

PARASITIC INFECTION AND SOCIO-DEMOGRAPHIC CHARACTERISTICS OF URBAN CONSTRUCTION SITE WORKERS

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Abstract. The socio-demographic characteristics and prevalence of parasitic infection of 117 (96 males and 21 females) construction site workers were investigated by means of questionnaires and stool examinations. The age characteristics of the individuals investigated varied widely from 15-60 years with a high percentage in the 21-30 years age range, no sex differences were discovered. Most of the workers received primary education even though some of them did not complete it. The percentage of illiteracy in females was quite high (9.5%) compared with males (2.1%). About 60% and 20% of these construction site workers migrated from the northeastern and northern regions of Thailand, respectively. 79.3% of male and 94.7% of female workers were found to be infected with parasites. Hookworm and *Opisthorchis* were predominant parasites.

INTRODUCTION

The recent economic growth of Thailand had led to the rapid increase of building construction in Bangkok, and also an increase of migration due to the need for labor. Most of these migrants come from the Northeast and the North of Thailand (National Statistical Office, 1984). In residing in Bangkok, they change their lifestyle (including diet, alcohol consumption, smoking, level of physical activity, etc) which directly effects their health (Osuntokun, 1985; Hamburg, 1987; Epstein, 1989). Besides that, workers cannot take sufficient care of their health because of the demanding nature of their work as well as the poor and unhygienic conditions of their accommodation.

The occurrence of intestinal parasitic infection is still one of the important health problems, in particular that due to liver flukes. This common infection of the workers who migrate from high prevalence areas such as the rural Northeast can accordingly be widespread in the place of their

destination. Therefore, the study of the prevalence of parasitic infection in this population group has been investigated in order to limit the spread of parasites and find strategies to improve the health status and productivity of these workers.

MATERIALS AND METHODS

The study was conducted at a construction site near Pattanakarn road, Khlong Ton District, Bangkok during June to December 1991. The total number of respondents were 21 females and 96 males who are aged 15 to 60 years. Socio-demographic variables such as sex, age, education, place of residence, original occupation were recorded. The stool was also collected and assayed by using light microscopy of smears on glass slides.

RESULTS

Most male and female workers were 21-30 and 31-40 years old (Fig 1). No differences of age range between males and females were found. About 60% of these male construction workers came from the Northeast whereas 38.1% of female workers had migrated predominately from the North and 33.3% from the Northeast (Fig 2).

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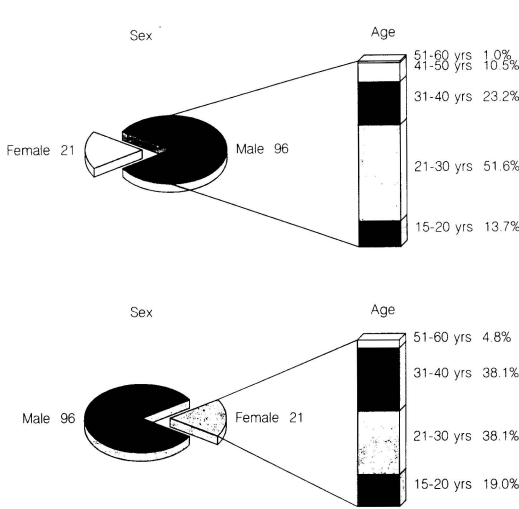


Fig 1—Socio-demographic characteristics of workers in urban construction sites by age.

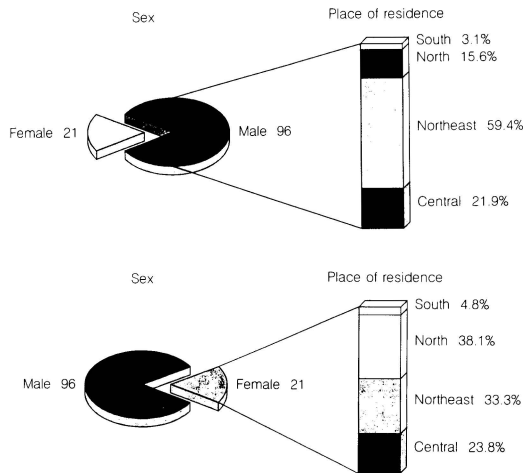


Fig 2—Socio-demographic characteristics of workers in urban construction sites by place of residence.

Most of them had attained at least some level of primary school education. 20% of male workers had attained secondary school or higher education whereas female workers generally had lower attainments. 9.5% of female workers had no education as against 2.1% of male workers (Fig 3).

The type of work that most of male workers did in the investigation period was carpenter (49%), whereas that of female workers was iron work (49.9%) (Fig 4).

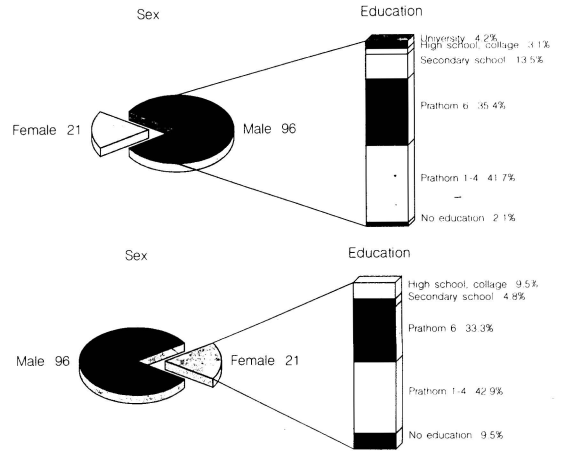


Fig 3—Socio-demographic characteristics of workers in urban construction sites by education.

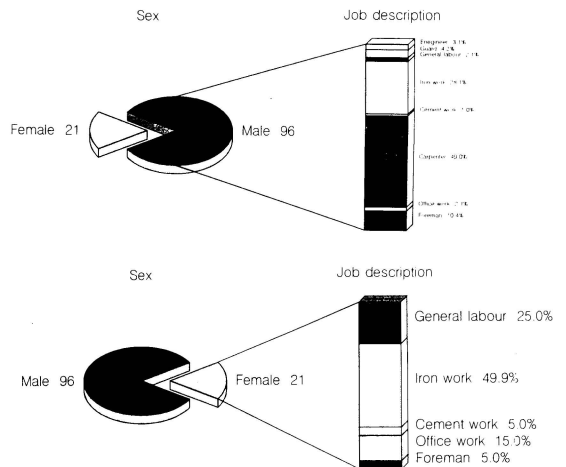


Fig 4—Socio-demographic characteristics of workers in urban construction sites by job description.

79.3% and 94.7% of male and female construction site workers, respectively, were found to be infected with parasites. *Opisthorchis viverrini* and hookworm infection were predominant in these workers. Hookworm infection alone was found to be the highest parasitic infection (22 to 26%) (Table 1).

Figs 5 and 6 showed the parasitic infection of construction site workers by place of residence and job description. A high percentage of parasitic infection was found in the workers who migrated from the northeast, the central, and the north, respectively. Concerning job description, carpenters

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Table 1

Parasitic infection of urban construction site workers according to sex.

	Male		Female	
	no.	(%)	no.	(%)
Total number examined	82		19	
Number positive	65	79.3	18	94.7
Helminth infections				
<i>Opisthorchis viverrini</i>	5	6.1	1	5.3
Hookworm	18	22.0	5	26.3
<i>Strongyloides stercoralis</i>	5	6.1	0	0.0
<i>Trichuris trichiura</i>	1	1.2	1	5.3
<i>Taenia</i> spp	1	1.2	0	0.0
Ov + Hw	9	11.0	3	15.8
Ov + Hw + others	8	9.8	2	10.5
Ov + Ss	4	4.9	1	5.3
Hw + Ss	3	3.7	2	10.5
Hw + others	1	1.2	1	5.3
Protozoa infection				
<i>Entamoeba coli</i>	2	2.4	0	0.0
<i>Giardia lamblia</i>	3	3.7	1	5.3

and iron workers were infected with high percentages (41% and 32%, respectively).

DISCUSSION

The economic situation of Thailand, especially Bangkok, has improved very rapidly resulting in a transition to newly industrialized status. The Northeast and Northern regions were found to have a high percentage of migration among male and female workers. The ages of the workers investigated fell in the range of 21-30 years with no

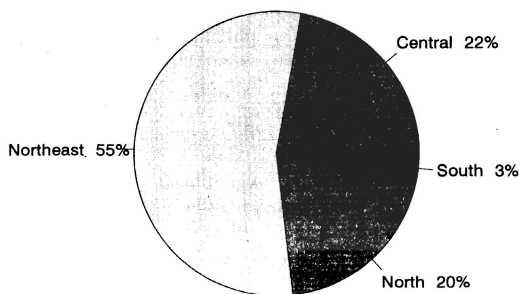


Fig 5—Parasitic infection of construction site workers by place of residence.

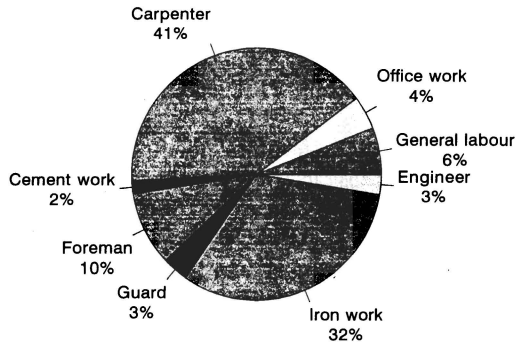


Fig 6—Parasitic infection of construction site workers by job description.

differences between males and females. Past studies have indicated that laborers who left to work abroad were young people and the majority of them were from the Northeast and the North of the country (Yamwong *et al*, 1991). This may reflect a selection process favoring the low socio-economic group, and this young generation may enjoy a better quality of life owing to improvements in overall economic status.

Most of the workers attained at least some primary school education. Twenty percent of them (mostly males) had secondary or higher education. It should be noted that a high prevalence of illiteracy was found in female workers (9.5%). The male workers usually were carpenters, iron workers and foremen whereas the female workers were iron workers, general labor and office workers. The job placement depends on experience, skills and sex differences.

The results showed the highest prevalence of hookworm infection (30%), a soil-transmitted parasite, indicating poor personal hygiene. At the present time, a high prevalence of hookworm infection was predominantly in the South of Thailand. Muennoo *et al* (1992) found that 80.4% of primary school children in Nakhon Si Thammarat Province were infected with these soil-transmitted helminths. In Anghong Province, in the central part of Thailand, a lower percentage (43.2%) of hookworm infection was reported (Chularerk and Luangpirom, 1988), however some investigations showed a very low prevalence of this worm (2.9%) in primary school children in Bangkok (Manechai *et al*, 1990). In a large scale study, the intensity of parasitic infection in the whole country of Thailand between 1974 and 1984 revealed the prevalence

of hookworm infection in Southern, Central, Northern and Northeastern regions of 75.5%, 41.0%, 35.5% and 31.3% respectively (Papasarithorn and Pandii, 1984). Therefore the migration of laborers to the Central region, especially Bangkok, still creates a problem due to the parasitic infection *in situ*. *Opisthorchis viverrini* was found to be the second most prevalent parasitic infection, 25% of all infections. This liver fluke is presumably a very common infection of the workers coming from the rural areas of the North and the Northeast of Thailand where the disease is very prevalent (Rojanapremsuk *et al*, 1988; Kanharatanachai *et al*, 1992; Maleewong *et al*, 1992). The high prevalence of *Opisthorchis viverrini* infection affects directly to their working capabilities. *Giardia lamblia* was also found in quite a number of cases (4%). This figure is lower than the result of another study which surveyed the Thai adult population residing in and around Bangkok (Pitisuthithum *et al*, 1990). It is noteworthy that parasitic infections in the Northeast migrants were up to 55% (Fig 5). Therefore, this result should be used to recommend strategies to improve and maintain the health of the workers.

Although campaigning against parasitic infections by the authority concerned has been done for decades, infections due to opisthorchiasis and hookworm seem to be higher than ever, despite mass treatment, sanitation improvement and health education.

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