

Workrelated Risks and Health Problems of Working Children in Urban Istanbul, Turkey

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Abstract: Workrelated Risks and Health Problems of Working Children in Urban Istanbul, Turkey: Melek Nihal ESIN, et al. Department of Community Health Nursing, Florence Nightingale College of Nursing, Istanbul University, Turkey—The purpose of this cross-sectional study was to identify the work-related risks and health problems of working children. The sample included 167 working boys. These boys were chosen from schools giving occupational education in the industrial part of Istanbul. A questionnaire and worksite assessment checklists, developed by the researchers, were used as data gathering tools. Data were collected from the boys' schools and workplaces. From this data, it was found that 24.6% of the boys were jewelers, 32.3% were car mechanics and 43.1% were hairdressers. Findings revealed that 30.5% of the boys, who were engaged in child labor, were poor and dropped out of school to assist their families. Boys, whose mean age was 17.6 ± 1.2 , had been working since they were 13 yr old. The boys were also found to work 66.4 h a week, which was an unexpectedly high result considering the 35 hours limitation set by the laws of Turkey for working children. As for work-related risks, chemical risks for boys working as hairdressers ($p < 0.01$), and using sharp tools and accidents for boys working as car mechanics were more common than the other groups ($p < 0.001$, $p < 0.001$). Boys working as hairdressers mostly had respiratory system problems, skin problems, and headache ($p < 0.001$, $p < 0.001$, $p < 0.001$). Those working as car mechanics had nose/throat problems, and musculoskeletal system problems ($p < 0.001$, $p < 0.01$). Among those working as jewelers, eye-related problems were common ($p < 0.001$). It was concluded from the findings of the present study that child labor creates an unhealthy environment for children. (*J Occup Health 2005; 47: 431–436*)

Key words: Working children, Health problems, Workrelated risks, Turkey

Child labor is among one of the major problems of developing countries today. It has been reported that about 250 million children of ages 4–15 are working in developing countries¹. As a developing country, Turkey has an increasing incidence of working children, and related physical, psychological, and social problems. It was stated in the International Labor Organization (ILO) convention 138 that the minimum age of work should be not less than 15 yr¹. However, the legal minimum age for employment is 14 yr in Turkey².

Working children are exposed to toxic and deadly chemicals in workplaces. Besides, hard labor leads to the deformation of young bodies. Young workers, at the same time, are under constant physical, intellectual, and emotional stress³. Moreover, most of them experience verbal and physical abuse⁴.

Children of ages 6–17 constitute 25.4% of the total population in Turkey. Of the children in this age group 10.2% work: 57.6% of them as agricultural workers, 21.8% in various branches of industry, and the rest work in housework⁵. The percentage of the working children who have received basic education or who are continuing their education is 78%, while 23% haven't had any education^{6,7}. Istanbul, the most crowded city in Turkey, accounts for 15% of the total population, and has a population of about 10 million⁸. The rate of annual population increase in Turkey is 18.3‰, while it is 33.1‰ for Istanbul⁸. This rapid increase in the population has been caused by intensive migration during the 1990's and has resulted in poverty and unemployment in the city, causing increased numbers of economic and social problems⁹. Of the population of Turkey, 26.9% have incomes below the poverty level, which includes food and other essential expenses¹⁰. Children of ages 10–18 constitute of 33.3% of the population of Istanbul. Although the official sources have reported that 4,038

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children of this age group are currently working, the actual number is estimated to be about 10,000. Working children in Istanbul are generally employed at workplaces that have less than 10 employees⁷.

In Turkey, studies aiming at child labor and protecting working children are still in progress. Turkey was included in ILO's "International Programme on the Elimination of Child Labor" (IPEC) in 1992. Besides with the legislation coded 3.308, over 300 educational centers offering occupational training were introduced to children who have completed primary school, and who are between 14–19 yr. Children, in these centers, are given theoretical occupational lessons for one day of the week, and on the other days they work at their workplaces. Establishing these centers has been effective for developing contact with child workers^{2, 7}. However, despite these efforts, studies about the condition of working children's physical and mental health are still scarce.

Studies concerning working children in the literature, in Turkey, are mostly related to the causes that push them to work, and to their social problems. Only a few studies exist that aim to define their risks and hazards at work, and physical and psychological health problems^{11, 12, 14}. In this context, this study is one of the first that was planned to fill this literature gap. This study defines working children's work-related risks and health problems.

Method and Design

The purpose of this descriptive, cross-sectional study was to answer the following questions: What are the work-related risks of children who work in the urban city, Istanbul? And what are the health problems of children who work in the urban city, Istanbul?

1. Setting

The study was conducted in the industrial area of Yenibosna in Istanbul. This area is generally populated by immigrant families with low socio-economic status. The immigrant families have generally come from the rural regions of the Turkey. The area also houses workplaces including printing-offices, jeweller's workshops, car repair shops, confection makers etc. The number of employees at these workplaces is typically less than 10, most of whom are children. Besides, there is a school in the region that provides occupational education to these children, which the children attend one day a week.

Data were collected in the school where the children attended once a week, and at their workplaces. The school does not offer any health-related services. Besides, the children were not being educated on how to protect their health and on how to avoid work-related risks. When they get sick, these children personally visit the nearest

hospital for treatment covered by their health insurances. Toxic chemicals, physical (noise, heat, cold, high-voltage electricity), and ergonomic (lifting, pulling, pushing heavy weights, standing) risks were involved in all workplaces. Control strategies against these risks, such as air conditioning and using protective devices, were insufficient.

2. Sample and Procedure

The study population was chosen from a school giving occupational education. A total of 1,083 students were continuing their education in the school, which gave 3-yr education, at the time of the study. It was planned to include 252 final year students who had longer work experience compared to the other classes. One hundred and sixty-seven boys who agreed to participate in physical examinations and workplace visits constituted the sample. The boys worked as jewelers, hairdressers, and car mechanics.

Data were gathered via face-to-face interviews and physical examinations, and by observing the boys' workplaces. As data gathering tools, a questionnaire and the Worksite Assessment Checklist developed by the researcher for this study were used. The questionnaire covers 14 items (age, education level, income, health history, results of physical examinations). The worksite assessment checklist covers 14 items (work characteristics, work-related risks, workplace characteristics). Data were gathered in two stages. In the first stage, data included in the questionnaire were collected when the children were present at the school. Their physical examinations assessed the objective and subjective findings, which were present in last 6-month period. In the second stage, nurse researchers visited children's workplaces, and work-related risks were recorded on the worksite assessment checklist.

3. Ethical Issue

Each child was explained the purpose of the study, the questions to be asked, and the examination to be performed. They were told that the obtained information would be kept confidential. Children who agreed to participate were interviewed. All questions asked by the children were answered. Physical examinations were attended and performed by physicians and nurses.

4. Data Analysis

The participants were divided into three groups (working as jewelers, car mechanics, hairdressers) to test for statistically significant differences between three groups. The chi-square test of Pearson and ANOVA were used to examine the differences among the three groups. *p* values below 0.05 were considered statistically significant. These analyses were performed with SPSS Version 10.0.

Results

1. Demographic Characteristics

The mean age of boys was 17.6 ± 1.2 yr (range: 15–21): 67.3% were primary school graduates, 24.6% were working as jewelers, 32.3% as car mechanics, and 43.1% as hairdressers. The income level of 70% of them was insufficient, with about 88 USD monthly incomes; 30.5% of the boys were working to supply additional incomes to their families.

2. Work Characteristics

It was found that hairdresser boys' mean worked years was 4.5 ± 1.9 yr, with 74.2 ± 2.6 h/wk and 14.7 ± 2.5 h/d. Hairdresser boys' daily work period is from 7 am to 7–9 pm. There are neither standard resting hours, they were generally given 10–15 min breaks twice a day, nor an exact job description. Their duties are mostly washing customers' hair, preparing hair dye material, dying and cutting hair, helping foreman, preparing drinks etc. for the customers, and doing the cleaning of the work place. Hairdresser boys service 20 customers daily on average.

It was found that car mechanic boys' mean worked years was 5.2 ± 2.2 yr, with 64.5 ± 10.4 h/wk and 12.6 ± 2.1 h/d. Their daily work period is from 8 am to 7–8 pm. They are given 30 min breaks twice a day and a one-hour lunch break. They have no exact job description. They are generally responsible for cleaning the workplace, assembling/dismantling machine parts, cleaning tools, and cleaning cars. Three to four cars are repaired in these workplaces daily.

Jeweler boys' mean worked years was 3.2 ± 2.0 yr, with 55.3 ± 17.3 h/wk and 10.9 ± 3.5 h/d. Their daily work period is from 9 am to 7 pm. They have no exact job description. Their duties are mostly cleaning, shaping, and processing ores such as gold and silver, and cleaning workplaces. They have 30 min break, twice a day.

Boys in all three work groups work five days a week (one day at school and one day off). Mean value of all boys' worked years is 4.5 ± 2.1 yr. Average daily working time is 13.1 ± 3.0 h and the average of weekly worked hours is 66.4 ± 16.6 h. Table 1 shows the comparisons of worked years, daily working time and worked h/wk between each occupation. Worked years of boys working as car mechanics were more than those working as

jewelers and hairdressers ($p=0.001$). Weekly and daily worked hours of boys working as hairdressers were more than those working as car mechanics and jewelers ($p=0.000$, $p=0.000$)

3. Workplace Characteristics and Work Related Risks

These data were gathered through the workplace observations of nurse researchers. Nurse researchers observed 167 workplaces. Hairdresser boys' workplaces are generally narrow and crowded, and their working environments are generally hot and noisy. Separate units for the boys to rest do not exist in these workplaces. They have lunch in their workplaces, and they are always standing during work. They are exposed to toxic chemicals of hair dyes, shampoos and cosmetics such as hydrogen peroxide, p-phenylenediamine, lanolin. They work with sharp tools such as scissors and razors, and 68% of them do not use protective equipment such as gloves and aprons.

Car mechanic boys work in one-level workplaces, where big car entrance doors are always kept open. Some of their work is performed outdoors and the doors are closed when it is extremely cold. Their working environments involve physical risks related to heating, air-conditioning, lighting and noise. They have no separate units in which to rest. They have lunch in their workplaces. These children, who always have to stand up during work, can only sit while dismantling parts. Besides, they work with toxic chemicals such as gasoline, fuel oil and mechanical greases. It was noted that 59.2% of the boys using sharp mechanical tools did not wear protective equipment such as masks, and gloves.

Jeweler boys work in enclosed spaces. Their pockets are searched by the security when entering and exiting the workplace as they work with precious ores. There are physical risks in their working environments, including heat, air-conditioning and lighting. They work with toxic chemicals such as nitric acid, hydrochloric acid, alkalis and sharp tools; 70.7% of them do not use gloves or goggles. They generally sit while working.

None of the three groups are receiving periodic examinations or risk assessments concerning their working environments.

Table 2 demonstrates the work-related risks of boys according to their occupation groups. There were no

Table 1. Worked hours and years of boys in each occupation (n=167)

Characteristics	Hairdresser (n=72)	Car mechanic (n=54)	Jeweller (n=41)	F value	p value
Worked years	4.5 ± 1.9	5.18 ± 2.2	3.2 ± 2.0	7.5	0.001
Worked hours (weekly)	74.2 ± 2.6	64.5 ± 10.4	55.3 ± 17.3	21.6	0.000
Worked hours (daily)	14.7 ± 2.5	12.6 ± 2.1	10.9 ± 3.5	28.0	0.000

Table 2. Work-related risks of boys in each occupation (in %) (n=167)

Risks	Hairdresser (n=72)	Car mechanic (n=54)	Jeweller (n=41)	X ² value	p value
Ergonomic	39.6	25.9	26.8		NS
Chemical	58.3	17.9	23.8	20.07	0.001
Physical					
Noise	23.6	35.2	26.8		NS
Safety					
Using sharp tools	35.1	48.9	16.0	27.9	0.000
Having accidents	28.0	52.4	19.5	30.2	0.000

p value was determined by Pearson chi-square, NS: Not significant

Table 3. Health problems of children in each occupation (in %) (n=167)

Health problems	Hairdresser (n=72)	Car mechanic (n=54)	Jeweller (n=41)	X ² value	p value
Skin	58.0	23.9	18.2	16.7	0.000
Eye	33.3	20.6	46.0	25.5	0.000
Ear	36.4	36.4	27.3		NS
Nose/Throat	24.6	60.7	35.5	35.4	0.000
Mouth/Teeth	19.4	29.6	12.2		NS
Respiratory system	60.9	26.4	12.6	27.5	0.000
Musculoskeletal system	31.7	53.3	15	19.09	0.001
Headache	75.0	16.7	8.3	39.2	0.000
Mental problems	55.6	42.6	41.5		NS

p value was determined by Pearson chi-square, NS: Not significant

statistically significant differences among groups as for ergonomic and noise risks. Chemical risks for boys working as hairdressers ($p=0.001$), and accidents related to using sharp equipment for boys working as car mechanics were more common than the other occupation groups ($p=0.000$, $p=0.000$). There were no significant differences between work-related risks, worked years, and worked hours.

4. Health Problems

The findings showed that 8.3% of the boys (n=14) had chronic diseases (asthma, hernia, renal calculus, epilepsy, hepatitis B, sinusitis, rheumatism). Table 3 demonstrates the health problems of the boys defined by the physicians through physical examinations. Boys working as hairdressers had more respiratory system problems such as coughing 23.6%, sinusitis 10.0%, dyspnea 18.1% ($p=0.000$). Skin problems such as itchiness 19.8%, redness 20.4%, swelling 10.5% ($p=0.000$), and headache 75% ($p=0.001$) were also more common than the other groups. Boys working as car mechanics had more conditions related to the nose/throat problems such as itchiness 16.7%, rhinitis 24.6%, pharyngitis 24.9%

($p=0.00$), and more musculoskeletal system problems such as back pain 29.6%, leg pain 30.5% ($p=0.001$) than the other groups. In boys working as jewelers, eye-related problems were more common, such as redness 22.4%, irritation 19.5%, myopia 9.8% ($p=0.000$), than the other occupation groups.

Ear-related findings were similar among the three occupation groups. The prevalence of ear-related symptoms in all three groups was 33.5%: flux 10.2%, pain 6.4%, ear-burning 8.2%, itchiness 10.0%. Although there was no significant correlation, mouth/teeth related symptoms were more common in car mechanics: tooth decay 25.6%, bleeding gum 5.6%. Mental problems were subjective findings defined by the definitions of the boys. Although there was no significant correlation between occupational groups, mental problems were more common in hairdresser boys: stress 50.6%, depression 6.9%. When the relation between the work related risks and health problems was studied, skin disorders were found to be significantly higher in boys using chemicals at work ($X^2=7.75$, $p=0.002$).

To discover their ideas about the effects of their jobs on their health, the boys were asked, "Do you think that

your job impairs your health?” and 20.9% answered affirmatively.

Discussion

The results of this study have demonstrated that most of the boys working as jewelers, car mechanics, and hairdressers in Istanbul, Turkey had work-related risks and health problems. These boys, whose mean age was 17.6 ± 1.2 yr, had been working for 4.5 yr on an average, which shows that they had been working since they were approximately 13 yr old. It was found that car mechanics had been working for more years compared with the other two groups ($p < 0.01$) (Table 1). By ILO convention no. 138, the minimum age to start working is defined as 15¹⁾. Moreover, according to a recently passed law in Turkey, the minimum age to start working is 14 yr²⁾. The boys were also found to work 66.4 h/wk on average. Besides, hairdresser boys were found to work more hours (74.2 h/wk) than the other two groups ($p < 0.001$) (Table 2). This result was astoundingly high, because in Turkey, the children who work and attend school once a week, are limited by law to work no more than 35 h/wk^{2, 7)}. This result reveals that children work twice as long as they are supposed to work. Boys' daily work hours were also found quite high. Moreover, daily rest intervals of the boys in all three groups were not enough. As a result of lacking a job description, they have to carry out whatever tasks they are given, regardless of tasks' being related to their jobs.

The majority of the boys (67.3%) had received only basic education. In a study by Canbaz, this rate was reported as 53.2%¹¹⁾. In Turkey, children, especially boys, are forced to work after completing basic education²⁾. As a matter of fact, 30.5% of the boys' motive in working was to economically support their families. One of the major reasons that push children to work in developing countries is the need to provide additional income for their family, which was similarly found to be one of the major reasons of child workers in Thailand¹³⁾.

Some studies in Turkey have reported that the families of working children have insufficient levels of income^{4, 11, 14, 15)}. Besides, children were found to earn very small amounts of money compared to the amount necessary to maintain life in Turkey.

Work-related risks were observed by nurse researchers in boys' workplaces that could potentially have adverse effects on health. These included chemical, ergonomic, and physical risks, (lighting, heat, noise, and air-conditioning) in all workplaces (Table 2). Moreover, no attempts to manage these risks were being carried out in these workplaces. Hair dyes, materials used in hairdressing, acetone, and such chemicals with toxic effects can result in health problems in the respiratory system and skin^{16, 17)}. In parallel to this information, the problems related to the respiratory system (60.9%) and

skin (58%) observed in the boys working as hairdressers were more common compared with the boys in the other two groups ($p < 0.001$, $p < 0.001$) (Table 3). Ocakçı reported the percentages of skin problems as 13%, and respiratory system problems as 35.2% in boys working in hairdressers¹⁴⁾. The findings of this study show that hairdresser boys have more skin and respiratory system related health problems. Using sharp tools (48.9%) and experiencing accidents (52.4%) were found significantly higher in boys working as car mechanics ($p < 0.001$, $p < 0.001$) (Table 2). Car mechanics work in workshops which have heavy-duty work programmes, and in which sharp tools are frequently used. Both using sharp tools and other factors (electrical tools, slippery surfaces, machinery parts, etc.) may lead to accidents. Çağdaş reported the rate of using sharp tools as 39.5%, and accident frequency as 26.9%¹⁵⁾. Though there were no significant differences, ergonomic and noise risks were found high in all three groups. Besides, nurse researchers observed that no preventative measures were being taken in the workplaces where the boys worked. That the boys made little use of personal protection devices was another striking result.

It was an expected result that boys, who work under the threat of the above-mentioned risks, would have health problems (Table 3). Eye-related problems (46%) were quite common in boys working as jewelers, as they were processing ores, such as gold and silver, with minuscule tools ($p < 0.001$). Nose and throat related health problems (60.7%) were more common in boys working as car mechanics ($p < 0.01$). This rate was also found high (67%) in the study by Firat⁴⁾. Musculoskeletal system problems (53.3%) were very common in boys working as car mechanics ($p < 0.01$). Prevalence of headache (75%) was astoundingly high in hairdressers ($p < 0.001$). That chemical smells and vapors cause headache has been demonstrated in various studies^{15, 17, 18)}. On the other hand, headache is a subjective finding and could be related to various other factors. Although there was no significant difference, mental problems were found higher among hairdressers. All three occupations are those in which a *traditional foreman—apprentice relationship* is still maintained. Children are expected to respect their foreman and do whatever they tell them. This stressful relationship and that the boys were in their puberty might have resulted in mental problems. On the other hand, Canbaz has demonstrated that 2.2% of the working children had high anxiety levels, and 1.4% of them experienced trait anxiety¹¹⁾. When the relation between the health problems of the boys and work-related risks is assessed, a significant relation was found only between chemical risks and skin disorders. One of the most important results of this study was that children were found not to consider their jobs risky for their health. This implies an educational requirement for the children.

Practice implication:

Primary prevention is necessary to inform young people during their attendance at the schools giving occupational education. Those with higher risks of developing an occupational disease should be informed about potential occupational risks, be explained the protective measures, and be offered counseling. Measures against work-related risks, such as ventilation, noise-prevention, maintenance of the used tools and machinery, and use of protective equipment should be taken in workplaces. To ensure this, employers must be provided with a training programme on prevention measures for working children, probably even in the definition of prevention policy.

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