by reviewing the laboratory and radiological findings of the patients.

Anthropometric measurements include body weight and height.

Assessment of cognitive abilities:

They were assessed by a battery of psychological tests that covered verbal and non-verbal intelligence, memory, learning, problem solving, and attention. The children were individually assessed. All psychological evaluations were administered in one session. The tests used were:


This is the most widely used test for intellectual assessment and covers an age range of 6-16 years. The test is scored according to a manual from which verbal and performance scores and intelligent quotient are obtained.

B-The Auditory Vigilance Test:

It measures the attention ability of the child. It is a measure of the efficiency of identifying signal stimuli in the context from the non-signal ones (Pollite, 1984).

C-The Figural Memory Test:

This is a measure of the free recall of visual objects (Pollite, 1984). The free recall score is the number of items recalled correctly. The classification score is obtained by counting the number of the shifts from one category to the other, which is made by the subject during his recall. This was considered as an indicator of how he can organize aspects in his memory.

Assessment of psychosocial behaviour:

Children's behaviour was evaluated by a brief version of parent-completed Pediatric Symptom Checklist (PSC-17). Although certain responses may suggest a diagnosis, the PSC is a screening tool and not a diagnostic one. If positive, the clinician should pursue a brief interview, reviewing the child's major areas of functioning (school, family, activities, friends and mood). If this brief interview supports the PSC findings, the clinician then decides whether a follow-up appointment, further evaluation or referral is indicated (Jellinek et al, 1995).
Assessment of Academic Achievement:

Was assessed using the mid-year test scores of Arabic language and arithmetic subjects for each child. It is considered as a good indicator of academic and learning performance (Silver, 1989). Each group is classified according to the mid-year scores into good achiever (the mid-year score is ≥ 70%) and poor achiever (the mid-year score is < 70%).

Statistical Methods:

Data were statistically described in terms of range, mean ± standard deviation (± SD), frequencies (number of cases) and percentages when appropriate. Comparison of quantitative variables between the study groups was done using Student t test for independent samples. A probability value (p value) less than 0.05 was considered statistically significant. All statistical calculations were done using the computer programs Microsoft Excel 2003 (Microsoft Corporation, NY, USA) and SPSS (Statistical Package for the Social Science; SPSS Inc., Chicago, IL, USA) version 15 for Microsoft Windows.

Results:

The study was conducted on 27 patients and 27 age and sex matched controls (table1, 2). Clinical diagnosis of patients among the patient group is shown in table 3.

Table 1: Age of children among study groups.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>6-15y</td>
<td>6-15y</td>
</tr>
<tr>
<td>Mean</td>
<td>10.3</td>
<td>10.5</td>
</tr>
<tr>
<td>±SD</td>
<td>2.83</td>
<td>2.75</td>
</tr>
</tbody>
</table>

P value > 0.05 (non significant)

Table 2: Sex distribution among study groups.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Controls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Count</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>%</td>
<td>44.4%</td>
<td>44.4%</td>
<td>44.4%</td>
</tr>
<tr>
<td>M</td>
<td>Count</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>%</td>
<td>55.6%</td>
<td>55.6%</td>
<td>55.6%</td>
</tr>
</tbody>
</table>

P value > 0.05 (non-significant)

Table 3: Clinical diagnoses of patients.

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>11</td>
<td>22%</td>
</tr>
<tr>
<td>Bronchiectasis</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>Cystic Fibrosis</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>Interstitial Lung Disease</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Immotile Cila Syndrome</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Immune Deficiency</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

Anthropometric measures between the two groups highly significant as shown in table 4.

Table 4: Results of anthropometric measures in patients and controls.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Controls</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>±SD</td>
<td>Mean</td>
<td>±SD</td>
</tr>
<tr>
<td>Weight</td>
<td>26.56</td>
<td>10.99</td>
<td>35.26</td>
</tr>
<tr>
<td>Height</td>
<td>124.55</td>
<td>12.49</td>
<td>135.44</td>
</tr>
</tbody>
</table>

*P value < 0.05 (significant)

Cognitive abilities:

A-Full Scale IQ: Table(5) shows analysis of the full scale IQ for the two groups. The mean full scale IQ for patients was 68.30% compared to 93.54% in controls with highly significant difference between the two groups (P = .000).

B-Figural Memory test: Table (5)

Free recall:

The mean of free recall scores for patients was 8.41 ± 3.85 compared to 11.22 ± 2.67 for the controls with significant difference between the two groups (P = .002) (Fig 1).
**Classification:**

The mean of classification scores in patients was \(2.81 \pm 2.17\) compared to \(4.54 \pm 1.59\) in controls with significant difference between the two groups \((P= .022)\) (Fig 1).

**Table 5:** Full scale IQ and results of Figural Memory test in patients and controls.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th></th>
<th>Controls</th>
<th></th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>±SD</td>
<td>Mean</td>
<td>±SD</td>
<td></td>
</tr>
<tr>
<td>Full scale IQ</td>
<td>68.30%</td>
<td>16.01</td>
<td>93.54%</td>
<td>12.72</td>
<td>.000*</td>
</tr>
<tr>
<td>Free recall</td>
<td>8.41</td>
<td>3.85</td>
<td>11.22</td>
<td>2.67</td>
<td>.002*</td>
</tr>
<tr>
<td>Classification</td>
<td>2.81</td>
<td>2.17</td>
<td>4.54</td>
<td>1.59</td>
<td>.022*</td>
</tr>
</tbody>
</table>

* P value < 0.05 (significant)

**Fig. 1:** Results of Figural Memory test of patients and controls.

**C-Auditory Vigilance test:**

Table (6) shows the results of auditory vigilance among study groups.

**Table 6:** Results of Auditory Vigilance test in patients and controls.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th></th>
<th>Controls</th>
<th></th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>±SD</td>
<td>Mean</td>
<td>±SD</td>
<td></td>
</tr>
<tr>
<td>Test A</td>
<td>Right answer</td>
<td>10.07</td>
<td>2.37</td>
<td>14.00</td>
<td>1.28</td>
</tr>
<tr>
<td></td>
<td>Wrong answer</td>
<td>3.00</td>
<td>2.41</td>
<td>1.02</td>
<td>1.27</td>
</tr>
<tr>
<td>Test B</td>
<td>Right answer</td>
<td>10.07</td>
<td>2.35</td>
<td>12.16</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>Wrong answer</td>
<td>5.30</td>
<td>2.54</td>
<td>0.88</td>
<td>1.26</td>
</tr>
</tbody>
</table>

* P value < 0.05 (significant)

- **Test A:**

The mean of right answers in patients was \(10.07 \pm 2.25\) compared to \(14.00 \pm 1.28\) in controls with highly significant difference between the two groups \((P= .000)\). The mean for wrong answers in patients was \(3.00 \pm 2.41\) compared to \(1.02 \pm 1.27\) in controls with highly significant difference between the two groups \((P= .000)\) (Fig 2).

- **Test B:**

The mean of right answer in patients was \(10.07 \pm 2.35\) compared to \(12.16 \pm 1.24\) with highly significant difference between the two groups \((P= .000)\). The mean for wrong answers in patients was \(5.30 \pm 2.54\) compared to \(0.88 \pm 1.26\) with highly statistically significant difference between the two groups \((P= .000)\) (Fig 2).

**I-Externalizing problems:**

The behavioral questionnaire (PSCL) showed that: 2 patients (7.4%) had externalizing behavior and no one had the same behavior in controls with statistically significant difference between the two groups \((P= .035)\) (Fig 3, 4).
Fig. 2: Results of Auditory Vigilance Test in patients and controls.

Psychosocial behavior for patients and controls is shown in table 7.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th></th>
<th>Controls</th>
<th></th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Externalizing behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>2</td>
<td>7.4%</td>
<td>0</td>
<td>0%</td>
<td>.035*</td>
</tr>
<tr>
<td>Negative</td>
<td>25</td>
<td>91.6%</td>
<td>50</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Internalizing behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>13</td>
<td>48.1%</td>
<td>3</td>
<td>6.0%</td>
<td>.000*</td>
</tr>
<tr>
<td>Negative</td>
<td>15</td>
<td>51.9%</td>
<td>47</td>
<td>94.0%</td>
<td>.171**</td>
</tr>
<tr>
<td>Attention problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>1</td>
<td>3.7%</td>
<td>0</td>
<td>0%</td>
<td>.171**</td>
</tr>
<tr>
<td>Negative</td>
<td>26</td>
<td>95.3%</td>
<td>50</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Normal children</td>
<td>12</td>
<td>44.4%</td>
<td>47</td>
<td>94.0%</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*P value < 0.05 (significant)    **P value > 0.05 (non significant)

2- Internalizing problems:

The behavioral questionnaire (PSCL) showed that: 13 patients (48.1%) had internalizing behavior compared to 3 control (6.0%) with highly statistically significant difference between the two groups (P=.000) (Fig 3, 4).

3- Attention problems:

The behavioral questionnaire (PSCL) showed that: one patient (3.7%) had attention problems compared to no controls with no significant difference between the two groups (P=.171) (Fig 3, 4).

Fig. 3: Positive behavioral problems in patients and controls.

Academic Achievement:

Table 8 shows results of academic achievement among study groups.
Fig. 4: Negative behavioral problems in patients and controls.

Table 8: Results of academic achievement in patients and controls.

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Controls</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Midyear Mathematics scores</td>
<td>Good achiever</td>
<td>16</td>
<td>59.3%</td>
</tr>
<tr>
<td></td>
<td>Poor achiever</td>
<td>11</td>
<td>40.7%</td>
</tr>
<tr>
<td>Midyear Arabic scores</td>
<td>Good achiever</td>
<td>13</td>
<td>56.5%</td>
</tr>
<tr>
<td></td>
<td>Poor achiever</td>
<td>10</td>
<td>43.5%</td>
</tr>
</tbody>
</table>

*P value < 0.05 (significant)

A-Midyear Mathematics scores:

11 (40.7%) patients compared to 0 (0%) controls were poor achievers with a highly significant difference between the two groups (P = .000) (Fig 5).

B-Midyear Arabic scores:

11 (40.7%) patients compared to 0 (0%) controls were poor achievers with a highly significant difference between the two groups (P = .000) (Fig 5).

Fig. 5: Mean Mathematics and Arabic Scores in patients and controls.

G: Good achievers   P: Poor achievers

Discussion:

Children who have symptoms of illness for more than 3 months, or who require hospitalization or extensive home based services for more than one month in 12 months period are said to have chronic disease (El-Baz et al., 1995). Contrary to El-Baz definition, Leblan et al. (2003) suggested that the term chronic illness refers to illnesses that require at least 6 months of continuous medical care, permanent life style changes and continuous behavioral adaptation to the unpredictable course of the illness.

No significant differences were found between the two groups (patients and controls) as regards to age and sex. The study included patients suffering from tuberculosis (22%), bronchiectasis (10%), cystic fibrosis (10%), interstitial pulmonary fibrosis (6%), ciliary diskinesia (4%) and immune deficiency disorder (2%). Epidemiological studies showed that roughly one in ten children under the age of 15 suffers from a chronic disease. Other epidemiologic studies estimated that one third of children less than 18 years of age are suffering...
from one or more chronic disorders or diseases (Costello et al 2006, Shah et al 2006, and Gallasi et al 2006). In addition, there is an increased prevalence of learning and speech difficulties, sensory dysfunctions, mental handicaps and behavioral problems (Smith, 2003 and Williams et al, 2006). In our study chronic chest troubles were at increased risk of behavioral problems than healthy children.

In our study, the most prevalent chronic chest troubles were pulmonary tuberculosis with a total of 11 cases (22 %) of the whole number of cases. In the study of Samuel et al (1996), tuberculosis was responsible of 36.8% of chronic chest troubles and in the study of Samuel et al (2002); tuberculosis was responsible of 34% of cases. The decrease in percentage of tuberculosis in our study may be due to small study sample.

Abrams (2001) studied the effect of chronic lung diseases such as asthma and cystic fibrosis on growth and development. His results are consistent with the current study. He found that any conditions leading to chronic pulmonary insufficiency in infants and children can lead to growth failure and delayed development.

Minor and relatively short illnesses such as Influenza, Common cold …etc, cause no retardation of growth rate in the great majority of well-nourished children (Khasshaba, 1986). However, Abou El Seoud (1984) suggested that diseases that are recurrent, severe, prolonged or of chronic nature like chronic chest troubles may slow down growth. Byard (1994) discussed the effect of chronic chest diseases especially children with cystic fibrosis on growth and found that they had reduced growth velocity and a delayed adolescent growth spurt.

The finding in the present study indicate that there are obvious differences between children with chronic chest troubles and healthy children as regard to cognitive abilities, behavior and school performance. Pediatricians are not adequately trained and/or do not have the time to evaluate every child’s psychosocial status (Costello and Janiszewski, 1990, Jellinek et al, 1995). A psychosocial screening procedure must be economical, brief, and accurate, and easy to understand, administer and interpret (Jellinek, 1995). In this study, PSCL (Pederatic Symptom chick was used as a screening test that provided a quick, valid and reliable method for detection of psychosocial problems. It reflects parent's impressions of their child's psychosocial functioning with acceptable sensitivity and specificity (Fielding, 1990).

Consistent with our study, Shackell et al (2007) studied the psychological effects of chronic lung diseases and found that patients’ anxiety and fears of breathlessness and dying extended into the night and were aggravated by feelings of isolation, vulnerability and frustration (internalizing problems).

El-Shenawi (2001) found high depression and anxiety symptoms (internalizing behavior) in children with chronic chest diseases.

We found also positive association between chronic chest diseases and internalizing (P= 0.000) and externalizing (P= 0.035) problems but no association with attention problems (P= 0.17). These findings are consistent with the results of Daniel et al (2005); they found significant association between internalizing disorders (mainly depressive diseases) and chronic diseases.

Cassileth et al (1984) suggested that tuberculosis in India also carries a social stigma due to the perceived consequences of infection. Furthermore, the treatment itself may be related with several side-effects. All these aspects of disease and its management have a huge impact on the overall well-being of the patient and the burden of these factors can equal and even exceed the physical impact of illness.

Cross-sectional data on almost 100,000 children younger than 18 years in the 1992, National Health Interview Survey showed that an estimated 6.5 % of all US children experienced some degree of disability (defined as a long-term reduction in ability to conduct social role activities such as school or play) because of a chronic condition (Newachek et al 1991). This is consistent with our study.

Robert et al (1992) discussed the effect of chronic lung diseases (especially CF) on the psychosocial behavior. They found that 68% of the children with chronic diseases suffered from internalizing and externalizing problems, consistent with our results. Delambo (2004) found that 60% of children 7–12 years old with cystic fibrosis have a parent-reported behavior problem. Mixed internal and external behavior problem patterns and diagnoses of anxiety and oppositional disorder were most frequently studied. Laursn et al (1999) found no significant changes in height of children with cystic fibrosis. They suggested that it was probably due to a selection bias.

El-Fequi et al (1993) made a study on children affected by tuberculosis and found that these children had less sociability, more emotional and behavioral disturbances and impaired scholastic achievement, consistent with our findings.

Boekaerts and Roeder (1999) found that young people with asthma appear to feel lonely, unhappy, or depressed and suffer from somatic symptoms significantly more often than healthy controls. Their results are consistent with our findings.

Chakraborty (2004) concluded that in addition to clinical symptoms, a tuberculosis patient needs to deal with several physiological, financial, and psychological problems. The symptoms and clinical burden of disease often extend beyond the duration of treatment. These are consistent with our findings.

Kunik, et al (2005), in a study of 1334 patients with chronic respiratory disorders, when screened for anxiety and depression, they found high prevalence (34 – 72%) of anxiety and/or depression between such
patients. When they studied patients with other respiratory disorders, depression has also been reported to be common and persistent.

David et al. (2008) made a research on Youths with cystic fibrosis (CF). They found that they may be at increased risk for internalizing symptoms, but factors explaining individual variation in these symptoms are not understood. Age, gender, respiratory function, and socioeconomic status generally were unrelated to internalizing symptoms, with the exception that younger children had more trait anxiety but fewer parent-rated internalizing symptoms.

Abhishek Jain and Sermsak Lolak (2009) discussed the psychiatric aspects of chronic lung diseases, including chronic obstructive pulmonary disease, asthma, restrictive lung disease, and cystic fibrosis. They found positive relationship between mental health and lung disease and it is multifactorial. Further studies continue to clarify issues and treatment guidelines for this comorbidity.

Lavigue and Fier-Routman (1992) studied the psychosocial adjustment to pediatric physical disorders in children aged 3–19 years and concluded that children with physical disorders are at risk for the development of psychological adjustment problems, internalizing symptoms (e.g. anxiety, depression and social withdrawal) and externalizing symptoms.

Although abnormal physical exhaustion and fatigue are often regarded as a natural consequence of pulmonary diseases, in line with the present observations, Gugger (1991) assumed that, apart from factors specifically related to pulmonary diseases, psychosocial factors are mainly responsible for the impaired physical fitness and fatigue. Therefore, he recommended that a careful evaluation of psychological aspects should be included in the diagnostic evaluation of patients suffering from a certain pulmonary disorder. Moreover, the assessment, support, and reinforcement of a patient’s psychosocial assets and ability to cope with chronic respiratory difficulty can help, enhance the QOL, and decrease feelings of fear for the manifestations and/or treatments of disease. (Schwartz, 1999)

De Vries et al. (2006) studied Quality of life and health status in interstitial lung diseases (IPF and sarcoidosis) and concluded that both illnesses have a substantial impact on patients’ life regarding physical health and level of independence. These results are in line with our present study.

Consistent with our study, studies from New Delhi reported severe psycho-social dysfunction in personal, familial, vocational, social and cognitive areas among patients with tuberculosis. (Bhatia, 2000 and Jaggarajamma et al. 2008)

We noticed that chronic respiratory diseases are associated with poor school achievement. These findings are consistent with the results of Sexson and Madan-Swain (1993) who reported that school-related stressors such as frequent absence, fatigue, or impaired development were responsible of poor school achievement. They also reported that psychosocial problems interfere with optimal functioning levels of these children.

Gortmaker et al. (1990) studied the behavioral problems in a nationally representative sample of 11699 children and adolescents aged 4 to 17 years (nearly like our study) in the United States. Data included a 32-item parent-reported behavior problem index, measures of chronic childhood conditions, measures of school placement and performance, and sociodemographic variables. Analyses confirmed that chronic physical conditions were a significant risk factor for behavior problems, independent of sociodemographic variables. Among children these differences were observed across all subscales; among adolescents the largest differences were found for the Depression/Anxiety and Peer Conflict/Social Withdrawal subscales. Rates of extreme behavior problem scores were 1.55 times higher among children with a chronic health condition compared with children without a chronic condition (95% confidence interval 1.29 to 1.86).

Chronic health conditions were also a major risk factor for placement in special education classes and having to repeat grades. Despite evidence for effective interventions, health services for children with chronic conditions—particularly mental health services—remain fragmented, signaling the need for increased attention to behavioral problems and their treatment among all health professionals caring for children. El-Dafrawi et al. (1998) found that there are poor academic performance in school, intelligence tests and language tests, higher prevalence of depression and social difficulties in children with chronic diseases, consistent with our findings.

Conclusion:

Children with chronic chest troubles represent a population at possible high risk for mental and psychosocial maladjustment. Children with chronic chest troubles have retarded weight and height compared to healthy children. Medical school training needs to be more focused on the psychosocial issues and psychiatric disorders that affect adolescents with chronic illness rather than on the specific biological factor issues associated with the medical illness itself. Psychosocial issues and psychiatric disorders are clearly important factors affecting adolescents with chronic illness.
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