

# Epidemiology and hazards of student labour in Mansoura, Egypt

A-H. El-Gilany,<sup>1</sup> A-H. Khalil<sup>1</sup> and A. El-Wehady<sup>1</sup>

نَشْيُ ظاهرة عمل طلاب المدارس في المنصورة، بمصر، ومخاطرها  
عبد الهادي الجليلاني، عبد الحليم خليل، عادل الوهيدي

**الخلاصة:** قام الباحثون بإجراء دراسة متعدّدة المقاطع، شملت 1293 من الطلاب المسجّلين في المدارس الثانوية الحكومية بمدينة المنصورة، في مصر، وذلك لتحديد مدى انتشار ظاهرة عمل طلاب المدارس، والأسباب الكامنة وراءها، والآثار المترتبة عليها. وقد أفاد 8.6% من هؤلاء الطلاب أنهم يعملون على مدار العام، و27.5% منهم أنهم يعملون في الصيف. كما تبين أن غالبيتهم يعملون  $\leq 6$  ساعات يومياً. وجاء تدني الوضع الاجتماعي، والدراسة في مدرسة مهنية، وكون الطالب ذكراً، وكبر حجم العائلة، والإقامة في الريف، من المنبئات التي يُعتدُّ بها، لعمل طلاب المدارس. وأوضحت الدراسة انتشار المخاطر في أماكن العمل، وتعرض هؤلاء الطلاب للإصابة وللعقاب البدني، كما أوضحت أن لعملهم تأثيراً سلبياً على تحصيلهم الدراسي، وعلى حياتهم الاجتماعية. ويمثّل الإسهام في تحسين دخل الأسرة السبب الرئيسي وراء عمل الطلاب.

**ABSTRACT** To determine the prevalence of student labour, underlying causes and impacts, we carried out a cross-sectional study on 1293 students enrolled in government secondary schools in Mansoura. Year-round work was reported by 8.6% of students and summer work by 27.5%. The majority worked for  $\geq 6$  hours/day. Lower social status, attending vocational school, male sex, large family size and rural residence were significant predictors of student labour. Hazards at the workplace, injuries and corporal punishment were prevalent among working students. Work adversely affected education and social life. Contribution to family income was the main reason for working.

## Épidémiologie et risques liés au travail étudiant à Mansoura (Égypte)

**RÉSUMÉ** Afin de déterminer la prévalence du travail étudiant, ses causes sous-jacentes et son impact, nous avons procédé à une étude transversale portant sur 1293 étudiants inscrits dans les écoles secondaires publiques de Mansoura. Un travail à l'année a été déclaré par 8,6 % des étudiants et un travail d'été par 27,5 %. Pour la majorité d'entre eux, la durée quotidienne du travail était de 6 heures ou plus. Un statut social inférieur, une scolarité dans un lycée professionnel, le sexe masculin, une famille nombreuse et une résidence en milieu rural sont apparus comme les variables explicatives majeures du travail étudiant. Les conditions de travail dangereuses, les accidents du travail et les punitions corporelles prévalaient chez les étudiants travailleurs. Le travail s'est avéré avoir un impact négatif sur le niveau scolaire et la vie sociale. La contribution au revenu familial était le principal motif évoqué pour justifier le travail étudiant.

<sup>1</sup>Department of Community Medicine, Faculty of Medicine, Mansoura University, Mansoura, Egypt  
(Correspondence to A-H. El-Gilany: ahgilany@hotmail.com).

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## Introduction

Egyptian labour law No. 137 prohibits children 12 years old or younger from working under any condition. Egypt's child law of 1996 raised the minimum work age from 12 years to 14 years but permitted provincial governors, with the consent of the Minister of Education, to allow children aged 12–14 years to be employed in seasonal agricultural work that is not hazardous and does not interfere with their education [1]. In April 2001, the Deputy Prime Minister and the Minister of Agriculture and Land Reclamation Affairs issued Ministerial Decree No. 1454 making it illegal to employ children below the age of 14 years in agriculture. Egypt's constitution mandates that education should be free for all children. Education laws stipulate compulsory basic education through the 8th grade (9th since 2004) and require children to attend school until they reach the age of 15 years [1].

The minimum working age is lower than the required age for compulsory education. In Egypt, more than half the children who work also attend school [2]. Many Egyptian government schools operate a schedule of up to 3 shifts (4 hours each approximately) a day—morning, afternoon and early evening—mainly due to constrained resources. Thus, in a way, the education system seems to accommodate dual activities of children. It seems appropriate, therefore, to examine the joint determinants of attending school and working. Employers may prefer students as employees because their age makes them cheaper, more obedient, easier to manage and less aware of their rights. They also escape from the requirement to pay employment insurance when they employ juveniles.

Over the past 2–3 decades, an increasing number of young people who combine study at school with employment outside

school hours has been widely observed in many countries. While the trend has been well recognized, its implications have frequently been overlooked [3]. Consideration of the phenomenon gives rise to a number of questions about the incidence, nature and potential effects of work among teenage school students.

It is important to identify which students are most likely to have jobs and to assess the effects of employment. Personal characteristics of the student as well as family and educational factors all have an influence on whether the student will work [3]. It also appears that the restructuring that has taken place in the Egyptian economy and increases in the cost of living over the past few years have affected employment opportunities and increased the phenomenon of student work.

In Egypt, there have been many studies on the phenomenon of child labour, but none of the studies concentrated on student labour as a separate phenomenon. This study aimed to estimate the prevalence of student labour in Mansoura (either year-round or summer work), its underlying causes and the health, educational and social impacts. Work hazards and conditions as well as students' attitudes towards work were also highlighted.

## Methods

This was a cross-sectional study carried out during the period November 2003–April 2004 in Mansoura, the capital of Dakahlia governorate, Egypt, located on the river Nile in the northeast of the Delta. Approval of the local directorate of education and school administration was obtained. The survey was carried out among secondary school children enrolled in general and vocational government schools.

Secondary schools in both education zones (eastern and western zones) in Mansoura as well as the rural sector were included. One general secondary school for girls and 1 for boys were randomly selected from each zone (i.e. 4 general schools in the urban sector) as well as 1 mixed school from the rural sector. Five vocational schools (1 commerce school for boys and 1 for girls; 1 industrial school for boys and 1 for girls and 1 mixed agricultural school) and 1 nursing school were selected from Mansoura city. This distribution covered all social strata and both sexes, and included the urban and rural sectors of the community.

From each selected school, 1 class (cluster) from each grade was randomly selected, i.e. 33 classes in all, 11 from each grade in secondary school. A total of 1314 students were registered in these classes and 1293 (98.4%) participated in the study. The others were either absent (18, 1.4%) or refused to complete the questionnaire (8, 0.15%).

With the consent of the school authorities, the investigators spent 45–60 minutes in each class. Students were briefed about the study, encouraged to participate and to express their experiences. It was emphasized that all data collected was strictly confidential. The students gave fully informed verbal consent to participate. They were then asked to complete a self-administered questionnaire on personal and family background; self-reported work during the previous year; type of work; reasons; health, social and educational effects; and their opinions regarding student labour.

The social score was calculated according to Fahmy and El-Sherbiny [4].

Weight and height were measured. Quetelet's body mass index was used to measure the degree of obesity. Obesity was defined as  $BMI \geq 30 \text{ kg/m}^2$  [5].

The questionnaire was constructed with the aid of previous studies in child labour.

It was pre-tested on 30 students of the same age from a school not included in the study. Some questions were changed or removed because they were not clear to students.

Sample size was calculated using *Epi-Info*, version 6.02. The total number of students registered in the secondary schools of Mansoura district was 600 000 (according to the directorate of education). The pilot study indicated that about 40% of students were working either all the year or in summer work. With the worst acceptable level 30%, the sample needed for the study was estimated to be at least 1116 at 95% confidence level.

Data were analysed using *SPSS*, version 10. For qualitative data, chi squared or Fisher's exact test was used for comparison between groups, as appropriate. Odds ratio and 95% confidence interval were calculated. For quantitative data, the unpaired Student *t*-test was used for comparison between groups. Factors significant on univariate analysis were entered into multivariate logistic regression analysis.  $P < 0.05$  was considered significant.

## Results

Age range of the participants was 13–18 years. The proportion of students who worked during the year prior to the study was 36.1%, 8.6% in year-round work and 27.5% in summer work. Student labour was significantly higher among those enrolled in industrial or agricultural school, those older than 15 years, male students, students from rural areas, those whose parents were less educated or who had non-professional jobs, students belonging to families with low social status or low income, students from large families and those from single parent families (Table 1).

Table 1 Univariate analysis of predictors of student work

Predictor	Not working		Year-round work			Summer work		
	No.	%	No.	%	OR (95% CI)	No.	%	OR (95% CI)
<i>Overall</i>	826	63.9	111	8.6		356	27.5	
<i>School</i>								
General <sup>a</sup>	435	77.3	18	3.2	1	110	19.5	1
Industrial	43	26.5	40	24.7	22.5 (11.4–44.9)*	79	48.8	7.3 (4.6–11.4)*
Agricultural	122	46.0	40	15.1	7.9 (4.2–15.0)*	103	38.9	3.3 (2.4–4.7)*
Commercial	150	75.0	10	5.0	1.6 (0.7–3.8)	40	20.0	1.1 (0.7–1.6)
Nursing	76	73.8	3	2.9	1.0 (0.2–3.5)	24	23.3	1.3 (0.7–2.1)
<i>Age (years)</i>								
< 15 <sup>a</sup>	107	80.5	3	2.3	1	23	17.3	1
15+	719	62.0	108	9.3	5.4 (1.6–21.5)*	333	28.7	2.2 (1.3–3.5)*
<i>Sex</i>								
Male <sup>a</sup>	244	42.4	91	15.8	1	241	41.8	1
Female	582	81.2	20	2.8	0.1 (0.1–0.2)*	115	16.0	0.2 (0.2–0.3)*
<i>Residence</i>								
Rural <sup>a</sup>	346	56.2	65	10.0	1	239	36.8	1
Urban	480	74.7	46	7.2	0.5 (0.03–0.8)*	117	18.2	0.4 (0.3–0.5)*
<i>Birth order</i>								
1st <sup>a</sup>	262	70.2	25	6.7	1	86	23.1	1
2nd or 3rd	419	61.8	61	9.0	1.5 (0.9–2.6)	198	29.2	1.4 (1.1–2.0)*
4th+	145	59.9	25	10.3	1.8 (1.0–3.4)	72	29.8	1.5 (1.0–2.2)
<i>Father's occupation<sup>b</sup></i>								
Farmer <sup>a</sup>	69	54.3	14	11.0	1	44	34.6	1
Professional & semi-professional	353	79.7	18	4.1	0.3 (0.1–0.6)*	72	16.3	0.3 (0.2–0.5)*
Manual worker	260	53.8	54	11.2	1.0 (0.5–2.1)	169	35.0	1.0 (0.7–1.6)
Trade & business	72	62.6	13	11.3	0.9 (0.4–2.2)	30	26.1	0.7 (0.4–1.2)
Other	29	56.9	5	9.8	0.9 (0.2–2.9)	17	33.3	0.9 (0.4–1.7)
<i>Father's education<sup>b</sup></i>								
Illiterate <sup>a</sup>	159	50.8	46	14.7	1	108	34.5	1
< Secondary	173	53.2	29	8.9	0.6 (0.3–1.0)	123	37.8	1.1 (0.7–1.5)
Secondary	155	64.6	22	9.2	0.5 (0.3–0.9)*	63	26.3	0.6 (0.4–0.9)*
> Secondary	296	86.8	7	2.1	0.1 (0.03–0.2)*	38	11.1	0.2 (0.1–0.3)*
<i>Mother's occupation<sup>b</sup></i>								
Housewife <sup>a</sup>	522	57.0	99	10.8	1	295	32.2	1
Professional & semi-professional	258	84.9	8	2.6	0.2 (0.1–0.4)*	38	12.5	0.3 (0.2–0.4)*
Other	35	67.3	1	1.9	0.2 (0.01–1.04)	16	30.8	0.8 (0.4–1.5)
<i>Mother's education<sup>b</sup></i>								
Illiterate <sup>a</sup>	288	49.3	74	12.7	1	222	38.0	1
< Secondary	114	59.7	17	8.9	0.6 (0.3–1.1)	60	31.4	0.7 (0.5–1.0)
Secondary	168	75.7	13	5.9	0.3 (0.2–0.6)*	41	18.5	0.3 (0.2–0.5)*
> Secondary	241	88.9	4	1.5	0.1 (0.02–0.2)*	26	9.6	0.1 (0.1–0.2)*

Table 1 Univariate analysis of predictors of student work (concluded)

Predictor	Not working		Year-round work			Summer work		
	No.	%	No.	%	OR (95% CI)	No.	%	OR (95% CI)
<i>Family structure</i>								
Single parent <sup>a</sup>	56	53.8	15	14.4	1	33	31.7	1
Both parents	770	64.8	96	8.1	0.5 (0.2–0.9)*	323	27.2	0.7 (0.4–1.1)
<i>Family size</i>								
< 6	386	72.7	28	5.3	1	117	22.0	1
6+	440	57.7	83	10.9	2.6 (1.6–4.2)*	239	31.4	1.8 (1.4–2.3)*
<i>Family income</i>								
Expenses met <sup>a</sup>	558	63.9	78	8.9	1	237	27.1	1
Expenses not met	119	50.4	30	12.7	1.8 (1.1–2.9)*	87	36.9	1.7 (1.2–2.4)*
Able to save	149	81.0	3	1.6	0.14 (0.04–0.5)*	32	17.4	0.5 (0.3–0.8)*
<i>Social status<sup>c</sup></i>								
High <sup>a</sup>	258	89.9	2	0.7	1	27	9.4	1
Middle	144	73.5	12	6.1	10.8 (2.2–70.5)*	40	20.4	2.7 (1.5–4.7)*
Low	90	59.2	18	11.8	25.8 (5.6–164.3)*	44	28.9	4.7 (2.7–8.3)*
Very low	334	50.8	79	12.0	30.5 (7.3–181.9)*	245	37.2	7.0 (4.5–11.0)*

OR = odds ratio; CI = confidence interval.

<sup>a</sup>Reference group.

<sup>b</sup>74 fathers and 25 mothers were dead and were excluded.

<sup>c</sup>Based on Fahmy and Sherbiny [4].

\*Significant in comparison to reference group.

Logistic regression analysis indicated that type of school, sex, family size, residence and social status of the family were independent predictors of student labour (Table 2).

Prevalence of health impacts, smoking and substance abuse were significantly higher among working students. On the other hand, there was no significant difference for weight, height and body mass index (Table 3).

We found that 21.6% of students working year-round and 33.1% of those working only in the summer reported no work hazards (Table 4). The most frequently cited hazards were sharp instruments/machines, noise, smoke/vapour and high temperature. Among students who did year-round work, 61.3% reported no work injuries or diseases during the year prior to the study; this figure was 82.9% for students who worked in

the summer. The most frequently reported work injuries/diseases were skin diseases, falls, cuts and schistosomiasis. Corporal punishment by the employer was reported by 55.0% of students working all year round and 62.1% of summer workers.

Working students, doing year-round or summer work, reported that work adversely affected their education (frequent school absenteeism, grade repetition, lack of time for study) and social life (lack of opportunity for practising hobbies and sports, enjoying leisure time and participating in social and family events, inadequate sleep, inadequate rest time) (Table 5). Exposure to violence and sexual harassment were more frequently reported by working than non-working students.

The mean age for starting work was 11.1 years for year-round workers and 11.9 years for those working in the summer.

Table 2 Multivariate logistic regression analysis of significant predictors of student work

Predictor	Year-round work			Summer work		
	$\beta$	<i>P</i>	OR (95% CI)	$\beta$	<i>P</i>	OR (95% CI)
<i>School</i>						
General <sup>a</sup>	–		1	–		1
Industrial	1.1	0.01	2.9 (1.3–6.7)	0.6	0.03	1.9 (1.05–3.3)
Agricultural	0.1	0.76	1.1 (0.5–2.4)	–0.2	0.4	0.8 (0.5–1.3)
Commercial	0.2	0.73	1.2 (0.4–3.6)	–0.2	0.5	0.8 (0.5–1.4)
Nursing	0.1	0.88	1.1 (0.04–0.3)	–0.04	0.9	1.0 (0.5–1.8)
<i>Sex</i>						
Male <sup>a</sup>	–		1	–		1
Female	–2.3	< 0.001	0.1 (0.04–0.3)	–1.6	< 0.001	0.2 (0.13–0.3)
<i>Family size</i>						
< 6 <sup>a</sup>	–		1			
6+	0.6	0.04	1.8 (1.03–3.1)			
<i>Residence</i>						
Rural <sup>a</sup>				–		1
Urban				–0.5	0.003	0.6 (0.4–0.8)
<i>Social status<sup>b</sup></i>						
High <sup>a</sup>	–		1	–		1
Middle	2.3	0.005	9.8 (2.0–48.7)	0.9	0.005	2.4 (1.3–4.5)
Low	3.1	< 0.001	22.6 (4.6–110.5)	1.4	< 0.001	4.0 (2.0–7.7)
Very low	3.1	< 0.001	21.3 (4.7–97.3)	1.7	< 0.001	5.5 (3.1–9.9)
<i>Constant</i>			–4.3			–1.1
<i>Correctly predicted</i>			89.1%			77.2%
<i>Model <math>\chi^2</math></i>			197.4, <i>P</i> < 0.001			277.4, <i>P</i> < 0.001

OR = odds ratio, CI = confidence interval.

<sup>a</sup>Reference group.

<sup>b</sup>Based on Fahmy and Sherbiny [4].

About 50% of working children worked for  $\geq 6$  hours per day. Contribution to family income was the leading grounds for student labour, and in the majority of cases parents chose the type of work; the main field of work was the industrial and building construction sectors. Among the children in paid employment, 55.1% of those working all year round and 70.9% of those working in the summer reported that parents took their wages (Table 6.).

Working students reported being satisfied with their work in 51.4% of cases for

year-round workers and 26.1% of cases for summer workers; 80.2% of year-round workers and 45.5% of summer workers said they would continue in the same type of work after leaving school (Table 7.)

Very few working students had written contracts with employers, medical check-ups or paid sick leave. Protective clothing was available at the workplace for 19.8% of students working all year round and 7.0% of those working in summer; the figures for availability of emergency kits at the work-

Table 3 Health impact of student labour

Variable	Not working (n = 826)		Year-round work (n = 111)			Summer work (n = 356)		
	No.	%	No.	%	P	No.	%	P
<i>Present complaint<sup>a</sup></i>								
None	752	91.0	73	65.8	< 0.001	288	80.9	< 0.001
Back pain	22	2.7	18	16.2	< 0.001	19	5.3	0.02
Fatigue/weakness	43	5.2	36	32.4	< 0.001	56	15.7	< 0.001
Visual disorder	11	1.3	12	10.8	< 0.001	21	5.9	< 0.001
Hearing disorder	2	2.4	2	1.8	0.07	3	0.8	0.16
Loss of appetite	17	2.1	3	2.7	0.7	9	2.5	0.6
Chronic diarrhoea	3	0.4	6	5.4	< 0.001	11	3.1	< 0.001
Bronchial asthma	6	0.7	13	11.7	< 0.001	12	3.4	< 0.001
Rheumatic heart	2	0.2	1	0.9	0.3	2	0.6	0.35
Skin problems	35	4.2	32	28.8	< 0.001	41	11.5	< 0.001
Fear/loss of interest	26	3.1	34	30.6	< 0.001	54	15.2	< 0.001
Chronic headache	99	12.0	20	18.0	0.07	6	1.6	< 0.001
Other <sup>b</sup>	2	0.2	4	3.6	0.002	61	17.1	< 0.001
<i>Tobacco use</i>								
Cigarettes	101	12.2	28	25.2	< 0.001	73	20.5	< 0.001
Goza/shisha	31	3.7	15	13.5	< 0.001	39	11.0	< 0.001
Substance abuse <sup>c</sup>	8	1.0	6	5.4	0.003	8	2.2	0.1
	<b>Mean (SD)</b>		<b>Mean (SD)</b>			<b>Mean (SD)</b>		
<i>Anthropometric measurement</i>								
Weight (kg)	61.9 (14.0)		62.4 (14.1)			62.5 (13.2)		
Height (cm)	164.5 (37.2)		165.7 (17.8)			165.9 (12.3)		
Body mass index	22.8 (4.5)		22.2 (3.4)			22.5 (4.1)		

<sup>a</sup>At the time of the study. Figures are not additive.

<sup>b</sup>Varicocele, varicose veins, splenomegaly, inguinal hernia, etc.

<sup>c</sup>Includes heroin and cannabis.

place were 32.4% and 35.7% respectively (Table 8).

## Discussion

The pattern of mixing education and work is widespread; in Australia for example, substantial numbers of secondary school students have a paid job [6]. The transition from school to work has become complicated and protracted, and student employment now represents an important path in the transition process. The growth in flex-

ible employment has provided opportunities for students to combine work and study. Engagement in employment while still in education is an important experience among a substantial proportion of young people making the transition from school to work, and emphasizes the blurring of the boundary between school and work [7,8].

In the year prior to our study, more than one-third of the secondary school students we studied were involved in a variety of jobs, paid or unpaid. More than one-quarter of them were summer workers and 8.6%

Table 4 Hazards of work exposure

Hazard	Year-round work (n = 111)		Summer work (n = 356)	
	No.	%	No.	%
<i>Work hazard<sup>a</sup></i>				
None	24	21.6	118	33.1
Sharp instruments/ machines	44	39.6	78	21.9
Noise	39	35.1	109	30.6
High temperature	20	18.0	61	17.1
Smoke/vapour	17	15.3	8	2.2
Exposed electric wire	11	9.9	5	1.4
Chemical/pesticides	9	8.1	3	0.8
Bad odour	7	6.3	11	3.1
Dust	5	4.5	10	2.8
<i>Work injuries/diseases<sup>a</sup></i>				
None	68	61.3	296	83.1
Corporal punishment by employer	61	55.0	221	62.1
Skin diseases <sup>b</sup>	38	34.2	59	16.6
Falls	28	25.2	13	3.7
Cuts	18	16.2	39	11.0
Schistosomiasis	18	16.2	39	11.0
Foreign body in the eye	17	15.3	41	11.5
Animal bite/kick	13	11.7	6	1.7
Burns/scalds	10	9.0	28	7.9
Fracture/contusion	9	8.1	2	0.6
Other <sup>c</sup>	7	6.3	13	3.7
Sun stroke	5	4.5	2	0.6
Electric shock	4	3.6	8	2.2

<sup>a</sup>Figures are not additive.

<sup>b</sup>*Tinea pedis, eczema, pigmentation, scarring.*

<sup>c</sup>*Allergic rhinitis, finger/toe amputation, suffocation, organophosphorus poisoning, etc.*

were year-round workers. In Egypt, to the authors' knowledge, there have been no similar studies to compare with. However, other Egyptian studies have shown that substantial proportions (up to 57%) of working children were also attending school [2,9–11]. In Australia, close to 15% of working university students combine work and study [6]; 78% of full-time students have some paid employment and 72.5% have paid employment during semester [12]. Another Australian study found that over 21% of

14-year-old students were working part time. This rose to more than 35% of 17-year-olds [3]. In a study in Norwich, UK, 85% of students were in paid employment and many of those who were not working would like to have been [13]. In the UK, over 60% of students had been employed at some time during the academic year, and 46% had worked during time-term [14]. It was estimated that in 1988 the labour force participation rates among school students in Australia, Canada, Denmark, the United



Table 5 Educational and social impact of student labour

Variable	Non-working (n = 826)		Year-round work (n = 111)			Summer work (n = 356)		
	No.	%	No.	%	P	No.	%	P
<i>Education</i>								
Not enough time for study/ homework	33	4.0	53	47.7	< 0.001	16	4.5	0.7
Frequent school absenteeism	48	5.8	17	15.3	< 0.001	26	7.3	0.3
Participation in extra- curricular school activities <sup>a</sup>	401	48.5	10	9.0	< 0.001	180	50.6	0.5
Grade repetition	16	1.9	9	8.1	< 0.001	22	6.2	< 0.001
<i>Social</i>								
Exposure to violence	168	20.3	53	47.7	< 0.001	137	38.5	< 0.001
Verbal sexual harassment	31	3.8	53	47.7	< 0.001	51	14.3	< 0.001
Adequate sleep	805	97.5	25	22.5	< 0.001	306	86.0	< 0.001
Participation in social & family events <sup>b</sup>	605	73.2	23	20.7	< 0.001	198	55.6	< 0.001
Practice of sports	503	60.9	19	17.1	< 0.001	111	31.2	< 0.001
Practice of hobbies	663	80.3	11	9.9	< 0.001	182	51.1	< 0.001
Enjoy leisure time/holidays	801	97.0	8	7.2	< 0.001	272	76.4	< 0.001
Adequate rest time	811	98.2	6	5.4	< 0.001	242	68.0	< 0.001

<sup>a</sup>Trips, sports, competitions, student union, art exhibition, wall magazine, etc.

<sup>b</sup>Parties, ceremonies, religious events, etc.

Kingdom (UK) and the United States of America ranged from 36.7% to 51.7%. The rate was around 5% in France and Germany [15]. In a Canadian study, student employment increased from 50% in the mid 1980s to 60%–70% at the end of the decade [16]. In Ghana, 19% of the total number of children worked and studied; 66% of children who were working were also going to school [17].

In Egypt, nearly all young students live with their parents and are dependent on them. However, economic and social pressures have increasingly encouraged combining study and work. A combination of economic and social factors has been cited as being responsible for the increasing prevalence of child labour [18]. Some theorists have claimed the existence of a so-called “culture of poverty”, which passes on through the generations, conditioning

children so that they are unable to escape its influence [19]. The results of this study confirm this statement. The rate of student labour, whether year-round or summer work was more frequent among students belonging to families of low socioeconomic standard and low income. Almost all child labour studies conducted in Egypt highlight family poverty as the main reason for school students entering the work force [2,9–11]. In contrast, in Australia, it has been reported that increasing family income and wealth was positively associated with a higher probability of student work [3,20,21]. In non-Arab societies, young people may be more independent and free thinking. As they go through high school, they learn to take on more responsibility, to take the initiative and independence [22]. Young people may choose to participate in both study and work to provide a source of personal (not family,

Table 6 Work conditions of working students

Variable	Year-round work (n = 111)		Summer work (n = 356)	
	No.	%	No.	%
<i>Age at starting work (years)</i>				
6–	7	6.3	17	4.8
8–	14	12.6	37	10.4
10–	52	46.8	173	48.6
12–	38	34.2	129	36.2
Mean (SD)	11.1 (2.4)		11.9 (4.1)	
<i>Working hours per day</i>				
≤ 6	39	35.1	89	25.0
> 6	55	49.5	199	55.9
Variable	17	15.3	68	19.1
<i>Reasons for working<sup>a</sup></i>				
Contribute to family income	59	53.2	143	40.2
Help father/mother	30	27.0	114	32.0
Learn a profession	28	25.2	78	21.9
Parent's wish	11	9.9	39	11.0
Own interest	10	9.0	18	5.1
Unspecified	5	4.5	31	8.7
<i>Who chose type of work?</i>				
Parents	88	79.3	239	67.1
Student	18	16.2	85	23.9
Only available work	5	4.5	32	9.0
<i>Type of work</i>				
Industrial	46	41.4	91	25.6
Building construction	29	26.1	105	29.5
Sales & trades	17	15.3	44	12.4
Domestic work <sup>b</sup>	10	9.0	66	18.5
Agriculture/animal husbandry	9	8.1	50	14.0
<i>Work owner</i>				
Family	14	12.6	68	19.1
Others	97	87.4	288	80.9
<i>Wages</i>				
Paid work	98	88.3	289	81.4
Unpaid work	13	11.7	67	18.6
<i>Who takes the wages?<sup>c</sup></i>				
Child	54	55.1	205	70.9
Father and/or mother	44	44.9	84	29.1
Work shifts	38	34.2	139	39.0

<sup>a</sup>Figures are not additive.

<sup>b</sup>Cooking, laundry, cleaning, caring for younger siblings and/or old/sick family members.

<sup>c</sup>Among those with paid work; n = 98 for year-round work and n = 289 for summer work

SD= standard deviation

**Table 7 Subjective opinions and satisfaction of working students regarding their work**

Variable	Year-round work (n = 111)		Summer work (n = 356)	
	No.	%	No.	%
Will continue in same type of work after graduation	89	80.2	162	45.5
Good relations with employer	79	71.2	221	62.1
Work in general hazardous to children	59	53.2	239	67.1
Satisfied with job	57	51.4	93	26.1
Job is suitable for students	53	47.7	185	52.0
School curriculum contributed to work performance	42	37.8	212	59.6
Wage is suitable <sup>a</sup>	42	42.9	66	22.8
Work affect student's health	35	31.5	103	28.9
Working hours are suitable	33	29.7	149	41.9
Ever changed their work	28	25.2	217	61.0
Child work is formal	16	14.4	75	21.1

<sup>a</sup>Among those with paid work; n = 98 for year-round work and n = 289 for summer work.

as is the situation in Egypt) income, and therefore a certain level of independence as well as work experience, which may enhance future employment prospects.

The relationship between family background and child labour is fairly established

in empirical literature [2]. In our study, low level of parents' educational attainment was an important factor in increasing the likelihood of children working. This is in agreement with other studies [2,3,9-11].

**Table 8 Employees' rights and benefits for working students**

Benefit	Year-round work (n = 111)		Summer work (n = 356)	
	No.	%	No.	%
Paid sick leave	1	0.9	0	–
Medical check-up on starting work	2	1.8	0	–
Written contract with employer	5	4.5	1	0.3
Annual/periodic medical check-up	10	9.0	0	–
Training before starting work	13	11.7	17	4.8
Protective clothing available at workplace	22	19.8	25	7.0
Emergency kits available at workplace	36	32.4	127	35.7
Provision of meals at work	43	38.7	139	39.0
Break during working hours	52	46.8	201	56.5

In agreement with our findings, almost all studies show that males and older children are more likely to be economically active in the labour market. The effect of sex on schooling is, however, more country specific and culturally dependent. Girls in particular are likely to be called upon to help in domestic activities and to help with looking after younger siblings [2,3,9-11]. This study revealed that student labour, especially during summer vacation, was more frequent in rural than urban areas where children tend to work seasonally in agriculture with their families [2,3,9-11].

Students in vocational schools, most of whom belong to poor families, were more likely to be employed than those in general secondary schools [9]. In Egypt, vocational education is an end stage, so many students link education and working in related fields as a training and guarantee for future employment as completing education is no longer the ticket to a job [9]. It is likely that students in general secondary education have little time for work, which may interfere with their educational performance. It has been argued that a student who has high educational aspirations might be more likely to shun a job, regarding it as an unwelcome diversion from study [3].

In the present study, the main causes of student labour were to contribute to family income, to help father/mother and to learn a profession. Other studies on child labour reported the same factors as well as school failure [9-11,23-25]. The majority of the students in our study worked in the industrial, building construction, sales and trades sectors. Others have reported similar findings in Egypt and other countries [6,9-11,13,25]. Contrary to our findings, Wahaba reported that three-quarters of working rural children were engaged in agriculture as unpaid family work [2]. Certain types of work are gender biased.

Boys tend to work outdoors or in physical labour; girls, on the other hand, tend to work in the domestic sphere and what are perceived to be protected environments in or near the home, e.g. domestic service and family-based agriculture. They are also expected to care for younger siblings and sick family members.

Egyptian child labour law bans the employment of children who are under 14 years of age. It also prohibits children from working over 6 hours a day. Children are required to take one or more breaks totaling at least 1 hour during a work shift [1,11]. This legislation is difficult to enforce completely because nearly all students work in the informal sectors or in family enterprises [2]. Many Egyptian studies on child labour have reported similar findings to ours regarding proportion of those < 15 years working and age at starting work [9-11,25]. About half the working students worked for more than 6 hours/day and only one third considered their working hours suitable. Several studies on child labour in Egypt have reported longer working hours [9-11,25,26].

In the majority of cases parents chose the type of work for their child. This is in agreement with other studies [9-11,25]. A household decides whether a child works and thereby improves its current income and whether he/she attends school and hence invests in human capital. It is assumed that the decision is based on a comparison of the discounted future stream of benefits and costs of education and work [2]. Many parents are generally in favour of adolescent work as they believe that it fosters development of personal and social responsibility and eases the transition from adolescence to adulthood [27]. Furthermore, there is a link between student working and subsequent success in finding full-time work [28].

The majority of students were in paid work as they are working in non-family

settings. Among those with paid work, more than half retained the wages themselves but less than half saw their wage as suitable. Similar findings were previously reported in Egypt [9–11,25] and other countries [6,17]. Slightly more than one-third of working students did shift work, which may allow students to earn money without interfering with school time.

In our study, only a few of the working students had written contracts, medical check-ups or paid sick leave. In a UK study, about half the working students did not have written contracts, leaving them open to abuse as well as being forced to work extra hours for no pay; many missed out on sick pay and holiday pay [29]. Only few of the students in our study received previous training before joining work, as reported by others [9–11,25].

Although the majority of working students in our study had good relations with employers, considered their work suitable for students and would continue in the same job after graduation, job satisfaction was low. A substantial proportion had changed their work and saw child work as casual. This is in agreement with others [9–11,25]. It has been postulated that students frequently change their job until they find a regime that suits their situation [22].

The majority of working students stated that work was hazardous to children and could affect students' health: more than two-thirds reported  $\leq 1$  health hazard at work, most frequently sharp instruments/machines, noise, high temperature and smoke/vapour. Similar hazards have been reported with varying frequency among working children in previous studies [9–11,25]. In a study from England, more than a third of working students reported health and safety problems, ranging from unsafe working practices to actual injury [29]. Adolescent workers tend to be employed in

the poor quality services sector, and this is considered to be insecure [30]. A Finnish study also indicated that adolescents tend to face adverse working conditions that involve stress and danger, resulting in a higher incidence of injury compared with adults [31]. In our study, despite the high prevalence of work hazards reported by the working students, only a small proportion reported work injuries or diseases during the previous year. This may be a result of underreporting: students may not be aware of the link between work and injury. Even those who suffer an accident at work may feel that this is their own fault for being clumsy or bad at their job. As in other studies, the most frequent work injuries/diseases reported were skin diseases, falls, foreign body in the eye and cuts [9–11,25,32,33]. In 1991, a Greater Cairo study found that 43% of working children had sustained injuries more than once [34]. Adolescents are usually scheduled to work only during periods characterized by a heavy workload which is itself a major predictor of work injuries [35]. Furthermore, they rarely receive training, particularly ongoing training in health and safety [36].

In this study most of the working students were exposed to corporal punishment by employers. In addition, exposure to violence and verbal sexual harassment were significantly more reported by working than non-working students. Occupational violence is most commonly found in jobs where few employees are on site, they have face-to-face contact with customers and exchange money with them, and they trade at night [37]. A UK study reported that almost half the adolescent workers were exposed to occupational violence in the form of verbal abuse; a further 7.6% were threatened and 1% were assaulted on the job [38].

We also found that acute and chronic complaints (other than work injuries and

diseases), smoking and substance abuse were reported significantly more by working than non-working students. This is in agreement with others [9–11,25]. However, as reported previously, there was no significant difference regarding anthropometric measures [9]. This could be because some working students may have been able to buy food from their wages; moreover, a majority of the working children attended vocational schools, most of which provide a meal for the students. In contrast to our findings, some studies reported varying degrees of malnutrition among working children [11,25,39].

There were some limitations to this study. Some students were quite young and their perception of the work hazards may not have been accurate. The questions were, however, explained to students and they were encouraged to discuss unclear points with the researchers. In addition, the researchers did not visit the work sites to check for hazards. This was impossible due to the wide geographical spread of the sites and the fact that many students work at home or in family farms and enterprises.

Our findings indicate that student labour has a profound effect on education and achievement: school absenteeism, grade repetition and not enough time for studying were more frequently reported by those doing year-round work than non-working students. Unpaid work sometimes had a greater impact than paid work on the time available for study. Inadequate income and work stress and injuries may affect student health; that in turn can affect academic performance [3,6]. British studies have suggested that students working long hours were likely to obtain lower grades and more likely not to complete their studies. Some students found it hard to balance employment and course work [29,39–42]. This was corroborated in research from Australia and the United States of America [43,44].

Many studies have shown that students' jobs were not directly or even indirectly related to their course of study. Furthermore, the majority of students found little relation between their study and the type of job they had and their career aspirations [6,22,44,45].

In Mansoura, student labour appeared to have a negative impact on social activities. In contrast, a UK study found that many students commented on the beneficial experience that they had in the workplace, especially in expanding communication skills [22].

In conclusion, the phenomenon of student labour is not uncommon in our locality and it affects students physically, educationally and socially. There is a need for nationwide large-scale study of this phenomenon in collaboration with ministries of education, manpower and social affairs to collect basic data that would help in the formulation of a comprehensive strategy that would include both preventive and protective dimensions for dealing with student labour.

The growth of student employment emphasizes the need to consider students as a significant segment of both the youth and general labour market. It is not suggested that students should not work at all; the issue is one of balance between work, education and the physical and social wellbeing of students. It could be argued that while some hours spent in a job may be beneficial to students, beyond a certain level that involvement may interfere with school performance. It is essential to emphasize the importance of schooling as a preparation for work; the school system should be linked more with the needs of the labour market to give students an opportunity to learn a skill and prepare them for work in skilled profession. School programmes should promote structured workplace learning and industry experience, especially in vocational schools.

There are shortcomings with regard to the existing legal protection. The laws and legislation need to be effectively enforced. The law does not cover children working in domestic service and family undertakings, although they are considerable in number. Working students may need special legislation to protect their health, education and social lives.

Poor students and their families need to be supported through social assistance schemes as well as the offsetting of school fees and indirect costs of education. Protec-

tive measures can be provided at schools, e.g. nutritional meals and regular medical check-ups. Additional protective measures include training and raising awareness of employers and working students on acceptable safety measures with regular monitoring of the work environment.

School health teams should consider potential occupational hazards when examining a sick working student. Through schools, a sizeable segment of working children and adolescents can be reached.

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