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Anuar Zaini Md Zain
Khairul Anuar Abdullah
Nooriah Md Salleh

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Correspondence

All manuscripts, general correspondence and enquires should be addressed to:
The Editor,
c/o Dean's Office, University of Malaya Medical Centre
50603 Kuala Lumpur, Malaysia
Tel: (03) 7950-2102 Fax: (03) 7956-8841

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Immigrant Workers handling roadwork repairs.

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PREFACE

This report is based on the findings of the IRPA funded Migrant Studies conducted by the research team. The first part of the report consist abstracts of the findings of the pilot study. The second part of the report include the findings of the actual study conducted by the researchers of this project.

LIST OF RESEARCHERS

Professor Dato' Dr Anuar Zaini Mohd Zain,
Faculty of Medicine, University of Malaya

Professor Dato' Dr Khairul Anuar Abdullah,
Dept. of Parasitology, Faculty of Medicine,
University of Malaya

Professor Dr Amir Khir,
Penang Medical College

Professor Dr Lam Sai Kit,
Dept. of Microbiology,
University of Malaya

Professor Dr Ishak Abdul Razak,
Department of Community Dentistry,
Dental Faculty, University of Malaya

Professor Zahedi Daud,
University Malaysia Sabah, Sabah

Professor Dr Hashami Bohari,
University Malaysia Sarawak, Sarawak

Professor Dr Hussein Habil,
Department of Psychological Medicine,
Faculty of Medicine, University of Malaya

Professor Dr Adeeba Kamarulzaman,
Dept of Medicine, Faculty of Medicine,
University of Malaya

Associate Prof. Dr Chia Yook Chin,
Department of Primary Care Medicine (RUKA),
Faculty of Medicine, University of Malaya

Associate Prof. Dr Mohd Amin H.A Shariff,
University Malaysia Sarawak (UMS)

Associate Prof Dr Loh Wah Yun,
Faculty of Medicine, University of Malaya

Associate Prof Dr Atiya Ab Sallam,
Department of Social and Preventive Medicine,
Faculty of Medicine, University of Malaya

Associate Prof Dr Wong Yut Lin,
Health Research Development Unit (HeRDU),
Faculty of Medicine, University of Malaya

Associate Prof Dr Siti Norazah Zulkifli,
Health Research Development Unit (HeRDU),
Faculty of Medicine, University of Malaya

Associate Prof Dr Mustafa Ali Mohamad,
Dept of Pharmacology, Faculty of Medicine,
University of Malaya

Associate Prof Dr Suresh Kumar,
Dept of Parasitology, Faculty of Medicine,
University of Malaya

Associate Prof Dr Fauza Abdul Ghaffar,
Dept of Geography,
Faculty of Arts and Social Science, University of Malaya

Associate Prof Dr Basri J. Abdullah,
Dept of Radiology, Faculty of Medicine,
University of Malaya

Dr Balachandran,
Ministry of Health, Malaysia

Dr Zurainee Mohd Nor,
Dept of Parasitology, Faculty of Medicine,
University of Malaya

Associate Prof. Dr Zulkifli Ahmad,
Dept of Social Medicine,
University Sains Malaysia (USM)

Dr Sylvia Mc Carthy,
Department of Primary Care Medicine (RUKA),
Faculty of Medicine, University of Malaya

LIST OF INVITED GUESTS

Dato' Dr M. Jegathesan,
Ministry of Health, Malaysia

Dato' Dr Samsuddin Hussein,
PEREMBA

Professor C.P Ramachandran,
Dept of Medical Science,
University Putra Malaysia

Professor Ngeow Yun Fong,
Dept of Microbiology,
Faculty of Medicine, University of Malaya

Professor Yong Hooi Sen,
Dept of Zoology, Faculty of Science,
University of Malaya

Dr Mak Joon Wah,
Institute of Medical Research (IMR),
Kuala Lumpur

Associate Prof Dr Wan Omar Abdullah,
Dept of Para. & Ent. Medicine,
Faculty of Medicine,
University Putra Malaysia (UPM)

Associate Prof Dr Gan Chong Ying,
Department of Social and Preventive Medicine,
Faculty of Medicine, University of Malaya

Associate Prof Dr Abdul Halim Suleiman,
Pusat Alam Sekitar, IRPA,
University of Malaya

Dr Lokman Hakim Suleiman,
Institute of Medical Research, Kuala Lumpur

Dr Wan Yusuf Wan Sulaiman,
Dept of Parasitology,
Faculty of Medicine, University of Malaya

Associate Prof Dr Rohela Mahmud,
Dept of Parasitology, Faculty of Medicine,
University of Malaya

Dr Abu Bakar Mohammed, IRPA,
University of Malaya

Dr Surainee Ismail,
Ministry of Health, Malaysia

HEALTH PROBLEMS OF FOREIGN WORKERS

Migration is a phenomenon largely associated with economic and human resource needs or, at the extreme, survival. Although considerably less substantial than in North America and Western Europe at present, migrant labour is deemed to play an increasingly prominent role in the socio-economic development of the Asia Pacific region (1). In fact, 'importer' countries such as Malaysia and Singapore will depend on migrant workers to sustain its economic development while enabling 'exporter' countries, namely Indonesia, Philippines, Thailand, Bangladesh, Pakistan and Myanmar, to support its growing population and earn much needed income. The issues involved with immigrant workers include control over population movements, permanent residence, security risk, crime rates, exploitation and abuse, recruitment costs and impact on local populations. Examples are limits on work opportunities for local labour due to depressed wages, sharing of government subsidized schooling, low-cost housing and health care and other amenities with migrants and their children, and cost of arrest, detention and deportation of illegal immigrants.

Malaysia is both an importer as well as an exporter of human resources; requiring largely low-skilled labour from other countries and providing more skilled manpower to countries such as Singapore, Hong Kong and Japan where wages are considerably higher. In fact, migration has played a significant historical role over centuries (2). In the post-independence period, the use of migrant labour increased in the seventies. Foreign workers were brought in to work in the agricultural and plantation sectors vacated by local workers who moved to urban areas for employment and other opportunities following the implementation of the national New Economic Policy (3). In Sabah, the early seventies witnessed substantial migration from southern Philippines due to political disruptions (2). In-migration of labor increased further in the eighties when Malaysia placed a greater thrust on industrialisation and urban development. Then, migrant workers in the country were from Indonesia and Thailand, followed by Philippines, Myanmar and Bangladesh. A small minority came from elsewhere, including countries in Africa. Illegal migration continued to be a problem, because of Malaysia's proximity to source countries, multiple entry-points, bureaucratic hassles with the legalisation process, high recruitment costs and low wages (3).

Estimates place the number of immigrant workers in Peninsula Malaysia at around one million, of which nearly 600,000 are documented with legal status (3). However, the actual situation is unknown. Based on figures of illegal immigrants who underwent a nation-wide registration exercise between November 1991 and June 1992, 83.2% of the 372,268 were Indonesians. Based on employment, the majority of legal workers are engaged in the agricultural sector (primarily Indonesians and Thais) followed by domestic service (primarily Philippines), construction, manufacturing and service industry, including tourism and leisure (4). Most immigrant workers are residing in the more developed parts of the country. Majority of migrant workers mainly from Philippines and Indonesia, are found in substantial numbers. Certain urban areas such as Kudat Semporna, Sandakan and Tawau have substantial numbers of foreign workers, (5). Migrant workers were at first "invisible" to most Malaysians when they were isolated on rural plantations and land settlements. Over the years, they have become more conspicuous as they took up jobs in urban areas.

Concern over the influx of migrants stem from competition with local communities for jobs (both formal and informal sectors), for low-cost or squatter housing and other amenities, and improprieties in behaviour arising from cultural differences (3). Their willingness to accept low wages and poor living and working conditions was felt to favour migrant workers in job recruitment. The rising prejudice is exacerbated by media highlights of criminal activities among migrant workers, particularly with respect to violent crimes armed robberies and rapes. Although migrants commit a minority of all crimes in the country (3% in 1991), there is widespread perception that most burglaries, for example, are perpetrated by this group, especially by Indonesians. With regards to type of crime, 48.2% of gang robberies and 18.2% of murders (1991 data), involved migrant workers. This trend has prevailed since 1985 (3).

In terms of health implications, migration is associated with changes in lifestyle, living conditions and socio-economic status. Importer countries are concerned about diseases or carriers that migrants bring in whereas migrants are exposed to host-country diseases, acute or chronic (6), as well as problems accessing health and social services. A mild disease for the local community may manifest with increased severity in migrants who come from areas where the disease is not endemic and vice-versa. Furthermore, the stress of relocation and adaptation may influence susceptibility to illnesses (7).

Up to 1990 there has been only one study on the effectiveness of a screening program for intestinal parasites among refugee populations. This randomised controlled trial offered screening and treatment to one group and no screening to a control group. The study demonstrated a significant decrease in the prevalence

of hookworm and *Ascaris* infections in the screened group after six months. However it was also found that the prevalence of *Giardia* and *Strongyloides* infections were not shown to be significantly different between the screened group and the controlled group after the six month study period.

Similarly in Malaysia, the presence of migrant workers raises questions on their health care needs, and the impact on local morbidity patterns. In Sabah, where the migrant population is sizeable, 35% of cases in major outbreaks of cholera and the majority of deaths due to this illness (69%) have occurred among this group Outbreaks of measles in Sabah also occur in migrant settlements and among foreign workers, many of whom are migrants, living in poorly served "*kongsi*" shelters at construction sites (8). A study in urban areas of Sabah also revealed migrant respondents as having lower educational attainment, household income and provision of basic amenities, namely, treated water supply and sanitary toilets (9). Among ever -pregnant women, significantly more migrants than citizens had never practiced contraception (modern or traditional), never had antenatal care during any pregnancy, had deliveries by a traditional birth attendant, and suffered infant, particularly neonatal, deaths (9). It was reported that 64% of 56 cases of abandoned infants in Kuala Lumpur, Selangor and Johor in 1993 were associated with illegal immigrant women (3). This suggest a need for targeted contraceptive and health services and, clearly, implies a lack of social support. There is anecdotal evidence of migrants having limited access to preventive care and seeking treatment late, both of which have implications on health care cost. Since the exporter countries are at a lower stage of development, the entry of large numbers of migrants is thought to increase risks of certain communicable diseases, some of which have been controlled, among local communities, e.g., tuberculosis, whooping cough and hepatitis (3). The crowded and poor housing conditions facilitate, disease transmission is also facilitated among this group, most of whom in the low-income bracket.

In terms of health care, migrants have access to public hospitals and clinics at nominal fees, as do Malaysian citizens. However, there has been no documentation of the proportion of patients who are migrants and the health care utilization patterns among this group. Although health care services are available, there may be barriers to utilization due to ignorance, lack of confidence, and problems with health care providers. Thus, they may never seek treatment or treatment may be sought late when their health problems have become more severe.

In summary, there has been no or little documentation of the health status, health care needs and utilization patterns of migrant workers, the implications for public health care services and costs, as well as impact on disease patterns in the country. There is also a need to assess the prevalence of parasitic infections in the immigrant population in this country.

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Dato' Prof. Dr Anuar Zaini Mohd Zain
Editor

BACKGROUND OF STUDY: INFORMATION ABOUT MALAYSIA AND SOME NEIGHBOURING COUNTRIES

Khairul Anuar A[1], Nooriah MS[2] and Merina P[3]

[1,3]Department of Parasitology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia.
[2]Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

Malaysia is located in Southeast Asia. It comprises of Peninsular Malaysia and Sabah and Sarawak. Both Sabah and Sarawak located in the northern part of the island of Borneo. Malaysia is a multi-racial country with a population of approximately 22.2 million. The Malays together with the indigenous peoples form the majority, followed by Chinese, Indians and Others. A very diverse indigenous group of people live in Sabah and Sarawak.

The standard of living in Malaysia is one of the highest in Southeast Asia in comparison to the other neighbouring countries in the region. The country is rich in natural resources such as palm oil, rubber, tin, petroleum, natural gas and timber. Malaysia is the largest producer of palm oil in the world and ranks third as a producer of natural rubber. Petroleum is the country's main foreign exchange earner, followed by timber. Malaysia has progressed into a nation that has diversified successfully to become one of the top exporters of manufactured goods such as petroleum and timber products, processed palm oil products, electronics, apparels and textiles.

Figure 1. Countries of South Asia

Malaysia's buoyant economy has made it possible for the country to have a good infrastructure and communications, system which are essential for industrialization. With privatization of large industries, foreign investment in manufacturing has increased tremendously during the past decade. Malaysia's expanding industrial sector contributed to the 8% to 9% annual growth rate during the past decade (1987-1997). However, the country's limited labor force (9.6 million) was not adequate to meet the needs of the growing industries so the government had to allow employers to bring in foreign workers to work in the factories and in the agricultural, service, domestic and construction sectors. Malaysia's economic and industrial expansion activities slowed down during the 1997-98 Asian financial crises. However, the country has slowly been showing signs of economic recovery since 1999.

The foreign workers in Malaysia are mainly from Indonesia (70%) and Bangladesh (24%) while a smaller proportion originate from the Philippines, Thailand, Myanmar and other countries.

Indonesia is one of Malaysia's neighbours. Indonesia consists of more than fourteen thousand islands. The country has extensive natural resources but with a large and rapidly growing population of 228.4 millions and increasing at a rate of 1.6%, it remains a rather poor country. The prevalent economic conditions in Indonesia (see Table 1), such as her large labor force (99 million), high unemployment rate (15-20%), high inflation rate 9%) and poverty are the "push factors" that encourage the Indonesian workers to find better employment and economic opportunities in Malaysia. Besides Indonesia's geographical proximity to Malaysia and the economic incentives in this country, the many similarities with regards to climate, culture, religion, food and language are some of the other factors that "pull" the Indonesians to work here. Inter-governmental cooperation between the two neighbouring countries has sorted out administrative and immigration procedures thus facilitating the movement of the legally registered foreign workers from Indonesia to Malaysia.

Foreign workers from Bangladesh form the second biggest group in Malaysia. Bangladesh is one of the poorest and most densely populated and least economically developed nations in the world. Political instability, lack of resources and natural hazards such as frequent cyclones and extensive flooding during the annual monsoons tend to hamper its economic development. The large and rapidly growing population (131.3 millions increasing at a rate of 1.6% annually), political instability, lack of economic opportunities and unfavorable economic conditions in Bangladesh (see Table 1

Correpsondence:
Professor Dato' Khairul Anuar Abdullah
Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

and 2) have driven her people to find better employment opportunities in other countries including Malaysia. Bangladesh has a very large labor force (64.1 million) so it is not surprising that more than half of Bangladesh's GDP is generated through the service sector. One of Bangladesh's major export "commodities" is labour which brought in a lot of foreign exchange. Bangladesh exports labour to Malaysia and several countries in the Middle East. In 1998-99, it was estimated that workers' remittances amounted to US$1.71 billion.

Foreign workers from Thailand, Philippines and Myanmar are also attracted to Malaysia because of the prevalent adverse economic conditions in their respective home countries. The characteristics common to all these three countries are large populations, surplus of labour force, poverty, high unemployment rates, poor economies and lack of employment opportunities (see Table 1 and 2). All these factors and the better economic environment here makes Malaysia a very attractive destination for workers from Thailand, Philippines, Myanmar and other economically deprived countries.

Objectives of the Migrant Studies Project:

Many quarters have expressed their concerns about the possibility of adverse effects on the health of the local population due to the presence of the large population of foreign workers in the country. Since there is no available data to assess these concerns, it was felt that it was appropriate to embark on a study to:

(1) identify and assess the magnitude of health problems relating to foreign workers,

(2) identify the prevalence of diseases (especially communicable diseases including emerging and re-emerging diseases) among foreign workers, identify the prevalence of diseases in relation to their occupations in the various sectors

(3) identify the prevalence of diseases in relation to their occupations in the various sectors

(4) assess the foreign workers health seeking behavior and utilization of health care resources in the public and private sectors

Table 1. Relevant Economic Indicators for Malaysia and Some Neighbouring Countries.

	Malaysia	Indonesia	Bangladesh	Thailand	Philippines	Myanmar
Population (July 2001 est)	22,229,040	228,437,870	131,269,860	61,797,751	82,841,518	41,994,678
Population growth rate	1.96%	1.60%	1.59%	0.91%	2.03%	0.60%
Land area (sq. km.)	329,750	1,919,440	144,000	514,000	300,000	678,500
Natural resources	petroleum, tin, timber, palm oil, rubber, natural gas	petroleum, tin, natural gas, rubber, minerals	natural gas, timber, coal	tin, rubber, natural gas, minerals, timber	timber, petroleum, minerals, salt	petroleum, timber, minerals, precious stones, natural gas, hydro-power.
GDP-2000 est. (purchasing power parity)	$223.7 billion	$654 billion	$203 billion	$413 billion	$310 billion	$63.7 billion
GDP per capita	$10,300	$2,900	$1,570	$6,700	$3,800	$1,500
Population below poverty line	6.80% ('97 est.)	20% ('98 est.)	36% ('95-'96 est.)	12.50% (1998 est.)	41% (1997 est.)	23% (1997 est.)
Inflation rate (2000 est.)	1.70%	9.00%	5.80%	2.10%	5%	18% (1999 est.)
Labor force	9.6 million (2000)	99 million (1999)	64.1 million (1998)	32.6 million (1997)	48.1 million (2000)	19.7 million (1998/99 est.)
Unemployment rate	2.80% (2000 est.)	15-20% (1998 est.)	35.20% (1996 est.)	3.70% (2000 est.)	10% (2000 est.)	7.10% (1997/98 est.)
Industrial production Growth rate	12.10% (2000 est.)	7.50% (2000 est.)	6.10% (2000 est.)	3% (2000 est.)	4% (2000 est.)	NA
Literacy Rate	83.50%	83.80%	56%	93.80%	94.60%	83.10%

Source: CIA – The World Factbook. Internet Communication, May 3, 2002 at http://www.odci.gov/cia/publications/factbook/geos)

Table 2 – Relevant Economic Indicators for Malaysia and Some Neighbouring Countries.

	Malaysia	Indonesia	Bangladesh	Thailand	Philippines	Myanmar
GDP – real growth rate (2000 est.)	8.6%	4.8%	5.3%	4.2%	3.6%	4.9%
GDP by sector	agric. 14% industry 44% services 42%	agric. 21% industry 35% services 4%	agric. 30% industry 18% services 52%	agric. 13% industry 40% services 47%	agric. 20% industry 32% services 48%	agric. 42% industry 17%
Household income:						
-lowest 10%	1.40%	3.60%	3.90%	2.50%	1.50%	2.80%
-highest 10%	20.40%	30.30%	28.60%	37.10%	39.30%	32.40%
Labor force by sector	tourism 28% manufacturing 27% forestry,agric. fisheries 16% services 10% govt. 10% construction 9%	agric. 45% industry 16% services 39%	agric. 63% services 26% industry 11%	agric. 54% industry 15% services 31%	agric. 40%, govt & social services 19%, services 18%, manufacturing 10% construction 6%, Others 8%	agric. 65% industry 10% services 25%
Industries	rubber, palm oil processing, manufacturing, electronics, petroleum production & refining, tin mining & smelting, timber logging & processing, agriculture processing, light manufacturing	Petroleum, gas, textiles, apparel food, footwear, mining, cement, chemicals, tourism, cement fertilizers, rubber, plywood	jute, cotton textiles, tea processing, garments, sugar,	Tourism, textiles, garments, tin, tungsten, Agric. processing, Tobacco, cement, plastics, jewelry, electronics, Furniture, beverages, light manufacturing	Textiles, food processing, electronics, pharmaceuticals, Chemicals, wood products, fishing and petroleum refining.	Agricultural processing, textiles, footwear, Wood products, copper, tin, iron, construction materials, pharmaceuticals, fertilizer

Source: CIA – The World Factbook. Internet Communication, May 3, 2002 at http://www.odci.gov/cia/publications/factbook/geos

METHODOLOGY

The data required to achieve the project objectives were obtained by a sample survey of the targeted population. "Foreign workers" was herewith defined as recent immigrants with less than five years of continuous residence in this country; it is presumed that longer-term residents would have assimilated in relation to social and health status.

Informed consent was sought from all respondents with assurance of confidentiality and anonymity. As incentives for participation, respondents were provided basic medical treatment for health problems identified in the course of data collection, and a small token in cash or kind.

The project was undertaken in two stages:

1. Pilot phase
2. Cross-sectional prevalence survey

I. Pilot Phase

A pilot phase was carried out covering a small number of respondents (n<200) to identify potential problems, refine the methodology, gain insights into ways to capture the target population and increase cooperative participation.

Qualitative data using methods such as focus group discussion (FGD) was applied to elicit detailed information useful for refining the problem statement, designing the questionnaire, planning the subsequent phases of the project and the intervention (screening model).

The locations covered for this phase were KlangValley and one agro-based industry in Selangor. The groups to be included were workers in the construction, service, and domestic service sectors. The workers countries of origin were Indonesia, Philippines and Bangladesh.

Respondents were recruited purposively and by using key persons in the community (by residence or occupational group). Eight to 10 persons grouped by country of origin and gender will form the participants of each focus group discussion (FGD).

The focus group discussion (FGD) was to be followed by a pre-test of the survey instruments, (i.e questionnaire). The sampling and the questionnaires are described below.

II. Cross-Sectional Survey

The pilot phase was used as a basis for improving the study design and the survey instruments. It was also used for planning for a larger-scale prevalence survey. During this phase the researchers collected information pertaining to the distribution of the selected health and morbidity indicators, and various aspects of health care services.

Recognizing that this population comprised migrants with and without legal status respondents were recruited using two methods:

- Systematic sampling of legal foreign workers employed in major economic sectors, by region/location, occupational sector and country of origin
- Purposive sampling of migrant groups by residence areas (squatter or low-cost) to capture illegal foreign workers

The data was collected using face-to-face interview utilizing a structured questionnaire which covered the following topics:

- Socio-economic background
- Migration profile – mode of entry; length of stay; mobility
- Occupational and social problems, e.g., safety hazards, exploitation, abuse
- Health history and health care needs
- Health care utilization, expenditure and method of payment (self, employer or state), including preventive care, such as immunization and contraception

The following data was also obtained:

- Blood pressure
- Anthropometric (height and weight)

Blood pressure was measured using a random-zero sphygmomanometer. Height was measured without shoes using a non-stretchable tape measure. Weight was measured using a portable weighing machine.

Samples of stool and blood were obtained and analysed.

Stool Collection:

- Faecal containers were given to each person with the instruction that it must be returned to the collection station the next morning
- Faecal material was introduced to the respective culture media that supported the growth of different protozoa and micro-organisms before fixing them in formalin

- Formalin fixed stools were brought back to the laboratory for microscopic examination.

Blood collection:

- A volume of 15 ml of blood was collected and spun. The serum was stored at –20°C before bringing it back to the laboratory
- Thin and thick blood smears will be made, on glass slides. These glass slides were brought back to the laboratory for staining.

Analysis of Stools:

- In vitro cultures were monitored for growth of micro-organisms
- Stools were concentrated using formalin-ether concentration technique
- Smears were made and stained with trichrome, Ziehl Neelsen and modified trichrome stains to look for diarrhoea causing pathogens

Analysis of Blood:

- The blood smears were stained and examined for the following parasites: malaria, leishmania, trypanosome and filaria
- Serum collected was assessed for antibodies against Toxoplasma, Schistosoma, Amoeba, Leishmania, Filaria, VDRL, Hepatitis B & C markers and Human Immunodeficiency Virus (HIV) using commercially available diagnostic kits.

III. Follow-Up Phase

The outcome of the first two phases will help to define the subsequent phase of this project. The findings of the two phases will enable the researcher to design an appropriate intervention program in relation to migrant health care.

Sample selection

For the Pilot and Cross-sectional Phases, preliminary data was obtained from the Department of Statistics and Department of Human Resources, to draw up a listing of occupational or employment sectors with substantial migrant workers, e.g., agriculture, construction, manufacturing and service industries. Where possible, names of major employers were identified to gain co-operation and access to their workers. As mentioned earlier, the FGD participants were recruited by key person contacts.

For the purposive sample, housing areas with a predominance of migrant residents were identified with the assistance of the City Hall or local councils of relevant urban centres, Department of Statistics and local expertise. The actual number of migrants or migrant-headed households were listed from which a sample of survey respondents were recruited.

The sampling scheme depended on the extent of generalisability and took into consideration the following issues:

- Probability sampling was desirous for precision of various estimates of prevalence
- Expected problem with sampling was the determination of illegal migrants
- Sampling frame was based on representativeness of the study sample, unit of observation (individual or household), and method of stratification (necessitating cluster or multi-stage sampling)
- Sampling size calculation was based on difference in proportions, accounting for an estimated non-response rate and withdrawal or drop-out rate, and level of statistical analysis (univariate or multivariate)

Attempts will be made to map out locations with a predominance of migrant populations using information from multiple formal and informal sources. The use of 'snowball' sampling procedure was applied to overcome problems of identification and accessibility of illegal migrants (purposive rather than random).

Sample size:

The calculation of the sample size for the cross-sectional survey on prevalence yielded a study population of about 2,610 respondents.

PILOT DATA – WHAT DID IT TELL?

Atiya A.S.[1], Anuar Zaini M.Z.[2], Khairul Anuar A[3]

[1]Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.
[2]Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.
[3]Department of Parasitology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: A pilot study on 250 foreign workers was undertaken during a 7 month period beginning December 1996. The study subjects were mainly males (88.8%). They were selected using non-probability sampling from two sources, that is, from University of Malaya Medical Centre (72.8%) and the PEREMBA group (27.2%).

The study was clinic-based. Face-to-face interviews (using a structured questionnaires) were carried out to obtain socio-demographic, environmental, health and morbidity data. Physical examinations were also performed on the same day of the interview. Subjects were also required to give their stools, venous blood, and urine specimens for microbiological, parasitological and clinical laboratory investigations. Chest X-Ray was done on all subjects.

The other investigators had already reported findings on the various specific areas of their study. In this part of the report attempt was made to relate the infectious diseases to some of the socio-demographic, and environmental variables on the 112 Indonesians and 133 Bangladeshi workers. Some aspects of health seeking behavior of these foreign workers were also presented.

Most of the Indonesian workers (84%) were from East Java, Jambi in the Sumatra, while majority of the Bangladeshis (67.7%) were from two neighboring administrative districts of Dhaka and Chittagong. The majority of the Indonesians (50.0%) were working in the service industry, while 53.5% Bangladeshis were in the manufacturing. One-fifth of the workers lived in squatter areas, and nearly half of them were working in the service industry.

About 70% of the workers had at least one infection. The proportion was slightly higher among the Indonesians (72.3%) compared to the Bangladeshis (67.7%). It is of interest to point out that 40% had multiple infections. Thirteen had five or more infections (details for the two of the thirteen cases are presented as case studies). However, the findings did not indicate any association between sanitation and infections. The Indonesian workers carried a higher risk of transmitting the diseases (33.9%) compared to 19.5% among the Bangladeshi workers. Those working in the construction industry were at a higher risk of transmitting the diseases compared to other industries.

Slightly more than half of the workers experienced some form of minor illness or injury during the two-week period preceding the interview. Majority sought private care (43.1%), while 42.3% either self-medicate or did nothing at all. Nearly two-thirds paid out of their own pocket. Among the employers, those in the construction sector made negligible contribution (2.9%) to the payment. It is interesting to find that 41.0% of the workers took some form of health supplements, and the majority (48.4%) got it from the pharmacy or traditional sources. Nearly all (88.5%) paid on their own for their health supplements.

The findings from this pilot project need to be interpreted with some caution. However, it appears that the foreign workers do have a considerable amount of health problems. If these are not addressed quickly it may endanger the health of the nation, while we readily acknowledge their contribution towards our national development

REVIEW OF QUESTIONNAIRES: THE SOCIO-DEMOGRAPHY AND GEOGRAPHICAL ASPECTS

Wong Y.L.[1], Fauza A.G.[2].

[1]Health Research Development Unit (HeRDU), Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.
[2]Department of Geography, Faculty of Arts and Social Sciences, University of Malaya, 50603 Kuala Lumpur

ABSTRACT: A review of the questionnaire was carried out basically to assess the relevance of the questions to the objectives of the study. It was also done to identify weakness of the questionnaires particularly in terms of the wording in order to make them as clear as possible to the respondents and to minimize ambiguity and thus the problems of getting the questions across to the respondents. Based on the review, a new set of questionnaire would be proposed.

The review thus focuses on two major aspects namely the structure and the content of the questionnaire. From the structural aspects, each question was reviewed in terms of the language,- wording, sequencing and continuity between one another. Basically, not much problem have been identified except in certain cases of ambiguity largely due to language and words used and some cases lack of continuity due to improper sequencing of the questions. In terms of the content, for each question, the purpose of asking, and what is expected of the questions was thoroughly examined and then the relevance assessed. Based on the analysis, three groups of questions were identified i. e., the irrelevant questions, the partially relevant and most important non-existence of many relevant questions. It is recommended that the irrelevant questions be omitted, those partially relevant to be modified and new questions added.

A PILOT STUDY OF FOREIGN WORKERS HEALTH : SOCIOLOGICAL ASPECTS

Wong Yut Lin[1] and Fauza Abdul Ghaffar[2].

[1]Health Research and Development Unit (HeRDU) Faculty of Medicine, University Malaya 50603, Kuala Lumpur, Malaysia.
[2] Department of Geography, Faculty of Arts and Social Sciences, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: The majority of migrant workers studied in this pilot survey were Muslim males from Bangladesh. The mean age was 30 years and the majority were in the age group between 21 – 30 years. Although almost half of them had 7 – 13 years of schooling, (equivalent to secondary education), the majority were working in the service industry, predominantly in the cleaning services. It is noted that this employment trend varied from the national situation, whereby the majority of legal migrant workers (Indonesian and Thai) are found in the agricultural sector.

More than two thirds of the migrant workers were provided with various forms of housing by the employer. However, it is not known if such accommodation was adequate or not, as there were no questions about housing structures and extent of overcrowding. The majority of them stated that they had better amenities, such as piped drinking water and sanitary toilets, here in Malaysia compared to those in their home countries. Yet, the real extent and interpretation of better sanitation is difficult to assess since verification of such amenities could not be done.

From their self-reports, it appears that the majority did not engage in risk behaviours, such as smoking, alcohol and drug abuse. It is pertinent, however to include other risk behaviours in the study, particularly the area of sexual behaviour.

In the pilot study 28 female Indonesian migrant were interviewed workers. More than two thirds of them were married. Although none of the married women reported that they were pregnant at the time of the survey, more than two thirds of them had between 1 – 3 children while in Malaysia. The age range of these children is an important indicator of the need for preventive health care. Thus it is proposed that age range of the accompanying children and their immunisation status be included in the questionnaire. Less than half of them were currently practising family planning, and more than two thirds were using modern methods, such as pill, Norplant and IUD. It is recommended that in addition to pregnancy and family planning information, the study should also collected data on gynaecological health and their health seeking behaviour for these problems.

CLINICAL FINDINGS IN MIGRANT WORKERS – A PILOT STUDY

Chia Yook Chin and McCarthy S

Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

ABSTRACT: This section only examines the clinical findings and some blood chemistry female foreign workers. A total of 222 males and 28 females were studied. Their ages ranged from 12 to 57 years, the mean being 30.1 (± 7.4). Generally, the findings at most of the physical examinations were normal and no external features of infectious diseases were seen.

The mean systolic and diastolic blood pressure were 120 (± 13) and 76 (± 8.7) mm Hg respectively. About 8.4% of the population had elevated blood pressure of 140/90 mm Hg or greater.

About 12.4% of these men and women were underweight with body mass index (BMI) less than 19 kg/m^2 while 11.2% were either overweight or obese (BMI > 25) with the mean being 21.8 (± 2.7) kg/m≤. Only 3 had BMI greater than 30 kg/m≤.

Three subjects had mitral regurgitation murmur thought to be due to mitral valve prolapse. Four others had *Tinea cruris*, 6 had insignificant axillary lymph-nodes, 5 had enlarged cervical-nodes of which one was due to carcinoma of the tonsils. Thirty had shotty inguinal lymph-nodes which was thought to be of no pathological significance. Four subjects had crepitations in their lungs while five had bronchi in their lungs.

A full blood count revealed that 16.7% of the men and 32.1% of the women had haemoglobin levels of less than 14gm/dl and 12 gm/dl respectively. The most striking abnormality was the high prevalence of eosinophilia; 3.7% of the subjects had eosinophilia counts of greater than 450/dl.

About 19.4% of this study population had fasting serum glucose of greater than 6mmol/L but only 1.3% had fasting serum glucose of greater than 7.8mmol/L. About 22% of the urine examined revealed proteinuria but were otherwise unremarkable for other parameters.

This group of foreign workers was made up of presumably fairly healthy young population. Physical examination did not reveal any remarkable findings. It could be that the majority of these subjects already had an examination prior to coming into the country and another one soon after their arrival. However, an indirect measurement of infectious diseases via the eosinophilic count revealed a high prevalence of parasitic infestations. Attempts to examine the end results of social hardship, be it intrinsic before or appearing after arrival indirectly showed some degree of suffering. There was a fairly high prevalence of anemia, especially amongst the women. The BMI also revealed this population to be generally less obese than other populations.

The value of medical check-up has been debated, especially if it was done as a pre-employment procedure. This pilot study has shown that it is not cost-effective to do physical examination or blood chemistry and urine analysis in trying to identify infectious diseases the migrant workers.

In light of the paucity of clinical findings in this pilot study, it would be prudent to review the strategy of examining the health status of migrant workers. Perhaps the physical examination can be dispensed with, and blood and urine analysis be very focused and directed in order to maximise the cost-effectiveness of this programme. Certainly the high prevalence of eosinophilia needs further evaluation.

FAECAL PATHOGENS IN FOREIGN WORKERS

[1]Suresh K., [1]Rajah S., [1]Khairul Anuar A., [2]Anuar Zaini M.Z., [1]Saminathan R. and [1]Ramakrishnan S.

[1]Department of Parasitology, Faculty of Medicine, 50603 Kuala Lumpur, Malaysia.
[2]Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: One hundred seventy three stool samples were obtained from workers from Bangladesh, Indonesia, Myanmar, Pakistan and other countries. The stool samples were examined for eggs of *Ascaris, Trichuris*, hookworm, trematodes and cestodes. The protozoan parasites included *Balantidium coli, Blastocystis hominis, Cyclospora, Cryptosporidium, Microsporidium, Entamoeba histolytica, Giardia lamblia, Iodamoeba butschlii.*

The percentage of population studied found to be infected with hookworm, *Trichuris trichiura* and *Ascaris lumbricoides* was found to be 21.9%, 17% and 1% respectively. There was only one Indonesian reported to have *Hymenolepis nana* infection. The most common protozoan seen in the faecal samples is *Blastocystis hominis* (36%) followed by *Giardia lamblia* (4%). Most of the stools positive with these faecal pathogens were semi-solid especially the ones positive for the protozoa. We observed that *Blastocystis* in the stools of the Indonesian workers show very small forms almost 3 – 5 μm in size compared to the normal size of 10 – 15 μm in the other nationalities. These forms show a distinct growth profile in cultures and appears to be more resistant to temperature changes than *Blastocystis* seen in the other two nationalities. The high incidence of hookworm and *Trichuris* infections is suggestive that if these workers are left untreated their productivity will be hampered by other possible serious complications such as anaemia, weight loss, abdominal pain, diarrhoea and nausea. There are increasing reports that *Blastocystis hominis* is pathogenic. Flatulence, stomach discomfort and increased frequency of passing watery stool has been noted in patients infected with the parasite.

Since most of the workers are generally housed in crowded rooms, it is highly likely that this will facilitate transmission of *Giardia* and *Blastocystis* through the oral-faecal route thereby increasing the incidence of these infection among these migrant workers.

A CASE REPORT OF VISCERAL LEISHMANIASIS IN A FOREIGN WORKER

Kamarulzaman A[1]., Khairul Anuar A.[2]

[1]Department of Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.
[2]Department of Parasitology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: This is a report of a case of visceral leishmaniasis (Kala-azar) in a 28 year old Bangladesh migrant worker. The patient had migrated to Malaysia 9 months prior to admission to University Malaya Medical Centre (UMMC). He was employed in a glove factory. His illness began one week prior to presentation with high swinging fever, chest pain and substantial weight loss. On examination, he was found to be cachexic, with cervical and inguinal lymphadenopathy and massive hepatosplenomegaly.

Investigation revealed a pancytopaenia with a Hb of 9.9 g/L, WBC 3.10 x 10^9 /L and a platelet count of 29 x 10^9 /L. Liver function test revealed an elevated alkaline phosphatase 380 I.U/L and transaminases AST 169 I.U/L and ALT 95 I.U /L. The serum albumin was 19g/L. Blood for malaria parasite was negative.

A bone marrow examination was performed to look for LD (*Leishman-Donovan*) bodies and to exclude haematological malignancies. The bone marrow examination revealed multiple LD bodies. Serology for leishmaniasis was strongly positive.

The patient was treated with Amphotericin B to a total dose of 0.6 g. There was resolution of his fever and a reduction in the size of the liver and spleen at the end of therapy on recovery.

The patient regained his weight steadily.

PARASITIC INFECTION IN FOREIGN WORKERS : SEROLOGICAL FINDINGS

Zurainee M.N., Khairul Anuar A., Khatijah O., Sri Suriati A., Noraishah Spahat.
Department of Parasitology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: The serology result of parasitic infections of 260 foreign workers who were seen at the University of Malaya Medical Center, during 7 months period is reported here. The 260 foreign workers comprised 114 Indonesians, 142 Bangladeshis, 2 Myanmarese and 2 Pakistanis.

Blood samples were taken from these workers and eight tests (amoebiasis, echinococcosis, filariasis, leishmaniasis, malaria, schistosomiasis, toxoplasmosis and trypanosomiasis) were performed on serum separated from the blood. Among the 250 sera tested, 92 (36.8%) were found to be positive for at least one parasitic infection.

From this preliminary study, it is obvious that hepatitis B is the most important problem among the workers from Indonesia and Bangladesh. The next important problem is venereal disease and enteric bacteria among Bangladesh workers. The other three national groups are too small to be analyzed.

It is interesting to note that although these workers are supposed to have been screened for venereal diseases, a number of them were still found to be positive. However, we have no information whether the venereal diseases were acquired in the migrant workers' home country or locally. There was only one case of HIV detected but if the foreign workers continue with their promiscuous lifestyle, they are likely to pick up other sexually transmitted diseases including HIV and chlamydial infections. For those who were found to have their stools positive for enteric pathogens, it is important to determine whether they are food-handlers, as they will prove a significant risk for the spread of food borne infections.

Table 1. Number of Tests Performed

Country of foreign workers examined	No.	RPR/ TPHA	HIV	HB	Salmonella	Shigella	Vibrio
Indonesia	103	92	102	102	53	53	53
Bangladesh	133	133	131	131	115	115	115
Myanmar	1	1	1	1	1	1	1
Pakistan	3	3	3	3	3	3	3
Others	1	1	1	1	1	1	1
Total	241	230	238	238	173	173	173

Table 2. Number of Positive Samples (%)

Country	RPR / TPHA	HIV	HB	Salmonella	Shigella	Vibrio
Indonesia	1/92 (1.09)	1/102 (0.98)	10/102 (9.80)	1/53 (1.69)	0/53 (0)	0/53 (0)
Bangladesh	1/133(3.01)	0 / 131(0)	13/131(9.82)	4/115 (3.48)	0/115 (0)	0/115 (0)
Myanmar	0/1(0)	0/1(0)	0/1(0)	0/1(0)	0/1(0)	0/1(0)
Pakistan	0/3 (0)	0 /3 (0)	0 /3 (0)	0/3 (0)	1/3 (3.33)	0/3 (0)
Others	0/1 (0)	0/1 (0)	0/1 (0)	0/1 (0)	0/1 (0)	0/1 (0)
Total	5/230 (2.18)	1/238 (0.42)	23/238 (9.66)	5/173 (2.89)	1/173 (0.58)	0/173 (0)

There was one case where the serum was found positive for 5 tests. The most common antibody detected in those positive sera was antibody for toxoplasmosis (80%), followed by filariasis (32.8%) and amoebiasis (30%). Other tests showed low percentage of infection with schistosomiasis, (10%); echinococcosis, (6%) and malaria, (3.6%). None of the foreign workers were found positive for leishmaniasis and trypanosomiasis.

As for the enteric bacterial pathogens, only 6 out of 173 stool samples tested were positive; 5 for *Salmonella spp.* and 1 for *Shigella sp.* Of the five positive for Salmonella, one was from an Indonesia worker and four from Bangladesh. The single isolate of *Shigella* was from the stool of a Pakistani worker.

Originally, it was intended to test blood samples for Hepatitis C and E markers since the prevalence of these problems in foreign countries from which the workers come are higher. However, due to inadequate blood samples, this had to be deferred. In view of the fact that hepatitis carriage rate is the highest for the microbes tested, it is important to include these two markers in future studies.

FOREIGN WORKERS STUDY : BLOOD PARASITES

Khairul Anuar A., Rohela M., Zurainee M.N., Abdul Aziz A., Sivanandan S.
Department of Parasitology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: Lymphatic filariasis is endemic in Asia. It persists as a major cause of clinical morbidity and significantly impedes socioeconomic development. Its prevalence is increasing worldwide, largely because of rapid unplanned urbanization in many endemic areas. Globally, it is estimated that at least 120 million people are affected.

In our study on foreign workers, a total of 241 day time blood samples were collected. The countries represented were Bangladesh (134), Indonesia (103), Pakistan (3) and Myanmar (1). The tests conducted on blood samples were thick blood film for microfilaria and thin blood film for malaria, quantification of eosinophilia was made posible using the Giemsa stain.

Two hundred and forty-one blood samples were tested. The blood sample from one Bangladeshi tested positive for *Wuchereria bancrofti* and from an Indonesian was positive for malaria (*Plasmodium falciparum*). As for blood eosinophils, 39 (16.2%) blood samples showed high eosinophilia. Fifteen (6.2%) were from Bangladesh and 24 (10%) were from Indonesia. The Bangladeshi male who was positive for *Wuchereria bancrofti* also showed eosinophilia of 22%. We believe that some of these cases with high eosinophilia, may be positive for microfilaria. We may have missed some cases because of the methodology we chose.

Lymphatic filariasis is endemic in Bangladesh and Indonesia. In the urban areas of Malaysia, *W. bancrofti*, have been eliminated. However, the vectors involved in transmission of *W. bancrofti* are still found in the cities. With the influx of the immigrants, there may be some who may be harbouring the parasite. In addition, the foreign workers are a highly mobile group. These factors favour the re-introduction of *W. bancrofti* into the community and may eventually change the scenario of the disease pattern in Malaysia.

THE CHEST RADIOGRAPHIC CHANGES IN AN IMMIGRANT POPULATION – A PILOT STUDY

Basri J. J. Abdullah
Department of Radiology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

ABSTRACT: With the increasing ease of travel and the passage of peoples between countries there is a need to ensure that the recipient country is not burdened by the need to provide care for immigrants with health problems and the increased risks posed to the local population resulting from exposure to communicable diseases. To assess the chest radiographs of a selected group of immigrants to asecertain the presence of abnormalities and especially to detect the presence of tuberculosis.

A total of 250 immigrants were prospectively evaluated by a PA chest radiograph. The chest radiograph was evaluated by two radiologists for the presence of abnormalities of the heart, lung, mediastinum and bony rib cage. There were 112 Indonesians, 133 Bangladeshis, one Burmese, three Pakistanis and one others. Males made up 222 while there were 28 females.

The chest radiograph was diagnostic in all cases. There were 13 cases with enlarged hearts but with no evidence of heart failure. There was only a single immigrant who had evidence of active TB though there were 6 others who had evidence of old disease. There was evidence of other infections in 5. With regard to the mediastinum there was a single case with enlarged hila probably secondary to increased cardiac output. There were 21 patients with scolyasis of the spine and two with abnormalities of the ribs. Even though there was a single case with evidence of TB from this pilot study, from unreported data from the UMMC, there were 15, 16 and 23 immigrants treated for TB for 1994, 1995 and 1996 respectively. This was mainly seen in the Indonesians followed by the Bangladeshis and Burmese.

We attribute this discrepancy to the biased samples in this study where probably only the healthy were seen while those who were not well did not want to participate in this study. In addition, this may also be due to the small sample used in this study. We feel that screening of the immigrants out in the field may be able to detect cases of active TB. As for the large hearts, we feel that in the absence of any cardiac symptoms and other radiological changes these are probably due to the increased workload on the heart from physical activities. This is a recognized presentation. The changes in the mediastinum and bony rib cage are probably not very significant.

EMERGING AND RE-EMERGING DISEASES: THE MIGRANT FACTOR

Khairul Anuar A.
Department of Parasitology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia.

ABSTRACT: Many nation states, including Malaysia are undergoing development and modernization while modernization brings tremendous achievements related to social and economic wellbeing, on the other hand, it also brings along with it the various untoward effects on the nation. One of the main factors which have an impact on modernization seems to be the rapid changes in the demographic pattern. In the initial stage of modernization, mass migration of rural populations to the urban areas, has been on going in Malaysia since the seventies.

In the early nineties, the robust economic development in Malaysia necessitated the import of foreign labour from the neighbouring countries in order to provide cheap labour in the labour intensive industries. This demographic changes, internal and foreign migration, parallels the economic progress of the host countries.

According to the latest report from the Immigration Department, there are more than 1.2 million registered foreign workers (up to January 1998) in Malaysia. This figure may exceed 2 million if we take into consideration the illegal immigrants and this is a big proportion (about 10%) of foreign workers in which has Malaysia's population of approximately 20 million. The presence of such a big number of foreign workers during less than a decade is not merely an immigration issue, but it is a major concern for the nation especially with respect to health care, housing and education. As the immigrant community is highly dynamic, the emerging and re-emerging infectious diseases are a great concern for Malaysia especially in formulating health policies for Malaysia currently and in the future.

KEYWORDS: Emerging and re-emerging infectious diseases

SELECTED DATA ON HEALTH STATUS OF MIGRANT WOMEN RESPONDENTS

Siti Norazah Zulkifli
Health Research Development Unit (HeRDU), Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: Reproductive health is "a state of complete physical, mental and social well-being in all matters relating to the reproductive system and to its functions and processes. Implicit in this is the right of men and women to be informed and to have access to safe, effective and affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility, which are not against the law, and the right of access to health-care services that enable women to go safely through pregnancy and childbirth." The survey on Health Problems of Migrant Workers included a section on Women's Health covering aspects of reproductive health. This was based on concerns over reproductive health needs of migrant women workers, particularly since the large majority are in the reproductive age-group, and the utilisation of government healthcare facilities. The latter has implications for the potential burden on public healthcare services in terms of resources and costs.

Specifically, the Women's Health section included questions on pregnancy, place of delivery of last baby (born in Malaysia), postnatal care related to this delivery, and mode of payment. For those currently pregnant, questions were asked of sources of antenatal care, postnatal care and respective modes of payment for those services. This section also included questions on current contraceptive practices, source of supplies, and mode of payment for contraceptive methods. *(JUMMEC 2002; 1:15-23)*

KEYWORDS: Reproductive health, Contraceptive methods, Antenatal care, Postnatal care, Health-care services.

Introduction

Reproductive health is "*a state of complete physical, mental and social well-being in all matters relating to the reproductive system and to its functions and processes..... Implicit in this is the right of men and women to be informed and to have access to safe, effective and affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility, which are not against the law, and the right of access to health-care services that enable women to go safely through pregnancy and childbirth.*" The survey on Health Problems of Migrant Workers included a section on Women's Health covering aspects of reproductive health. This was based on concerns over reproductive health needs of migrant women workers, particularly since the large majority are in the reproductive age-group, and the utilisation of government healthcare facilities. The latter has implications for the potential burden on public healthcare services in terms of resources and costs.

Specifically, the Women's Health section included questions on pregnancy, place of delivery of last baby (born in Malaysia), postnatal care related to this delivery, and mode of payment. For those currently pregnant, questions were asked of sources of antenatal care, postnatal care and respective modes of payment for those services. This section also included questions on current contraceptive practices, source of supplies, and mode of payment for contraceptive methods.

Results and Discussion

In total, 102 women respondents were recruited as respondents in the present survey on migrant health. They comprised workers from more than five countries, primarily from Thailand (n=50) and Indonesia (n=38). Eight respondents were from Myanmar, two each from the Philippines and Bangladesh, and one categorised under 'Others'. With the exception of Indonesian women, 33.3% of whom were single, the large majority (>80%) from all other countries were currently or previously married. Their ages ranged from 19 to 60 years, and averaged 33.78 years (median 33). The oldest respondent, aged 60 years, was from Thai-

Correpsondence:
Assoc. Prof. Siti Norazah Zulkifli
Health Research Development Unit (HeRDU), Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

land. In terms of religion, 96% were Muslim (n=97). Two (2%) were Christian (one each from Philippines and Others), and another two (2%), both from Myanmar, were Buddhist.

According to data based on issuance of temporary work permits in Peninsular Malaysia by the Immigration Department from July 1992 to December 1995, 65% of migrant workers are from Indonesia, 21% from Bangladesh, 7.1% from Philippines, 5.4% from Thailand, and 1.6% from several other countries, notably, India, Pakistan, Myanmar, Nepal, Sri Lanka (Kassim 1996). Although these national data were not segregated by sex, there seems to be prima facie indication that the distribution of the Migrant Worker Survey respondents by country of origin differs from the documented breakdown of migrant workers nation-wide. The survey seems also to have recruited an older group of workers. Information on method and location of recruitment will be useful in explaining these differences.

In view of the small numbers of respondents from other countries, notably, Bangladesh, Philippines and Myanmar, a more detailed presentation of data was confined to those from Thailand and Indonesia, comprising a total of 88 respondents. The Thai workers were recruited from Kelantan, while the Indonesians were primarily from the Klang Valley. Since migrants from the two countries probably have unique characteristics, e.g., cultural background, social factors related to migration, and relations with local citizens, the descriptive analyses below were stratified by country of origin in most cases.

Socio-Demographic Background

The average age of respondents differed significantly (p=0.04) by nationality with Thais being older by almost 10 years (mean 37.54 years, median 38) compared to Indonesians (mean 28.87 years, median 27).

By religion, all the Indonesian and Thai respondents were Muslims. The Thai respondents were recruited from Kelantan, the state proximate to southern Thailand which has a large Muslim population.

The average educational attainment of the respondents was 4.7 years (median 4) (Table 1). The Indonesian women in the sample had significantly (p<0.0001) more years of education (mean 7.8, median 6) than the Thais (mean 2.4, median 2). Among Indonesians, these ranged from none to 19 years, whereas among the Thais, the range was from none to nine years. The younger generation among the Indonesians may have been more likely to have entered and/or stayed in school compared to the older Thais. This difference may also be due to differences in hiring practices for workers from the two countries.

A majority was currently married in both groups, but slightly more Indonesians (33.3%) were single, widowed or divorced (s/w/d) compared to Thais (16.0%) (Table 2). All of the unmarried Indonesians were, in fact, single (never married) whereas the unmarried Thais comprised six widowed (12.0%) and two divorced/separated women (4.0%). Although the difference is not statistically significant, it supports the fact that the Indonesians are generally younger and, hence, more likely to be not married yet.

Table 1. Years of education by nationality

Nationality	Years of Education				
	N	mean	median	sd	range
Indonesian	38	7.79	6.00	4.10	0-19
Thai	50	2.40	2.00	2.58	0-9
TOTAL	88	4.73	4.00	4.26	0-19

Table 2. Distribution of women respondents by nationality and marital status

Nationality	Marital Status					
	married		s/w/dn		TOTAL	
	n	(%)	n	(%)	N	(%)
Indonesian	26	(66.7)	13	(33.3)	39	(100)
Thai	42	(84.0)	8	(16.0)	50	(100)
TOTAL	68	(76.4)	21	(23.6)	89	(100)

Note: s/w/d – single/widowed/divorced

Table 3. Distribution of respondents by total number of children

Nationality	Total number of children							
	None		2-Jan		>2		Total	
	n	%	n	%	N	%	N	%
Indonesian	2	8.7	17	73.9	4	17.4	23	100
Thai	2	4.0	10	20.0	38	76.0	50	100
Total	4	5.5	27	37.0	42	57.5	73	100

Note: 16 cases not applicable or missing (all Indonesian)

Children

Most of the respondents also have children, averaging 3.3 (median 3) in number (Table 3). Thai women (mean 3.3, median 4) have significantly (p<0.0001) more children than Indonesians (mean 1.8, median 2). This difference in total number of children is understandable in view of the older age of the Thai women. By grouped number of children, the most common is three or more children. Correspondingly, a higher proportion of Thai women have three or more children, ranging from none to nine. Indonesian women have fewer children, ranging from none to four, with the most common being two (n=11; 47.8%) or one (n= 6; 26.0%).

When asked about children presently in Malaysia, the number averaged 2.4. Again, Thai women (mean 2.6,

median 2) reported more children than Indonesians (mean 1.3, median 1) but the difference is not statistically significant. Among ever-married women, considerably more Thais (79%) than Indonesians (29%) have children in Malaysia. Only six Indonesians, five with one child and one with three, said they have children in this country compared to 38 Thai women, with number of children ranging from one to nine. The ages of these children are not known. However, since most of these respondents are relatively young, it can be assumed that their children are generally of school-going age or younger.

Table 4. Duration since year of first arrival in Malaysia

Nationality	N	Duration (years) mean	median	sd	range
Indonesian	38	2.45	2.0	1.9	<1-8
Thai	50	8.20	7.5	6.6	<1-30
TOTAL	88	5.70	3.0	5.9	<1-30

Table 5. Distribution of respondents by nationality and type of accommodation

Nationality	Kongsi house		Squatter house		Employer's house		Hostel/employer provided housing		Others		TOTAL	
	n	%	n	%	n	%	n	%	n	%	N	%
Indonesian	5	13.2	1	2.6	10	26.3	18	47.4	4	10.5	38	100
Thai	4	8	0	0	2	4	44	88	0	0	50	100
TOTAL	9	10.2	1	1.1	12	13.6	62	70.5	4	4.5	88	100

Among other basic needs, migrant workers who have children in the host country need childcare and/or schooling facilities, as well as, health services for their children. The 1994 United Nations' International Conference on Population and Development has set forth a Programme of Action that states "*Governments of receiving countries are urged to consider extending to documented migrants who meet appropriate length-of-stay requirements, and to members of their families, regular treatment equal to that accorded their own nationals with members of their families, regular treatment equal to that accorded their own nationals with regard to basic human rights*".

By occupation, there were distinct differences between Thais and Indonesians. The large majority of Thai migrants cited their occupation as rubber tapping (92%). A few were cleaners (4%), and one worked as a factory worker (2%) while another one worked as a dressmaker (2%). Among the Indonesians, occupations were more varied – 31% worked as house maids, 28% in food-related occupations (mostly satay-makers, with two cooks and one food-stall worker), 18% cleaners, 18% in factory-related work (primarily production operators, with one factory and one general worker), and five percent were construction workers.

Migration history

In terms of their migration history, these 88 respondents were almost equally divided among those who arrived here less than five years ago (52.3%) from the time of the survey in 1998, i.e., 1995 to 1998, and those who did five or more years ago (47.7%), i.e., 1994 or earlier. However, there was a distinct difference ($p<0.0001$) between Indonesian and Thai respondents – most Indonesians are more recent migrants (81.6% having first arrived less than five years ago compared to 30.0% of Thais). Put in another way. as shown in the table below, Indonesian women have been here for an average of 2.4 years (median 2) since first arrival compared to Thais who average 5.7 years (median 3) stay (Table 4). The range of duration of stay since first arrival was considerably wider among Thais. This duration does not imply, however, that these migrant workers did not return to their countries during that period.

Accommodation

In terms of type of accommodation, most respondents said they live in a hostel or employer-provided living quarters. Far more of the Thais (88%) have these types of accommodation compared to Indonesians (47.4%) (Table 5).

Although only one Thai reported living on a construction site, four cited a *kongsi* house as their abode. This may be a misunderstanding of what onstitutes a *kongsi* house, but it is generally associated with temporary group housing on construction sites. Another two Thais reported living in their employer's house. Slightly more than a quarter of the Indonesians live in their employer's house, with five staying in a *kongsi* dwelling and one in a squatter house. Again, based on responses to type of residential area above, only two respondents cited construction site.

Information on their co-habitants showed that most live with their family or relatives, particularly among the Thais. In fact, all except one Thai, live with their families (98%); the exception reportedly lives with friends. Among the Indonesians, 10 live with their employers (supporting the data on accommodation above), and another 10 share a home with friends,

whereas the others stay equally with fellow employees (n=6), family/relatives (n=6) or others (n=6).

That proper accommodation provided to workers is a positive finding. Basic utilities, such as piped water, electricity and toilet facilities, are available where the workers live. The basic need for adequate housing seems to be met. However, problems of crowding, especially for shared housing, hostels or *kongsi* housing, and safety are relevant from a health perspective. Since the Thais in this sample appear to be more settled in homes with their family members, these issues of possible overcrowding and safety applies in particular to Indonesian workers.

Lifestyle Habits

Certain causes of ill-health can be attributed to personal behaviours, such as diet, smoking and alcohol consumption. Among the survey respondents, most, if not all, reported never smoking nor drinking nor using recreational drugs. Among Thai respondents 18% claimed to smoke cigarettes while another two (4.0%) said they did previously (Table 6). In contrast, three Indonesians reported previously smoking cigarettes.

In terms of these behaviours, especially for alcohol consumption and drug use, these women appear to have a healthy lifestyle overall. Data on other. healthy behaviours, notably, diet and exercise, were not collected.

Reproductive Health

Selected questions related to childbearing were asked of these migrant women workers. These consisted of questions on pregnancy history, place of delivery and postnatal services for the last child born in Malaysia, antenatal services for current pregnancy and source of payment for these services. Respondents were also asked about current contraceptive practices and the source of and payment for supplies.

Pregnancy and obstetric services

Among ever-married (currently married, divorced, widowed) women, 82.9% have experienced pregnancy (Table 7). None of the single women, with one missing case, reported being ever-pregnant. There were significantly (p=0.001) more Thai ever-married women (94%) who had been pregnant compared to Indonesians (61.5%). As reported earlier, the Thais in this survey were relatively older and all were currently or previously married.

Only four Indonesians (15.4% of ever married women) had delivered their last baby in Malaysia; two in government hospitals/clinics, one in a private hospital/clinic and one by a traditional birth attendant (Table 8). In contrast, 48% (n=24) of ever-married Thais had delivered their last baby in Malaysia. Among these 24 Thai women, most had delivered in a government facility (66.7%), while 29.2% (n=7) had deliveries assisted by a traditional birth attendant and one in a private hospital/clinic (4.2%).

In terms of payment for the service, all four Indonesian women claimed to have paid for the service themselves (self-paying). Among Thai women, half (n=12) had their deliveries paid for by their employer, whereas 37.5% (n=9) reported they delivered for 'free'. These women consisted of three who had delivered in a government hospital, five by a traditional birth attendant and the one woman who had delivered at a private hospital/clinic. A free delivery at a private healthcare centre seems unlikely but may be possible as a charity case. The information cannot be verified. Among those who had delivered at a government hospital, 11 (68.8%) said that their employer had paid for it. Three said it was free and two said they paid themselves.

Among the women who delivered their last baby in Malaysia, all but one, an Indonesian, had received postnatal care and mainly at a government hospital/clinic

Table 6. Distribution of respondents by nationality and selected personal behaviours

Behaviour	Nationality				Total	
	Indonesian		Thai			
	n	%	n	%	N	%
Smoking						
- Never	35	92.1	39	78.0	74	84.1
- yes, previously	3	7.9	2	4.0	5	5.7
- yes, currently	0	0.0	9	18.0	9	10.2
Total	38	100.0	50	100.0	88	100.0
Drinking alcohol						
- never	37	97.4	50	100.0	87	98.9
- yes, previously	1	2.6	0	0.0	1	1.1
Total	38	100.0	50	100.0	88	100.0
Using recreational drugs						
- never	38	100.0	50	100.0	88	100.0

Table 7. Distribution of ever-married respondents by nationality and pregnancy history

Nationality	Ever-Pregnant				Total	
	Yes		never			
	N	%	n	%	N	%
Indonesian	16	61.5	10	38.5	26	100
Thai	47	94.0	3	6.0	50	100
Total	63	82.9	13	17.1	76	100

P=0.001 (Fisher's Exact Test)-

Table 8. Distribution of respondents by nationality, place of delivery of last baby in Malaysia and mode of payment for services

Nationality	Place of Delivery	Mode of Payment: Self-paying n	Self-paying %	Employer n	Employer %	Free n	Free %	TOTAL N	TOTAL %
Indonesian	- Government hospital/clinics	2	100	-	-	-	-	2	100
	- Private hospital/clinics	1	100	-	-	-	-	1	100
	'- Traditional birth attendant	1	100	-	-	-	-	1	100
	- TOTAL	4	100	-	-	-	-	4	100
Thai	- Government hospital/clinics	2	12.5	11	68.8	3	18.8	16	100
	- Private hospital/clinics	-	-	-	-	1	100	1	100
	'- Traditional birth attendant	1	14.3	1	14.3	5	71.4	7	100
	- TOTAL	3	12.5	12	50	9	37.5	24	100

(71.4%), as shown in Table 9. By country of origin, two (50%) of the Indonesians and 75% of the Thais had obtained postnatal care at a government facility. The one other Indonesian who delivered her last baby in Malaysia had obtained postnatal services from a private clinic, whereas the remaining Thais had their postnatal checks at a private hospital/clinic. In terms of payment for this service, all the Indonesians compared to only two Thais, claimed to have paid for their postnatal care themselves. Among the Thais, half said that their employer paid while another 37.5% said that their postnatal care was obtained free.

Only two respondents were currently pregnant at time of interview, both of whom are Thai. Both women were receiving antenatal care, one at a government for free, and the other at a private clinic paid for by the employer.

Contraceptive practices

Among women who said they have experienced sexual intercourse, 19 reported using some form of contraceptive at time of interview, comprising 28% of those who responded to this question of current contraception (n=68) (Table 10). In terms of all respondents (N=89), this constituted 21% of the women or 31% of currently married women. All 19 are ever-married women, twelve of whom are Indonesians and seven are Thais. Current contraceptive use rate is significantly higher among Indonesians. Current contraceptive practice is relatively low among the Thai women, in particular, considering that the majority are currently married.

Table 9. Distribution of respondents by nationality, place for postnatal services and mode of payment

Nationality	Source of Postnatal Services	Mode of Payment: Self-paying n	Self-paying %	Employer n	Employer %	Free n	Free %	TOTAL N	TOTAL %
Indonesian	- Government hospital/clinics	2	100	-	-	-	-	2	100
	- Private hospital/clinics	1	100	-	-	-	-	1	100
	- None	1	100	-	-	-	-	1	100
	- TOTAL	4	100	-	-	-	-	4	100
Thai	- Government hospital/clinics	2	11.1	8	44.4	8	44.4	18	100
	- Private hospital/clinics	1	16.7	4	66.7	1	16.7	6	100
	- TOTAL	3	12.5	12	50	9	37.5	24	100

For comparison, data on contraceptive use in selected Southeast Asian countries show contraceptive practice rates averaging 55% for all methods among married (in-union) women. Specifically, contraceptive rates for Indonesian and Thai foreign workers are 55% and 72%, respectively. In other words, unlike for Indonesian women, the situation among Thai migrant workers recruited for this survey differ markedly from that in Thailand in terms of contraceptive use. Furthermore, most of the women surveyed, especially among Thais, reported living with family or relatives, which may include their spouse. Since there is no information on whether they have contact with their spouse or other sexual partner(s), no assumptions can be made on exposure to pregnancy risk. At the same time, the absence of a co-habitating spouse may explain, in part, the reason for low contraceptive use among this sample of women.

Table 10. Distribution of sexually experienced women respondents by nationality and current contraceptive use

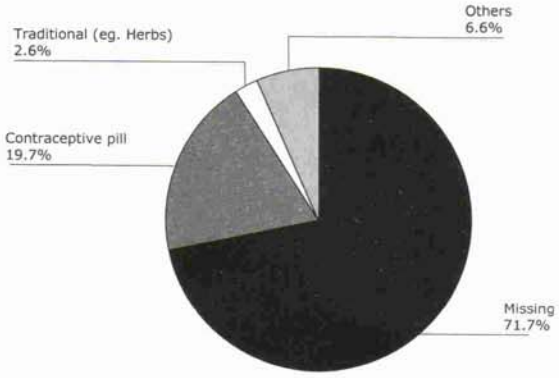
Nationality	Contraceptive Use: yes		no		TOTAL	
	n	%	n	%	n	%
Indonesian	12	54.5	10	45.5	22	100
Thai	7	15.2	39	84.8	46	100
TOTAL	19	27.9	49	72.1	68	100

Table 11. Distribution of contraceptive users by nationality, source of supply and mode of payment for supplies

Nationality	Source of Contraceptive Supply	Mode of Payment: Self-paying		Employer		Others		TOTAL*	
Indonesian	- Government hospital/clinics	3	75.0	-	-	-		4	75
	- Private hospital/clinics	4	100	-		-		4	100
	- Pharmacy	2	100	-		-		2	100
	- Others	1	50.0	-		-		2	100
	- TOTAL	10	83.3	-	1	8.3		12	91.6
Thai	- Government hospital/clinics	1	25	1	25.0	1	25.0	4	75
	- Pharmacy	2	100	-		-		2	100
	- Others	1	100	-		-		1	100
	- TOTAL	4	57.1	1	14.3	1	14.3	7	85.7

Note: *Column total <100% because of "not available" data

By method, the oral contraceptive pill (20%) was the most common among sexually experienced women (predominantly currently married).



Distribution of Contraceptive methods among sexually experienced women

Compared to data worldwide, female sterilisation (23%) is most common in Asia, including China, followed by the use of Intra-Uterine Device (16%). As in this survey, non-contraceptors are the majority (42%) in Asia. In this survey, among those currently using contraceptives, nine (60%) women were using the pill, comprising three Indonesians and six Thais. Two Thais reported using traditional methods (herbs, etc.) while four Indonesians reported other methods.

On source of supply, only 12 women provided information. Among the seven Indonesian women user, two obtained their contraceptives from a government hospital/clinic, one from a private hospital/clinic, another from a pharmacy and another from elsewhere ('Others') (Table 11). Among the eight Thais, four obtained their supplies from a government services, two from a pharmacy and one from "Others", that is, more Thais appear to be using government facilities.

Finally with regards to payment, 10 Indonesians reported that they paid for their contraceptives themselves and one named 'others' whereas only four Thais reported self-paying, one said that her employer paid whilst another named 'others' as the source of payment.

Sexual health

Among the respondents, 85% had experienced sexual intercourse (Table 12). All sexually experienced women were either currently or previously married. All of those who reported no experience were unmarried women (13 Indonesians). Among sexually experienced Thai women, all were currently married, while eight were separated or divorced. That is, no never-married women claimed to have had sexual intercourse.

Among sexually experienced women, a large majority (94%) reported having only one partner in the last five years, whilst four Thai women reported having two partners (Table 13)'. These consist of two currently married and two divorced/separated women. A very large majority named their spouse as their sex partner in the last five years. No respondent reported having had a casual sex partner, homosexual partner, or commercial sex worker.

It can, thus, be surmised that those women who reported having two partners had been married twice. A question was also asked of condom use ("Do you use a condom each time you have sexual intercourse?"). In this regard, all but two women answered 'no'; the exceptions answering 'sometimes' (None responded'"yes, each time"). These two women are currently married Indonesians whose sex partner was reported as their spouse.

A low utilisation rate for condoms as a contraceptive method supports data from many countries. The average for Asia has been cited as three percent, and even lower in Latin America and Africa, compared to developed countries where condom use is 14%[5]. That is, condoms are less popular as a method of contraception in Asia. In this case, low condom use is another reflection of low contraceptive utilisation overall. Since there is no information on the presence of a current sex partner, spouse or otherwise, among these respondents, low contraceptive, and condom, use could be due to low frequency or absence of sexual activity.

The relatively recent HIV/AIDS epidemic has drawn much attention to safe sex practices and use of condoms as protection against sexually transmitted diseases. Various campaigns and strategies to control the spread of this infection have been implemented, including Information, Education and Communication (IEC) activities and condom promotion efforts. However, since this survey was aimed at deriving a broad profile of the health of migrant worker covering several areas, no and knowledge of HIV/AIDS in this survey. specific questions were asked in the interview related to STDs, such as, reasons for condom use, Hence, no inference can be drawn regarding this behaviour.

Table 12. Distribution of women respondents by nationality and experience with sexual intercourse

Nationality	Ever Had Sexual Intercourse				TOTAL	
	yes		no			
	n	%	n	%	n	%
Indonesian	26	66.7	13	33.3	39	100
Thai	50	100	-	-	50	100
TOTAL	76	85.4	13	14.6	89	100

Table 13. Distribution of sexually experienced respondents by nationality and number of sex partners in the last five years

Nationality	Number of Sex Partner				TOTAL	
	1		2			
	n	%	n	%	n	%
Indonesian	24	100	-	-	24	100
Thai	44	91.7	4	8.3	48	100
TOTAL	68	94.4	4	5.6	72	100

Blood Tests for STDs

Blood tests were carried out on samples from 32 women to screen for syphilis by the rapid plasma reagin (RPR) method and the more specific *Treponema pallidum* hemagglutination assay TPHA), and to screen for Human Immunodeficiency Virus (HIV).

Only one woman yielded a positive test for RPR out of 32 tests among sexually experienced women (3.1% reactive rate). This case was an Indonesian sexually experienced woman. All TPHA and HIV tests were negative. In the absence of complete testing of all respondents, these results are not useful for describing nor estimating the prevalence of sexually transmitted diseases in this population.

Physical Health

Body Mass Index

Height and weight measurements were taken for all respondents, and body mass index (BMI) calculated as kilogram/meter^2. No significant difference in BMI was found between Indonesian (mean 53.9, median 53.3) and Thai (mean 51.6, median 50.0) women. Since older age tends to be associated with higher values, BMI was also stratified by two age-groups, <30 and >30 years. From Chart 1, it can be seen that mean BMI is higher for older Indonesians (mean 57.2 median 54.7) than younger women (51.2, median 52.0). This was not observed for Thais. However, this index has a wider variation among older Thai women (range 39 to 70) compared to younger (range 43 to 59). It should be noted that BMI data were available for only 20 Indonesians (52.6%) compared to 50 Thais (100%).

Summary and Conclusions

The present analysis of the health status of women migrants was confined to respondents from Indonesia and Thailand. Other nationals were omitted from this analysis because of small numbers. The main findings are summarised below.

There were significant differences between Thais and Indonesians in the sample on various aspects, such as age, educational level, marital status and number of children and migration history. Thai women were significant older, with lesser years of education, and more children. Slightly more (but not significantly) Indonesians were single. Among ever-married women, considerably more Thais than Indonesians had children living in Malaysia. This has implications for schooling and child health care needs. Thai women had also first come to Malaysia significantly earlier than Indonesians. As such, they may be more adapted to life in the host country.

Most of the women reported that they live in residential areas in houses or hostels provided by their employer. Despite the majority citing employer-provided residence, most Thais also said that they live with family members. Only a minority, more so amongst Indonesians, stated '*kongsi*' housing. Nonetheless, utilities, such as piped water, electricity and toilet facilities, were available to all respondents. That is, basic housing needs appear to be met. However, there was no information to assess the level of crowding, particularly, for those living in '*kongsi*' housing or hostels. In terms of reproductive health, and based on the average number of children, the fertility rate of the migrant women does not appear to be high, especially among the Indonesians. This may partly be attributed to their younger age compared to the Thai women. Furthermore, significantly more Thai women had delivered their last baby in Malaysia. With regard to concerns over the use of public health care facilities by migrants, findings related to maternal health services revealed that half of the small percentage of Indonesian women and a majority of the Thais who delivered their last baby in Malaysia did so in a government hospital. Be that as it may, most reported to have either paid for the services themselves or were paid for by their employers.

Use of government health care services was more common for postnatal care. The majority of respondents had received postnatal care at a government facility, but again, most said that they or their employer had paid for the services. Only two women, both Thais, were pregnant at time of survey. All women were receiving antenatal care for the current pregnancy, one at a government hospital/clinic and one at a private clinic paid for by her employer.

The majority of women were not using contraceptives at time of survey. Around 30% of currently married

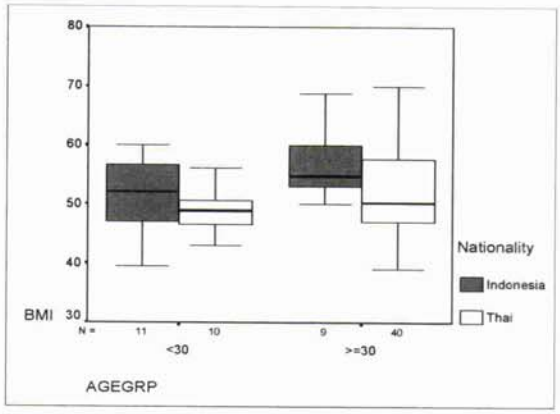


Chart 1. Box plots of BMI vby age-group and nationality

women said they were using contraception. Contraceptive use was significantly higher among Indonesians than Thais. In fact, the situation among the Thai respondents differ markedly from the national data on contraceptive use in Thailand. Since the majority of the Thais are currently married and many stated that they live with family members, which may include their spouse, they may be exposed to risk of pregnancy. The most common method was the oral contraceptive pill. The source of supplies for the Thai woman was more commonly a government facility compared to the Indonesians.

The majority of respondents said that they had experienced sexual intercourse. All those who had not were single never-married women (all Indonesians). A majority reported only one partner in the past five years, whilst four Thais reported two partners; two currently married and two divorced/separated women. No respondent named a casual, homosexual or commercial sex partner in the past five years. Condom use was very low among sexually experienced respondents. Only two women, both currently married Indonesians, reported using condoms 'sometimes'. Overall, in terms of sexually transmitted diseases based their on sexual behaviour, these women appear to be at low risk. However, many women become infected despite having only one sex partner because of the high-risk activities of their partner.

In terms of sexually transmitted diseases, data on this sub-set of women respondents revealed only one positive test for syphilis, and none for HIV. The positive case for syphilis was an Indonesian currently married woman.

Overall, the data from this survey were based on a relatively small number of women migrant workers selected purposively from selected sites and was focussed on selected aspects of reproductive health. It should be noted that, with regards to women migrant workers, a

major concern is violence. The United Nations High Commissioner for Human Rights, in its Sub-Commission resolution 1996/10 on migrant workers, has highlighted its concern over the rising "... *reports of abuses and violence committed against the persons of women migrant workers by some employers in some host countries.*" Violence against women has implications for health, both physical and mental. Domestic workers, which form a sizeable portion of the migrant women workforce in Malaysia, may be more vulnerable. This aspect was not addressed in the present survey but deserves future attention as a specific health issue for women workers.

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A SOCIO - DEMOGRAPHIC PROFILE OF RESPONDENTS

Fauza A.G
Department of Geography, Faculty of Arts and Social Sciences, University of Malaya, 50603 Kuala Lumpur.

ABSTRACT: This paper attempts to examine the socio-demographic profile of the respondents in Migrant Health studies. It was based on questionnaire survey among 820 respondents from the Klang Valley and the State of Kelantan from 6th January 1998 to 14th Jan 1999. Majority of the respondents (47.9%) were from Bangladesh, followed by Indonesia (14.8%), Thailand (13.7%), Myanmar (20.4%), Pakistan (9.9%) and Others (1.3%). The male to female ratio is 7:1. He age of respondents ranged from 18 to 69 years with a mean of 30.5 years. More than 70% of them are adults (25 - 44 years). Females were older than males (mean age of 33.8 years and 30.5 years respectively). Majority of the respondents were married (females 75.8% and males 52.6%) , 93.7 were Muslims. About 87.4% of them had some formal education. Majority of the foreign workers were employed as factory workers (35.7%), followed by construction workers (18.3%), agricultural workers (33.6%), service workers (13.3%) and self-employed (11%). Nevertheless, the profile of these responding do not conform to the national profile. *(JUMMEC 2002; 1:24-27)*

KEYWORDS: Unskilled workers, Semi-skilled workers, Legal and Illegal foreign workers.

Introduction

The influx of foreign workers into Malaysia can be traced back to the pre-independence and colonial period. However, the entry of foreign workers in the post independence era began in the early 1970s especially after the implementation of the New Economic Policy (NEP) in 1971. Initially, foreign workers were brought in to cater for the acute shortage of labour in the rural plantation sector as a result of rapid urbanization, industrialization and also improvement in the educational level of the rural population. During this early period, the entrance of foreign workers were largely illegal because there was no legal provision for the importation of foreign unskilled and semi-skilled workers.

The rapid development of the industrial and construction sectors created a further need for labour and more employment opportunities for the foreign workers. This led not only to an increase in the number of foreign workers. The country saw an influx of foreign workers of various nationalities and their involvement in several job sectors.

Since then various issues related to foreign workers have surfaced and efforts to regulate them were initiated. While the efforts were rather successful to bring in foreign labour, attempts to curb illegal entry failed. Thus until today, statistic pertaining to numbers and types of foreign workers (legal or illegal) is still inaccurate.

Foreign workers are a dynamic group of people to study. This paper attempts to examine the socio-demographic profile of the respondents in the present study. The socio-demographic profile of respondents, their migration patterns will provide some background information of the respondents which may have an important bearing on various aspects of health. The study was based on a questionnaire survey carried out on a total of 820 respondents from the Klang Valley and the state of Kelantan. The interview survey was carried out during the period of 6 January 1998 to 14 January 1999.

Demographic Profile

The various socio-demographic characteristics examined were nationality, gender, age, marital status, religion, educational status, present occupation and also their occupation in their country of origin. Whilst the information on present occupation will give a picture on the current pattern of employment, the past occupation would indicate the reasons for them seeking jobs in Malaysia.

Table 1.1 and Figure 1.1 shows the country of origin of the respondents in the present study. It shows that, nearly half, i.e 47.9 per cent of them were from Bangladesh. The rest were from Indonesia (14.8%),Thailand (13.7%), Myanmar (2.4%), Pakistan (9.9%) and Others (1.3%). For all the nationalities the males far exceeded the females and generally the male:female ratio is about 7: 1.

Associate Prof Dr Fauza Abdul Ghaffar,
Dept of Geography,
Faculty of Arts and Social Science, University of Malaya
50603 Kuala Lumpur, Malaysia

Further analysis of the travel documents possessed by the respondents revealed that nearly all of them had some form of travel documents to enter the country. A major proportion (77.8%) had both passports and work permits, while 6.7% of the respondents had only passport and about 14.5 % had work permits only. (Table 1.2)

The existence of foreign workers with passport means that they had entered the country for social visits and later decided to stay and work. Those with work permit only had entered illegally and later got registered during one of the regulation exercises carried out. However, further analysis shows that 99 out of the 117 of those with work permits only were from Thailand. This is not surprising as it occurred in the northern state of Kelantan only.

The age of respondents ranged from 18 to 69 years with a mean of 30.9 years. On the average, the females were slightly older i.e mean of 33.8 years as compared to the males whose mean age was about 30.5 years. Distribution of respondents according to age groups can be seen in Table 1.3 and Figure 1.2.

As can be seen, a large proportion of the migrants were in the age category of 25-34 years old and a further 16 per cent in the 35-44 age group. This shows that more than seventy percent of the respondents are considered as mature adults while about 14 percent can be considered as young population. The rest of the migrants (about 6.7 per cent), fell into the 45-54 and above 55 years old. Detailed analysis showed that amongst the Indonesians and the Bangladeshis, most respondents are in the first two age groups and the older age groups are predominantly Thais, Burmese and the Pakistanis (Figure 1.3).

With regard to marital status , more than half of respondents were married. The proportion of married respondents were higher amongst the females (75.8%) as compared to the males (52.6 %). Among respondents who were single, the Bangladesh forms a prominent group compared to other nationalities (Table 1.4).

Socio-Economic profile

A majority (93.7%) of the population were Muslims. However, there exist followers of other religions especially amongst the Burmese who were either Buddhists, Christians or Hindus. The educational level defined by the number of years of formal

education varies greatly among respondents. Majority of the respondents i.e about 87.4% possessed some form of formal education. Only about 12 % of respondents did not have any form of formal education. The level of education however is higher for male respondents compared to females.

Table 1.1. Distribution of respondents according to country of origin

Nationality	Indonesian	Bangladesh	Thai	Myanmar	Pakistan	Others	Total
Number	121	393	112	102	81	11	820
Percent	14.8	47.9	13.7	12.4	9.9	1.3	100

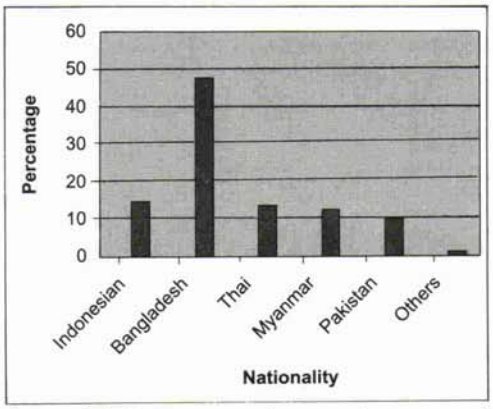

Figure 1.1. Percentage of respondents according to country of origin.

Table 1.2. Travel Documents of Respondents

Travel Documents	Work Permit Only	Passport Only	Work Permit and Passport	Others	Total
Number	117	54	629	9	809
Percentage	14.5	6.7	77.8	1.1	100.0

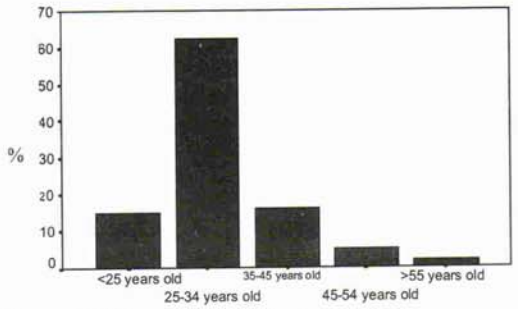

Figure 1.2. Age of respondents

Comparisons between the various nationalities showed that educational attainment was highest amongst the Burmese The level of secondary education is high both in Myanmar and Bangladesh and the same is also true of the proportion attending 13 years and more of schooling. The lowest level of education was amongst the Thai respondents (Table 1.5). An analysis was also carried out on the present occupation of respondents while in Malaysia and that in their home countries before coming to Malaysia.

Table 1.6 shows that most of the foreign labourers in the study were employed as factory workers (35.7%), followed by construction workers (18.3%), agricultural workers (3.6%), service workers (13.3%) and about 11

per cent were self-employed. The factory workers were mostly working in Petaling Jaya and Shah Alam and were employed as production workers. Those in the service sectors were mostly working in restaurants, petrol kiosks, launderettes and hotels. The construction

workers were mainly involved in the construction industries in and around the Klang Valley. Quite a proportion of these respondents were self-employed. They were mainly involved in petty- trading as fruit-sellers, night-market traders and also cobblers. Domestic maids comprised nearly 30 per cent of the foreign labour in the country. Only a minor proportion of the respondents in the present study were in this job category.

An analysis of occupation types by nationality shows the different job distribution of foreign labourers by country of origin (Table 1.7). They were engaged as construction workers (28.1%), in the service industry (24.8%), as domestic helpers (12.4%) and 18.2% are self-employed. About 10% of the Indonesian respondents were factory workers and a minor proportion are employed in the agricultured sector. On the other hand, the Bangladeshis were mainly engaged in the factories (62%) followed by the service industry (6.0%) and also in the construction sectors (12.2%). The Thai

respondents were mainly involved in agriculture (87.5%) while minor proportions were distributed in all the other sectors. About a quarter of the respondents from Myanmar were self – employed, followed closely by factory workers (24%) and construction workers (16%). The remainder were equally distributed in the other types of occupations and about 5 per cent of migrant workers from Myanmar were unemployed. Lastly, 28.4% of the respondents from Pakistan were self-employed, followed by 18.5%, 11.2 % and about 10 % working the agriculture, working in the service and manufactoring industries respectively. There was also a high rate of unemployment among the respondents from Pakistan (22.2 %).

An analysis of the occupation of the respondents in

Table 1.3. Age of Respondents

Age group	Number	Percentage
Below 25 years old	120	14.8
25-34 years old	506	62.5
35-44 years old	129	16.0
45-54 years old	39	4.8
Above 55 years old	15	1.9
Total	809	100.0

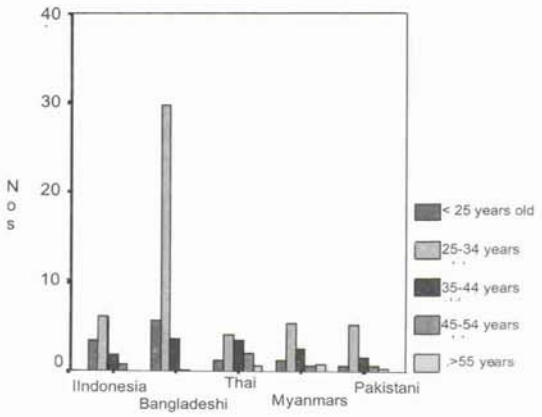

Figure 1.3. Age of respondents according to country of origin

Table1.4 Respondents by Nationality and Marital status

Nationality/ Marital Status	Currently married	Widowed	Divorced/ separated	Single	Total
Indonesian	75	1	0	44	120
Bangladeshi	174	0	0	219	393
Thais	95	6	3	8	112
Myanmars	59	2	0	41	102
Pakistanis	45	0	0	36	81
Total	448	8	3	348	809

Table 1.5. Educational level attainment by nationality

Educational attainment Nationality/	No schooling	1-6 years	7-12 years	13 year and more	Total
Indonesian	10 (8.6%)	50 (43.4%)	45 (39.1%)	10 (8.6%)	115 (100.0%)
Bangladeshi	32 (8.2%)	100 (25.4%)	214 (54.8%)	44 (11.2%)	390 (100.0%)
Thai	34(30.3%)	69(61.6%)	8 (7.1%)	1(0.8%)	112 (100.0%)
Myanmar	7 (6.9%)	27 (26.7%)	53 (52.4%)	14 (13.8%)	101 (100.0%)
Pakistani	16 (20.2%)	19 (24.0%)	39 (49.3%)	5 (6.3%)	79 (100.0%)
Total	99 (12.4%)	265 (33.2%)	359 (45.0%)	74 (9.2%)	797 (100.0%)

their home country prior to coming to Malaysia shows the reverse pattern. Generally, in their home country, the respondents were mainly non- employed (36.7%), agricultural workers (24.7%) or self-employed. A very small proportion were found in the other occupation all groups especially the profesional and semi professional sector, factory as well as construction and service sectors. This confirms that the factors encouraging their migration are both the "push factors" in their home countries and the" "pull factors" of better jobs and employment opportunities in Malaysia.

The Indonesian migrant workers were working as agricultural workers unemployed or self employed in their home country. The unemployment level is higher among Bangladeshis (47.9%),Thais 25.0%), Burmese (30.2%) and 22.3% among the Pakistani while they were in their home countries. The bulk of the respondents from these countries were also either agricultural workers or self-employed.

Migration Patterns

Finally, an analysis was carried out on the migration pattern of the respondents. The influx of migrants into the country had started from the very early times but escalated in the 1970s due to the rapid economic development in Malaysia. However, among the respondents in the present study, slightly more than 90 per cent arrived in the 1990s. Between 1960-1998, there was a sharp upward trend from the late 1980s until 1996, after which there was a sudden decline. This trend is similar to the national trend as a result of the rigorous efforts towards controlling the inflow of migrant workers and since the impact of the economic crisis in 1997. It is also pertinent to highlight that about 4.8 per cent of those who arrived earlier than 1990 are still living and working in the country.

A majority of them entered Malaysia directly from the country of origin, except for a very small proportion of about 1.2% who came in through a third country. Even those who came directly from their own country, there was only a few respondents or 2.5% (21) who were in transit in a town somewhere in their country, while the rest (95.3%) came directly from their hometowns. A majority (90%) have never returned home since their arrival.

Overall, a high proportion of them (70.4%) traveled by air (especially the Bangladeshis and the Pakistanis), while the Indonesians had the options of the sea and air routes. One point worthy to note is the proportion of respondents from Myanmar who came via land (30.7%), and about 20.8% who came via a combination of land and sea routes. Generally, almost all of them have some form of travel documents, either the passport, work permit or even both.

Table 1.6. Occupations of respondents in Malaysia

Types of occupation	Numbers	Percentage
Professional/ Semi – Profesional Workers	10	1.2
Domestic Helpers	20	2.5
Construction Workers	148	18.3
Factory Workers	289	35.7
Service Workers	108	13.3
Self-Employed	110	11.0
Agricultural Workers	18	13.6
Other Workers	18	2.2
Not Working/Unemployed	6	0.7
Not Available	11	1.5
Total	**809**	**100.0**

Table 1.7. Occupations of respondents in their home country

Types of occupation	Numbers	Percentage
Professional/ Semi – Profesional Workers	21	2.6
Domestic Helpers	3	4.0
Construction Workers	8	1.0
Factory Workers	59	7.3
Service Workers	41	5.1
Self-Employed	153	18.9
Agricultural Workers	200	24.7
Other Workers	18	2.2
Not Working/Unemployed	297	36.7
Not Available	11	1.5
Total	**809**	**100.0**

Conclusion

The above discussion focuses on the demographic, social and economic characteristics and the migration patterns of the respondents involved in the study. The profile of these respondents in some instances do not conform to the national profile and patterns. Nevertheless in many instances these findings do indicate to a certain extent the general picture of migrant workers in the country. In the context of the present study it is envisaged that certain illnesses and diseases plus the medical seeking behavior of the migrants do relate to their demographic, social and economic characteristics and their migration patterns may have an implication on certain diseases found to prevail amongst them. This will be discussed in the following sections.

ILLNESS PATTERNS, UTILISATION OF HEALTH SERVICES AND THE USE OF HEALTH SUPPLEMENTS AMONG THE FOREIGN WORKERS IN SELECTED AREAS OF PENINSULAR MALAYSIA

Atiya A.S
Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

One who is ill has not only the right but also the duty to seek medical aid.
Maimonides (1135–1204)

ABSTRACT: This paper examines the results of a section on recent illness of the health survey among 799 foreign workers from three selected study locations. The main objective was to study illness/injury patterns and the utilisation of available health care services. It also attempts to examine the use of health supplements as an indicator of self-care. Findings indicate that the illness/injury rate was 46.6%. The illness/injury rate increased with age and was highest in the 45-54 age group (65.0%) and among the Thai workers (69.6%). The main illnesses reported were injuries and accidents (19.6%), musculoskeletal problems (18.0%) and gastrointestinal complaints (16.7%), and it varied with gender, age and nationality. Almost 90 percent of the foreign workers sought treatment at modern health care facilities, with a third utilising government health care services. The employers contributed towards 60% of all the treatment costs. Nearly a third of the foreign workers took health supplements, and the rates were higher among the younger age group (40.0%) and among the Indonesian workers (52.0%). Majority had obtained the health supplements from the pharmacies or retail shops (43.3%) and private health care facilities (35.4%), and about 70 percent paid out of their own pocket. Some of the implications and limitations of these findings are discussed. *(JUMMEC 2002; 1:28-39)*

KEYWORDS: Musculoskeletal, Gastrointestinal, Asthmatic, Hypertension, Epilepsy, Diabetes mellitus, Migraine.

Introduction

The practice by some countries including developed nations of taking in foreign workers to overcome acute labour shortages is well documented (1,2). The influx of migrant workers was accompanied by social, economic, political and health implications imposed on the recipient country. There had been many published reports debating on these various issues (3,4).

In Malaysia, the presence of immigrant workers dated back to the time when the British Administration imported the Indian and Chinese workers in large numbers to work in their plantations, mining and communication sectors (5). In more recent times especially during the economic boom of the 1990s, there was a tremendous influx of foreign workers of different nationalities especially from the neighbouring countries to meet the country's rapid development in the various economic sectors.

There have been several reports regarding the social, economic and political impact of their presence locally (6). But little is known about their health and well being, including health practices and the utilisation of available health services. There could be several reasons for the lack of such information. One is that it would be logistically difficult to carry out a survey involving a large number of subjects without the concerted effort by several related parties to plan and execute such a field study. The other possibility is the difficulty in defining the actual study population, as many are illegal immigrants. Nevertheless, their large presence could have an impact on the health scenario of the nation. It would be difficult for the health-related agencies to start tackling the health issues pertaining to the foreign workers without hard data to rely on in order to initiate any appropriate course of action in dealing with such problems.

Correspondence Address
Associate Prof Dr Atiya Ab Sallam,
Department of Social and Preventive Medicine, Faculty of Medicine,
University of Malaya
50603 Kuala Lumpur, Malaysia

In this section of the report we attempt to measure is on the observed prevalence, pattern of illness and the utilisation of available health care facilities among the foreign workers of various nationals. Also we wish to investigate the use of health supplements as an indicator of self-care. It must be stated that in the context of this study the term illness would also include disease as being reported by the person (e.g. diabetes mellitus), besides its true connotation of being unwell. (e.g. abdominal pain).

Objectives

Overall objective

The aim of this section is to examine some aspects of non-work related illness/injury and the use of health supplements during the 4-week period preceding the survey among the foreign workers from the three selected study locations.

Specific objectives

1) To establish the prevalence of non-work related illness/injury.
2) To describe in relation (where indicated) to gender, age, educational level, nationality and place of work;
   a) patterns, types and severity of illness
   b) utilisation of health facilities and methods of payment for the medical treatment
3) To describe in relation (where indicated) to gender, age, educational level, nationality and place of work the use of health supplements in terms of :
   a) extent of usage
   b) source
   c) method of payment

Methods

A survey instrument in the form of a structured questionnaire was used to obtain information on the socio-demographic, migration patterns, environment, life-style habits, women's health, recent illness, dental, occupational, psychological, and sexual health. Also urine, stool and blood samples were taken to establish the presence of microbiological and parasitological agents. Physical parameters including chest radiography were also performed. A total of 885 questionnaire forms were completed during the survey period from 6 January 1998 to 14 January 1999 at various work locations in the Klang Valley and Kelantan. All except for 18 records, were analysed.

Results

Respondents

Seven hundred and ninety-nine (98.8%) out of 809 foreign workers responded to the questions pertaining to the non-work related illness or injury in the last 4 weeks prior to the survey. The eligible 799 workers were recruited from Putrajaya/KLIA project site (n=170) and the plantation site in Kelantan (n=109). The remainder were from the Department of Primary Care clinic (RUKA, n=393) and the Accident and Emergency Department (n=127) of the University Malaya Medical Centre, Petaling Jaya.

Morbidity patterns

Three hundred and seventy-two workers (46.6%) reported to have suffered non-related illnesses or to have sustained injuries. The illness/injury is classified into 14 broad categories as listed in **Appendix A.**

Female workers tend to have marginally higher morbidity compared to the males (50.0% versus 46.1%). It was highest in the 45 - 54 age group (60.0%), while those less than 25 years old were the least afflicted (37.3%) (Figures 1, 2). The Thais had a very high prevalence (69.6%) of being ill or injured in contrast to the Pakistanis (26%) and the Indonesians (31%) (Figure 3).

The prevalence was high among those working in the plantations (70.5%) and manufacturing sectors (52.4%) (Figure 4). All the workers in the plantation were Thais. This explains the high prevalence of illness/injury reporting.

The three leading complaints were injuries including 21 cases of accidents of undetermined nature (19.6%), followed by musculoskeletal (18.0%) and gastro-intestinal complaints (16.7%) and fever (14.5%). (Table 1) Majority (40.3%) of the musculoskeletal complaints were described as *back ache* or back *pain*, while 85.5% of the gastrointestinal complaints were *stomach, abdominal,* or *gastric pain.*

The common complaints by male workers were injury and accident (21.7%), musculoskeletal (19.5%), and gastrointestinal (18.3%). In contrast, female workers suffered more from headache (30.6%) and fever (20.4%) (Table 2). Musculoskeletal complaints tend to be more common in the 34-44, and 45-54 years age group, while the younger age groups (< 25 and 25-34 years) had higher occurrence of injuries and accidents. Gastrointestinal complaints were more common in the 55 years and over (Table 3). Injury and accident were much more common among the Indonesian workers (50.0%) compared to the rest. The Pakistanis seemed to suffer more from musculoskeletal complaints (28.6%) and least among the Indonesian workers (2.8%). The gastrointestinal complaints was relatively rare among the workers except for the Burmese (28.3%) and the Bangladeshis (19.9%) (Table 4).

Non-work related injuries and accidents seemed to be more frequent among the workers in the construction, manufacturing and service sectors compared to the plantation workers. Musculoskeletal complaints were

more common among the manufacturing workers (22.0%) compared to the others. Construction and to a lesser extent service workers seemed to suffer more of gastrointestinal complaints (25.0% and 18.6% respectively) compared to the workers in other work sectors. Fever and headache were the most prevalent complaints among the plantation workers (29.1%) in comparison to others (Table 5).

Utilisation of Health Care Facilities

Almost 90 percent of the 372 foreign workers sought treatment for their illness, injury or accidents from the western medical care sources. The remainder either received treatment from either the traditional sources (6.5%) or resort to self-medication (4.8%). It is worth noting that a third obtained treatment from the government health facilities (Figure 5).

A slightly higher proportion of female workers (61.2%) sought treatment at private health facilities compared to the males (53.6%) and vice versa for the government health facilities (Male : Female; 36.2% : 20.4%). The proportion that sought traditional treatment was also higher among females (12.2%) compared to 5.6% in males.

The younger workers (less than 35 years) showed higher utilisation of government health facilities compared to workers in the older age group (Figure 6). However, the utilisation of government facilities did not show marked variation among the different educational status (Figure 7).

A higher proportion of Bangladeshis (49.2%) sought care in government health care facilities compared to others, especially the Thais (6.4%) and Pakistanis (5%) (Figure 8). The proportions of workers that utilised government health care facilities were much higher among those working in the service, manufacturing and construction sectors compared to those working in the plantations (Figure 9). This difference is due to the fact that the foreign workforce in the plantation sector was entirely made up of Thais who preferred to seek care at private health facilities instead. (Note: no comment could be made on domestic sector, as the number was too small)

In order to assess whether severity of illness would influence the choice of place of care, the illness is categorised into four categories namely: *Acute* illness (defined as any pain of gastrointestinal origin, asthmatics, back pain/ache, joint pain, chest pain, migraine, and tooth pain,); *Injury/Accident; Non-Acute* illness (defined as fever, headache, medical condition such as hypertension, diabetes mellitus, epilepsy, skin diseases, surgical operation) ; *Others* (defined as unspecified condition). *Injury/Accident and Non-Acute illness* resulted in higher proportions (54.8% and 61.4% respectively) of workers choosing private health care compared to the government health care. However, the difference between the choice of private and government health care facilities is not large (48.6% and 41.9% respectively) for *Acute* illness (Tables 10 – 13) (Note: No comment could be made of *Other* conditions since the number is too small to make such comparison).

It is shown that the employers paid about 60 percent of the workers medical treatment cost, while the rest were paid out off workers' own pocket. Figure 14 shows the percentage of treatment cost paid by the employers for various industries. With the exception of domestic sector where the employers paid fully for their employees medical treatment cost, the rest of the employers' contribution range from 31.1% among the service workers to 70.5% among the plantation workers.

The Use of Health Supplements

Practices pertaining to the use of health supplements were also elicited from the workers in order to assess their health behaviour. There were 254 (31.8%) out of 799 workers who reported to have taken health supplements.

There was not much difference in the use of health supplements between the male (31.7%) and female (32.7%) workers (Table 15). The use was high among the workers aged less than 25 years old (40.0%) compared to the other age groups. There is however a decreasing trend in use with age, but it shows a rise among those aged 55 years and over (Figure 16). There is a very small increase in the use of health supplements with increasing level of education (Figure 17).

The use was highest among the Indonesians (51.7%), compared to the other nationalities (Figure 18). As shown earlier, the Indonesians were the least to report illness or injuries/accidents compared to the other nationalities. On the other hand, the Thais who took far much less health supplements (23.2%) compared to the others had the highest proportion of reporting ill or injuries/accidents. Those working as maids had relatively higher usage (47.4%) compared to workers in the other sectors (Table 19).

The main source for obtaining these health supplements was from pharmacies including retail shops (43.3%) and private hospitals/clinics (35.4%) (Table 20). Only a few (9.4%) obtained their supplements from the government health facilities. The traditional source for these health supplements was only about 11 percent. The majority (70.8%) paid out of their own pocket for health supplements, while the employers paid for the rest (Figure 21).

Discussion

In this study, foreign workers showed high rates of non-work related illness and injuries/accidents requiring curative treatment. Even though the majority of these illnesses was minor and acute in nature, it has certain health policy implications (see later). Of the non-injury illnesses, the musculoskeletal, fever and gastrointestinal ailments were the leading complaints. It is worth noting that about 20 percent of the workers sustained injuries including 21 cases of accidents of undetermined nature. Whether some of these cases were actually related to their work environment could not be totally ruled out, despite efforts at clarifying to the respondents during the interview the exact information that was required.

The illness patterns that emerged from this survey suggest that some of these illnesses were related to gender, age, and nationality. Male workers were more prone to injuries/accidents, musculoskeletal and gastrointestinal complaints compared to females the majority of whom complained of headaches and fever. It is only tentative to suggest that the type of physical activity one performs could explain this. With respect to musculoskeletal complaints and in particular backache it could be argued that the male workers performed activities that demand carrying and lifting heavy objects. In this respect it would be difficult to separate from the non-work and work related nature of the complaints. Carrying out such tasks may also entail certain risks of getting oneself injured or be involved in an accident.

The illness rate increases with age, i.e. those over the age of 45 years old (9.4% of the foreign workers) had in excess between 19 to 28 percent more of falling ill compared to those below that age.

There were large differences in the prevalence rates among the nationalities. The Thais were far more prone to illness, while the Indonesian and the Pakistani workers seem to be much 'healthier' lots. The high prevalence among the Thais may be partly due to the fact that about 23 percent of them were 45 years and older, whereas the Indonesian, Bangladeshi, Burmese and Pakistani workers were much younger. It is not surprising to observe that the workers in the plantation sector had the highest prevalence since all of them were Thais. The observation that these Thai workers had higher fever rate could be seasonally related, since they were located in Kelantan, while the rest of the workers were in the Klang Valley.

The high demand for the health care services by the foreign workers is clearly shown in this study. As high as 89 percent seek modern medical care. This clearly indicates the accessibility of the health care provisions in this country to migrant workers. Nevertheless, it is of great concern that a little over a third utilised government health facilities. Their access to the government health care facilities would add to the health manpower constraints apart from the financial implications. As shown, age, nationality and industry are potentially important predisposing traits influencing the use of government health facilities.

The choice of utilisation may to some extent be influenced by the type of illness, as shown in this survey. However the reasons for such observations are not clear-cut, as in this instance the preference for private care is overwhelming for *Non-Acute* illness compared to the *Acute* illness.

With the exception of domestic workers, the payment for their medical fees is only partially paid by their employers. This raises an important policy question – who should be responsible for the health needs and cost of medical care? Should the government be absorbing the cost or should there be some health insurance scheme instituted to ensure that the interest of the workers, employers and the government are safeguarded.

The observation that 1 in 3 foreign workers took health supplements provides some indications of their perception about health. Even though the reasons for taking health supplements were not elicited, it is widely perceived that they use it because it would bring some good to their individual health. In this study one finds that this assumed perception varies according to age, nationality and to a lesser extent the educational level of the workers.

The fact that this survey shows some obvious differences among different nationals indicates the inter-racial and inter-cultural complexities with respect to choice of health care access and health belief. Malaysia receives foreign workers from diverse groups of different ethnicities and geographical locations of the ASEAN region, Indian sub-continent regions and beyond. This must surely be borne in mind by the policy makers in setting up a health care scheme for these foreign workers.

It must be mentioned that this study has several limitations. The intention at the planning stage of the survey to select a more representative sample could not be achieved because of several logistical reasons. Some of the firms selected and had agreed to participate initially decided to withdraw at the last minute. This was aggravated when the government decided to repatriate some of the foreign workers because of the sudden downturn of the nation's economy. Even for those firms that had agreed, it was the prospective subjects that made matter worse as they were very unwilling to participate for fear of being sent home, despite the reassurance given. As such some of the subjects had to be replaced by the foreign workers attending the Primary Care clinic and Accident and Emergency Department

of the University Malaya Medical Centre. The eventual constituted sample was therefore non-random.

There were also difficulties in communication and response bias. The similar type of questions asked either in English or Malay language were not always fully understood by the different nationals. With the exception of one Burmese, the others were local interviewers who found some difficulties in understanding what the respondents said.

The number of foreign workers with regard to some of the characteristics (e.g. employment in domestic sector) were too small to be examined beyond the simple frequency description. As such it was rather difficult to make cross-tabulation comparison with the other groups with respect to the variation observed.

Summary findings

A total of 885 questionnaire forms were completed during the survey period from 6 January 1998 to 14 January 1999 at various locations in Klang Valley and Kelantan. All except for 18 records, were analysed.

About 46 percent of the respondents were Bangladeshis. The rest (48.7%) were from Indonesia, Thailand and Myanmar. The ratio of male to female respondents were 5.1:1. With the exception of 10 respondents who were below the age of 18 years, their age ranged between 18 to 69 years old (mean $\pm$ sd. : 30.5 $\pm$ 7.3 for males ; 32.6 $\pm$ 9.9 for females). Slightly less than half were single. On the average, their educational attainment in terms of number of years attending formal education was 7.9 $\pm$ 4.6 years for males and 5.5 $\pm$ 4.8 for females.

Majority had arrived in Malaysia between the period 1995-1997, and most of them came directly from their home country. A large proportion stayed at employer provided dwellings, including *Kongsi* quarters. However, about 5 percent lived in squatter areas, and these were largely from those working in the construction and service sectors. Many shared living quarters, and the median number sharing rooms with other persons was 4 for males and 2 for females. Generally the basic sanitation - water, toilet, and solid waste disposal were found to be 'adequate'. However, the majority received their shared water supply through public stand-pipes, and therefore had to store water using plastic containers for their water consumption.

About a quarter smoked cigarettes, and nearly all were males, with the exception of 5.4% females who were from Thailand. Almost all (4.7%) of the respondents who consumed alcohol were male Bangladeshis. Only a few (0.8%) admitted that they were taking illicit drugs.

Majority of the females were Thais and Indonesians, and 74.6% of the females were married. About 28 percent of the married females practised family planning, majority of whom were using contraceptive pills. These pills were obtained mainly from proper establishments, i.e. at government, private health care facilities or pharmacies, and were paid mainly by the workers themselves.

About 46 percent of the respondents reported to have suffered form non-work related illnesses or injuries in the last 4 weeks of the survey period, with a slightly higher proportion among the females. The Thais (both gender) seem to be having the highest reported non-work related illnesses or injuries compared to other nationalities, i.e. 66.2% and 75% respectively. Almost all in the plantation were the Thais workers, hence it was not surprising to find that this sector had the highest record of illnesses and injuries. Majority (56.0%) sought private care for their ailments, and majority were paid by their employers. Nearly a third of the respondents reported taking health supplements, majority of whom were the Indonesians. By far, the majority (77.9%) obtained the health supplements from either pharmacies or private clinics. Among those who procured at private or government clinics, half were being paid by their employers.

About 28 percent of the respondents reported having some kind of dental problems, two-third of whom were females. The Thais (of both gender) in comparison to other nationalities had the highest reporting dental problems. Regardless of nationality and gender, majority had toothache (76.7%), and lesser proportion complained of sensitive tooth (33.2%) and bleeding gums (23.2%). About half consulted the dentists or doctors for their complaints, but in comparison 42.9% of Thais did not take any action for their dental problems. Majority (84.4%) had never visited a dentist in Malaysia, particularly the Thais. For those who had, the main reasons for seeing the dentists were for extraction and toothache. While those who did not, the main reason was "there was no need".

In all sectors, except for those in plantations the median working duration was 48 hours per week. It is noted that a high proportion of those in the construction (89.3%) and manufacturing (81.2%) sectors had been given a briefing on health safety related to their jobs compared to the plantation sector (20.5%). About 70 percent of the respondents had been given some kind of personal protective equipment, but the proportion was only 46.5% in the plantation sector. The proportion of respondents covered by insurance for diseases or injuries varies from industry to industry. It was low in the plantation sector, but they had a high percentage of private insurance. About a fifth had suffered some kind of work related diseases over the past one year, and it was higher among females (31.2%) compared to the males (19.1%). The most prevalent work

related diseases was skin problems (42.3%), and was most common in the manufacturing sector. Fractures and dislocations were not very common, but contributed to the highest proportion of hospitalisation. Majority (71.2%) of the bills were paid by 'others', while employers contributed to only 21.1% of the respondents bills. Plantation sectors had the highest proportion of days lost (4.1%) compared to other industries.

Among those who responded to having sexual intercourse, over 90 percent had only one sexual partner in the last one year and 97.5% and they said that they did it with their own spouses. However, among the males, it was found that 9.6% had 2 or more casual partners, and only a few had exposed themselves to the commercial sex workers (1.7%). The proportion of condom use was much higher among single males (60.0%) compared to the married males (12.4%).

Conclusions

Considering the study limitations, the following conclusions are reached:

1) The prevalence of non-work related illnesses/injuries was 46.6%. The three most common complaints that accounted for about 54 percent of all illnesses were injuries including accidents, musculoskeletal and gastrointestinal problems.

2) The potential predisposing traits for the illness prevalence were:
   a) Age - older workers were more prone to illness.
   b) Nationality - Thais had the highest prevalence.
   c) Industry - Plantation workers reported to have the highest prevalence (all Thai workers)

3) Gender, age, nationality and industry potentially influenced the type of illness:
   a) The predominant complaints among male workers were injuries/accidents, musculoskeletal and gastrointestinal problems, whereas for female workers were headache, fever and musculoskeletal complaints.
   b) Injuries/accidents and musculoskeletal complaints were the most common in the younger age groups, whereas in the older age groups were fever and gastrointestinal problems.
   c) Injuries/accidents was most common among the Indonesian and Bangladeshi workers, while fever and headache among the Thais and gastrointestinal problems among the Burmese.

4) High rate of utilisation of modern medical care by foreign workers:
   a) About 55 percent sought private care, while another third utilised government health facilities,
   b) Slightly higher proportion of females utilised private health care, while more males used government health facilities.
   c) Higher rate of younger workers utilised government health facilities.
   d) Bangladeshi workers used more of government health facilities.
   e) Service, manufacturing and construction sector workers utilised more of government health facilities.
   f) Injuries/accidents and Non-Acute illnesses among the workers resulted in higher proportions utilising private health care.

5) Sixty percent of the workers medical treatment costs were borne by their employers while the rest from the workers out of own pocket.

6) Nearly a third took health supplements
   a) There was no difference in use of health supplements between males and female.
   b) Use was highest among workers below 25 years old. There was a decreasing trend in use till 55 years when its use rose again.
   c) Use was highest among the Indonesian workers and coincidentally they were the least prone to suffer illnesses, while the Thais used the least and had the highest rate of illness.
   d) Nearly 79 percent of the workers purchased the products from pharmacies or retail shops and private health care facilities, and about 70 percent paid from out of their own pocket.

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A. ILLNESS PATTERNS

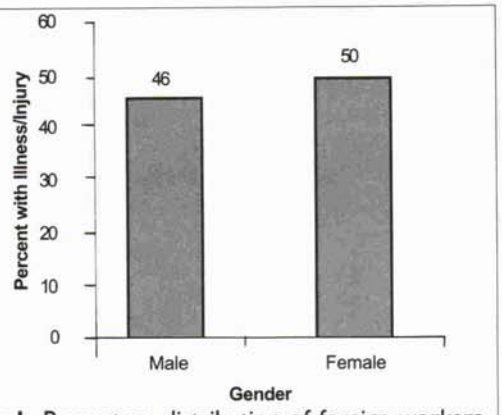

Fig 1. Percentage distribution of foreign workers with illness/injury by gender. (n = 799)

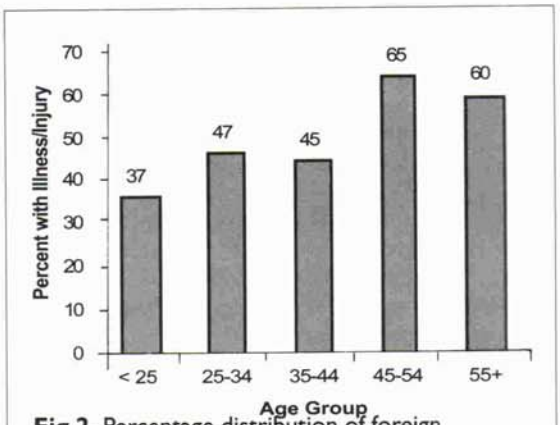

Fig 2. Percentage distribution of foreign workers with illness/injury by age group. (n = 799)

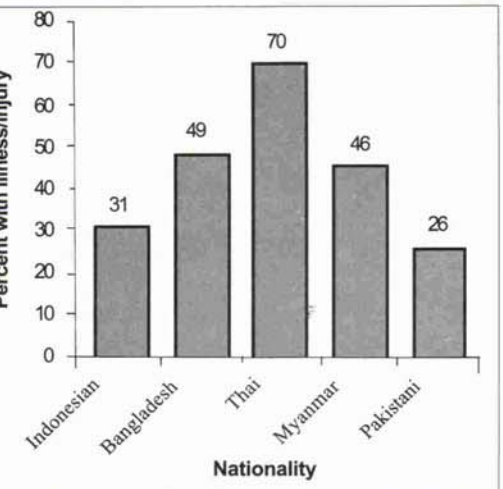

Fig 3. Percentage distribution of foreign workers with illness/injury by nationality. (n = 799)

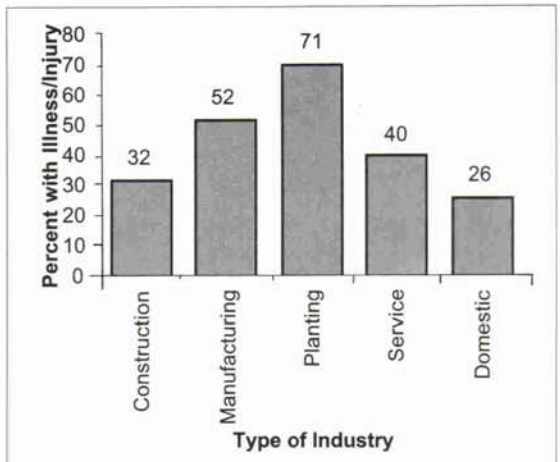

Fig 4. Percentage distribution of foreign workers with illness/injury by industry. (n = 799)

Table 1. Number (%) of different types of illness reported by the 372 foreign workers during 4 weeks preceding the survey

Complaint	Frequency	Percent
Gastrointestinal (GT)	62	16.7
Respiratory	21	5.6
Cardiovascular	23	6.2
Musculoskeletal	67	18
Neurological	3	0.8
Skin	9	2.4
Dental	6	1.6
Ear, Nose and Throat (ENT)	7	1.9
Endocrine	2	0.5
Genito-urinary tract (GU)	4	1.1
Fever	54	14.5
Headache	30	8.1
Injury/Accident	73	19.6
Other (non-specified)	11	3.0
Total	**372**	**100**

Table 2. Number (%) of illness according to its "acuteness" reported by the 372 foreign workers during 4 weeks preceding the survey

	Frequency	Percent
Acute illness	148	39.8
Injury/Accident	73	19.6
Non-acute illness	140	37.6
Others	11	3
Total	**372**	**100**

B. UTILISATION OF HEALTH CARE SERVICES

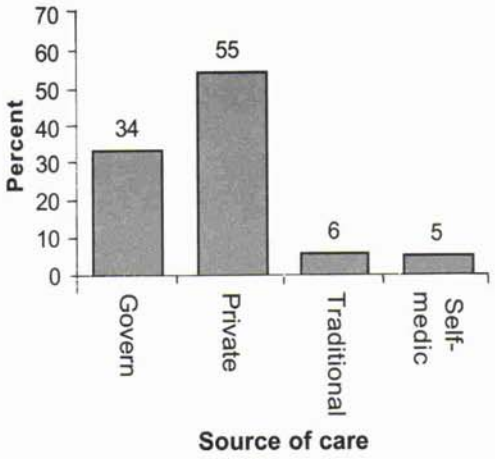

Fig 5. Percentage distribution of foreign workers with illness/injury seeking treatment at different sources of care. (n = 372)

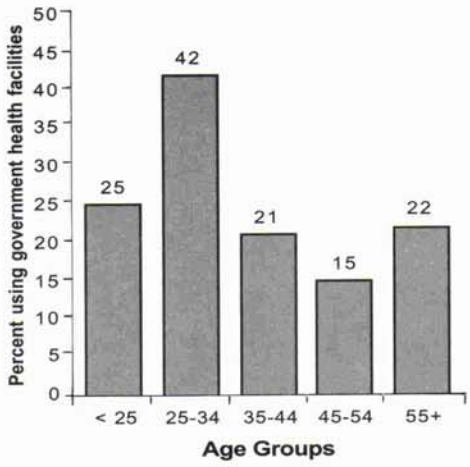

Fig 6. Percentage distribution of foreign workers seeking care at government health facilities by age group. (n = 372)

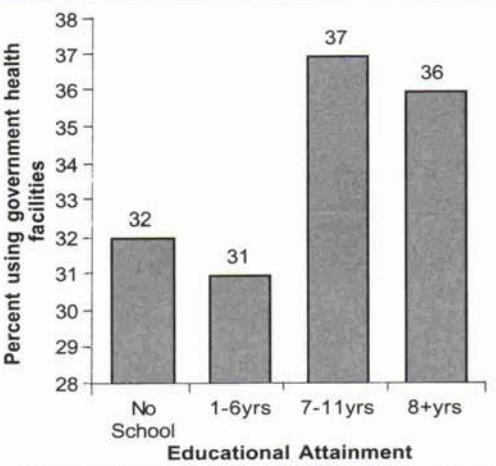

Fig 7. Percentage distribution of foreign workers seeking care at government health facilities by educational level. (n = 372)

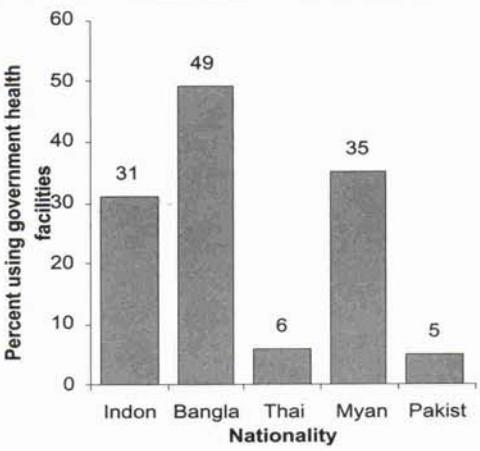

Fig 8. Percentage distribution of foreign workers seeking care at government health facilities by nationality. (n = 372)

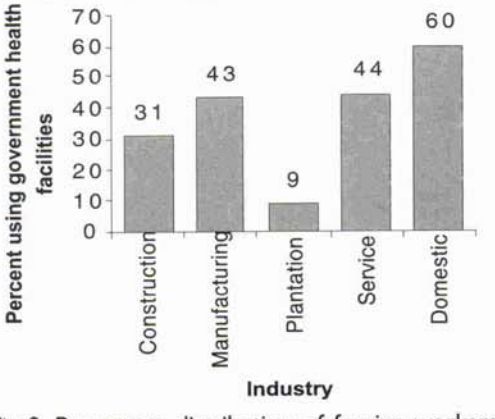

Fig 9. Percentage distribution of foreign workers seeking care at government health facilities by industry. (n = 372)

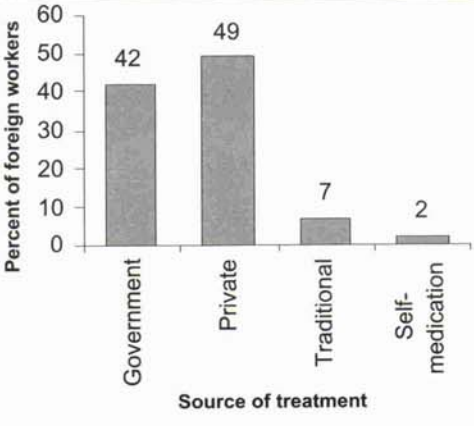

Fig 10. Percentage distribution of place of treatment for acute illness. (n = 148)

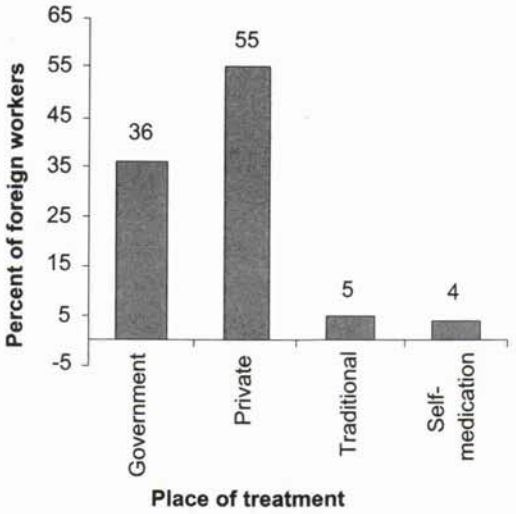

Fig 11. Percentage distribution of place of treatment for injury/accident.

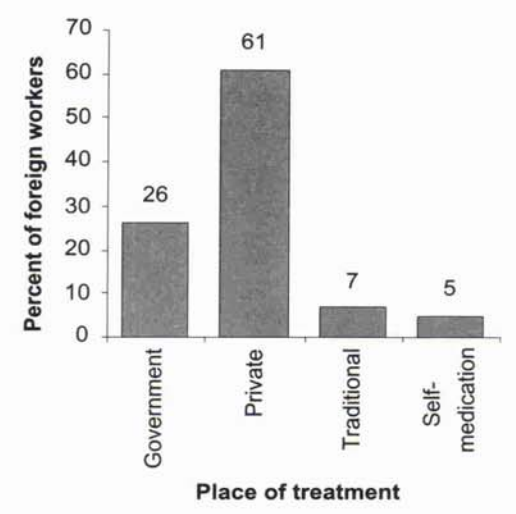

Fig 12. Percentage distribution of place of treatment for non-acute illness. (n = 140)

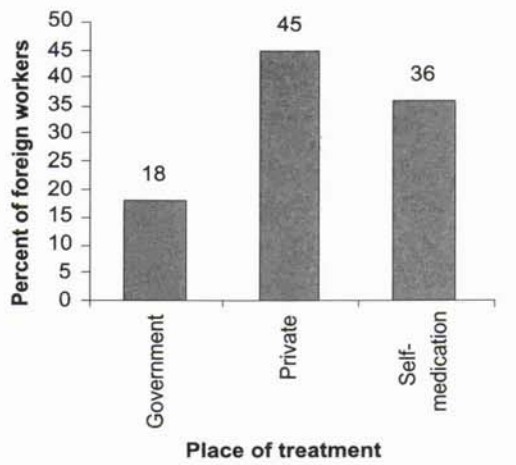

Fig 13. **Percentage distribution of place of treatment** for other conditions. (n = 11)

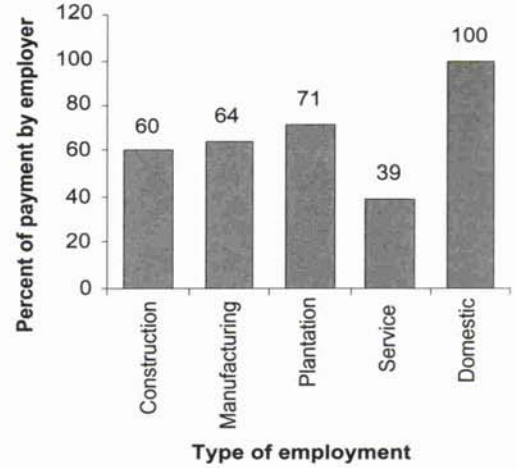

Fig 14. Percentage distribution of payment for illness of foreign workers by their employers. (n = 372)

C. THE USE OF HEALTH SUPPLEMENTS

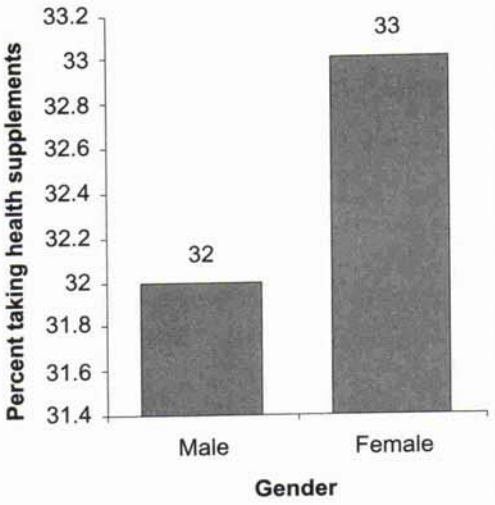

Fig 15. Percentage distribution of foreign workers taking health supplements by gender. (n = 799)

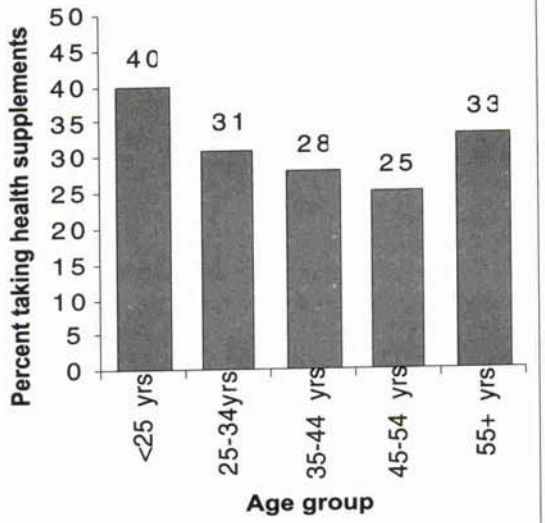

Fig 16. Percentage distribution of foreign workers taking health supplements by age. (n = 799)

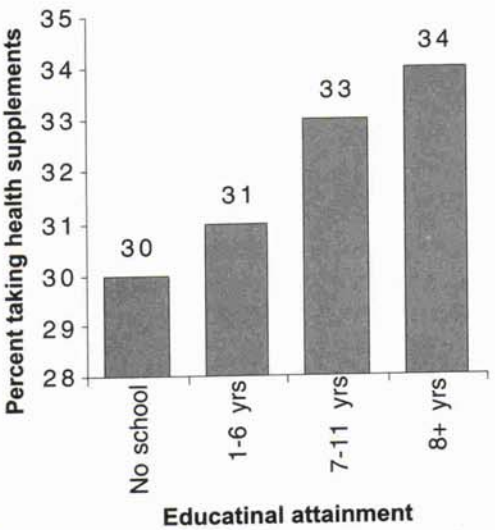

Fig 17. Percentage distribution of foreign workers taking health supplements by educational level. (n = 799)

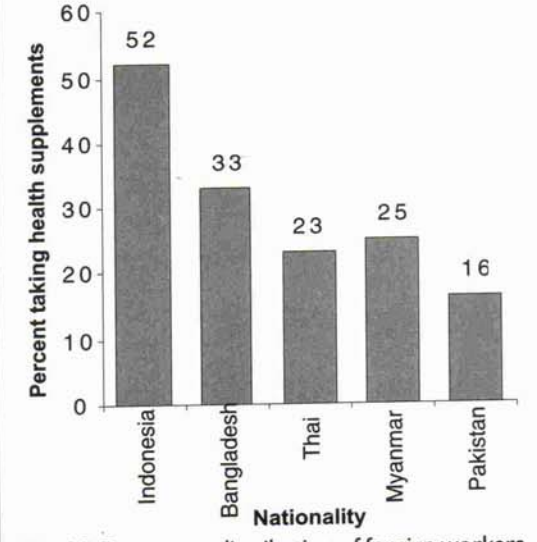

Fig 18. Percentage distribution of foreign workers taking health supplements by educational level. (n = 799)

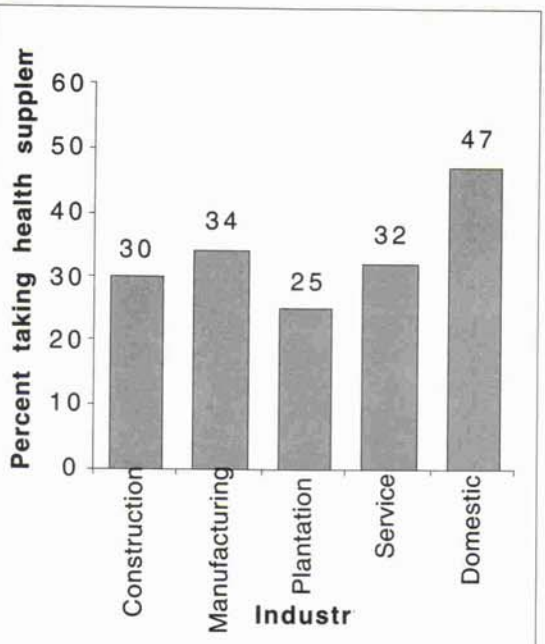

Fig 19. Percentage distribution of foreign workers taking health supplements by industry. (n = 799)

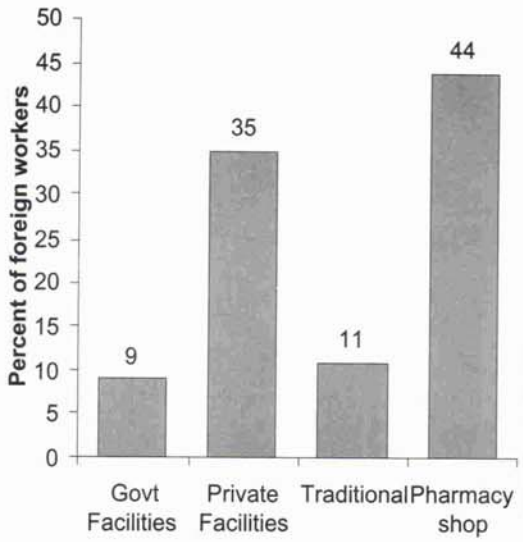

Fig 20. Percentage distribution of foreign workers taking health supplements by source of health supplements. (n = 799)

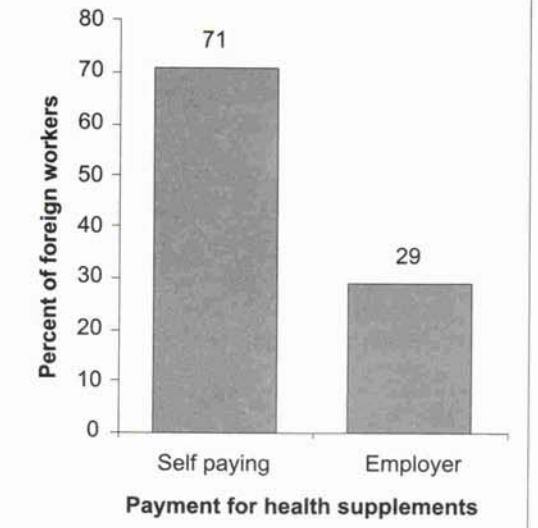

Fig 21. Percentage distribution of method of payment for health supplements (n = 254)

APPENDIX A

CLASSIFICATION OF ILLNESS REPORTING

Description of illness / complaints	Classification
Stomach / Abdominal pain, Gastric pain, Diarrhoea, Appendix operation, Gallstone	Gastrointestinal (GIT)
URTI symptoms, Asthma	Respiratory
Chest pain, Hypertension	Cardiovascular
Back pain / Backache, Body pain, Joint / Thigh / Leg / Foot pain, Neck pain	Musculoskeletal
Epilepsy, Insomnia	Neurological
Itch, Skin disease, Skin rash, Ulcer	Skin
Toothache	Dental
Rhinitis, Sore throat, Eye pain, Itchy eye, Eye infection	Ear, Nose and Throat (ENT)
Diabetes	Endocrine
Hematuria, Sexual problem, Discharge	Genitourinary tract (GU tract)
Fever	Fever
Headache	Headache
Cut (knife, zinc, machine, glass, steel blade), Nail prick, Accident	Injury/Accidents
Tumour operation, Unknown disease	Other (non-specific)

PHYSICAL EXAMINATION AND BASIC HAEMATOLOGICAL FINDINGS IN A SELECTED GROUP OF MIGRANT WORKERS IN MALAYSIA

Chia Yook Chin
Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia.

ABSRACT: The aim of this study was to determine the prevalence and extent of diseases present among migrant workers. A total of 809 migrant workers were examined. The mean BMI (Body Mass Index) was 22.3 kg/m^2. Only 4.9% of the respondents had blood pressure greater than 140/90 mmHg. Generally the migrant workers examined were healthy, except for subjects with abnormal eosinophilia counts, which may indicate occult parasitic infestation. Non-communicable disease in particular hypertension and diabetes mellitus are not major problems among migrant workers. Perhaps the target to aim at are the illegal migrant workers where more illness could be detected. *(JUMMEC 2002; 1:40-43)*

KEYWORDS: eosinophilia count.

Introduction

Currently, there are more than a million migrant workers in Malaysia, both legal and illegal working in the agricultural sector, in construction, factories and as domestic help. The influx of a large number of workers from other developing countries has raised concern regarding the fear of importation and subsequent transmission of disease into Malaysia by these workers.

The aim of this study was to determine the prevalence and extent of diseases present among migrant workers in order to estimate the potential risk of spread of such diseases within Malaysia. It will also enable us to estimate the burden on our health care system.

Objective

To determine the prevalence of physical and basic hematological abnormalities in a selected group of migrant workers.

Specific Objectives:

1. To determine the prevalence of communicable and non-communicable diseases amongst migrant workers.
2. To determine the prevalence of basic hematological abnormalities amongst migrant workers.
3. To compare the prevalence of physical and basic hematological abnormalities amongst the different nationalities of migrant workers.

Methodology

The detailed methodology was described elsewhere. A total of 809 migrant workers were examined. Height and weight were measured and the Body Mass Index (BMI) was derived from these measurements. Blood pressures were also measured and any abnormalities in the pulse, cardiovascular and respiratory systems were noted. Hepato-splenomegaly and lymphadenophaty were particularly looked for.

Examination was also done to detect skin rashes attributable to infections. The genitalia was also examined for evidence of sexually transmitted diseases. Blood was drawn to measure the haemoglobin and eosinophilia count. A random serum glucose was also measured.

Table 1. Country of Origin

Countries	Frequency	Percent
Indonesia	121	15.0
Bangladesh	393	48.6
Thai	112	13.8
Myanmar	102	12.6
Pakistan	81	10.0
Total	809	100.0

Correspondence Address:
Associate Prof. Dr Chia Yook Chin,
Department of Primary Care Medicine (RUKA),
Faculty of Medicine, University of Malaya
50603 Kuala Lumpur, Malaysia

Results

The majority of the study subjects were from Bangladesh (48.6%) while the rest were made up of the other nationalities as shown in Table 1. This is not quite representative of the actual distribution of migrant workers in Malaysia who are predominately Indonesians. The study population were mainly males (87.8%) and this was reflective of the industries the migrant workers were employed in. Table 2 showed some of the parameters that were measured. The mean age of 30.9 years was again reflective of young workers who were specifically recruited for manual jobs. The mean BMI was 22.3 kg/m^2. This is comparable to that reported for Malaysia (1) and other developing countries (2). The mean systolic and diastolic blood pressures were also comparable to that of other developing countries (2), only 4.9% (Table 3) had blood pressures of greater than 140/90 mm Hg while studies in other developing countries showed prevalence rates of up to 27.5% (2,3). The National Health and Morbidity Survey II (1996) Study showed the prevalence of hypertension amongst adult was 24.1% (1,2,3).

The physical findings were noted as in Table 4. There was only a small percentage of abnormalities found. There were abnormalities of the pulse (mainly ectopics) and in the cardiovascular system (flow murmurs). Only 3.1% of the subjects had some abnormalities in the respiratory system and this was presented as some crepitations and rhonchi while 3.1% of the subjects had hepatomegaly and 2.2% had splenomegaly. Skin rashes were mainly due to tinea. Contact dermatitis was seen in 5.2% of the study population while 4.1% had abnormalities of the genitalia and these were mainly due to urethral discharge (1.8%) and tinea cruris.

Haemoglobin examination was done on 109 subjects and they were all Thais based in the agricultural sector in Kelantan. The means and range are shown in Table 5.

The differential white count for 163 subjects is shown in Table 6. The mean eosinophilia count was 7% and this is more than twice that of a semi-rural study population in Malaysia (3). Table 3 showed that 41.1% of the workers had eosinophilia counts of greater than 6% which is out of the range for normal. While the same study showed that people aged 55 and over, revealed that only 10% had eosinophilia count of greater than 6%, (3).

The Thais had the largest number (54.5%) with abnormal eosinophilia counts and this difference was significant between the races. These exceptionally high percentage of subjects with abnormal eosinophilia counts may be an indication of parasitic infestation in these workers.

Obesity is a concern in developing countries. However, the percentage of migrant worker with BMI greater than 25 kg/m^2 was 16. 9% (Table 7) while that reported for Malaysia and Singapore is 21% and 26.2% respectively (1). Again because this was mainly young manual workers, obesity was not expected to be a problem. In the Kuala Langat District study (3) only 10.5% had BMI of

Table 2. Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
Age	809	18	69	30.9	7.6
Height	645	138	187	162.0	7.6
Weight (kg)	650	38	96	58.7	8.9
BMI	645	14.2	36.1	22.3	3.1
SBP (mmHg)	754	90	210	120.9	13.2
DBP (mmHg)	752	42	130	77.4	9.8

Table 3. Blood Pressure

	Total (N=752)	Male (N=662)	Female (N=92)
Mean Systolic mm Hg	120 (±13)	121 (±13)	117 (±15)
Mean Diastolic mm Hg	77 (±9)	77 (±9)	75 (±10)
Systolic ≥ 140 mm Hg	74 (9.8%)	65 (9.8%)	9 (9.8%)
Diastolic ≥ 90 mm Hg	103 (13.7%)	93 (14%)	10 (10.9%)
Blood Pressure ≥ 140/90	37 (4.9%)	30 (4.5%)	7 (7.6%)
Isolated Systolic ≥ 140	36 (4.7%)	34 (5.1%)	2 (2.2%)

Table 4. Physical Findings

	N	Normal/ Absent	%	Abnormal/ Present	%
Pulse	739	730	98.8	9	1.2
CVS	670	662	98.8	8	1.2
Respiratory	667	646	96.9	21	3.1
Hepatomegaly	643	623	96.9	20	3.1
Splenomegaly	643	629	97.8	14	2.2
Lymphademopathy	642	612	95.3	30	4.7
Rash	643	601	93.5	42	5.2
Genitalia	639	613	95.9	26	4.1
Others	601	565	69.8	36	4.4

Table 5. Haemoglobin Levels

	N	Mean	Range	S.D
Male	59	13.9	5.3 – 17.0	± 2.8
Female	50	12.1	3.8 - 17.0	± 3.6

less than 20 kg/m^2 compared to 24.4% in this study group. It also confirmed our clinical impression that most of the workers were not overweight or obese, but rather a larger proportion of them were underweight.

The mean random serum glucose is shown in Table 8. Again it is comparable to that found in other developing countries (2,3). Table 9 showed the percentage of subjects with random blood sugar of greater than 11.8%. This is lower than that of a group of subjects aged 55 and over (1,3) and that in the NHMS (6.6% and 8.3 respectively).

Table 10 shows the comparison between men and women. The differences were significant for weight, height, systolic blood pressure, haemoglobin and random serum glucose.

Discussion

The concern that migrant workers can introduce and transmit communicable disease into Malaysia is real. The burden to wards our health system to treat both communicable and non-communicable disease may be costly if such problems are prevalent.

This study however shows that non-communicable disease in particular hypertension and diabetes mellitus are not major problems among migrant workers. In fact the prevalence amongst this group is lower than that of our own national figures (NHMS). Physical examination, which takes a lot of time and effort to conduct also failed to detect any serious abnormalities or diseases. Whether this is under-representation of abnormalities is debatable. The majority of the study population are legal migrant workers and because they consented to participate in the study, are probably a healthy cohort by self selection.

Table 6. Differential WBC

	N	Min.	Max.	Mean	S.D
Total WBC (x10^3)	N/A	N/A	N/A	N/A	N/A
Neutrophils %	603	12	87	49	12.4
Lymphocytes %	603	7	82	38	12
Basophil %	602	0	3	0.2	0.6
Eosinophil %	603	0	31	7	5.6
Monocytes %	603	1	20	5	2.8
Absolute eosinophil / dL	N/A	N/A	N/A	N/A	N/A

Table 7. Body Mass Index (BMI)

	N	%
BMI < 20 kg/m^2	148	22.9
BMI ≤ 25 - < 30 kg/m^2	96	14.9
BMI ≤ 30 kg/m^2	13	2

Cf: BMI ≥ 25 : 21% 1996 = Malaysia
27% 1996 = Singapore

Table 8. Random Serum Glucose

	N	Mean	Range	S.D
FBS	541	6.2	3.3 - 23.2	± 2.2

Table 9. Random Serum Glucose

RBS	N	%
< 11.8 mmol / l	519	95.9
≥ 11.8 mmol / l	22	4.1
Total	541	100

Table 10. Comparison Between Male and Female

	Male (N = 710)		Female (N= 99		Total (N = 809)	
	Mean	± S.D	Mean	± S.D	Mean	± S.D
Age (year)	30.3	7.4	29.4	7.4	30.9	7.6
Weight (kg)	59.4	8.8	52.6	7.0	58.7	8.9
Height (cm)	16.3	6.4	151	6.4	162	6.7
BMI (kg/m^2)	22.2	3.1		3.0	22.3	13
Sys BP (mm Hg)	121	13	117	15.0	121	13
Dias (mmHg)	78	9	75	10.0	76	9
Hb	13.9	2.8	12	3.6	13.1	3.3
FBS	6.1	3.5	6.8	3.5		2.2

Furthermore legal migrant workers undergo a medical examination upon recruitment in their own country and that itself may have sieved out the unhealthy ones. Also upon arrival, before being accepted to work, the migrant workers undergo yet another medical examination to determine their fitness. Perhaps the target to aim at are the illegal migrant workers. There we may find more illnesses.

While these legal migrant workers are physically fit, the fact that there is a high prevalence of raised eosinophilia count amongst them suggests occult parasitic infestation. Efforts would be better spent in identifying the cause of this abnormal count and identifying those affected and treat them accordingly.

Targeting those working in the food industry would be a logical step in identifying and treating those affected individuals in order to prevent spread of parasitic infestations. Developing a policy where treatment is given prior to employment could also be another sensible alternative.

While it makes a lot of conventional sense to perform medical examination on migrant workers, the current required medical examination will not detect abnormalities in large numbers. What needs to be detected in terms of eosinophilia and probable parasitic infestations will not be detected by the currently prescribed examination.

In order to save time and costs, it would be prudent to review the current requirements of the medical examination. It could include the examination of eosinophilia count and subsequently the stools, with a policy to treat positive findings especially for those working in the food industry.

A further recommendation would be that illegal migrant worker should be conscientiously identified and relevant examination done on them in order to ascertain the extent of communicable and non-communicable diseases and henceforth to base further recommendations and policy decisions on those findings.

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A SURVEY OF CHEST RADIOGRAPHS OF MIGRANT WORKERS IN MALAYSIA

Basri J.J.A.
Department of Radiology, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: A survey was done to assess the chest radiographs of a selected group of immigrants. The objective is to ascertain the presence of abnormalities especially the presence of tuberculosis. Five hundred and eleven (511) chest radiographs (PA view) were evaluated. Majority of the chest radiographs were normal, except for 2 cases of hilar lymphadenopathy, 4 cases of scoliosis and cervical rib, an old case of fracture of the clavicle and a case of cardiomegaly. Only 2 cases of TB were detected. *(JUMMEC 2002; 1:44-45)*

Introduction

Immigrant medical screening was implemented in the 1990s. This is partly attributed to the increased awareness of newly emerging or re-emerging infectious diseases . Better health care with more effective, integrated immunization programs plus improved surveillance and treatment have increased the consequences, and impact of migration associated infections.

Chest radiography is still the mainstay medical screening of migrants especially in the detection for the presence of both active and previous tuberculosis. With the rapid economic development in Malaysia, the number of migrant workers required for service, manufacturing, plantation and domestic industries has skyrocketed. The appropriate measures necessary to ensure effective control of infectious diseases necessitate that there is adequate information on the health status of migrant workers in Malaysia.

Patients and Methods

A total of 809 migrant workers were evaluated as part of a survey on migrant workers in Malaysia. Of these only 511 workers, had their chest radiographs done. These were standard posterior anterior radiographs using a normal kV technique. These radiographs were done in the University of Malaya Medical Center and a government hospital. Only radiographs of diagnostic quality were used for evaluation by two independent radiologists. The radiographs were assessed for the presence of any parenchymal lesions (i.e. active or inactive tuberculosis, other lung infections, pleural thickening and other lesions), mediastinal pathology (lymphadenopathy), bony lesions of the ribs or spine (scoliosis, evidence of TB, accessory ribs etc), and diseases of the heart and pericardial disease.

Results

All the radiographs evaluated were of diagnostic quality. The age range was between 18 to 69 years. Of the 511 migrant workers radiographed, 34 were Indonesians, 254 Bangladeshis, 92 Thais, 77 Burmese and 54 Pakistanis. There were 444 males and only 67 females. They were all legal immigrants with work permits.

The chest radiographs were normal in the vast majority. Only 2 foreign workers had hilar lymphadenopathy (one Thai and one Bangladesh), four workers had abnormalities of the spine (scoliosis) and ribs (cervical ribs). A single case of an old fracture of the clavicle was seen. There was one case (Thai) of cardiomegaly and heart failure.

There were however two cases of TB detected and 11 (six Thais, two Bangladeshis, two Indonesians and one Burmese) with evidence of granulomas in the lungs. The two cases of active TB were seen in the Burmese workers. One of the cases of old TB showed gross disease with evidence of shift of mediastinum to the right and collapse of the right lower lung lobe. There was one case of right middle lobe infection which was most probably chronic in nature.

Discussion

The current immigration medical screening has been recommended and implemented for two reasons. (1) To identify, manage and prevent the spread of communicable diseases of public health importance e.g. tuberculosis, sexually transmitted diseases, viral hepatitis and

Correpsondence:
Associate Prof Dr Basri J. Abdullah,
Department of Radiology, Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

even some parasitic infestations. Thus screening for infectious diseases is the most common form of national immigration medical screening. (2) To identify those conditions which may be costly or complicated to treat (eg. cancer).

The timely diagnosis and treatment of tuberculosis is an important health issue in both the developing and developed countries. TB is the cause of high morbidity and mortality. It is treatable and preventable (1). While TB was showing a decreasing trend, there has been resurgence world wide of tuberculosis. This has been attributed to the increasing numbers of migrant workers as well as the rise of HIV (2,3). There are only a few studies on the incidence of TB among migrant workers per se although numerous studies have been done among immigrants.

Recently published report by the CDC Atlanta (4), showed that even though the current screening for tuberculosis is effective for identifying and managing active cases of disease in immigrants, there was little benefit in screening applicants from low incidence countries.

Compared to other studies of immigrants where incidence of active TB is reported to be between 1.2% (5) to 1.5% (6), there were only 2 cases of active TB seen in the group radiographed. This is probably attributed to re-activation of previously dormant disease, since all the workers sampled were legal workers and would therefore have had a radiograph done in their country of origin and any evidence of active disease would have excluded them. However, we must bear in mind that this survey excluded those who were already being treated for active TB. It has been reported that migrant workers comprised 10% of all treated cases of TB in Malaysia. The incidence of TB among migrant workers in other countries e.g Japan or Taiwan has been low (7). In Britain, it has been found that even though immigrants make up 5% of the population, they account for more than 30% of the cases (8). It has been reported that the average annual incidence of TB re-activation amongst immigrants is around 0.33% (6).

A report by Fomema (9), showed that 7% of the 16,000 migrant workers who were found to be unfit showed evidence of either active or old TB i.e approximately 420 workers. However, the vast majority (67%) of these 16,000 unfit migrant workers showed evidence of being Hepatitis B positive. It must be borne in mind that even though there are approximately 500,000 legally registered migrant workers, there are an estimated 1.5 million illegal migrant workers. The presence of infectious diseases in this group has not been ascertained.

The limitations of screening migrant workers in their home country include unethical practices of false reporting and getting someone else to substitute for the worker during radiography. This has been overcome by monitoring the clinics, which are allowed to do medical examinations in their home countries. The apparent failure to exclude active disease prior to arrival may be partly overcome by regular screening of migrant workers (6).

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ORAL HEALTH PROBLEMS AMONG FOREIGN WORKERS

Ishak Abdul Razak
Department of Community Dentistry, Dental Faculty, University of Malaya, 50603, Kuala Lumpur, Malaysia.

ABSTRACT: About 27% of the eligible respondents reported having experienced some form of dental problems in the preceding one year prior to the interview. Female respondents (57.1%) were more likely to have encountered a dental problem as compared to male respondents (22.6%). Of the various nationalities, the Thais (60.7%) and the Pakistanis were the most and least likely respectively to have encountered a dental problem in the preceding one year. This pattern among the Thais was consistent for both the male (48.4%) and female (70.6%) population.

Toothache (85.0%) was reportedly the most prevalent dental problems encountered regardless of gender and nationality, followed by sensitivity to hot and cold drinks (34.4%). About 1 in 4 subjects who had dental problem reported having bleeding gums.

About 1 in 4 subjects who had dental problems had consulted the doctor or dentists regarding their dental problem and one more than one-half had self-medicated. Overall the majority (84.4%) of the respondents have never visited the dentists in Malaysia. Lack of perceived need was cited as the main reason for this. ***(JUMMEC 2002; 1:46-51)***

KEYWORDS: Migrant workers, oral health, utilization.

Introduction

The booming Malaysian economy prior to 1997 had created numerous job opportunities, which is unable to be filled by Malaysians in several areas. This had resulted in the sourcing of legal foreign workers to fill in the gap in the employment market. In addition this had also attracted many illegal foreign workers from neighbouring countries to seek employment in Malaysia.

Whilst legal foreign workers are required to undergo medical examination and be certified fit prior to taking up employment, illegal foreign workers do not undergo this process. Even when foreign workers undergo medical examinations, this do not include dental examination or involved only a cursory examination. As such these workers whether legal or illegal may present with dental problems when they enter the country and this may potentially impose a burden on the existing oral health care services in the country.

The purpose of this study was to determine the prevalence and types of dental problems encountered in the preceding one year by foreign workers in Malaysia, the actions taken to alleviate the problems, the utilisation of the oral health care services as well as the barriers encountered.

Materials and Methods

This study forms part of a larger study on health problems of foreign workers throughout Peninsular Malaysia. A face to face interview based on a structured questionnaire survey was carried out among identified foreign workers. The information obtained included data pertaining to socio-demographic characteristics, environmental, medical, dental and recent illness. Physical examinations were also performed together with the collection of stool, venous blood, and urine specimens for microbial, parasitological and clinical laboratory investigations.

The dental component of this study was purely based on information collected from the subjects during the face to face interview. Information was obtained based on a structured questionnaire which covered two major areas which include the oral health problems encountered by the foreign workers and their utilisation of oral health care services in Malaysia. Prior to the start of the survey, the questionnaire was pretested and when required, the questions were appropriately modified to reduce ambiguity.

Correspondence Address:
Ishak Abdul Razak
Department of Community Dentistry, Dental Faculty,
University of Malaya, 50603 Kuala Lumpur,
Malaysia

Results and Discussion

About 27% of the 800 eligible respondents reported having experienced some form of dental problems in the preceding one year prior to the interview (Table 1). Female respondents (57.1%) were more likely to have encountered a dental problem as compared to male respondents (22.6%). Of the various nationalities, the Thais and Pakistanis were the most and least likely to have encountered a dental problem in the preceding one year. This pattern among the Thais was consistent for both the male (48.4%) and female (70.6%) population.

Table 1. Distribution of respondents with regards to dental problems by nationality and gender

Gender			Nationality					
			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Dental problems in the last 1 year	Yes	19	86	30	16	8	159
			24.4%	22.2%	48.4%	17.2%	9.9%	22.6%
		No	59	302	32	77	73	543
			75.6%	77.8%	51.6%	82.8%	90.1%	77.4%
	Total		78	388	62	93	81	702
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Dental problems in the last 1 year	Yes	15	1	38	2		56
			39.5%	50.0%	76.0%	25.0%		57.1%
		No	23	1	12	6		42
			60.5%	50.0%	24.0%	75.0%		42.9%
	Total		38	2	50	8		98
			100.0%	100.0%	100.0%	100.0%		100.0%

Toothache (85.0%) was reportedly the most prevalent dental problem encountered regardless of gender and nationality, followed by sensitivity to hot and cold drinks (34.4%). About 1 in 4 subjects who had dental problem reported having bleeding gums (Table 2).

Tables 3 (a-e) highlight specific dental problems encountered in relation to the nationality and gender among respondents with dental problems. As indicated, both Thai male and female respondents had the highest recorded complaints for four of the dental problems, i.e. toothache (male = 100.0%, female 84.2%), sensitive tooth to hot and cold drinks (male = 63.3%, female 60.5%), pain in the jaw (male 40.0%, female 34.2%) and ulcers (male 23.3%, female = 31.6%) compared to the other nationalities.

To determine the seriousness of the dental problem, the subjects were queried as to whether they had to take leave from work because of the dental problems. More that 4 out of 10 respondents (43.3%) with dental problems indicated this to be so.

Respondents were also asked on some of the possible actions that they had taken to dealing with their dental problems. The responses regardless of gender and nationality were; 54.8% consulted dentist/ doctor, 43.5% avoided certain foods and drinks, 38.0% self-medication, 37.3% went to sleep, 20.7% did nothing, and 4.9% consulted traditional healer.

Table 4 (a-f) highlight actions taken in dealing with dental problems in relation to nationality and gender. As can be seen there are obvious differences in the proportions of various actions taken among nationalities. For instance, the Thai males reported the highest proportion (46.7%) of those who 'did nothing' compared to other nationalities and they were also more likely to self-medicate (53.3%) In contrast, the Indonesian males (63.2%) and Burmese males (62.5%) were more likely to consult the doctor/dentist when confronted with dental problems. The role of the traditional healers in the management of oral problems among the respondents was almost non-existent.

Table 2. Prevalence of dental problems

Dental problems	n	%
Toothache	182	85
Sensitive to hot, cold drinks	74	34
Pain in the jaw joints	33	16
Bleeding gums	57	27
Ulcers	26	12
Others	6	3

When the 800 respondents were queried regarding their dental visiting patterns, the majority of the respondents (84.4%) indicated that they had never visited the dentist in Malaysia. Only 11.6% had visited the dentist in the last one year and a further 2.2% in the last 2 years. Female respondents (30.6%) were more likely to have visited the dentist in Malaysia as compared to their male counterparts (13.5%). However, the differences between various nationalities with respect to those who had never visited the dentist ranged from 79.0% (Thai) to 93.8% (Pakistanis) among the male respondents (Table 5).

Table 3. Distribution of respondents with regards to type of dental problems by nationality and gender.

(a) Toothache			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Toothache	Yes	16	66	30	13	7	132
			84.2%	77.6%	100.0%	81.3%	87.5%	83.5%
		No	3	19		3	1	26
			15.80%	22.4%		18.8%	12.5%	16.5%
	Total		19	85	30	16	8	158
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Toothache	Yes	15	1	32	2		50
			100.0%	100.0%	84.2%	100.0%		89.3%
		No			6			6
					15.8%			10.7%
	Total		15	1	38	2		56
			100.0%	100.0%	100.0%	100.0%		100.0%

(b) Sensitive tooth to hot, cold drinks			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Sensitive tooth	Yes	3	21	19	4		47
			17.6%	24.7%	63.3%	25.0%		30.3%
		No	14	64	11	12	7	108
			82.4%	75.3%	36.7%	75.0%	100.0%	69.7%
	Total		17	85	30	16	7	155
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Sensitive tooth	Yes	3	1	23			27
			20.0%	100.0%	60.5%			48.2%
		No	12		15	2		29
			80.0%		39.5%	100.0%		51.8%
	Total		15	1	38	2		56
			100.0%	100.0%	100.0%	100.0%		100.0%

(c) Pain in the jaw joints			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Pain in the jaw joints	Yes	1	5	12		1	19
			5..9%	6.0%	40.0%		14.3%	12.4%
		No	16	79	18	15	6	134
			94.1%	94.0%	60.0%	100.0%	85.7%	87.6%
	Total		17	84	30	15	7	153
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Pain in the jaw joints	Yes	1		13			14
			6.7%		34.2%			25.0%
		No	14	1	25	2		42
			93.3%	100.0%	65.8%	100.0%		75.0%
	Total		15	1	38	2		56
			100.0%	100.0%	100.0%	100.0%		100.0%

(d) Bleeding gum			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Bleeding gums	Yes	1	29	8	4	1	43
			5..9%	34.1%	26.7%	26.7%	14.3%	27.9%
		No	16	56	22	11	6	111
			94.1%	65.9%	73.3%	73.3%	85.7%	72.1%
	Total		17	85	30	15	7	154
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Bleeding gums	Yes		1	12	1		14
				100.0%	31.6%	50.0%		25.0%
		No	15		26	1		42
			100.0%		68.4%	50.0%		75.0%
	Total		15	1	38	2		56
			100.0%	100.0%	100.0%	100.0%		100.0%

(e) Ulcers			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Ulcers	Yes	3	2	7	1		13
			17.6%	2.4%	23.3%	6.7%		8.5%
		No	14	82	23	14	7	140
			82.4%	97.6%	76.7%	93.3%	100.0%	91.5%
	Total		17	84	30	15	7	153
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Ulcers	Yes	1		12			13
			6.7%		31.6%			23.2%
		No	14	1	26	2		43
			93.3%	100.0%	68.4%	100.0%		76.8%
	Total		15	1	38	2		56
			100.0%	100.0%	100.0%	100.0%		100.0%

Extraction (46.2%) and toothache (35.9%) were among the more common reasons for visiting the dentist in Malaysia followed by bleeding gums (7.7%) and fillings (6.8%). In contrast, the need for oral rehabilitation (need for denture) was cited by only about one percent of the respondents. Of those who had visited the dentists, majority (57.9%) went to the private dentists and about 73% paid out of their own pocket. Slightly more than one-quarter (26.4%) of the respondents' dental expenses were paid by their employers.

Lack of perceived need to see the dentist ("no need to go") was the most common reason (66.8%) cited by the respondents in not visiting the dentist in Malaysia regardless of nationality and gender. About 1 in 10 respondents (9.9%) attributed this to"" fear of pain". Lack of urgency and work commitments were cited by about 6.0% and 2.0% of the respondents respectively. Cost does not seem to be a factor in preventing a dental visit as only less than one percent of the respondents indicated this to be so. Generally this trend seemed to apply to all nationalities (Table 6).

Table 4. Distribution of respondents with regards to action taken to deal with the dental problems by nationality and gender

(a) Did nothing			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Did nothing	Yes	2	9	14	3	2	30
			10.5%	11.1%	46.7%	20.0%	25.0%	19.6%
		No	17	72	16	12	6	123
			89.5%	88.9%	53.3%	80.0%	75.0%	80.4%
	Total		19	81	30	15	8	153
			100.0%	100.0%	100.0%	10000%	100.0%	100.0%
Female	Did nothing	Yes	4		8	1		13
			28.6%		21.1%	50.0%		23.6%
		No	10	1	30	1		42
			71.4%	100.0%	78.9%	50.0%		76.4%
	Total		14	1	38	2		55
			100.0%	100.0%	100.0%	100.0%		100.0%

(b) Take self-medication			Nationality					
Gender			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Self-medication	Yes	6	27	16	3	2 54	
			31.6%	32.9%	53.3%	20.0%	28.6%	35.3%
	No		13	55	14	12	5	99
			68.4%	67.1%	46.7%	80.0%	71.4%	64.7%
	Total		19	82	30	15	7	153
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Self-medication	Yes	6		18	1	25	
			42.9%		47.4%	50.0%		45.5%
		No	8	1	20	1		30
			57.1%	100.0%	52.6%	50.0%		54.5%
	Total		14	1	38	2		55
			100.0%	100.0%	100.0%	100.0%		100.0%

(d) Sleep

Gender			Nationality					
			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Sleep	Yes	6	28	12	4	4	54
			31.6%	34.1%	40.0%	25.0%	57.1%	35.1%
		No	13	54	18	12	3	100
			68.4%	65.9%	60.0%	75.0%	42.9%	64.9%
	Total		19	82	30	16	7	154
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Sleep	Yes	6		18			24
			42.9%		47.4%			43.6%
		No	8	1	20	2		31
			57.1%	100.0%	52.6%	100.0%		56.4%
	Total		14	1	38	2		55
			100.0%	100.0%	100.0%	100.0%		100.0%

(e) Consult dentist/doctor

Gender			Nationality					
			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Consult doctor/dentist	Yes	12	43	17	10	4	86
			63.2%	52.4%	56.7%	62.5%	57.1%	55.8%
		No	7	39	13	6	3	68
			36.8%	47.6%	43.3%	37.5%	42.9%	44.2%
	Total		19	82	30	16	7	154
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Consult doctor/dentist	Yes	9		19	1		24
			60.0%		50.0%	50.0%		51.8%
		No	6	1	19	1		27
			40.0%	100.0%	50.0%	50.0%		48.2%
	Total		15	1	38	2		56
			100.0%	100.0%	100.0%	100.0%		100.0%

(f) Consult traditional healer

Gender			Nationality					
			Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Consult traditional healer	Yes	1	4	1	1	1	8
			5.3%	4.9%	3.4%	6.7%	14.3%	5.3%
		No	18	78	28	14	6	144
			94.7%	95.1%	96.6%	93.3%	85.7%	94.7%
	Total		19	82	29	15	7	152
			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Female	Consult traditional healer	Yes	1		1	1		3
			7.1%		2.6%	50.0%		5.5%
		No	13	1	37	1		52
			92.9%	100.0%	97.4%	50.0%		94.5%
	Total		14	1	38	2		55
			100.0%	100.0%	100.0%	100.0%		100.0%

Table 5. Distribution of respondents with regards to the last time they had visited a dentist by nationality and gender.

Gender			The last visit to the dentist 3 years and more				
			Within 1 year	Within 2 years		Never	Total
Male	Nationality	Indonesian	7	2	3	66	78
			9.0%	2.6%	3.8%	84.6%	100.0%
		Bangladeshi	40	8	2	338	388
			10.3%	2.1%	5.0%	87.1%	100.0%
		Thai	8	3	2	49	62
			12.9%	4.8%	3.2%	79.0%	100.0%
		Burmese	11	1	3	78	93
			11.8%	1.1%	3.2%	83.9%	100.0%
		Pakistani	4		1	76	81
			4.9%		1.2%	93.8%	100.0%
	Total		70	14	11	607	702
			10.0%	2.0%	1.6%	86.5%	100.0%
Female	Nationality	Indonesian	7			31	38
			18.4%			81.6%	100.0%
		Bangladeshi				2	2
						100.00%	100.00%
		Thai	15	3	3	29	50
			30.0%	6.0%	6.0%	58.0%	100.0%
		Burmese	1	1		6	8
			12.5%	12.5%		75.0%	100.0%
		Pakistani					
	Total		23	4	3	68	98
			23.5%	4.1%	3.1%	69.4%	100.0%

Table 6. Distribution of respondents with regards to main reason for not visiting a dentist by nationality and gender.

Gender	Nationality		Indonesian	Bangladeshi	Thai	Burmese	Pakistani	Total
Male	Main reason for not seeing a dentist	No need to	35	203	36	47	40	361
			61.4%	65.3%	80.0%	69.1%	72.7%	67.4%
		Did not feel it was urgent	5	18	4	3	1	31
			8.8%	5.8%	8.9%	4.4%	1.8%	5.8%
		No time due to work commitment	1	7	1	1	4	14
			1.8%	2.3%	2.2%	1.5%	7.3%	2.6%
		Fear of pain	6	33	4	1	7	51
			10.5%	10.6%	8.9%	1.5%	12.7%	9.5%
		Too expensive		3			2	5
				1.0%			3.6%	0.9%
		Others	10	47		16	1	74
			17.5%	15.1%		23.5%	1.8%	13.8%
	Total		57	311	45	68	55	536
			10.0%	10.0%	100.0%	100.0%	100.0%	100.0%
Female	Main reason for not seeing a dentist	No need to	16		16	4		36
			64.0%		61.5%	66.7%		62.1%
		Did not feel it was urgent	4		2			6
			16.0%		7.7%			10.3%
		Fear of pain	4	1	3			8
			16.0%	100.0%	11.5%			13.8%
		Others	4		5	2		8
			16.0%		19.2%	33.3%		13.8%
	Total		25	1	26	6		58
			100.0%	100.0%	100.0%	100.0%		100.0%

Conclusion

There is a moderate prevalence of oral problems among foreign workers in Malaysia with low impact on the uptake of oral health care services.

SEXUAL HEALTH OF MALE MIGRANT WORKERS

Siti Norazah Zulkifli
Health Research Development Unit (HeRDU), Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

ABSTRACT: Sexual health is defined as part of reproductive health and includes healthy sexual development; equitable and responsible relationships and sexual fulfilment; and freedom from illness, disease, disability, violence and other harmful practices related to sexuality. For this project on Health Problems of Migrant Workers, a section on sexual health was incorporated based on a special concern over sexually transmitted diseases (STDs), and high-risk behaviours. Access to healthcare is recognised to be a problem with minority or marginalised groups, including adolescents and migrant populations, especially undocumented migrants. This exacerbates the issue of control and management of STDs.

The Sexual Health section covered experience with sexual intercourse, and a limited number of questions related to sex partners and condom use among those who are sexually experienced. *(JUMMEC 2002; 1:53-59)*

KEYWORDS: Sexually transmitted diseases, high-risk behaviours.

Introduction

Sexual health is defined as part of reproductive health and includes healthy sexual development; equitable and responsible relationships and sexual fulfillment; and freedom from illness, disease, disability, violence and other harmful practices related to sexuality. For this project on Health Problems of Migrant Workers, a section on sexual health was incorporated based on a special concern over sexually transmitted diseases (STDs), and high-risk behaviours. Access to healthcare is recognised to be a problem with minority or marginalised groups, including adolescents and migrant populations, especially undocumented migrants. This exacerbates the issue of control and management of STDs.

The Sexual Health section covered experience with sexual intercourse, and a limited number of questions related to sex partners and condom use among those who are sexually experienced.

Results and Discussion

This analysis was confined to male respondents from Indonesia, Bangladesh, Thailand, Myanmar and Pakistan. Respondents recruited in the survey from the Philippines and other countries were omitted from the analysis due to other small numbers. According to data based on issuance of temporary work permits in Peninsular Malaysia by the Immigration Department from July 1992 to December 1995, 64.96% of migrant workers are from Indonesia, 20.96% from Bangladesh, 7.09% from Philippines, 5.37% from Thailand, and 1.62% from several other countries, notably, India, Pakistan, Myanmar, Nepal, Sri Lanka (2). These data were not segregated by sex.

Since marital status may influence sexual activity, part of the analysis was stratified by this variable. Due to the small frequencies of divorced or widowed men, marital status was combined into two groups - currently married and single/ divorced or widowed. In total, about half of the respondents were currently married (52%). This overall breakdown applied to respondents from Myanmar and Pakistan. A lower proportion of Bangladeshi workers were married (44%), almost 60% of Indonesians were currently married (59.8%), and the majority of Thai workers were also currently married (84%) (Table 1).

There were only two widowed (one Indonesian and one from Myanmar and one divorced (Thai) respondent. These were grouped together with single (never-married) group. Differences in the distributions of respondents by marital status and nationality were highly significant ($p<0.0001$).

By age, all nationalities averaged around 30 years with significant differences by country. The age-ranges var-

Correspondence:
Assoc. Prof Siti Norazah Zulkifli
Health Research Development Unit (HeRDU),
University of Malaya, 50603 Kuala Lumpur,
Malaysia

ied by country as shown in the box plot chart below, with the minimum being 19 to 21 years and the oldest ranging between 45 to 69 years.

Sexual Intercourse

The opening question to the section on sexual health was "*Have you had any sexual intercourse?*". A total of 409 male respondents (almost 60%) answered 'yes' to this question (Table 2). There were highly statistically significant differences by nationality, with the highest proportion among Thais and the lowest among Bangladeshis. This supports the data on marital status by nationality.

Analysed by marital status, all currently married respondents said they had experienced sexual intercourse (Table 3). Among single, widowed, divorced men, the proportions who claimed to have had sexual intercourse ranged from eight percent of Bangladeshis to almost 30% of Pakistanis.

In terms of age, currently married men in this sample are significantly ($p<0.0001$) older (mean 33.8 years, median 32, sd 7.76) than the single/widowed/divorced group which comprised predominantly never-married respondents (mean 26.92 years, median 27, sd 4.27).

Since questions on sexual behavior can be construed as rather sensitive and private, more so amongst Asians, under-reporting is almost certain. Based on the mean age of the single respondents, one might expect a higher proportion of sexually experienced men. However, the degree of under-reporting cannot be estimated from the present data, and studies on sexual behaviour in these countries are sparse.

Added to this, although the question asked of experience with sexual intercourse seems straightforward, misunderstanding on the part of respondents not fluent in English or Bahasa Malaysia - the two languages in which the questionnaires were available - cannot be discounted.

Among those who had experienced sexual intercourse, several more questions were asked, including number of partners, type of sexual partners in the last five years, and condom use[3].

The following results pertain to those respondents who had experienced sexual intercourse. Total numbers may be less than 409 due to 'not available' data.

Number of sexual partners

To the question on number of sexual partners in the last five years, the average reported was 1.30 (median 1.00), ranging from 1 to 12 partners, among those who had experienced sexual intercourse (Table 4). As shown in the table below, all nationalities reported a median of one partner. Among currently married respondents, the average number of partners was 1.23 (median 1.00) and among the smaller numbers of sexually experienced unmarried respondents, it was 1.95 (median 1.00). By nationality, the average number of partners was comparable for all groups.

Interestingly, the maximum number of partners reported was highest among Indonesians (11), Pakistanis (11) and Bangladeshi workers (12). Among unmarried respondents, Bangladeshi workers reported the high-

Table 1. Distribution of male respondents by nationality and marital status

Country of origin	Marital Status				TOTAL	
	Married		s/w/d			
	n	%	n	%	N	%
Indonesia	82	59.8	33	40.2	82	100
Bangladesh	391	44.0	219	56.0	391	100
Thailand	52	83.9	10	16.1	62	100
Myanmar	52	55.3	42	44.7	94	100
Pakistan	45	55.6	36	44.4	81	100
TOTAL	370	52.1	340	47.9	710	100

Note: s/w/d – single/widowed/divorced

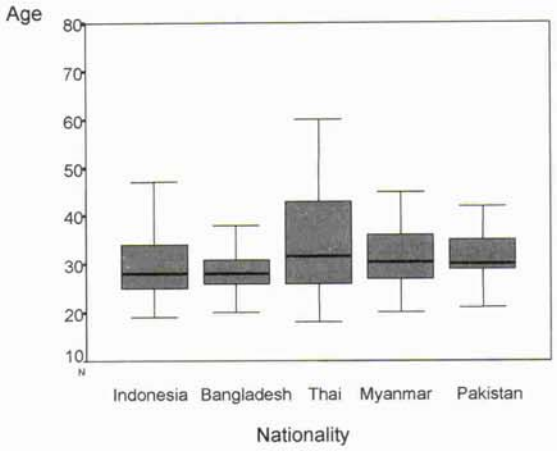

Table 2. Distribution of male respondents by nationality and any experience with sexual intercourse

Country of origin	Any Sexual Intercourse				TOTAL	
	Yes***		no			
	n	%	n	%	N	%
Indonesia	52	63.4	30	36.6	82	100
Bangladesh	190	48.6	201	51.4	391	100
Thailand	54	87.1	8	12.9	62	100
Myanmar	58	61.7	36	38.3	94	100
Pakistan	55	67.9	26	32.1	81	100
TOTAL	409	57.6	301	42.4	710	100

*** significant difference in experience with sexual intercourse between nationalities: $p<0.0001$

est number of partners as well (mean 2.39, median 1.50) ranging from one to 10. It should be noted that for all nationalities, respondents reporting more than one partner are very few.

Multiple partners have implications for transmission of sexually transmitted diseases, and HIV/AIDS. This entails a disease burden involving cost of treatment and follow-up, and work days lost. Furthermore, the implications for women include infections that may lead to sub-fertility include infections that may lead to sub-fertility or infertility.

Type of sexual partner

Sexual relations with various types of partners in the past five years were asked of the respondents. These were (a) spouse, (b) casual sex partner, (c) commercial sex partner, (d) homosexual sex partner, (e) any others. Certain sexual behaviours are associated with a higher risk of STD infection, more so with unprotected sex. In particular, risk of infections is increased with multiple partners, casual partners, and commercial sex partners. Homosexual activities have higher disease risks as well through multiple casual partners, anal sex or violent sexual practices.

Spouse as sex partner

In terms of type of sexual partner, the majority named a spouse (90%) ranging from 83% of Pakistanis to 98% of Thais (Table 5).

Since the majority who responded in the positive to the question on ever-had sexual intercourse were currently married, this was not surprising.

Casual sex partner

Only 24 respondents (7%) reported a casual sex partner in the past five years (Table 6). The number of missing data on this question among the number of missing data on this question among the sexually experienced comprised 10.5% of sexually experienced respondents. Specifically, a casual partner was reported by 13% of workers from Pakistan and nearly 15% of workers from Myanmar.

By marital status for some nationalities, the vast majority of married men did not report having sex with a casual partner. The only exception was observed among 12% of married Myanmar workers. Among single, widowed and divorced respondents, the proportions who cited having casual sex ranged from 33% among Indonesians and Bangladeshis and 40% among Myanmar workers to 70% among Pakistanis. It should be noted that the numbers of unmarried sexually experienced male respondents were quite low. Overall, by marital status, 43% of unmarried men reported a casual sex experience in the past five years compared to two percent of currently married men; this difference was highly significant (see table below). Based on the notion of marital fidelity, whether unmarried men feel more at liberty to report this activity cannot be speculated.

Table 3: Distribution of male respondents by nationality, marital status and any experience with sexual intercourse

Nationality	Marital Status	Any Sexual Intercourse Experience					
		yes		no		TOTAL	
		n	%	n	%	N	%
Indonesia	- married	49	100	-	-	49	100
	- s/w/d	3	9.1	30	90.9	33	100
	- Total	52	63.4	30	36.6	82	100
Bangladesh	- married	172	100	-	-	172	100
	- s/w/d	18	8.2	201	91.8	219	100
	- Total	190	48.6	201	51.4	391	100
Thailand	- married	52	100	-	-	52	100
	- s/w/d	2	20.0	8	80	10	100
	- Total	54	87.1	8	12.9	62	100
Myanmar	- married	52	100	-	-	52	100
	- s/w/d	6	14.3	36	85.7	42	100
	- Total	58	61.7	36	38.3	94	100
Pakistan	- married	45	100	-	-	45	100
	- s/w/d	10	27.8	26	72.2	36	100
	- Total	55	67.9	26	32.1	81	100

Table 6: Distribution of sexually experienced male respondents by nationality, marital status and casual sex activity in last five years

Nationality	Marital Status	Experience With Casual Sex Partner in last five years					
		yes		no		TOTAL	
		n	%	n	%	N	%
Indonesia	- married	-	-	36	100	36	100
	- s/w/d	1	33.3	2	66.7	3	100
	- Total	1	2.6	38	97.4	39	100
Bangladesh	- married	3	1.9	151	98.1	154	100
	- s/w/d	6	33.3	12	66.7	18	100
	- Total	9	5.2	163	94.8	172	100
Thailand	- married	-	-	52	100	52	100
	- s/w/d	-	-	1	100	1	100
	- Total	-	-	53	100	53	100
Myanmar	- married	5	11.6	38	88.4	43	100
	- s/w/d	2	40	3	60	5	100
	- Total	7	14.6	41	85.4	48	100
Pakistan	- married	-	-	44	100	44	100
	- s/w/d	7	70	3	30	10	100
	- Total	7	13	47	87	54	100
TOTAL	- married	8	2.4***	321	97.6	329	100
	- s/w/d	16	43.2	21	56.8	37	100
	- Total	24	6.6	342	93.4	366	100

*** Significant difference in casual sex activity between married and unmarried men: $p<0.0001$ (Fisher's Exact Test)

Homosexual partner

None reported a homosexual partner and only six (one Indonesian and five Bangladeshis) named 'Other sex

partners'. There was no detailed information on who these others comprise.

Heterosexual men who had homosexual encounters because of the temporary lack of access to, or success with, the opposite sex may not admit to homosexual activities, per se, since they do not consider themselves to be homosexual, a term recognised, probably with the stigma attached, as a sexual preference for the same sex. Similarly, non-penetrative, notably, oral.sex or masturbation, by/with other men may be perceived as homosexual in nature.

Commercial sex partner

Experience with commercial sex workers deserves special mention because of the higher risk of sexually transmitted diseases. In this regard, a total of 17 respondents reported a commercial sex partner in the last five years (about 5%) (Table 7). 'Not available' data comprised 42 (10%) sexually experienced respondents. By nationality, the figures ranged from about two percent among Pakistanis and Thais to seven percent among Bangladeshis, as shown in the table below.

By marital status, no married men reported a commercial sex partner, except five currently married Bangladeshis (3%) (Table 7). Among single/ widowed/ divorced men, the proportions varied from 10% (n=1) of unmarried Pakistanis to around 40% of unmarried Bangladeshis and Myanmarese. Again, it should be noted that this group comprised only a small number of sexually experienced respondents.

The one unmarried Thai worker in this group also reported commercial sex activity (100%). Overall, by marital status alone, commercial sex was reported by 32% of unmarried male respondents compared to only about two percent of currently married workers. This difference was highly significant.

It is well known that data on sexual activities are difficult to obtain, particularly, on what are considered to be illicit or immoral activities. This includes pre- and extramarital sex, and homosexual or commercial sex. The taboo subject of sex causes problems for interviewers as well, and their body language and mode of questioning have an impact on responses. The rates of commercial sex activity among unmarried workers, especially for certain nationalities, are relatively high.

This draws attention to the need to counsel male migrant workers on the risks of sexually transmitted diseases and methods of protection in ways that will be effective. Unfortunately, however, the total number of unmarried males with sexual experience in this survey was small, hence, the stratified data yielded very small cells. Furthermore, the data from this survey cannot be validated from the present data set. Based on

Table 7: Distribution of sexually experienced male respondents by nationality and commercial sex activity in last five years, and by marital status and commercial sex activity

Nationality	Experience With Commercial Sex Partner in Last Five Years					
	yes		No		TOTAL	
	n	%	n	%	N	%
Indonesia	1	2.6	38	97.4	39	100
Bangladesh	12	6.9	161	93.1	173	100
Thailand	1	1.9	52	98.1	53	100
Myanmar	2	4.2	46	95.8	48	100
Pakistan	1	1.9	53	98.1	54	100
TOTAL						
- married	5	1.5***	325	98.5	330	100
- s/w/d	12	32.4	25	67.6	37	100
- total	**17**	**4.6**	**350**	**95.4**	**367**	**100**

*** Significant difference in commercial sex activity between married and unmarried men:

Table 8. Distribution of sexually experienced male respondents by nationality and consistent condom use, and by marital status and condom use

Nationality	Condom Use Every Time During Sexual Intercourse							
	Yes		Sometimes		No		TOTAL	
	n	%	n	%	n	%	N	%
Indonesia	6	14	6	14	31	72.1	43	100
Bangladesh	10	5.6	15	8.3	155	86.1	180	100
Thailand	-	-	-	-	53	100	53	100
Myanmar	3	5.8	9	17.3	40	76.9	52	100
Pakistan	9	17	8	15.4	35	67.3	52	100
TOTAL								
- married	11	3.2*	31	9.1	297	87.6	339	100
- s/w/d	17	42	7	17.1	17	41.5	41	100
- **Total**	**28**	**7**	**38**	**10**	**314**	**83**	**380**	**100**

*** Significant difference in consistent condom use between married and unmarried men: p<0.0001

experience with surveys on sexual activity in general, it can only be presumed to be under-estimates of the actual prevalence of these sexual behaviours.

Condom Use

A question on condom use revealed a low 'everytime' use during sexual intercourse of seven percent. With 'sometimes' use, this increases to 17% (Table 8). 'Everytime' use ranged from none who used condoms each time among Thais to 14% among Indonesians and 17% among Pakistanis. A slightly higher proportion claimed to use condoms"sometimes' (10%), ranging from none among Thais to 17% among Myanmar workers.

By marital status, a highly significant (p<0.0001) and substantial difference was found between condom use among currently married and unmarried sexually experienced respondents (Table 8). The majority of the lat-

ter claimed condom usage every time or sometimes during sexualintercourse compared to only a small proportion of married respondents. Since more unmarried workers reported casual and commercial sex activities, this seems to be a positive finding.

For interest, a cross-tabulation showing the use of condoms by those who reported experience with a commercial sex partner is presented below.

Although the proportion can be considered relatively low at 30%, it is clear that consistent condom use is significantly ($p<0.0001$) much higher for those who engaged in commercial sex in the past five years than those who did not (Table 9). Less than half of the respondents who have had a commercial sex partner never used a condom compared to the majority of those who have not. These rates should be improved upon further.

Blood Tests for STDs

Blood test results for two sexually transmitted diseases were available, at the time of preparing this report, from a total of 493 male respondents. Among sexually experienced respondents, blood test results were available for 263 men. Results for rapid plasma reagin (RPR) and *Treponema pallidum* haemaglutination assay (TPHA) for syphilis, as well as HIV are presented below.

As shown, there was a five percent (n=14) reactive rate for the RPR test, a screening test for syphilis (Table 10). From these 14 positive RPR tests, the more definitive TPHA test showed only eight (3% of sexually experienced men) positive results. In all samples, there was only one positive for HIV (0.4% of sexually experienced men; 0.2% of all 493 study subject) (Table 11).

A profile of those testing positive for the TPHA showed that five of these were from Myanmar, the others being two Bangladeshis and one Pakistani. By marital status, all five Myanmarese, one Bangladeshi and one Pakistani are currently married while the other Bangladeshi is single. Their ages ranged from 28 to 37 years with one 67 year-old. In terms of number of sex partners in the past five years, six had reported only one partner while one reported three. One worker had a missing value (not available) for this variable. Only one TPHA positive worker reported a casual sex partner in the past five years, and another reported 'Others'. None had reported commercial sex activity. In terms of condom use, only two claimed to use condoms during each sexual intercourse, one said 'sometimes' and the rest said 'no'.

Only one respondent was positive for the HIV test (Table 11). This was a 29 year old currently married Myanmar respondent. He reported only one partner in the past five years, i.e., his spouse, and his response to condom use was "never'.

It should be noted that blood tests were done on only one Thai worker. This sample was negative for all three tests.

Table 9. Distribution of sexually experienced male respondents by commercial sex activity in last five years and consistent condom use

Commercial Sex Partner	*Condom Use Every Time During Sexual Intercourse*							
	Yes		Sometimes		No		TOTAL	
	n	%	n	%	n	%	N	%
Yes	5	29.4***	5	29.4	7	41.2	17	100
No	22	6.3	32	9.2	293	84.4	347	100
TOTAL	27	7.4	37	10.2	300	82.4	364	100

*** Significant difference in consistent condom use between those who did have commercial sex and those who did not: $p<0.0001$

Table 10. Distribution of sexually experienced male respondents by nationality and Reactive Plasma Reagin (RPR) test results

Nationality	RPR Test Results					
	reactive		non-reactive		TOTAL	
	n	%	n	%	N	%
Indonesia	-	-	18	100	18	100
Bangladesh	5	3.3	145	96.7	150	100
Myanmar	7	15.6	38	84.4	45	100
Pakistan	2	4	48	96	50	100
TOTAL	14	5.3	249	94.7	263	100

Table 11. Distribution of sexually experienced male respondents by nationality and HIV test results

Nationality	HIV Test Results					
	detected		not detected		TOTAL	
	n	%	n	%	N	%
Indonesia	-	-	18	100	18	100
Bangladesh	-	-	150	100	150	100
Myanmar	1	2.2	44	97.8	45	100
Pakistan	-	-	50	100	50	100
TOTAL	1	0.4	262	99.6	263	100

If multiple partners and/or casual or commercial sex pose a higher risk of STD infection, then the responses on number and type of sex partner from these TPHA and HIV positive respondents suggest a low risk group. It is possible that one partner or spouse is the source of infection, but this tends to be the case for women, not men. Another possibility, although less likely, is that infection was from vertical transmission, especially for syphilis. However, since the questions pertain to sex partners in the past five years, it may well be true that the respondents have had only one partner and no higher-risk (commercial or casual sex) sexual activities during that time. That is, infection may have occurred prior to that reference period when sexual practices were different. This seems plausible when one considers the relatively young 29 to 33 years age-range (29 to 33 years with an exception of one 67 years old case) of those testing positive for syphilis and HIV. As such, the currently married ones could have been single before

that five-year reference period. As observed from the present data, commercial sex activity for example, is much more frequent among single than married men. In any case, since most of those testing positive are currently married, there are the important implications of the wife being infected as well, and in-utero transmission to their children. Unfortunately, it is not possible to contact these workers for follow-up action.

Finally, the numbers of respondents positive for syphilis and HIV who were from Myanmar gives cause for concern. These comprise six of nine cases and should be investigated further.

In fact, there were actually eleven TPHA positive (2.2%) cases in the total number (493) of available blood test results for men; comprising six Myanmar workers, four Bangladeshis and one Pakistani. Three had responded 'no' to the question on 'ever had sexual intercourse' and, hence, the subsequent questions on sexual practices became"not applicable'. These three respondents consist of one Myanmar worker and two Bangladeshis. Their ages ranged from 27 to 30 years, and all were not currently married (single). This testifies to the unreliability of some respondents on questions pertaining to sex.

Summary and Conclusions

In summary, about half of the male migrant workers, are currently married while the other half are unmarried; primarily single with a few divorced or widowed. There were significant differences in marital status by nationality, with a slightly higher proportion of unmarried Bangladeshi workers and a majority of currently married Thais and to a lesser extent, Indonesian workers.

On the average, the male workers surveyed were relatively young at 30 years. Again, there were significant differences by nationality, with Thai workers being slightly older on the average.

The majority of male workers reported having experienced sexual intercourse. There were significant differences by nationality that were commensurated with differences in the distribution by marital status. That is, a higher proportion of sexual intercourse experience was reported by nationalities with higher proportions of currently married men. Sexual intercourse experience was far lower among unmarried men (9% to 28% across nationalities) compared to currently married men (100%).

Based on number of sexual partners and type of sexual partner (notably, casual, commercial or homosexual encounters), these male migrant workers seemed to be a relatively low-risk group. On the average, workers experienced in sexual intercourse reported only one partner in the last five years, with a very small number claiming multiple partners - five individuals who had between five to 12 partners. Only seven percent reported a casual sex partner and five percent a commercial sex partner in the last five years. No homosexual partner was reported. However, by marital status, a much higher proportion of unmarried men had casual or commercial sex. Specifically, 43% of unmarried men reported casual sex compared to two percent of married men, and 32% of unmarried men reported having engaged in commercial sex compared to 1.5% of married men. These differences were statistically different. The numbers of unmarried men were too small to analyse further by nationality. Consistent condom use was low among these workers; only seven percent claimed to use a condom every time during sexual intercourse while another 10% use condoms sometimes. Again, a statistically significant substantial difference in condom use ('every time' and"sometimes') was found between currently married (12%) and unmarried men (59%). On a positive note, condom use ('every time' and"sometimes') was more common among men who reported having engaged in commercial sex activity in the last five years (59%) compared to those who did not (16%). Nonetheless, there is still room for improvement.

Finally, at the time of writing this report, blood tests for syphilis and HIV were available for 493 male respondents, including 263 experienced in sexual intercourse. Among the latter, there was a five percent reactive rate (14 samples) for the *rapid plasma reagin* (RPR) test and of these eight (3% of 263) were positive for the *Treponema pallidum hemaglutination* assay (TPHA). Of these eight cases, five were Myanmar workers, two Bangladeshis and one Pakistani. They were between 28 to 37 years old except for one 67 year old. All but one were currently married. This has implications for transmission of infection to the spouse and children. In terms of sex partners in the last five years, only one TPHA positive case reported a casual sex partner and none reported commercial sex activity. In addition, only one reported more than one sex partner in the last five years. Among sexually experienced workers, only one case was positive for HIV, a currently married 29 year-old Myanmar worker.

In fact, there were 11 TPHA positive cases among the total 493 available blood test results. That is, three had reported no experience with sexual intercourse – one Myanmarese and two Bangladeshis— and were, hence, dropped from further analysis based on this group. This possibly false reporting, and the relative low-risk behaviour reported by those found positive for STDs raises questions about the reliability of the respondents. At the same time, the questionnaire was by face-to-face interview in English or Bahasa Malaysia, languages that may well have been poorly understood by many of

the workers. It is also possible that the responses were valid and that infection occurred prior to the last five years reference period when, perhaps, sexual practices were different. In any case, the fact that the majority of workers positive for syphilis and the one positive for HIV were from Myanmar gives cause for concern. Since workers are supposed to be medically screened before they enter the host country, a very low rate of infection is expected unless infection was picked up in the host country.

No inferences can be made on these rates without population - based data for comparison. However, assuming there are two million foreign workers in this country, and at least half are men, a 2.2% positive rate could translate into 22,000 potential cases of syphilis and 2,000 HIV positive male workers, if this survey was representative of migrant workers.

Moreover, since at least half are married, the numbers of spouses and children potentially infected magnifies the problem considerably for the host as well as the source countries. Since this survey was not based on a probability sample, however, such a generalisation cannot be made with any measure of certainty.

These findings suggest that STDs among migrant male workers may be a factor for concern for Malaysia in terms of the potential numbers affected. In addition, more effective ways to glean sensitive information on sexual practices are needed in surveys on migrant workers. Information that motivates behaviour change on STDs and safe sex practices need to be communicated to all male workers, including awareness on transmission to their wives and children.

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3. Specific question - "Do you use a condom each time you have sexual intercourse?". Responses —'Yes';'sometimes, 'no','not applicable'.

HEALTH PROFILE OF FOREIGN WORKERS - LIFESTYLE HABITS / RISK BEHAVIOURS

Wong Yut Lin
Health Research Development Unit (HeRDU), Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia.

ABSTRACT: The majority of migrant workers studied in this survey were males Muslims from Bangladesh. The mean age was 30 and the majority were aged between 21-30 years. Although almost all of them had 7 - 13 years of schooling, the majority were working in the service industry. More than two thirds of the migrant workers were provided with various forms of housing by their employers. Majority of them stated that they had better amenities, such as piped drinking water and sanitary toilets, in Malaysia compared to those in their home countries. From their reports, it appears that the majority did not engage in risk behaviours such as, smoking, alcohol and drug abuse. ***(JUMMEC 2002; 1:59-61)***

KEYWORDS: Lifestyle habits, Risk behaviors, Drug abuse, Smoking.

The migrant workers were asked about their lifestyle habits, with regards to cigarette smoking, alcohol and (non-prescribed) drug use, which would serve as indicators of risk behaviors that might compromise their health.

An overview of all these habits shows that slightly more than a quarter of the respondents were active smokers, another quarter were ex-smokers, and slightly lower than half of them were non-smokers (see Table 1). On the other hand, the majority reported that they never drank alcohol nor took non-prescribed drugs. Only 9 percent of the respondents had ever taken alcohol, whilst 8% or 1% of them reported that they were on non-prescribed drugs (see Tables 2 & 3). The latter reported using drugs, such as, amphetamine, cannabis, and sleeping pills.

However, drug tests were positive for about 3 percent of those who reported they had never used drugs. The majority that of these 23 respondents were from Bangladesh nationality, and most of them were detected to have used amphetamine and cannabis. On the other hand, drug test was negative for three respondents who reported to be currently on drugs.

It is interesting to note the prevalence of multiple risk behaviours among the migrant workers. The results revealed that there were three respondents who reported that they were engaged in all three risk behaviours: cigarette smoking, alcohol, and drug use. Thirteen percent of them smoked cigarettes and drank alcohol; while five of them smoked cigarettes and were on drugs. It was also found that of the three types of risk behaviours, cigarette smoking seemed to be the most popular among the majority of migrant workers (see Table 4).

Table 1. Cigarette Smoking

	Frequency	Percent
Active Smoker	219	27.38
Ex-Smoker	201	25.13
Non-smoker	380	47.5
	800	100

Table 2. Alcohol

	Frequency	Percent
Current	34	4.25
Past	41	5.13
Never	725	90.63
	800	100

Table 3. Drugs

	Frequency	Percent
Current	4	0.5
Past	4	0.5
Never	792	97.9
	800	99.9

Correspondence:
Associate Prof Dr Wong Yut Lin,
Health Research Development Unit (HeRDU),
Faculty of Medicine, University of Malaya
50603 Kuala Lumpur

With regards to smoking cigarettes by gender of migrant workers, 96 percent of the males ever smoked compared to about 4 percent of the females. The male : female proportion of active smokers and ex-smokers appeared rather similar – see Table 5.

Table 6 shows that the majority, or 45 percent, of migrant workers who smoked reported smoking between 1 to 9 cigarettes per day. It is pertinent to note that slightly less than a quarter of them could be referred to as heavy smokers, as they reported smoking 20 or more cigarettes a day. Heavy smokers are defined as persons who smoke 20 or more cigarettes per day (1). Almost half of the heavy smokers were from Bangladesh and the distribution of heavy smoking by nationality was statistically significant $p < 0.01$. About 80 percent of them were aged between 26 to 45 years; and almost all, except one, were males. The sole female heavy smoker was of Thai nationality aged 48 years. The profile of heavy smokers is shown in Tables 7, 8, and 9.

Discussion

The overall prevalence of cigarette smoking among this population of migrant workers is about 25 percent (28 percent for men and 9 percent for women). This appears high compared to the smoking prevalence among Malaysian adolescents (16.7 percent), according to a 1996 estimate by the Ministry of Health. Among medical students in Malaysia, the prevalence of smoking is 9 percent for men and none for women (2). It is interesting to note that in developing countries, 48 percent of men and 7 percent of women smoke (3). Thus, the percentage of males smoking prevalence in this migrant worker population is lower than that in developing countries, while the percentage of female smoking prevalence among the migrants is slightly higher.

The high smoking prevalence among the Bangladeshi workers is not surprising given the fact that Bangladesh ranked eighth in the world for smoking prevalence among men aged 15 years and above in 1997. This is the highest ranking in comparison to Indonesia which ranked twelve, to Thailand that ranked twenty-fifth, to Malaysia at thirty-ninth, and to Pakistan at seventy-ninth (3). There could have been under - reporting for both alcohol and illegal drug use by the respondents due to their sensitive nature of the subject matter.

The low prevalence of reported drug taking was verified, to some extent, by the drug test administered to the respondents in the survey. Other studies have shown that cigarette smoking is often closely associated, if not a precursor, of drug taking. This in turn has implications for the transmission of HIV/AIDS. This survey has also shown that drug use appeared to be associated with both cigarette smoking and alcohol.

Although only 65, or about 15 percent, of the migrant

Table 4. Multiple Risk Behaviors

	Frequency	Percent
Smoking only	355	81.61
Alcohol only	15	3.45
Smoking & Drugs	5	1.15
Smoking & Alcohol	57	13.1
All Risk Behaviours	3	0.69
	435	100

Table 5. Cigarette Smoking by Sex

	Active Smoker		Ex-smoker		Total	
	Frequency	%	Frequency	%	Frequency	%
Male	209	95	195	97	484	96
Female	10	5	6	3	16	4
	219	100	201	100	420	100

Table 6. Number of Cigarettes Smoked Per Day

	Frequency	Percent
9-Jan	189	45.0
19-Oct	133	31.7
20 & >	98	23.3
	420	100

Table 7. Heavy Smokers By Nationality

	Frequency	Percent
Bangladesh	47	47.9
Myanmar	26	26.53
Thailand	15	15.31
Pakistan	7	7.14
Indonesia	3	3.06
	98	**100**

Table 8. Heavy smokers b'y Age

	Frequency	Percent
<26	11	11.2
26 - 35	59	60.2
36 - 45	19	19.39
46 - 55	4	4.08
> 55	5	5.1
	98	100

Table 9. Heavy Smokers By Sex

	Frequency	Percent
Male	97	99
Female	1	1
Total	98	100

workers were found to have multiple risk behaviours, this may be a cause for concern. This is because of the known relationship between such risk behaviours and morbidity (e.g. lung cancer, respiratory, and cardiovascular diseases) and mortality. Here, risk behaviours can be compared with types of last illness reported.

However, there are some gaps in the data collection, which makes it difficult to assess the impact of these risk factors on the health of migrant workers and their effects on the local economy. For instance, data on initiation and duration of these habits; absenteeism from work and hospital admission related to risk behaviours, were not collected.

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PSYCHIATRIC MORBIDITY OF MIGRANT WORKERS IN MALAYSIA - FOR IRPA STUDY ON HEALTH PROBLEMS OF FOREIGN WORKER

Mohd Hussain Habil
Department of Psychological Medicine, Faculty of Medicine, University Malaya, 50603 Kuala Lumpur.

ABSTRACT: Malaysia has been swamped by migrant workers from nearby countries like Indonesia, Philippine and also Bangladesh since 1980's. The main pulling forces which motivated them to migrate to Malaysia are better economy, political stability and religious freedom in Malaysia.

Another way of classifying migration pattern is to divide it into push and pull migration or a combination of the two. Pull migrants are those who migrate to obtain better economic opportunity while push migrants are those who try to run away from being prosecuted or due to fear of political and religious suppression. Whatever the push and the pull factors, they are bound to encounter some acculturation challenges. This will inevitably produce certain psychological sequelae. Therefore, the main aim of this study is to determine the point prevalence of psychiatric morbidity experienced by the migrant population.

The psychological impact of push and pull migrations is fundamentally distinct. There were significant numbers of migrants admitted to University Hospital psychiatric units who suffered from psychological distress and para suicide. The reasons for these problems are multi-faceted. Hence, another purpose of this study was to investigate factors which make them to be at risk of developing psychiatric morbidity. The findings of this study can be used as a basis for making recommendations to the government of the rationale to include psychological assessment as one of the important components in the pre-employment selection criteria. ***(JUMMEC 2002; 1:62-66)***

KEYWORDS : Push migration, pull migration, psychiatric morbidity, psychological impact.

Introduction

Since 1980's Malaysia has been swamped by migrant workers from nearby countries like Indonesia, Philippine and also Bangladesh. The main pulling forces that motivate them to migrate here are better economy, political stability and religious freedom. Historically these three factors have been the primary factors which initiate migration from one country to another (1).

There are several kinds of migration

1) Primitive migration is a form of migration which is neither planned nor forced. The people judge the political or economic situations in their country or residence to be unbearable and hence they flee in order to have a better way of life. Our migrant population in Malaysia mainly fall into this category of migration pattern. They come here because of the better living condition which they are not able to get in their own countries of origin. For example, this is obvious in the case of Indonesian and Bangladeshi migrant workers whereby their over populated and under-developed home countries have forced them to find jobs in Malaysia in order get better living condition, attractive economic opportunities and monetary rewards in this country.

Correpsondence:
Profesor Mohd Hussain Habil
Department o fPsychological Medicine, Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

2) Forced migration, such as seen in the case of British convicts to Australia between 1788 and 1867, or slave trade in the 19th centuries to America. This form of migration is where it is inflicted upon unwilling populations.

3) Free migration, is characterized by groups of individuals who are motivated not by push factors or political reasons but by alienation from their society of origin. They choose to make a new life for themselves. The number of migrants who fall in this category in Malaysia is generally small.

4) Mass migration. This involves the movement of very large numbers of individuals. The largest reported mass migration in the history is the Great Atlantic Migration whereby between 1820 and mid 20th century about 40 million people emigrated from their countries.

Another way of classifying migration pattern is to divide it into push and pull migration or a combination of the two. Example of the pull migrant are those who migrate in order to get better economic opportunities while those called push migrants are those who try to run away from being persecuted and also those who fear political and religious suppression (2).

Whatever the push and pull factors which cause people to migrate they are bound to encounter acculturation challenges. This is inevitable and produces certain psychological sequelae. It includes feeling of homesickness, uprootedness, isolation from and mistrust of the local majority, mood disturbances and psychosomatic illnesses (3-5). Therefore the main aim of this study is to determine the prevalence of psychiatric morbidity that these migrant workers are experiencing.

Nevertheless the psychological impact of the pull and push migrations is fundamentally distinct. The 'pull" migrants are usually more resilient and enterprising than the latter. In fact, studies have shown that the psychological difficulties experienced by the pull migrants have are less than what is being experienced by the push migrants (6). Even though our migrant populations are noted to be more pull migrants but anecdotally we found that many of them do have significant psychosocial adjustment problems to life in Malaysia. Recently we also noted that there were significant numbers of migrants admitted to University Hospital psychiatric units with complaints of psychological distress and para-suicide(7). The reasons for these problems are multi- facetted. They include factors like forced separation from loved ones, low level of social support, acculturation difficulties low educational and low socioeconomic status. Hence another purpose of this study was to investigate factors which make them to be at risk to psychiatric morbidity. Hopefully, the understanding of the factors which contribute to psychiatric morbidity will help us to recognize some preventive strategies that can minimize the rate of psychological problems among the migrant workers in Malaysia.

The understanding about the impact of psychiatric morbidity among migrants seemed lacking. This could be the reason why a detailed psychiatric assessment is not part of the pre-employment medical examination for these migrant workers. As a result, there were several instances where those employers who subsequently discovered that them foreign workers were suffering from psychiatric problems. There were instances where these employers feel cheated and do not know what to do when they found out that their workers were mentally ill. Therefore. the purpose of knowing the prevalence of psychiatric morbidity among migrant workers is to help us to make the recommendations to the government on the possibility of making a detailed psychological assessment for migrant workers as a routine process.

A unique feature about this study is that it is the first such study done in this region and in Malaysia. We would like to examine psychological morbidity with respect to adjustment difficulties, coping, overall physical health and social support.

For the purpose of identifying the prevalence of psychiatric morbidity we used General Hospital Questionnaire. The factors which may be correlated to the psychological well being of the workers were tested using a semi structured interview technique. General Health Questionnaire (GHQ) is a self administered screening questionnaire designed to diagnose psychiatric conditions (8). It helps to identify two major classes of phenomena: a) Inability for a person to carry out their own normal healthy functions. b) The appearance of new phenomena of a distressing nature. The reason why GHQ-12 is chosen for this study is because it has been validated in different languages and cultures and in diverse settings. In Malaysia its validity to screen psychiatric morbidity in the community has also been established. Recently it was being used in the National Health Morbidity study to identify psychiatric morbidity in the Malaysian population (9).

Among factors which we examined included the correlation between socio-demographic variables (which include age, gender, year of schooling, income, years of residence in Malaysia, marital status, immigration status) and psychiatric morbidity. These are based on previous studies which noted that there was a strong correlation between socio-demographic factors and psychological adaptation as measured by the presence of psychiatric morbidity (10-15).

Sample data

A total of 1500 subjects were randomly selected from 4500 migrants workers who were identified and inter-

viewed during the period 6 January 1998 to 14 January 1999. Of these 877 agreed to participate in the study.

Those migrant workers from Klang valley were identified from three sources namely:

1) Field sites - Putra Jaya/ Kuala Lumpur, International Airport projects, factories, food services outlets.

2) Primary Care clinic of University Malaya Medical Centers (UMMC).

3) Accident Emergency Unit, UMMC. They were interviewed during period from 6 January 1988 to 14 January 1999 using a structured questionnaire.

Other than the psychological component, the questionnaire also included socio-demographic data, migration pattern, lifestyle habits, women's health, recent illness, dental health, occupation and related health safety issues and sexual health. General Health Questionnaire (GHQ-12) was chosen to identify the psychiatric morbidity. The questionnaire was translated into the Malay language and was administered to those subjects who cannot understand English. For this study "0-0-1-1" score were used to analyze the data. In essence it simply assigns a score of 0 to the first two choices and a score of 1 to the latter two. The 'cut off ' criteria used here is any score 4 and less is labeled as 'Non Case' whereas a score of 5 and above is labeled as 'Case'.

From this total of 877, only 93.5% (820) respondents were considered appropriate for analysis. The remainder was unsuitable due to inappropriate subjects (i.e. housewives, diplomatic staff, and students) and under aged respondents (below 18 years old).

Findings

The sample shows that males were over-represented. Majority of females were of Thai and Indonesian origin. Nearly half of the sample were from Bangladesh. The majority of them (93.7%) were Muslims. Almost 96% of study respondents had been in Malaysia for more than 8 years duration ,with only 4% having been in this country for a duration of two years and less. Majority (84%) of them were young adults whose ages ranged from 18 to 37 years old

Though more than half of the respondents were married, a majority had left their children and family in their own countries of origin. In terms of place of stay the employers were providing houses, hostel and "kongsi" houses to the majority of the respondents (85.5%). They were staying in groups and together with their own nationalities. Hence their contacts with their fellow country men were still quite intact.

In addition to provision of shelters the employers were also required to provide health care services to the migrant workers. According to the respondents 40 percent of them were using private health care facilities while 60 percent of the respondents said that they sought treatment from government hospitals.

Pertaining to their health status about 17 percent of the respondents alleged that they had suffered from work related injuries in the past one year and it was slightly more common among the female respondents (21.6%). Out of those who suffered from these injuries about half of them said that they had to be hospitalized. Approximately 46.3% of the respondents said that had they suffered from non-worker related illness or injuries. Again the percentage of female respondents (50.0%) were slightly higher than males (45.6%) (see Table 4 and Table 5). In terms of insurance coverage in cases of injuries and illnesses, about 78% of the migrant workers were either covered by insurance or SOCSO.

The vast majority of the sample had some form of formal education. Males had some form of formal education compared to female respondents. Among the males the proportion with formal education for a duration of 13 years and more were mostly those who came from Bangladesh and Myanmar.

In terms of their occupational background the vast majority of them were working as laborers in the construction and manufacturing sectors. Their working hours were usually longer and on the average they had been working for a duration of 54 hours per week.

Assessment of psychological well being

With regard to gender the distribution of GHQ score among the respondents by is as shown in figure 4. The results were highly skewed in both male and female respondents with means (s.d) of 0.7 (1.5) and 0.9 (2) respectively. Only 4.2% of the respondents were classified as a "Case" according to the GHQ score. This study also showed that there is a higher proportion of psychiatric morbidity among females (8.2%) compared to males (3.6%). The proportion of "Case" is the same for both marriage and single respondents. Based on nationality it was found that for Indonesians, those classified as "Case" comprised 9.1% and this figure is much higher than the number of "Cases" found in respondents from other nationalities.

Discussion

This study showed that 4.5% of migrant workers were suffering from psychiatric morbidity. Female Indonesians were identified as more at risk. No comparison can be made with other studies because there was never any known migrant mental health study that has

been done in this region. Up to now, the majority of report on the effects of migration mental health of the Asian immigrants were mainly from studies done in America and Europe. Based on the finding of these studies it was also found that Asian migrant workers have particularly high levels of mental disturbance (16-17).

The association between migration and mental disorder has yet to be established. At though migration is a stressful experience which can cause mental illness there were also finding that suggest that the migrants were already suffering from mental illness when they were still in their countries of origin. As a result they may become unsettled and move to another country. Thus migration can either be the result or the cause of mental disorder (18).

There are several sources of stresses that can possibly predispose or cause these migrant workers to be at risk to mental health problems. First is acculturation and the effects of trying to assimilate with the local cultures. These include cultural conflicts, social integration and assimilation and also role change and identity crisis. Several studies do show that migrants do have problems in adjusting to these effects and hence some of them can experience stresses which can precipitate mental disorders (3).

Separation from family members especially from their children and wife can also be another source of stress. Almost half of the study subjects are married but due to many circumstances they had to leave their families in their home countries. This loss of family' ties will definitely make them experience loss of social support and there is evidence to show that it can be one of the possible factors causing mental illness (12).

Our study was focused on the blue collar worker migrants. Their low level of education's and low income could also compound them stress and predispose them to be at risk of developing mental illness. Other immigrant studies do show the strong association between low socioeconomic factors and mental disorders among migrant workers(13).

Majority of the migrant workers were given proper shelters by their employers but at least about 20% of them had to find their own shelters to stay. Due to their low income, they had limited choice to choose proper dwellings for their shelters. Even for those whose place of stay were provided by employers the living conditions were very poor. There were obvious problems of over crowding and lack of basic amenities such as water supply and sewage disposal.

Another basic amenity which is still lacking and which could be the source of stress is accessibility to the health care systems psychiatric services and counseling. The language problem and the lack of awareness of the existence of such services could prevent the migrant workers from getting help at an early stage to overcome their psychological distress. The employers themselves might not be aware of such a need. This fact possibly explain why the provision of help rendered the employers catered only to their physical health rather than to their psychological well being. Hence the psychological distress suffered by the migrant workers might not be detected and it may progress to the extent that they might finally succumb from it.

Even though all our migrants were considered to be "pull" migrants, they still live in fear of being persecuted. No doubt that it is beyond the scope of to examine issues pertaining to victimization and abuse, the workers expressed feelings of suspiciousness and fear of being persecuted. This may be one of reasons why many migrant workers who were selected for the study refused to be interviewed. Other studies noted that the feeling of insecurity and the thought of having to face persecution by the local communities may also be a precipitating factor of mental distress among the migrant communities.

The main issues that this study has addressed are the detection of mental illnesses among migrant workers. The findings suggest that there must be provisions to enable migrant workers to seek help in order to overcome their psychological distresses. It also highlights the fact that assessment of migrant workers who being recruited to work in Malaysia should not only be confined to physical examination health but should also include a psychological assessment as well. It can be done by using both general psychiatric interview technique and the translated version of General Health Questionnaire.

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HEALTH PROBLEMS OF FOREIGN WORKERS - MICROBIOLOGICAL INVESTIGATIONS

Ngeow Yun Fong, Ng Kee Peng, Savithiri Devi Puthucheary, Lam Sai Kit
Department of Medical Microbiology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia

ABSTRACT: **Foreign workers in Malaysia are screened for certain infectious diseases prior to their entry to the country but some escape medical screening and others acquire infection during their stay in the country. The Faculty of Medicine, University of Malaya was commissioned to study the impact of foreign labour on the local health system and, as part of the investigations, 584 foreign workers attending local outpatient clinics were examined for serological evidence of syphilis, HIV infection, viral hepatitis B, C and E, as well as for enteric infections by *Salmonella, Shigella and Vibrio cholerae.***

The results showed that apart from viral *hepatitis E*, the prevalence rates of the infections looked for were not notably higher than those for the general Malaysian population. The seroprevalence rates obtained were 2.6% for syphilis, 0.2% HIV infection, 3.8% viral hepatitis B, 1.0% viral hepatitis C, 14.4% viral hepatitis E. The detection of HEV IgM in 7.7% of the workers screened indicates that these infections could have been acquired during their stay in Malaysia. *(JUMMEC 2002; 1:67-69)*

KEYWORD: **Foreign workers, syphilis, HIV, hepatitis, enteric bacterial pathogens**

Introduction

One of the many perils ascribed to population movement is disease transmission from infected or carrier migrants to the non-immune local population. In Malaysia, foreigners and travelers returning to the country have been suspected of causing outbreaks of cholera by the 0139 Bengal strain, chloramphenicol-resistant typhoid and W135 meningococcal disease. Migrant workers have to undergo health checks before gaining entry to the country and the majority is expected to be clear of infectious diseases. However, screening tests may not detect all infections, especially early or inactive infections which may develop into overt disease later on. Thus, migrant workers are seen as potential reservoirs of infection for the local population; but, these individuals are also at risk of contracting infections during their stay in the country. Male workers away from their families may turn to local brothels for recreation and thus expose themselves to sexually transmitted diseases. Enteric infections may result from frequent eating at hawkers' stalls.

When the Faculty of Medicine, University of Malaya was commissioned to investigate the impact of foreign labour on the local health system, an opportunity arose for the testing of foreign workers to determine the prevalence of syphilis, hepatitis, human immunodeficiency virus (HIV) infection and major intestinal infections among those who seek treatment at local outpatient clinics.

Materials and Methods

The study population consisted of foreign workers who presented to the Primary Health Care outpatient clinics at the University Malaya Medical Centre (UMMC) for treatment of a variety of ailments. From each foreign worker who agreed to participate in the study, about 8 ml of blood was obtained by venepuncture and sent to the Department Medical Microbiology laboratory via the Centre for Immigrant Studies, Faculty of Medicine, University of Malaya. Serum was separated and kept at -20°C until used for serology. From some of the workers, stool samples were also collected for bacteriological examination.

Serum samples were tested for evidence of syphilis by the rapid plasma reagin (RPR) test (Becton Dickinson, USA) and the Treponema pallidum Haemagglutination (TPHA) test (Fujirebio, Japan). Viral hepatitis B (HBV), C (HCV) and Human Immunodeficiency Virus infections

Correpsondence:
Professor Ngeow Yun Fong
Department of Medical Microbiology, Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

were detected by the Axsym MEIA (Abbott Laboratories, Abbott Park, IL, 60064, USA). Sera showing positive HBsAg (hepatitis B surface antigen), anti-HCV antibodies or anti-HIV 1 / 2 antibodies were tested again and only repeatedly reactive sera were considered true positives. Viral hepatitis E (HEV) IgG was detected by an *in vitro* qualitative EIA (Abbott Laboratories, Abbott Park, IL, 60064, USA) while the HEV IgM was detected by the HEV IgM ELISA (Genelabs Diagnostics, Singapore).

Stool samples collected in stool cups were inoculated into Selenite broth and alkaline peptone water as well as onto DCA and TCBS agar plates for incubation at 36°C for up to 48h, for the isolation of *Salmonella* and *Shigella* species and *Vibrio cholerae*.

Results

A total of 584 serum samples were examined by the RPR, TPHA, and tests for anti-HIV 1 / 2 antibody, HBsAg and anti-HCV antibodies, while only 104 were tested for HEV IgG and IgM antibodies. The results are shown in table 1.

Table 1. Results of serological tests for syphilis, HIV infection and hepatitis B, C and E

Test	No. Tested	No. (%) Positive
RPR	584	28 (4.8)
TPHA	584	15 (2.6)
HIV	584	1 (0.2)
HBsAG	584	22 (3.8)
HCV ab	584	6 (1.0)
HEV IgG	104	15 (14.4)
HEV IgM	104	8 (7.7)

The interpretation of syphilis serology depends very much on clinical history that, unfortunately, is not available in this study. The RPR is a non-specific test that can be falsely positive in various clinical conditions. It can also spontaneously become negative in late syphilis. The TPHA test detects *Treponema pallidum*-specific antibodies and usually remains positive in established infection even long after adequate treatment. However, it is relatively insensitive in early syphilis. In this study, the prevalence of syphilis is 2. 6% by the TPHA test and 4.8% by the RPR test. The true prevalence is likely to be closer to 2.6% since biological false positives are more probable than early syphilis as causes of RPR-positive, TPHA-negative results. This prevalence is slightly higher than that reported for Malaysian blood donors (1-1.5%) but very much lower than the rates reported for local STD clinic attendees (14-30%).[1]

HIV infection was detected in only one subject, giving a prevalence of 0.2% that is similar to the 0.1-0.2% detection rate among Malaysian blood donors.[2] Similarly, the HBsAg positive rate of 3.8% is about the same as the average 4% HBV carriage rate for Malaysians.[3] Anti-HCV antibodies (1.0% prevalence) are less frequently seen among foreign workers than among Malaysian blood donors (1.9%) and intravenous drug-users (30%)[4]. HEV which has an oral-fecal route of transmission, was seen in 14.4% of the workers, half of whom appeared to have a recent infection as indicated by positive IgM tests. Only 79 stool samples were examined for *Salmonella* and *Shigella* and only 53 for *V cholerae*. All were culture-negative for these enteric pathogens.

Discussion

The foreign workers examined in this study came from Bangladesh, Pakistan, Myanmar and Indonesia, where, as in many other countries in Asia, behaviour patterns and extensive risk factors exist to facilitate the spread of HIV and other sexually transmitted infections (STI).[5] Official reports indicate very low overall prevalence rates (HIV infection in 0.03% and 0.10% of the adult population in Bangladesh[6] and Pakistan[7], respectively) but smaller studies on selected populations found large reservoirs of infection among specific at risk groups (HIV among 53% drug-using prisoners tested in Bali; syphilis among 43% of female sex workers and 18.2% of male sex workers in Bangladesh)[5]. Migrant workers have been cited as important vehicles of STI transmission within each country but there is little evidence that the migrant workers to Malaysia have increased the incidence of these infections in this country.

The relatively low rates of HIV infection and syphilis obtained in this study could be due to 1) effective screening at the country of origin and on entry to Malaysia, 2) infrequent contact with local commercial sex workers and intravenous drug abusers and 3) biased sampling caused by the selection of the more health conscious and legally-employed workers who attend government clinics. It is possible that foreign workers with suspected STIs prefer to be treated by general practitioners or self-medicate.

Intestinal infection with *Salmonella, Shigella* and *Vibrio* appears to be uncommon among foreign workers although these infections are endemic in their countries of origin. The low isolation rate obtained is most likely to be due to the small numbers examined and the fact that not all samples were from subjects with gastrointestinal symptoms. Although salmonellae may be isolated from asymptomatic individuals, *Shigella* species and *V. cholerae* are almost never isolated from those not suffering from gastrointestinal disorders. Unlike hepatitis B, hepatitis C and E are not routinely tested for in the screening of foreign workers. Hence, workers infected with HCV or HEV would have been allowed into the country. The high HEV antibody prevalence among the

workers examined is not entirely unexpected as HEV is believed to be spread by fecal contamination of drinking water, and major waterborne epidemics have occurred in North and East Africa and in Asia, including Myanmar.[8] It is probable that most of the HEV seropositivity is the result of past exposure in the workers' country of origin, but, 7.7% of the workers had HEV IgM antibodies, indicating the possible acquisition of infection after arrival in this country. In Malaysia, HEV is not a common etiologic agent among patients presenting with clinical hepatitis (KP Ng, unpublished data). In a study of 200 antenatal women at the University Malaya Medical Centre, anti-HEV antibodies (both IgG and IgM) were not detected among the women screened (KP Ng, unpublished data). In contrast, anti-HEV IgG and anti-HEV IgM were detected in 10.3% and 4.1% respectively, of individuals infected with HIV.[9]

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PARASITIC INFECTION AMONG FOREIGN WORKERS: SEROLOGICAL FINDINGS

Zurainee Mohd. Nor
Department of Parasitology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia

ABSTRACT: We describe the results of serology for parasitic infection of 698 foreign workers. The 698 foreign workers participated included 115 Indonesians, 387 Bangladeshis, 101 Burmese, 81 Pakistanis, 6 Indians, 3 Thais, 3 Filipinoes and 2 Others. Blood samples were taken from these workers and eight tests (Amoebiasis, Echinococcosis, Filariasis (bm and wb), Leishmaniasis, Malaria, Schistosomiasis and Trypanosomiasis) were performed on serum separated from the blood. Among the 698 sera tested, 38.1% were found to be positive for at least one parasitic infection. The most common antibody detected in the positive sera was antibody for amoebiasis (28.1%), followed by malaria (26.9%), echinococcosis (18.1%) and schistosomiasis (11.6%). Other tests showed a low percentage of infection with leishmaniasis (6.5%), filariasis (*Brugia malayi* (3%) and *Wuchereria bancrofti* (1%)) and trypanosomiasis (1%). *(JUMMEC 2002; 1:70-76)*

KEYWORDS: Parasitic infection, Amoebiasis, Echinococcosis, Filariasis, Leishmaniasis, Malaria, Schistosomiasis, Trypanosomiasis.

Introduction

Mass movement of people is not a new phenomenon. Modern communication and transportation makes it possible for people and their health problems to travel further and more quickly than ever before. It has been estimated that there are 125 million migrants worldwide. Malaysia is no exception in this matter because many migrant workers have entered the country since 1980's. Majority were job seekers who came to work in various sectors.

Employers and the Immigration Department of Malaysia require pre-employment medical examination for all foreign workers. Unfortunately, the examination does not include screening for parasitic infection. Therefore very little is known about the status of parasitic infection on of these workers. Interestingly, the majority of these workers came from countries like Indonesia, Philippines and Bangladesh where parasitic diseases are known to be very prevalent.

Most parasitic diseases can be easily treated if detected at the early stage, but if untreated can cause severe complications or death. Some can be transmitted to the local population because of the presence of vectors which may transmit the infection around while those which appear not to pose any threat of transmission, should not be taken lightly because such diseases may require serious treatment and this will have an impact on our health services and facilities.

It was felt necessary to have these workers examined for parasitic infection based on studies done by researchers from other countries with similar experience. For example, a study carried out in the United States showed that 1000 cases of malaria detected each year was related to travellers (1). Hospital records in three different towns in Brazil showed that the number of malaria cases increased five fold from 1983-1987 following increased immigration (2). Other studies reported of cysticercosis causing appreciable morbidity and mortality among Latin American immigrants in the United States (3), intestinal parasites among refugees entering Canada (4), and intestinal parasites among Central American immigrants in the United States (5).

Parasitic Diseases

i. Amoebiasis

Incidence of Amoebiasis throughout the world varies from 0.2 % to 5 %. The infection is most prevalent among people living in crowded conditions with inadequate toilet and sanitary facilities. Clinically it can present as acute amoebic dysentery, chronic and non-dysenteric amoebiasis or hepatic and extra-intestinal amoebiasis. Treatment is not difficult but this disease is easily transmitted through food and water.

Correspondence:
Dr. Zurainee Mohd. Nor
Department of Parasitology, Faculty of Medicine,
University of Malaya,
50603, Kuala Lumpur, Malaysia

ii. Echinococcosis

Echinococcosis does not occur in Malaysia. Man is an intermediate (dead end) host. An infected individual will harbour the cystic form known as hydatid cyst commonly found in the liver and lungs. Until recently, surgery was the only effective treatment.

iii. Filariasis

Billions of people live in areas of the world where filariasis is a common disease. Rarely life threatening, this disease however causes suffering and disability. The chronic stage may take a number of years to manifest. In the intervening period repeated attacks of acute lymphangitis may continue. The classical manifestations of this stage are elephantiasis, hydrocoele and chyluria. Malaysia has been very successful in controlling the infection (6) but the presence of unmonitored microfilariae carriers can reverse the situation especially in the case of urban bancroftian filariasis where it can be established in various centres with large numbers of foreign workers.

iv. Leishmaniasis

Leishmaniasis is a disease which generally causes disfiguring lesions. Epidemics of visceral forms of leishmaniasis however, have been responsible for many deaths world wide. It is not found in Malaysia but a few kala-azar cases have been diagnosed among the foreign workers admitted to University Malaya Medical Centre. (UMMC) Treatment of leishmaniasis with classical drugs is costly.

v. Malaria

Malaria remains to be the most important tropical disease in the world and continues to be a public health problem in Malaysia (7). Although the number of cases have been much reduced, treatment and control have become more difficult due to drug resistant strain of *Plasmodium falciparum* and insecticide resistant of the mosquito vectors.

vi. Schistosomiasis

Schistosomiasis is a disease that causes chronic debilitating illness. Schistosomiasis is particularly associated with water development projects simply because their intermediate host that is the snail, breeds in freshwater lakes and streams. Although it is not found in Malaysia there are many species of snails that may act as potential intermediate hosts and this can lead to local transmission.

vii. Trypanosomiasis

This is a disease which varies in severity ranging from acute stage to chronic sleeping sickness stage. Although prognosis is favourable if treatment is instituted before occurrence of serious involvement of the nervous system, treatment of this disease has always been difficult and the available drugs are toxic to humans.

Objective

This study was conducted to determine the status of the parasitic infection among the migrant workers by using serological tests.

Materials and Methods

Blood/serum samples

The researcher received blood samples from the Centre of Immigrant Study (CIS) in clotted form. The blood were then kept at 4^0 C. Serum were then separated from the clotted blood and kept at -20^0 C until use.

Tests

Test kit used	Detection
1. Cellognost Combipack IHA	detects amoebiasis
2. Cellognost Combipack IHA	detects echinococcosis
3. In house ELISA	detects lymphatic filariasis (bm)
4. ICT card test	detects lymphatic filariasis (wb)
5. Cellognost Combipack IHA	detects leishmaniasis
6. IgG CELISA	detects malaria
7. Cellognost Combipack IHA	detects schistosomiasis
8. Cellognost	detects trypanosomiasis

A) Cellognost Combipack IHA

Principle: If specific antibodies were present in the serum sample, a cross-linking of erythrocytes was observed. If no antibodies were present the cells were deposited at the bottom of the reaction vessel in the form of buttons or rings.

Procedure: A volume of 5ml of test sera/control sera was placed into the V bottom microtitration plate followed by 100ml IHA reagent test sera and mixed well. The plate was incubated at room temperature for 3 hours.

Interpretation of results:

Positive result: presence of complete agglutination of the cells

Weak positive result : agglutination with ring formation

Negative result: formation of sedimented cells.

B) IgG CELISA

Principle: The indirect or sandwich ELISA principle was used. Microwells were coated with *P. falciparum* antigen. A conjugate of enzyme labelled anti-human globulin is incorporated into the kit.

Procedure: 100ml of diluted serum sample was added to the pre-coated wells and incubated for 1 hour at 37° C. The well was exposed to 4 times 5 minutes washing. 100ml of conjugate was then added to the well followed by another 1 hour of incubation at 37° C. The washing process was repeated following which 100ml of substrate was added to the well. The well was then incubated for 15 minutes. Stop solution was added. The absorbance was read at 450nm.

Interpretation of results:

Positive control: value of at least 0.8

Negative control: value under 0.15

C) 'In house' ELISA

Principle: Indirect ELISA. Antigen to be used for coating the plate was prepared and standardised in the Department of Parasitology.

Procedure: Plate was coated with 50ml of antigen. The plate was incubated overnight at 4° C. It was then exposed to 3 times 5 minutes washing and blocked with 200ml 0.5% BSA. The plate was left undisturbed at room temperature for 2 hours. The washing procedure was repeated. A volume of 50ml of test/control sera was introduced to the plate accordingly and left standing at room temperature for 1 hour. The plate was washed again as before, after which 50ml of conjugate was added to the plate and incubated at room temperature for another hour. The plate was again washed using the same procedure and subsequently 50ml of substrate was added. Finally the plate was left in the dark at room temperature for15 minutes and the absorbance was read at 405nm.

Interpretation of result:

Positive result: values which were 2.5 times greater than that of the negative control.

Results

The author received a total of 809 serum samples from the Centre of Immigrant Study (CIS) of which 121 samples were from Indonesian workers, 393 from Bangladeshi workers, 112 were from Thai workers, 102 from Myanmar workers and 81 samples from Pakistani workers. However, we were unable to screen all samples due to shortage of test kits. Therefore, out of 809 samples received, only 284 were screened for amoebiasis, 512 for echinococcosis, 227 for filariasis bm (*Brugia malayi*), 52 for filariasis wb (*Wuchereria bancrofti*), 232 for leishmaniasis, 657 for malaria, 623 for schistosomiasis and 186 for trypanosomiasis. Table 1 shows the list of tests performed, the number of samples tested and the overall results.

Table 1. Seropositive individual for each test by gender

	Gender					
	Male			Female		
Test	Total	Pos	%	Total	Pos	%
Echino coccosis	478	82	17.2	34	11	32.4
Amoebiasis	261	71	27.2	239	3	9.1
Filariasis (bm)	190	6	3.2	37	1	2.7
Filariasis (wb)	49	0	0	3	1	33.3
Leishmaniasis	210	14	6.7	22	1	4.5
Malaria	609	166	27.3	48	11	23.0
Schistosomiasis	582	68	11.7	41	4	9.8
Trypano somiasis	165	2	1.2	21	0	0

Pos = positive result

The author managed to screen 609 male samples for malaria, 582 for Schistosomiasis, 478 for echinococcosis, 261 for amoebiasis, 210 for leishmaniasis, 190 for *Brugia malayi* 165 for trypanosomiasis and 49 for *Wuchereria bancrofti*.

The number of female samples tested were far less compared to the male samples. For amoebiasis, the author only screened 23 samples, 34 were screened for echinococcosis, 37 for filariasis (bm), 3 were tested for filariasis (wb), 22 samples were tested for leishmaniasis, 48 for malaria, and 4 for schistosomiasis. None of the female samples provided were tested for trypanosomiasis.

Figure 1 shows the percentage of seropositive individuals for each test. It was found that 28% of the samples tested were found positive for amoebiasis followed by 27% found positive for malaria. Eighteen percent were tested positive for echinococcosis and 12% were seropositive for schistosomiasis. Other tests showed very low percentage of seropositive samples (< 10%).

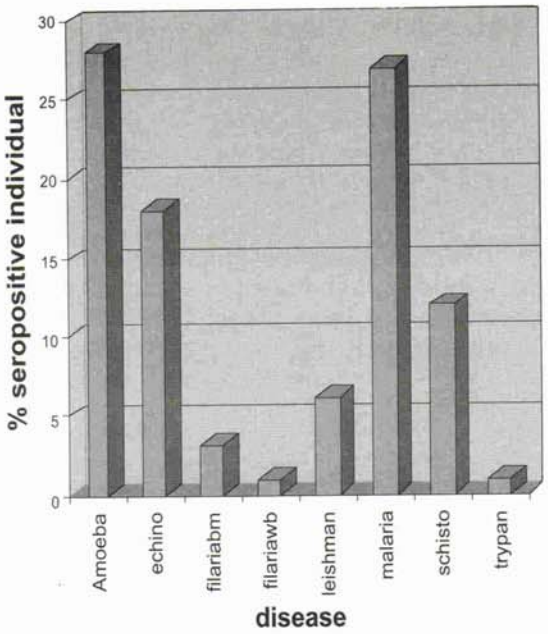

Figure 1. Percentage of seropositive individual for each test

The distribution of seropositive samples among tested workers from the different nationalities for each test performed showed that out of 80 samples found seropositive for amoebiasis, 22.5% were from Indonesia, 42.5% were from Bangladesh, 21% were from Myanmar and 14% from Pakistan. Only one serum sample from a Thai

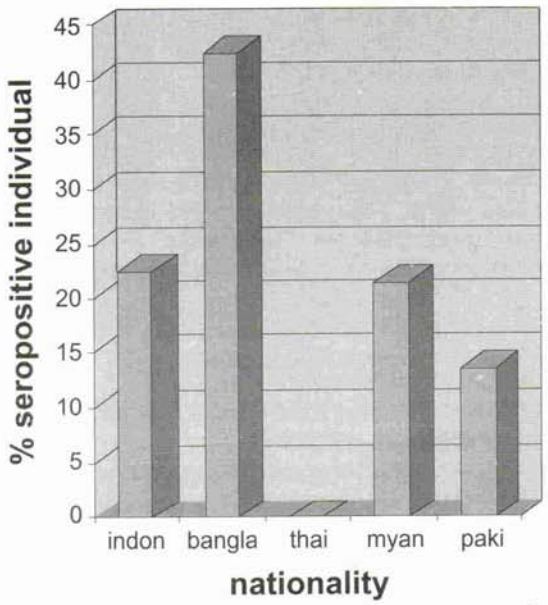

Figure 2. Percentage distribution of seropositive for each test by nationality

worker was tested and was found negative (Figure 2).

A total of 91 samples out of 512 sera were confirmed positive for echinococcosis. The highest number of seropositive cases were from Bangladesh (39%), followed by Indonesia (26%). Myanmar and Pakistan both having 17% seropositive results and 1% from Thailand (Figure 3).

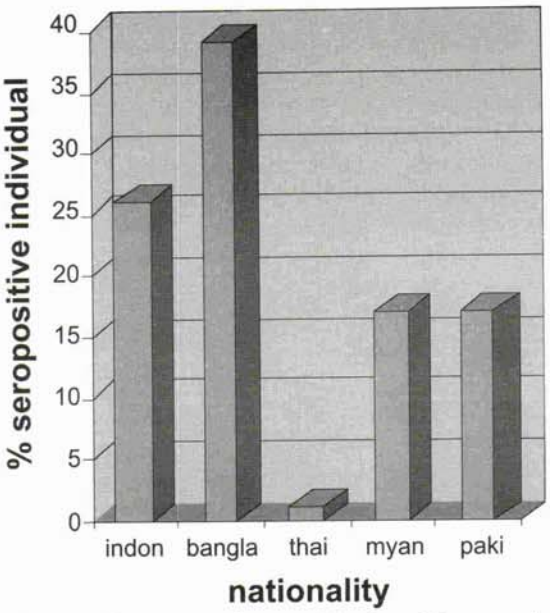

Figure 3. Percentage of seropositive for echinococcosis by nationality.

Out of 227 tested for *Brugia malayi*, only 7 samples were seropositive while 6 out of the 7 samples were from Indonesian workers and 1 from Bangladesh (Figure 4).

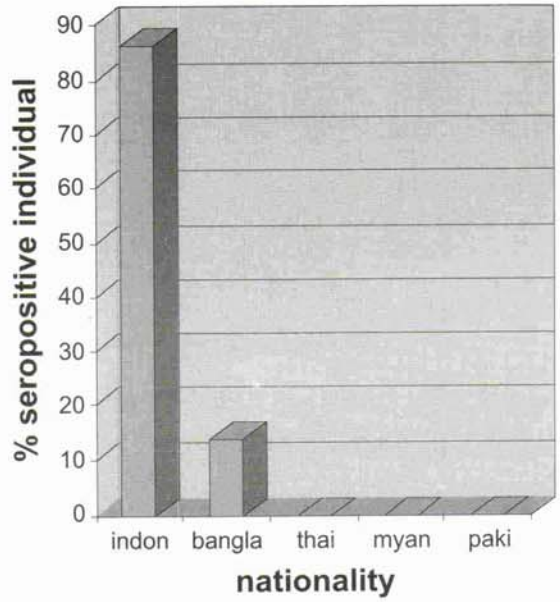

Figure 4. Percentage of seropositive for *Brugia malayi* by nationality.

Only 52 samples were tested for *Wuchereria bancrofti* and only one sample obtained from a Myanmar worker was found positive (Fugure 5).

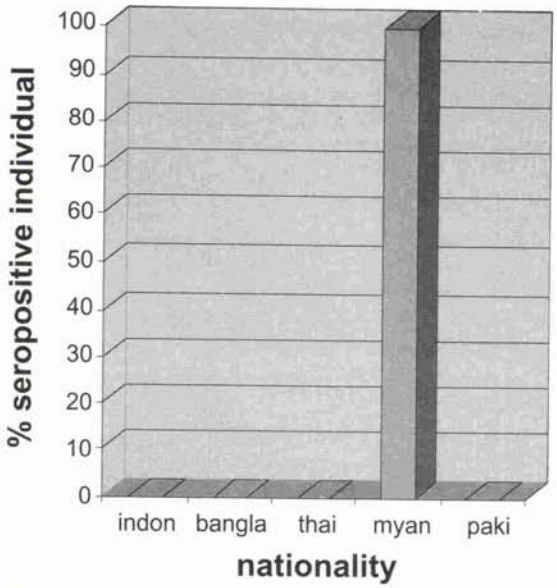

Figure 5. Percentage of seropositive for *Wucheria bancrofti* by nationality.

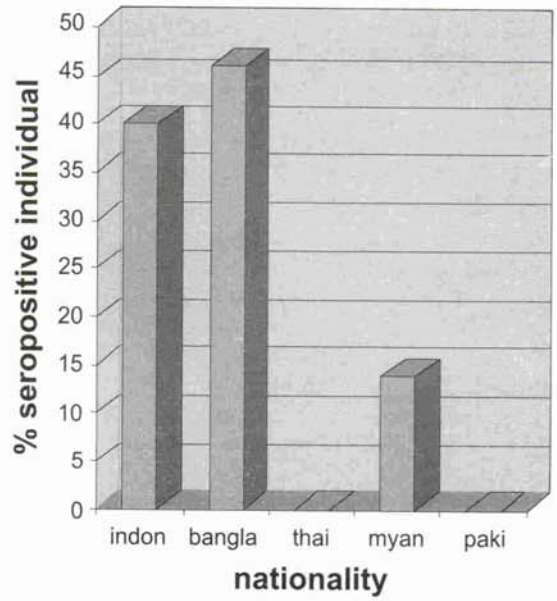

Figure 6. Percentage of seropositive for leismaniasis by nationality.

There were 15 samples out of 232 which tested seropositive for leishmaniasis while 6 out of 15 (40%) were from Indonesians, 46% from Bangladesh and 14% from Myanmar (Figure 6).

For malaria, there were 657 samples and 177 were tested seropositive which 58% of the positive individuals were from Bangladesh, 26% were from Myanmar, 10% from Indonesia, 6% from Pakistan and 1% from Thailand (Figure 7).

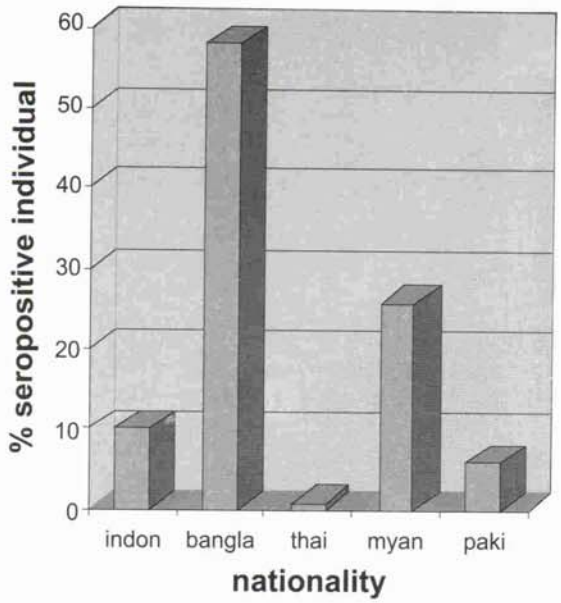

Figure 7. Percentage of seropositive for malaria by nationality.

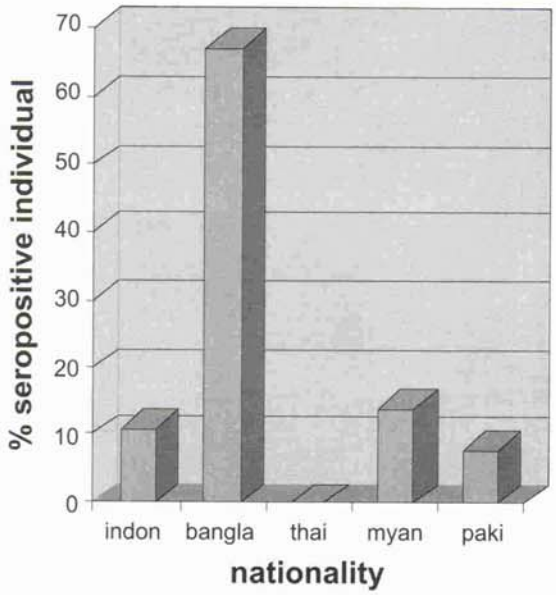

Figure 8. Percentage of seropositive for schistosomiasis by nationality.

Out of 623 samples tested for schistosomiasis, 72 were seropositive. Eleven percent of the seropositive samples were among the Indonesian workers, 67% among Bangladeshi workers, 14% among workers from Myanmar, and 8% were from Pakistani workers. Three samples from Thai workers were found negative (Figure 8).

Test to detect for trypanosomiasis was performed on 186 samples. Only 2 samples were found to be seropositive. One sample was from an Indonesian worker

and the other was from Bangladeshi worker (Figure 9). One sample from Thailand was found negative for trypanosomiasis. Out of 33 samples from Myanmar and 29 samples from Pakistan, all were negative for the trypanosome antibody.

Discussion

In the majority of cases, the diagnosis of parasitic disease is made based on the clinical laboratory examination through identification of the parasite itself in body fluids, tissues, or excreta. Clinical signs and symptoms, together with the

patient's travel history, may dictate what laboratory tests to employ and may suggest ancillary testing by other means such as radiography, ultrasonography, and magnetic resonance imaging.

In some cases, parasites may not be found in spite of careful search, and radiologic findings may be equivocal. In such cases, we may have to rely on immunodiagnostic methods to search for diagnosis on the basis of clues left either by the parasite itself (antigens) or by the body's response to parasitic invasion (antibodies).

In this study we were using serological method to detect the presence of antibodies to infections such as amoebiasis, echinococcosis, filariasis *(Brugia malayi)*, filariasis *(Wuchereria bancrofti)*, leishmaniasis, malaria, schistosomiasis and trypanosomiasis among migrant workers. Since workers were not screened for parasitic infection as part of the routine check up, this study will provide some new information about their parasitic infection status. Such information is important if diseases caused by parasites is to be prevented from being imported into the country.

Our findings showed that amoebiasis was the highest parasitic disease detected among the migrant workers with 28% of the samples tested positive, followed closely by malaria (27%). The third most common parasitic disease detected was echinococcosis (18%) followed by schistosomiasis (12%). The blood samples were seropositive for male workers: leishmaniasis (6%), filariasis (bm) (3%,), filariasis (wb) 1% and trypanosomiasis (1%). Based on the female samples alone indicated that as much as 39.1% were found positive for amoebiasis. 33.3% were seropositive for filariasis (wb). Out of 34 tested, 11 (32.4%) were found positive for echinococcus antibody. For malaria, 11 out of 48 tested (23%) were seropositive. 9.8% were found positive for schistosomiasis, 4.5% were positive for leishmaniasis and 2.7% were positive for filariasis (bm). This data may suggest that a large population is not required to detect the presence of parasitic diseases among migrant workers. Therefore, any unscreened migrant workers entering

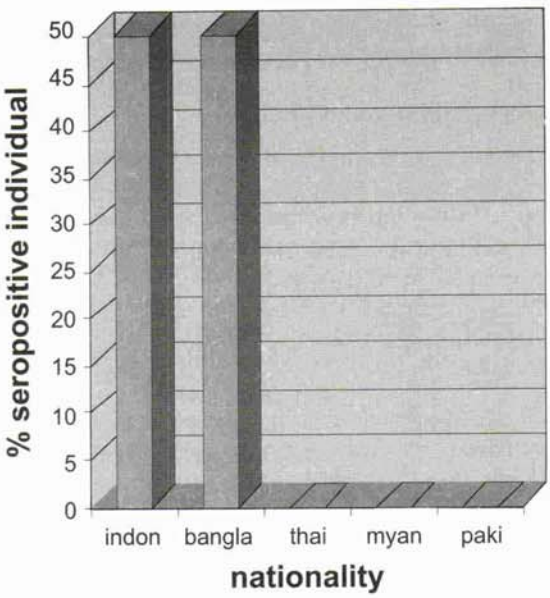

Figure 9. Percentage of seropositive for trypanosomiasis by nationality.

this country, should be considered as of potential parasitic disease carriers until confirmed negative.

Obviously, those harbouring a parasitic infection would be our main concern because they may act as a source of infection for transmission to the local population especially for diseases such as amoebiasis, malaria and filariasis. Those with 'non-transmittable' parasitic diseases (since vectors are not present in this country), may not be a threat to the local population, but if the parasitic disease is active, these workers may require medical attention.

It may be difficult however, to determine the infection status if we are to rely on serological methods alone especially when the test is based on antibody detection since the antibody may persist in circulation long after infection has gone. An individual who has been confirmed positive serologically for a parasitic disease, may not necessarily have an active infection after all. Therefore, those who were found positive serologically, need to be re-tested by employing other methods in order to determine their infection status. For malaria and filariasis, the test to be used is blood examination to look for the presence of parasite in the circulation.

However results obtained from blood examination, indicated that none of the malaria seropositive samples were positive on blood slide examination. In other words, no active infection was detected among the 27% malaria seropositives. This result may or may not be true. Most of the samples examined were actually obtained from those who were willing to participate in the study and majority of them who participated knew that they were healthy enough to take part. On the

other hand, these workers may be harbouring malaria parasites, but the number of parasites present were at a very low level and cannot be easily detected from a single blood examination.

In the case of filariasis, to detect the presence of microfilariae in circulation, blood samples need to be collected during night time. In this study however, all blood samples provided by the CIS were collected during day time, making it less suitable for microfilariae detection. Therefore, results obtained from blood examination were not reliable to be used to support the serological findings

Amoebiasis can be divided into intestinal and extra-intestinal/systemic infection. Serological technique is used to detect the extra-intestinal infection while the intestinal amoebiasis is detected using stool examination. Unlike the tests used in malaria and filaria infections, the two tests in the diagnosis of amoebiasis are independent. Once a person is found to have systemic amoebiasis, he/she seldom produces cystic forms which can be detected in the stools. Therefore, in order to determine the status of the systemic infection, tests that detect different levels of antibody titre need to be used. Unfortunately the test used in this study only provides qualitative results.

Conclusion

- Amoebiasis and malaria were the two major parasitic diseases detected among migrant workers.
- Workers from Bangladesh showed the highest percentage on seropositive results: amoebiasis, echinococcosis, leishmaniasis, malaria and schistosomiasis.
- Female samples were seropositive for all the tests except for trypanosomiasis.
- Proper tests and proper sample collection need to be used for the detection of active parasitic disease among the seropositive individuals.

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SMALL FORMS OF *BLASTOCYSTIS HOMINIS*

Rajah S, Suresh K, Vennila GD, Khairul Anuar A and Saminathan R.
Department of Parasitology, Medical Faculty , University of Malaya, 50603 Kuala Lumpur

ABSTRACT: Unusually small forms of *Blastocystis hominis* were found in the stools of Indonesian immigrants. The size of the parasites seen in faecal samples of the Indonesian isolates were 3 - 5 mm whereas larger vacuolar forms measuring 10 - 15 mm were seen in Malaysian and Bangladeshi isolates. These small forms showed a distinct growth profile with an optimum parasite yield as high as 11.7×10^5 when cultured in Jone's medium compared to yield of 3.9×10^5 and 0.5×10^5 for Malaysian and Bangladeshi isolates respectively. The unusually small forms of *Blastocystis*, unlike the other isolates, was found to grow in cultures at 37°C even after being kept at room temperature for as long as 9 days. *(JUMMEC 2002; 1:77-79)*

KEYWORDS: *Blastocystis hominis*, small forms; immigrant; morphology, growth profile.

Introduction

Blastocystis hominis (1), a human intestinal protozoan parasite, has been reported in a wide range of hosts e.g. humans, pigs, monkeys, fowls, ostriches, turkeys, guinea pigs (2, 3), reptiles including snakes, crocodiles and iguana lizards (4, 5). However, very little is understood about the parasite's mode of reproduction and growth.

Previous studies on morphology, growth profile and karyotypic patterns of *Blastocystis* were on isolates obtained from one geographical region or unspecified (6, 7, 8). To the best of our knowledge, no study has been undertaken to compare the morphology, growth profile and karyotypic pattern of *Blastocystis* isolates obtained from different geographical regions. In the present study we report unusually small forms of *Blastocystis* isolated from *Blastocystis*-infected Indonesian migrants. These forms show distinct growth patterns and different biological characteristics compared to the normal vacuolar form seen in Malaysian and Bangladeshi isolates.

Material and Methods

Malaysian *Blastocystis* isolates were obtained randomly from faecal samples of patients admitted at the University Malaya Medical Centre (UMMC), Kuala Lumpur. Only two out of ten patients had diarrhoea and all the patients were confirmed to have acquired the infection locally. Faecal samples were also collected from immigrant workers who had recently arrived from Bangladesh and Indonesia, at the outpatient clinic, University Malaya Medical Centre (UMMC), Kuala Lumpur. These *Blastocystis*-infected individuals were apparently healthy and asymptomatic.

Direct faecal smears were made from ten *Blastocystis*-infected persons from each of the three nationalities. The morphology and size of *Blastocystis* were observed under both light and phase contrast microscopy as well as fluorescent microscopy after acridine orange staining. The faecal samples were subsequently maintained in bijou bottles containing 3 ml of Jone's medium at 37°C (9, 10). After several sub-cultures three isolates originating from stool specimen of each nationalities were randomly selected for the growth profile study. The parasites of each of these isolates were pooled together to make a concentration of 5×10^5 parasites/ml of Jone's media and added into 3 screw capped tubes of 10ml volume respectively containing 4 ml of fresh Jone's medium. The experiment was therefore done in triplicates and an average parasite count was made from each of these isolates. The screw-capped tubes containing the cultures were then maintained at 37°C and the parasite count was determined every day until the parasites were absent. The parasites from culture samples were assessed for its viability by sub-culturing into fresh Jone's medium daily after the 5th day culture.

In a separate experiment, parasites of each of the isolates were pooled together to make up a concentra-

Correspondence:
Associate Prof Dr Suresh Kumar,
Department of Parasitology, Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

tion of 1 x 10^5 parasites/ml. They were then maintained at room temperature in bijou bottles containing Jone's medium. Every day 50 ml from each of the culture sample was transferred into bijou bottles containing Jone's medium and maintained at 37°C for 24 hours. A drop from the culture sample was then observed the next day under light microscopy and an average parasite count was made from 10 fields. This observation was continued until parasites were absent on sub-culture.

Results

Most parasites seen in the faecal samples of all three nationalities were vacuolar and granular forms. Under phase-contrast microscopy, parasites of Malaysian and Bangladeshi isolates were 10-13 mm in sizes whereas those of Indonesian isolates were less than 5 mm in size. For day 1 cultures, both Bangladeshi and Malaysian parasites showed the same size and the peripheral nuclei were as distinct as those seen directly in the faecal samples. The size of the parasites of the Indonesian isolates did not increase when observed in day 1 cultures and continued to remain at 3 – 5 mm in size. Other than the size, the forms of all three isolates were morphologically similar. Cyst-like forms showing viscous cytoplasm with thicker walls were seen only in cultures from Indonesian isolates.

Parasites in all nine tubes decreased in numbers until day 2 and most of the parasites were of the granular form. The parasites from Malaysian and Bangladeshi isolates peaked on day 5 and 6 with a parasite count of 3.9 x 10^5 /ml and 0.5 x 10^5/ml respectively. The parasite count for the Indonesian isolate increased until day 8 to 11.7 x 10^5. The average size of the vacuolar form at peak parasite count for the Malaysian, Indonesian and Bangladesh isolates was 16.1 mm, 10.5 mm and 12.3 mm respectively. The percentage of vacuolar form at peak parasite count for the Indonesian isolate on day 8 was 93.2% whereas for Malaysian and Bangladeshi isolates this was 82.5% and 52.7% respectively.

In cultures both vacuolar and granular forms were present but the percentage of the granular form increased in older cultures. The size of vacuolar and granular forms of the Malaysian isolates ranged from 3.8 mm to 100 mm and 3.8 mm to 65mm respectively. The size of the vacuolar form in the Indonesian isolates ranged from 2.5 mm to 50 mm and the granular form from 2.5 mm to 35mm. the size of the vacuolar form from Bangladeshi isolates ranged from 5mm to 37.5 mm while that of the granular form was from 5 mm to 80 mm. Intact whole parasites were observed until day 11 and 12 in cultures from Malaysian and Bangladeshi isolates but these parasites were not viable when subcultured in Jone's medium. Intact whole parasites from Indonesian isolates were seen in cultures until day 25 but the parasites were not viable after day 12. The observation supports the report that the *in vitro* culture technique (10) is still the best method to detect viable *Blastocystis*.

Discussion

Size variation of *Blastocystis* in faecal samples were noted as early as 1917 (11, 12). Several earlier reports also noted a spore-like smaller *Blastocystis* surrounded by a thick wall (13). However, in the present study the smaller forms did not have a thick wall surrounding the parasites when seen under light microscopy. The sizes of the cystic stages of *Blastocystis* range from 3.7 mm to 5mm (14). The small forms of *Blastocystis* seen in the present study lysed in distilled water confirming that they were not cysts. Ultrastructural studies should be carried out to elucidate the detailed morphology of the small forms of the parasite. Generally the vacuolar form has been reported to be approximately 10 to 15 mm in diameter with a large central vacuole (2). However, there have been reports that smaller forms of the parasite approximately 5 mm in size do exist in faecal samples (3, 14, 15)

Intact whole parasites from the Indonesian isolates were observed as long as 25 days in Jone's medium but the parasites were not viable after day 12. The observation supports the report that the in vitro culture technique (10) is still the best method to detect the parasites.

Blastocystis hominis has been shown to grow successfully at 37°C (2,17) and not at other temperatures. Parasites from the Indonesian isolate continued to remain viable even up to day 9 at room temperature while Malaysian and Bangladeshi isolates remained viable only until day 5 and 6 respectively. A drop from the original culture sample maintained at room temperature of all three isolates after the above periods, showed intact whole granular form of *Blastocystis* but they were not viable as they could not multiply when sub-cultured. When parasites from Indonesian isolates, maintained at room temperature for 6 days was subcultured and viewed under 40x magnification the following day, an average of 35 parasites was seen within a field compared to 1 per field in the other isolates, thus showing the high reproductive potential of the Indonesian isolates. This would also explain why Indonesian isolates showed the highest parasite count during the growth profile study.

The variation in morphology among isolates of *B. hominis* has important implications for diagnosis. The central body of the vacuolar form of (as small as 3 mm) in the Indonesian faecal samples was clearly seen when stained with acridine orange. Acridine orange staining was shown previously to be useful for the identification of

the parasite stages (18) and in the present study was shown to be extremely useful in the identification of these smaller forms.

Whether these small forms of *Blastocystis hominis* which show distinct growth characteristics when compared to other isolates, represent another species or strain, can only be answered by karyotypic studies. If these is not so, the effect of diet, host immune response, environmental factors, and possibly host life styles influencing the size of these parasites must be considered.

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OVERVIEW OF THE FINDINGS

Khairul Anuar A[1], Nooriah MS[2], Farizah MH [2] and Merina P [1].
[1]Department of Parasitology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia.
[2]Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

The findings of this project have given us an insight of the health status and some of the health problems of the foreign workers currently employed in Malaysia.

Socio-demographic profile.

The estimated number of legally registered foreign workers in Malaysia is 900.000 comprising mainly Indonesians (70%) and Bangladeshis (24%), followed by Others (Philippines, Thailand, Myanmar, Sri Lanka, Pakistan and India). However, in this study because of problems with logistics a non-probability sampling method was used. Study subjects were selected from 3 predetermined study locations. Hence the composition of the study population did not reflect the true composition of the foreign workers in this country. This study population comprised 47.9% Bangladesh workers, 14.8% Indonesians, 13.7% Thais, 12.4% Myanmarese, 9.9% Pakistanis and 1.3% Others.

Male foreign workers were over represented in this study population (male : female = 7 : 1). And the workers were mainly in the 25 – 34 year age group (62.5%).

In terms of education, among the Bangladesh workers 54.8% had achieved secondary education, while majority of Thais and Indonesians had only primary education. Most of the respondents in this study were engaged as factory workers (35.7%), followed by construction workers (18.3%), agriculture workers (13.6%) and service workers (13.3%)

Health status

The physical examinations and chest X-ray findings did not reveal any significant abnormalities. This is not surprising since these workers had cleared their pre-employment medical examination before coming to this country. However, it was interesting to note, that the mean eosinophilia count among these study subjects was 7% suggesting that these workers may be having occult parasitic infection which was not detected earlier using the routine laboratory tests.

The morbidity pattern of these foreign workers was mainly confined to injuries and accidents, musculoskeletal problems and gastrointestinal complaints. These complaints mainly occurred among the 45 – 54 years age group.

Almost 90% of the foreign workers sought treatment at the modern health care facilities, of which one-third utilized the government health facilities.

One-third of the foreign workers (especially those in the younger age group) reported having taken health supplements. Only two-thirds of the health care costs of these foreign workers were subsidized by their employers.

High risk behavior

Majority (98%) of the respondents denied taking any drugs, while only 4% did admit to consuming alcohol and less than one-third were currently active smokers.

Only 5% of the respondents reported having sex with a commercial sex partner while 7% of the respondents reported using condoms during sexual intercourse.

Limitations

The findings of this study must be interpreted with caution in view of the limitations inherent in this study. The sample was not representative because it was selected using non probability sampling from predetermined study locations. Hence in this study sample, the distribution of the various nationalities of foreign workers employed in Malaysia did not reflect the true composition.

Inaccuracies in the study findings may arise because some of the topics touched on sensitive issues such as sexuality and the respondents may not be giving the real (true) answer.

Bias may arise due to self selection (of study subjects) and problems with recall of remote events or exposure.

Discussion and Conclusion

The in-migration of foreign workers has important public health implications because it is a potential route for disease transmission. New diseases may be intro-

Correspondence:
Prof Dato' Khairul Anuar Abdullah
Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

duced into the country and diseases which have been eradicated may re-emerge among the local population. The emergence of new diseases and re-emergence of previously eradicated diseases will have grave public health implications because the local population has no or decreased immunity against these diseases.

The mobility of foreign workers within the country sometimes makes it difficult for the health authorities to track the source of infection.

Foreign workers who are carriers of diseases such as Hepatitis B and HIV (which have a window period) will test as negative and hence will not be detected during the pre-employment medical examination. Thus it is essential that these foreign workers undergo a full medical examination and screening within 3 to 6 months after entry into Malaysia and annually throughout their employment period in Malaysia.

The current physical examination and screening procedure does not guarantee that these workers are totally disease-free. Therefore, we need to re-look at the current examination content, criteria and procedures to rectify any deficiencies in the current system.

The authorities need to devise a mechanism to ensure that foreign workers or their employers purchase a medical insurance so that the public sector health facilities and personnel are not overloaded and overworked.

The authorities have already in place a mechanism to prevent medically UNFIT foreign workers from entering this country. However, it is the large number of undocumented and illegal foreign workers that pose a bigger threat to the wellbeing of the nation's health. As long as employers are willing to take a risk by employing illegal foreign workers, all the efforts that the government has undertaken to safeguard the nation's health will be rendered futile.

PRE-EMPLOYMENT SCREENING & MONITORING OF THE HEALTH OF FOREIGN WORKERS

Khairul Anuar A [1] and Nooriah MS[2].

[1]Department of Parasitology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia.
[2]Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia.

During the past decade Malaysia saw a rapid influx of foreign workers. The majority of foreign workers are from Indonesia (70%) and Bangladesh (24%) while a smaller proportion of foreign workers originate from the Philippines, Thailand, Myanmar, Sri Lanka, Pakistan and India (1). These foreign workers are employed to do menial jobs in the agricultural, domestic, manufacturing, service and construction industries. Over the years, the cumulative effect of this phenomenon has created an impact on the Malaysian economic, social and health sectors. Some of the problems related to foreign workers pertain to the detection of communicable diseases and their utilization of government health services.

In order to prevent the transmission of infectious diseases to the local population the Malaysian government, under the auspices of the Ministry of Health (MOH), has devised a mechanism to screen potential foreign workers to ensure that only those who are free from communicable diseases and serious illnesses are allowed to work in Malaysia (1).

In Malaysia the agency that is responsible for issuing work permits to foreign workers is the Immigration Department. The department will only issue the work permits after the foreign workers are certified medically fit. The Immigration Act (1959) empowers the relevant authorities to stop any immigrant who is infected with any communicable disease from entering Malaysia.

The Ministry of Health is responsible for the formulation and implementation of policies pertaining to the medical examination of foreign workers. The Ministry, with the cooperation of the relevant authorities in the workers' home countries, have identified and appointed the clinics or hospitals for pre-employment medical examination. The Malaysian government has made it mandatory that all potential foreign workers undergo a full medical examination at the designated health facilities in their home countries prior to their employment in Malaysia. The medical examination report issued by the doctors in the foreign workers' home country is valid for 3 months from the date of the examination and employers are encouraged to have their workers re-examined in Malaysia prior to or at the beginning of their employment. However, many employers are not aware of this matter, or they tend to overlook this issue. Hence the majority of the local employers tend to register their foreign workers for the medical examination nine months later when their workers' permits are due for renewal.

After being accepted for employment in Malaysia, all foreign workers have to undergo a medical examination annually. The medical report is required by the Immigration Department for renewal of the work permit. This medical examination is conducted approximately 3 months before the worker's work permit expires. For new arrivals it will be approximately 9 months after their entry into Malaysia.

Since 1st December 1997 all procedures related to the medical examination of foreign workers are being closely monitored and coordinated by a private agency, namely, FOMEMA (Foreign Workers Medical Examination Agency) (2). Prior to this date the medical examinations of foreign workers were not monitored and there were problems related to false documentations and certifications of medical reports.

FOMEMA has offices in the major towns in Peninsular Malaysia, Sabah and Sarawak. The FOMEMA headquarters in Kuala Lumpur maintains a central database of the medical reports of all legally registered foreign workers and the agency's computers are linked with the

Immigration Department and the MOH. Annually about four to five hundred thousand foreign workers from Peninsular Malaysia register with FOMEMA for their medical examination to determine whether they can continue working in this country. In Peninsular Malaysia, the number of foreign workers that have been examined by doctors registered with FOMEMA between 1998 to 2001 are as follows:

Year	Number of foreign workers examined in Peninsular Malaysia
1999	464,221
2000	431,909
2001	506,405

Source: FOMEMA

Correpsondence:
Professor Khairul Anuar Abudullah
Faculty of Medicine
University of Malaya, 50603 Kuala Lumpur,
Malaysia

The above figures do not include the professional and managerial expatriate workers, illegal migrant workers and refugees (2). Officially there are 900,000 migrant workers employed in Peninsular Malaysia, Sabah and Sarawak but unofficially, it is estimated that there are one million foreign workers who are in the country illegally (3) and hence the latter group of foreign workers are not documented nor screened.

Annually, all registered foreign workers are subjected to a full physical examination and a chest x-ray. Samples of blood and urine are collected and sent to laboratories appointed and monitored by FOMEMA. The agency has drawn up guide lines, check lists and protocols for the participating general practitioners, laboratories and X-ray centers. All foreign workers are screened to detect for the presence of tuberculosis, HIV/AIDS, syphilis, malaria, Hepatitis B, leprosy, pregnancy, drug abuse, cancer, epilepsy and psychiatric illness and if any of these conditions are present the worker will not be certified for employment. In such instances, the foreign worker will be considered "UNFIT" for employment and the Immigration Department will not renew the worker's permit (4).

All general practitioners and laboratories registered with FOMEMA are required to be online and to transmit the findings of the medical examinations and laboratory results to the latter agency. The medical reports are reviewed and are then electronically transmitted to the Immigration Department. Thus, when a foreign worker submits his application for renewal of his work permit, the Immigration Department will have the worker's medical report on the computer screen. The worker will be certified as either "FIT" or "UNFIT' for employment (4).

Since 1999, officials from FOMEMA and the MOH have also been conducting random checks on immigrant workers upon their arrival at Kuala Lumpur International Airport (KLIA). The incoming foreign workers' medical examination documents are reviewed and blood and urine samples are collected and examined to verify that the medical reports are authentic. Those workers with incomplete medical reports are subjected to a full medical examination. In 1999 a random sample of 5036 immigrant workers who were certified fit by the doctors in their home country were examined and 2. 3% (115 cases) were found to be medically unfit for employment. Most of those who were found to be unfit were positive for Hepatitis B (76%), syphilis (5%), drugs (10%) and HIV (1%). Nine women (8%) were found to be pregnant (4). Similar random checks are also currently being carried out at Penang airport, Port Klang, Malacca (Dumai) and Muar (4).

Between October 2001 and January 2002, FOMEMA conducted a study on a sample of 4,929 workers which comprised only 1% of the total number of foreign workers (427,954) examined by all the doctors registered with the agency during that period (5). The study population comprised 57% males and 44% females and the majority were in the age group 30 to 39 years. The foreign workers were mainly from Indonesia (70%) and Bangladesh (22%). They were mainly engaged in the manufacturing (32%), domestic (31%), agriculture (19%), construction (11%) and service (7%) industries. Most of these foreign workers were located in Selangor, Johor and Wilayah Persekutuan.

The study showed that 1.6% (78) of the workers were found to be unfit for employment and they were mainly aged more than 39 years. They were also mainly employed in the agricultural sector. Hepatitis B, tuberculosis and sexually transmitted diseases were the main problems detected among those who were certified medically unfit for employment (5).

The current system of monitoring the health of foreign workers is only confined to those who are legally registered and working in the menial job categories. Professional and managerial expatriate workers and their accompanying family members, illegal migrant workers and refugees are not included in this system.

In view of the presence of large numbers of illegal migrant workers and a substantial number of refugees in Malaysia and the fact that they are marginalized from the mainstream, their health problems may pose a problem to the community in which they live. If they are harboring any communicable disease and do not seek treatment, they will be the reservoir for transmission of the disease to the community. Eventually, they will also be burdening the country's public curative and health services.

Currently, the potential foreign worker is required to have his medical examination at the appointed clinics in his home country. Unfortunately, the Malaysian MOH does not have any direct control with regards to the conduct of the medical examinations in the workers' home countries. Thus the system can be easily abused. This is reflected in the documented statistics of conditions such as HIV, syphilis, Hepatitis B, drugs and pregnancy among incoming potential foreign workers who were randomly re-examined by FOMEMA at the port of entry even though they were apparently certified as medically"FIT" by the doctors in their home country. This observation shows that the current pre-employment medical examination and certification in the foreign workers' home country should be reviewed and any deficiencies in the system should be rectified.

There should also be a mechanism to monitor the health of the managerial and professional expatriate workers and their accompanying family members. It is evident

that in the current system, the pre-employment medical examination in the workers home countries is likely to be open to abuse. There are no inbuilt quality control measures and the authenticity of the medical reports are questionable because random checks on foreign workers at the ports of entry have revealed results that contradict with the reports of the doctors who examined and certified them in their home countries.

Acknowledgements

We would like to acknowledge our gratitude to Dr. Jit Singh, Director of FOMEMA who provided the information about the organization and the statistics pertaining to the health problems of foreign workers.

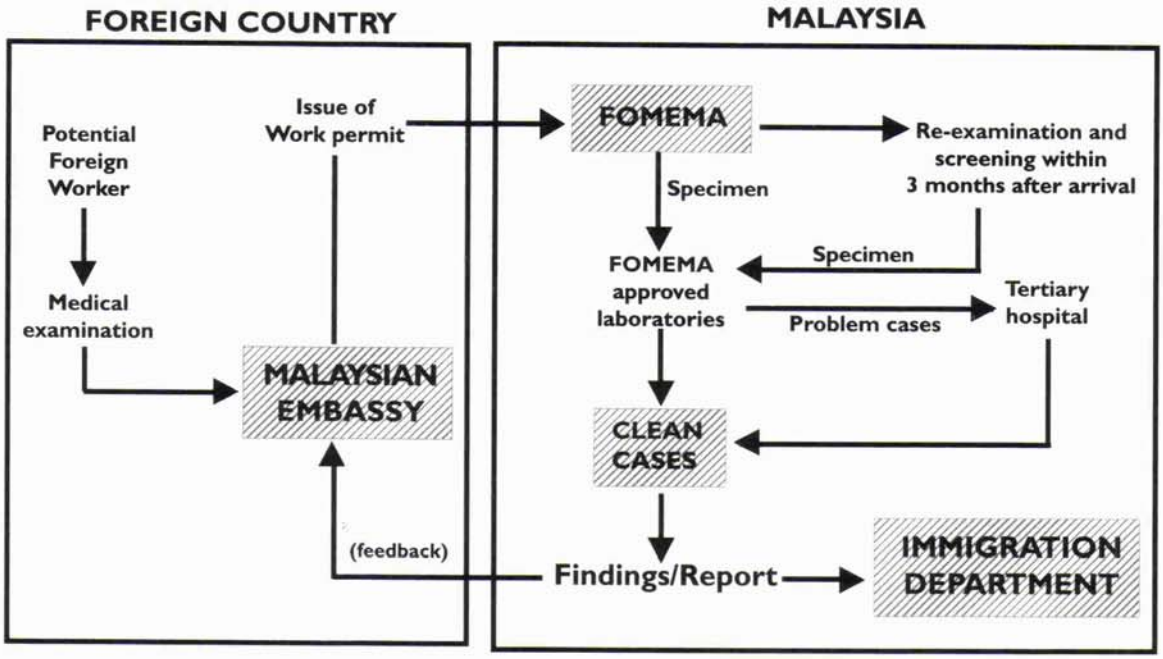

Figure 1. Proposed scheme for foreign workers seeking employment

Thus it is proposed that all potential foreign workers who have cleared the pre-employment medical examination in their home countries. should be re-examined and screened (physical examination, blood examination and chest X-ray) within the first 3 months of their arrival. These examinations should be monitored by FOMEMA. All doubtful and problem cases should be referred to tertiary hospitals e.g UMMC (University Malaya Medical Centre), HUKM (Hospital University Kebangsaan Malaysia), USM (University Sains Malaysia) Kubang Kerian. (Figure 1).

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APPENDIX

Questionnaire Forms

SULIT

IDNO : | | | | | | |
1 2 3 4 5 6

Please fill in record no. starting with 001 from column 3 onward. (Col.1= Survey site ; Col.2 = Nationality)

UNIVERSITY OF MALAYA
FACULTY OF MEDICINE

QUESTIONNAIRE FORM

HEALTH PROFILE ON FOREIGN WORKERS

This study is conducted to evaluate the health status and health care needs of foreign workers in Malaysia. We hope that the immigrant workers will collaborate with the doctor in answering the questionnaire and allow for medical examination and to obtain small amount of blood and stool for investigation.
***(Kajian ini dijalankan untuk menilai taraf kesihatan dan keperluan penjagaan kesihatan pekerja asing yang berada di Malaysia. Kami berharap agar pekerja asing yang terlibat akan memberi kerjasama sepenuhnya kepada doktor bertugas dalam menjawab soalan-soalan dan membenarkan pemeriksaan fizikal serta pengambilan sedikit sampel darah dan najis bagi tujuan penyelidikan*).**

All information given will be confidential in line with your consent. Please fill the consent from attached.
(Segala maklumat yang diberikan adalah rahsia (sulit) seperti yang anda persetujui. Sila isikan borang persetujuan yang dilampirkan).

Respondent's Name :

Respondent Address :	**Employer's Address :**
Tel. No. (If any) :	**Tel. No. (If any) :**

FOR OFFICE USE ONLY

Status : Complete [ ] Incomplete [ ]

Checked by : _____ **Signature :** _____ **Date :** _____

SULIT

CONSENT FORM

BORANG PERSETUJUAN

I understand that Faculty of Medicine, University of Malaya, is conducting a research project to evaluate the health status and health care needs of foreign workers in Malaysia.

I would like to co-operate voluntarily in this project an I am willing to be interviewed and undergo a physical examination conducted by the medical team. I also understand that I have to give small amount of blood and stool samples for the purpose of examination.

I understand that all information give or found will be kept confidential and used for the purpose of study only.

Saya memahami bahawa Fakulti Perubatan, Universiti Malaya sedang menjalankan sutu proyek penyelidikan untuk menilai tahap kesihatan dan keperluan penjagaan kesihatan pekerja-pekerja di Malaysia.

Saya bersetuju untuk bekerjasama secara sukarela dan bersedia untuk ditemuduga serta menjalani pemeriksaan fizikal yang dikendalikan oleh pasukan perubatan. Saya juga bersetuju untuk memberikan sedikit sampel darah dan najis bagi tujuan pemeriksaan.

Saya memahami bahawa segala maklumat yang diberikan ataupun yang didapati akan dirahasiakan dan hanya ddigunakan bagi tujuan kajian ini sahaja.

Based on the examination, blood and stool results, if there is any notifiablee disease found:
Berdasarkan kepada keputusan pemeriksaan ke atas sampel darah dan najis saya, sekiranya terdapat apa-apa jenis penyakit, maka:-

a. Please inform me only [ ]
Sila maklumkan kepada saya sahaja

b. Please inform my employer and me [ ]
Sila maklumkan kepada saya dan majikan saya

c. Do not inform anyone [ ]
Jangan beritahu kepada sesiapa

Date : ___ / ___ / ___
Tarikh :

Signature / Thumb prints :
Tanda tangan / Cap Jari :

Full name : _____
Nama Penuh :

INSTRUCTION : For each of the questions enter the respondent's answer by circling the number beside the appropriate response. If there is more than one answer please circle those numbers accordingly.
ARAHAN : Bagi setiap soalan masukan jawaban responden dengan membuat bulatan keatas nombor di sebalik jawaban yang berkenaan. Sekiranya jawaban lebih dari satu bulatkan nombor-nombor yang berkenaan

PART A: SOCIO-DEMOGRAPHY

Star with Q2 and leave Q1 to the last.
Sila mula dengan soalan 2 dan soalan 1 untuk disoal pada penghujung soal selidik.

For office use only

1. Do you have any of the following documents? A1 [ ]
Adakah anda memiliki mana-mana daripada dokumen berikut?

1. Pasport only — Pasport sahaja
2. Work permit only — Permit kerja sahaja
3. Passport and Work Permit — Pasport dan Permit kerja
4. Others _____ — Lain-lain (**Specify**/Nyatakan)

2. What is your nationality ? A2 [ ]
1. Indonesian — Indonesia
2. Bangladeshi — Bangladesh
3. Thai — Thai
4. Phillipinos — Filipina
5. **Others** _____ — Lain-lain (**Specify**/Nyatakan)

3. Gender : A3 [ ]
Jantina
1. Male — Laki-laki
2. Female — Perempuan

4. What is your age? _____ **Record date of birth :** [ ][ ]-[ ][ ]-[ ][ ] A4 [ ][ ]
Berapakah usia anda? (Years/Tahun) Catatkan tarikh lahir dd mm yy

5. What is your religion? A5 [ ]
Apakah agama anda?
1. Islam — Islam
2. Christian — Kristian
3. Hindu — Hindu
4. Buddhist — Buddha
5. Others _____ — Lain-lain (Specify/Nyatakan)

6. What is your marital status : A6 [ ]
1. Currently married — Berkawin
3. Divorced/separated — Bercerai /Berpisah
2. Widowed — Janda/Duda
4. Single (Go to Q10) — Bujang/Dara (Lanjut ke Soalan 10)

7. How many children do you have? _____ **(If none go to Q10)** A7 [ ]
Berapa orangkah anak anda? (No/Bil) (Jika tiada lanjut ke Soalan 10)

8. How many of your children are in Malaysia? _____ **(If none go Q10)** | A 8 [ ]
Berapa orangkah anak anda yang berada di Malaysia (**No**/Bil) (Jika tiada lanjut Kesoalan 10)

9. Please provide the following information on your children aged less than 12 years in Malaysia
Sila berikan maklumat berikut tentang anak anda yang berumur 12 tahun ke bawah yang berada di Malaysia.

Instruction : Place the code number accordingly in the space [ ] provided / Arahan: Maksukan Nombor kod ke dalam ruangan [ ] yang disediakan.

No. Bil	**Sex** Jantina 1.**Male**/Lelaki 2.**Female**/Perempuan 8.**Not applicable**/ Tidak berkenaan	**Year of Birth** Tahun lahir	**Age(in Year)** Umur (dalam tahun) 88. Not applicable/ Tidak berkenaan	**Immunisation status** Status immunisasi 1. Yes Ya 2. No. Tidak 3 Don't know Tidak tahu 4.NA TB
1.	[ ]		[ ][ ]	[ ] [ ] [ ] [ ] BCG DPT1 DPT2 DPT3
2. .	[ ]		[ ][ ]	[ ] [ ] [ ] [ ] BCG DPT1 DPT2 DPT3
3.	[ ]		[ ][ ]	[ ] [ ] [ ] [ ] BCG DPT1 DPT2 DPT3
4.	[ ]		[ ][ ]	[ ] [ ] [ ] [ ] BCG DPT1 DPT2 DPT3
5.	[ ]		[ ][ ]	[ ] [ ] [ ] [ ] BCG DPT1 DPT2 DPT3

10. How many years of formal education do you have? _____ | A10 [ ][ ]
Berapa tahunkah aaanda melalui persekolahan formal? (**Years**/ Tahun)

11. What is your current occupation (Record verbatim e.g brick layer) | A11 [ ]
Apakah pekerjaan anda sekarang (rekod yang sebenar seperti penyussun bata

12. What is your current occupation (in your country) before this | A12 [ ]
Apakah pekerjaan anda (di negara anda) sebelum ini

PART B: MIGRATION STORY

13. From which district/province of your country do you come from? | B13 [ ][ ]
Dari daerah/propinsi manakah anda berasal? _____
(**Specify**/ Nyatakan)

14. When did you first come to Malaysia? _____ | B14 [ ][ ]
Bilakah anda pertam kali datang ke Malaysia?

15. How did you come to Malaysia? | B15 [ ]
Bagaimanakah anda datang ke Malaysia?

1. By Air Melalui Udara **2. By Sea** Melalui laut **3. By Land** Melalui Darat **4. Combined** Bercampur-campur (**Specify**/ Nyatakan) _____

16. Before you arrived in Malaysia, where were you staying? B16 [ ][ ]
Sebelum anda tiba di Malaysia, dimanakah anda tinggal? Co Districk

1. **In my home town** _____
Di kampung asal saya (State the district/province/Nyatakan tempat)

2. **Some where else in the home country** _____
Di tempat lain di negara asal (State the district/province/Nyatakan tempat)

3. **In another country** _____
Di negara lain (State country/Nyatakan negara)

17. Since you first came to Malaysia, have you ever left the country? B17 [ ]
Semenjak datang ke Malaysia, pernahkan anda pergi ke negara lain?

1. **Yes** Pernah
2. **No (Go to Q19a)** Tidak pernah (Lanjut ke ssoalan 19a)

18a. If yes, when did you leave? _____ B18a [ ][ ]
Jika pernah, bilakah anda pergi ? (Year/Tahun)

0 Not applicable /Tidak berkenaan

18b. Where did you go (record country and district/province)? __ _____ B18b [ ][ ]
Kemanakah anda pergi (Nyatakan negara dan daerah /propinsi) (Specify/Nyatakan)

88 Not applicable /Tidak berkenaan

18c. How long you did stay there ? _____ _____ B18c. [ ][ ]
Berapa lamakah anda berada di sana? Month/Bulan Weeks/Minggu

00 Not applicable /Tidak berkenaan

19a. Before yoy started to work in the present place, have you worked anywhere else in Malaysia? B19a [ ]
Sebelum bekerja di tempat ini, adakah anda pernah bekerja di tempat lain di Malaysia?

1. **Yes** Pernah
2. **No (Go to Q20)** Tidak pernah (Lanjut ke soalan 20)

19b. If yes, where? _____ B19b. [ ][ ]
Jika ada, dimana? (**State the please**/Nyatakan tempat)

00 Not applicable /Tidak berkenaan

19c. How long you did stay there ? _____ _____ B19c. [ ][ ]
Berapa lamakah anda berada di sana? Month/Bulan (**Years**/Tahun)

19d. When you come back to the present place? _____ B19d. [ ][ ]
Bilakah anda datang balik ke tempat asal anda tinggal sekarang? (**Years**/Tahun)

00 Not applicable /Tidak berkenaan

PART C: ENVIRONMENTAL HEALTH

20. What type of residential areaare you staying in?
Apakah jenis kawasan perumahan yang anda diami? C20 [ ]

1. Housing estate/area
Kawasan perumahan
2. Construction sites
Tapak pembinaan
3. Squatter settlement
Petempatan setinggan
4. Others _____
Lain-lain (**Specify**/Nyatakan)

21. What type of accommodation do you live in?
Apakah jenis tempat tinggal yang anda diami? C21 [ ]

1. Kongsi house
Rumah kongsi
2. Squatter house
Rumah setinggan
3. Employer's Recidence
Rumah majikan
4. Hostel/employer provided recidence
Asrama/tempat yang disediakan majikan
4. Others _____
Lain-lain (**Specify**/Nyatakan)

22. Who else are staying with you?
Selain anda, siapa lagi yang tinggal bersama anda ? C22 [ ]

1. Family/Relatives
Keluarga/saudara
2. Friends
Kawan
3. Fellow employees
Rakan majikan
4. Employer
Majikan
5. Others _____
Lain-lain (**Specify**/Nyatakan)

Enter the response into the appropriate box [ ]
Masukkan jawaban ke kotak [ ] yang berkenaan.

	Malaysia	Home Country
23. How many people are staying with you in the residential unit/ Berapa orangkah yang tinggal bersama anda dalam unit kediaman anda? _____ (**No**/Bilangan)	C23a [ ][ ]	C23b [ ][ ]
24. How many persons do you share your room ?Berapa orangkah yang berkongsi bilik dengan anda? _____ (**No**/Bilangan)	C24a [ ][ ]	C24b [ ][ ]
25. What is the main source for drinking water at the place you stay? Apakah sumber air minuman di tempat kediaman anda? **1. Paip** Paip/Pili **2. Well** Telaga/Sumur **3. River** Sungai **4. Drain** Parit **5. Others** _____ Lain-lain (**Specify**/Nyatakan)	C25a [ ][ ]	C25b [ ][ ]
26. If piped water, is it .....? Jika air paip/pili, adakah ia .....? **1. Private** Persendirian **2. Public Stand Pipe** Paip/Pili awam **3. Shared with other house** Berkongsi dengan rumah lain **8. Not applicable** Tidak berkenan	C26a [ ][ ]	C26b [ ][ ]

27. Do you store your water? Adakah anda menyimpan air kediaman anda? **1. Yes** Ya **2. No (Go to 29)** Tidak (Lanjut ke soalan 29)	C27a [ ]	C27b [ ]
28. If yes, what kind of container do you use to store your water? Jika ya, apakah jenis alat takungan air yang anda gunakan? **1. Plastic** Plastik **2. Porcelein** Tanah liat **3. Tin** Tin **4. Others** _____ Lain-lain (**Specify**/Nyatakan) **8. Not applicable** Tidak berkenan	C28a [ ]	C28b [ ]
29. Before drinking do you anything to your water ? Sebelum minum, adakah anda lakukan sesuatu pada air? **1. Boil** Masak **2. Strain through cloth** Tapis dengan kain **3. Filter through water filter** **4. Do not anything** Tidak melakukan apa-apa **5. Others** _____ Lain-lain (**Specify**/Nyatakan)	C29a [ ]	C29b [ ]
30. Do you have a toilet in the place you stay? Adakah anda mempunyai tandas di tempat tinggal anda? **1. Yes** Ya **2. No (Go to 32)** Tidak (Lanjut ke soalan 32)	C30a [ ]	C30b [ ]
31. If yes, what type of toilet do you use? Jika ada, apakah jenis tandas yang anda gunakan? **1. Flush** Tandas pam **2. Pour flush** Tandas curah **3. Pit** Tandas lubang	C31a [ ]	C31b [ ]
32. If not, what are the other alternatives? Jika tidak, apakah pilihan lain? (**Specify**/Nyatakan) _____	C32a [ ]	C32b [ ]
33. Do you have electricity supply at the place you stay? Adakah anda mempunyai tandas di tempat tinggal anda? 1. **Yes (24 hr)** Ya **2. Partial** Separuh **3. No (Go to 35)** Tidak (Lanjut ke soalan 32)	C33a [ ]	C33b [ ]
34. If yes, what type of supply do you have? Jika ada, apakah jenis bekalan letrik di tempat tinggal anda? **1. Public** Awam **2. Private** Swasta **3. Own generator** Generator sendiri **3. Not applicable** Tidak berkenan	C34a [ ]	C34b [ ]

35. How do you dispose off solid waste? Bagaimanakah anda membuang sampah dari tempat kediaman anda? **1. Local authority collection** Pembuangan oleh pihak **2. Private contractor** Kontraktor swasta **3. Personal dumpsite around recidence** Tempat pembuangan sendiri di kawasan Persekitaran rumah **3. Others/**lain-lain _____ (**Specify**/Nyatakan)	C34a [ ]	C34b [ ]

PART D: LIFE-STYLE HABITS

36. Do you smoke?
Adakah anda merokok?

1. Never (Go to Q 38a) Tidak pernah (Lanjut ke soalan 38a) **2. Yes, but now stopped** Pernah, tapi sudah berhenti **3. Yes** Ya

D36 [ ]

37. If yes, state how many cigarettes per day you smoke currently/previously?
Jika ya, nyatakan berapa batang rokok anda hisap kini/masa lalu dalam satu hari

_____ (**No**/Bilangan) **88. Not applicable/**Tidak berkenaan

D37 [ ][ ]

38a. Do you consume alcohol?
Adakah anda minum minuman keras/alcohol?

1. Never (Go to Q 39a) Tidak pernah (Lanjut ke soalan 39a)
2. Yes, but now stopped Pernah, tapi sudah berhenti (Lanjut ke soalan 39a)
3. Yes Ya _____ (**Specify type to drink**/Sebutkan jenis minuman)

D38a [ ]

38b. If yes, how often do you consume?
Jika ya, berapa kalikah anda meminumnya?

1. Less than 1 x / wk Kurang dari 1 x / minggu
2. 1 x / wk 1 x / minggu
3. 2 – 3 x / wk 2 – 3 / minggu
4. 4 – 6 x / wk 4 – 6 / minggu
5. Every day
88. Not applicable/Tidak berkenaan

D38b [ ]

39a. Do/did you use any drug? (that are not prescribed)
Adakah anda pernah mengambil / menggunaka dadah? (yang tidak dipriskripsi doktor)

1. Never (Go to Q 38a) Tidak pernah (Lanjut ke soalan 38a) **2. Yes, but now stopped** Pernah, tapi sudah berhenti **3. Yes** Ya

D39a [ ]

39b. If yes, what drug do you take?
Jika ya, apakah jenis dadah yang anda ambil / gunakan? _____ (**Specify**/Nyatakan)

PART E: WOMEN'S HEALTH

The following section to be filled for ALL female respondents.
Bahagian ini untuk dijawab oleh SEMUA wanita

40. How many times have you been pregnant? (including current pregnancy) E40 [ ][ ]
Berapa kalikah anda hamil? (termasuk kehamilan sekarang) _____ (**No**/ Bil)
(if pregnant for 1st time go to Q45 / jika hamil pertam kali lanjut ke soalan 45)
(if never pregnant go to Q49/ jika tidak pernah hamil lanjut ke soalan 49)

41. Where did you deliver your last baby? (if in Malaysia) E41 [ ]
Dimanakah anda melahirkan anak yang terakhir? (jika di Malaysia)

1. Government Hospital / Clinic
Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic
Rumah sakit/Klinik Persendirian
3. At home, assisted by Trained Midwife
Di rumah, dibantu oleh bidan terlatih
4. Traditional Birth Attendant
Bidan terlatih
5. At home, assisted by Relatives & Neighbours
Di rumah, dibantu oleh saudara mara & jiran
8 Not applicable
Tidak berkenaan

42. Who paid for the delivery of your baby? E42 [ ]
Siapakah yang membayar kos perubatan bagi kelahiran anak anda yang terakhir?

1. Self-paying
Bayar sendiri
2. Employer
Majikan
3. Free
Percuma
8. Not applicable
Tidak berkenaan

43. Where did you go for post natal services for your last baby? E43 [ ]
Dimanakah anda mendapatkan perkhidmatan perubatan selepas melahirkan anak yang terakhir?

1. Government Hospital / Clinic
Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic
Rumah sakit/Klinik Persendirian
3. Traditional Birth Attendant
Bidan terlatih
4. Others _____
Lain-lain (**Specify**/Nyatakan)
5. None
Percuma
6. Not applicable
Tidak berkenaan

44. Who paid for the post natal services for your last baby? E44 [ ]
Siapakah yang membayar bagi perkhidmatan selepas melahirkan anak yang terakhir?

1. Self-paying
Bayar sendiri
2. Employer
Majikan
3. Free
Percuma
8. Not applicable
Tidak berkenaan

45. Are you currently pregnant? E45 [ ]
Adakah anda sedang hamil?

1.Yes
Ya
2. No (Go to Q49)
Tidak (Lanjut ke soalan 49)
8. Not applicable
Tidak berkenaan

46. Are you receiving any ante-natal care? E46 [ ]
Adakah anda mendapat pemeriksaan kehamilan ?

1.Yes
Ya
2. No (Go to Q53)
Tidak (Lanjut ke soalan 49)
8. Not applicable
Tidak berkenaan

47. Where did you receive the last antenatal care check-up? E47 [ ]
Dimanakah anda mendapat pemeriksaan kehamilan yang terakhir?

1. Government Hospital / Clinic
Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic
Rumah sakit/Klinik Persendirian
3. Others _____
Lain-lain (**Specify**/Nyatakan)
4. Not applicable
Tidak berkenaan

48. Who paid for the last ante- natal check-up? E48 [ ]
Siapakah yang membayar untuk pemeriksaan kehamilan yang terakhir?

1. Self-paying
Bayar sendiri
2. Employer
Majikan
3. Free
Percuma
4. Others _____
Lain-lain (**Specify**/Nyatakan)
8. Not applicable
(Tidak berkenaan)

49. Are you practising any form of family planning? (Quesstions 49 to 52 not applicable for those currently pregnant) Adakah anda ikut keluarga berencana (Kabe) (Soalan 49-52 tidak berkenaan untuk yang sedang hamil) E49 [ ]

1.Yes
Ya
2. No (Go to Q53)
Tidak (Lanjut ke soalan 49)
8. Not applicable
Tidak berkenaan

50. State the method of contraception currently used E50 [ ]
Nyatakan cara keluarga berencana yang anda gunakan/pakai sekarang

1. Contraceptive pill
Pill
2. Condom
Kondom
3. Traditional (e.g herbs)
Tradisional (Makjun)
4. Others _____
Lain-lain (**Specify**/Nyatakan)

51. What did you obtain it? E51 [ ]
Dari manakah anda mendapat keluarga berencana (Kabe)

1. Government Hospital / Clinic
Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic
Rumah sakit/Klinik Persendirian
3. Pharmacy/Shop
Apotik/toko lain
4. Others _____
Lain-lain (**Specify**/Nyatakan)
8. Not applicable
Tidak berkenaan

52. Who paid for the contraception? E52 [ ]
Siapakah yang membayar untuk keluarga berencana?

1. Self-paying
Bayar sendiri
2. Employer
Majikan
3. **Others** _____
Lain-lain (**Specify**/Nyatakan)
8. Not applicable
(Tidak berkenaan)

PART F: RECENT ILLNESS

53. In the last 4 weeks, have you had any <u>non-work related illness</u> or suffered any injury? F53 [ ]
Adakah anda ada mengalami penyakit <u>atau kecederaan yang tidak berkaitan dengan pekerjaan</u> dalam masa 4 minggu akhir-akhir ini?

1. Yes Ya
2. No (Go to Q 57) . Tidak, (lanjut ke soalan 57)

54. State the last illness/injury (Record verbatim e.g. nail prick on sole of the foot) F54 [ ]
Nyatakan penyakit/kecederaannn terakhir yang dialami (rekodkan yang sebenar seperti luka di tapak kaki disebabkan oleh paku)_____

55. Where did you go receive treatment? F55 [ ]
Dimanakah anda mendapat pengubatan?

1. Government Hospital / Clinic Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic Rumah sakit/Klinik Persendirian
3. Traditional Tradisional
4. Self Medication Mengubat sendiri
4. Did nothing Tidak mendapat pengubatan
88. Not applicable Tidak berkenaan

56. Who paid for the treatment? F56 [ ]
Siapakah yang membayar untuk pengubatan?

1. Self-paying Bayar sendiri
2. Employer Majikan
3. Others _____ Lain-lain (**Specify**/Nyatakan)
8. Not applicable (Tidak berkenaan)

57. Do you take any health supplements (e.g. vitamins, herbs, etc) F57 [ ]
Adakah anda pernah mengambil vitamin atau jamu?

1. Yes Ya
2. No (Go to Q 60) Tidak, (lanjut ke soalan 60)

58. Where did you get it from? F58 [ ]
Dari manakah anda mendapat vitamin atau jamu tersebut?

1. Government Hospital / Clinic Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic Rumah sakit/Klinik Persendirian
3. Traditional Tradisional
4. Pharmacy/Shop Apotik/toko lain
8. Not applicable Tidak berkenaan

59. Who paid for the supplement? F59 [ ]
Siapakah yang membayar vitamin atau jamu tersebut?

1. Self-paying Bayar sendiri
2. Employer Majikan
3. Others _____ Lain-lain (**Specify**/Nyatakan)
8. Not applicable (Tidak berkenaan)

60. In the past year, have you ever had
Pada tahun yang lepas, adakah anda pernah mengalami

Type of ailment Jenis penyakit	**1. Yes /** Pernah **2.** No / Tidak	**If Yes, specify no of times** Jika pernah, nyatakan bilangannya 88. Not applicable / TB
Loose stool / tinja lembut	60a1 [ ]	60a2 [ ][ ]
Blood and / or mucus in the stool / Pendarahan dann / atau mukus pada najis	60b1 [ ]	60b2 [ ][ ]
Diarrhoea / Cirit birit	60c1 [ ]	60c2 [ ][ ]
Abdominal discomfort/ Ketidak selesaan pada bagian abddomen	60d1 [ ]	60d2 [ ][ ]
Bloating / Flatulence / Kembung / Kentut	60e1 [ ]	60e2 [ ][ ]
Stomach pain / Sakit perut	60f1 [ ]	60f2 [ ][ ]

PART G: DENTAL HEALTH

61. Did you experience any dental problems in the past one year? G61 [ ]
pernahkah anda mengalami apa-apa masalah pergigian (gigi, gusi dan mulut) dalam masa satu tahun yang lepas?

1. Yes Ya — **2. No (If No, go to Q 65)** Tidak (Jika tidak lanjut ke soalan 65)

62. If yes, what was the nature of the dental problems?
Jika ya, apakah masalah pergigian (gigi, gusi dan mulut) yang anda alami?

a. Toothache Sakit gigi	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G62a [ ]
b. Sensitive tooth to hot, cold drinks Gigi nyilu bila terdedah minuman panas,sejuk	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G62b [ ]
c. Pain in the jaw joints Sakit pada sendi rahang	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G62c [ ]
d. Bleeding gums Gusi berdarah	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G62d [ ]
e. Ulcers Pecah-pecah mulut	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G62e [ ]
f. Others Lain-lain	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan (**Specify** / Nyatakan)	G62f [ ]

63. Did you have to take leave from work because of your dental problems? G63 [ ]
Adakah anda perlu mengambil cuti kerja kerana masalah pergigian tersebut?

1. Yes Ya **2. No** Tidak **3. Not applicable** Tidak berkenaan

64. Which the following actions did you take due to the above dental problem(s)?
Apakah tindakan-tindakan yang anda ambil akibat daripada masalah pergigian tersebut?

a. Did nothing Tidak berbuat apa-apa	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G64a [ ]
b. Take self medication Mengubat sendiri	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G64b [ ]
c. Avoid certain food or drinks Jauhi makanan atau minuman tertentu	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G64c [ ]
d. Sleep Tidur	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G64d [ ]
e. Consult traditional healer Mengunjungi doktor/doktor pergigian	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G64e [ ]
f. Cunsult traditional healer Men dapatkan rawatan traditional	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan	G64f [ ]
g. Others Lain-lain	**1. Yes** Ya **2. No.** Tidak **8. Not applicable** Tidak berkenaan (Specify / **Nyatakan**) _____	G64g [ ]

65. When was the last time you visited a dentist in Malaysia? G65 [ ]
Bilakah kali terakhir anda berjumpa doktor gigi di Malaysia?

1. Within 1 year Dalam masa 1 tahun
2. Within 2 years Dalam masa 2 tahun
3. 3 years or more 3 tahun atau lebih
4. Never (Go to Q69) Tidak pernah (lanjut ke soalan 69)

66. What was the main reason for the visit? G66 [ ]
Apakah sebab utama kunjungan tersebut?

1. Toothache Sakit gigi
2. For Filling Untuk tampalan
3. For swollen / bleeding gum Untuk gusi bengkak/ berdarah
4. For extraction Untuk cabut gigi
5. For denture Untuk gigi palsu
6. Others _____ L ain-lain (Specify / **Nyatakan**)
8. Not applicable Tidak berkenaan

67. Where was this treatment sought? G67 [ ]
Dimanakah rawatan ini diperolehi?

1. Government Hospital / Clinic Rumah sakit/Klinik Pemerintah
2. Private Hospital/Clinic Rumah sakit/Klinik Persendirian
3. Others _____ Lain-lain (**Specify**/Nyatakan)
4. Not applicable Tidak berkenaan

68. Who paid for the treatment? G68 [ ]
Siapakah yang membayar untuk rawatan tersebut?

1. Self-paying
Bayar sendiri
2. Employer
Majikan
3. Others _____
Lain-lain (**Specify**/Nyatakan)
8. Not applicable
(Tidak berkenaan)

69. What is the main reason for not seeing a dentist? (Only those who have never visited a dentis in Malaysia? G69 [ ]
Apakah sebab utama anda tidak berjumpa atau lambat berjumpa doktor pergigian?
(Hanya bagi metreka yang tidak pernah berjumpa doktor gigi di Malaysia)

1. No need to
Tidak perlu berjumpa
2. Didi not feel it was urgent
Tidak merasakan ianya penting
3. No time due to work commitment
Tiada masa kerana beban kerja
4. Fear of pain
Takut kerana sakit
5. Too expensive
Terlalu mahal
6. Others _____
Lain-lain (**Specify**/Nyatakan)
8. Not applicable
(Tidak berkenaan)

PART H: OCCUPATIONAL HEALTH & SAFETY

70. What industry are you involved in currently? H70 [ ]
Apakah jenis industri tempat anda bekerja sekarang?

1. Construction
Pembinaan
2. Manufacture
Pembuatan bahan
3. Plantation
Perladangan
4. Service
Perkhidmatan
5. Domestic
Pembantu rumah

71. How many hours do you normally work in a week? H71 [ ]
Berapakah purata jam anda bekerja dalam seminggu? _____ hrs/week
jam/seminggu

72. Do you work overtime? H72 [ ]
Adakah anda bekerja lebih lama?

1. Yes _____ **(Hrs/**Jam)
Ya (**Specify hrs/ wk /** Nyatakan jam / minggu)
2. No
Tidak

73. What is the nature of work time? H73 [ ]
Apakah keadaan waktu bekerja anda?

1. Day only
Waktu siang sahaja
2. Night only
Waktu malam sahaja
3 Shift
Syif
4. Stay in (domestic help)
Tinggal bersama-sama majikan
5. Others _____

74. How many days of leave do you have in a month? _____ H74 [ ]
Berapa harikah anda mendapat cuti dalam sebulan? (**Days/**Hari)

75. Have you undergone any occupational health & safety briefing before you start work? H75 [ ]
Pernahkah anda diberitahu tentang keselamatan & kesihatan pekerjaan sebelum bertugas?

1. Yes Ya
2. No Tidak

76. Are you provided with any Personal Protective Equipment (PPE) while at work? H76 [ ]
Adakah anda dibekalkan dengan alat perlindungan persendirian semasa bekerja?

1. Yes Ya
2. No Tidak

77. What type of PPE are you provided with?
Apakah jenis alat perlindungan persendirian yang dibekalkan kepada anda?

a. Safety helmet Topi keselamatan	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77a [ ]
b. Safety helmet Topi keselamatan	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77b[ ]
c. Safety spectacles/goggles Cermin mata/gogel keselamatan	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77c [ ]
d. Hearing protective devices Alat perlindungan pendengaran	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77d[ ]
e. Respiratory protective equipment Alat perlindungan pernafasan	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77e [ ]
f. Gloves Sarung tangan	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77f [ ]
g. Body armour / apron Perisai persendirian / apron	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77g [ ]
h. Safety shoes/boots/wellingtons Kasut/boot keselamatan/wellington	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77h [ ]
i. Fall arret equipment Alat kawalan jauh	**1. Yes** Ya	**2. No** Tidak	**8. Not applicable** Tidak berkenan	H77i [ ]

78. How often do you use your PPE? H78 [ ]
Berapa kalikah anda menggunakan alat perlindungan persendirian ini?

1. Everytime while at work Setiap kali semasa bekerja
2. Occasionally Kadang kala
3. Infrequently Jarang kali
4. Never Tidak pernah
8. Not applicable Tidak berkenan

79. Are you covered by any insurance for diseases or injuries in the workplace?
Adakah anda dilindungi oleh insuran dari penyakit atau kecederaan di tempat pekerjaan?

a. SOCSO SOCSO	**1. Yes** Ya	**2. No** Tidak	**3. Don't know** Tidak tahu	H79a[ ]
b. Workmen's Compensation Pampasan kerja	**1. Yes** Ya	**2. No** Tidak	**3. Don't know** Tidak tahu	H79b[ ]

c. Private insurance Insuran swasta	1. **Yes** Ya	**2. No** Tidak	**3. Don't know** Tidak tahu	H79c [ ]
d. No insurance coverage Insuran swasta	1. **Yes** Ya	**2. No** Tidak	**3. Don't know** Tidak tahu	H79d [ ]

80. Have you had any work related diseases during the past year? H80 [ ]
Pernahkah anda mengalami penyakit semasa bekerja dalam masa setahun yang lepas?

1. Yes Ya
2. No (If No go to 82) Tidak (Jika tidak lanjut ke soalan 82)

81. If yes, what was the nature of the disease? H81 [ ]
Jika ya, apakah jenis penyakit yang anda alami?

1. Skin disease Penyakit kulit
2. Respiratory disease Penyakit pernafasan
3. Musculoskeletal disease Penyakit otot dan tulang
4. Neurological disease Penyakit saraf
5. Infectious disease Penyakit berjangkit
6. Others Lain-lain (Specify/Nyatakan _____)
8. Not applicable Tidak berkenan

82. Have you had any work related injuries during the past year? H82 [ ]
Pernahkah anda mengalami kecederaan semasa bekerja dalam masa setahum yang lepas?

1. Yes Ya
2. No (If No go to 86) Tidak (Jika tidak lanjut ke soalan 86)

83. If yes, what was the nature of the injury? H83 [ ]
Jika ya, apakah jenis penyakit ini?

1. Abrasion/laceration Melecet/luka
2. Strain/sprain Strain/sprain
3. Fracture/dislocation Patah/terseliuh sendi
4. Burn/scaid Terbakar
5. Acute toxic inhalation Terhidu bahan toksik
6. Electrocution Terkena kejutan listrik
7. Others Lain-lain (**Specify**/Nyatakan _____)
8. Not applicable Tidak berkenan

84. Did any of these conditions necessitate admission into any hospital ? H84 [ ]
Sekiranya kejadian ini berlaku pada anda, adakah anda diperlukan masuk ke dalam mana-mana hospital?

1. Yes Ya
2. No Tidak

85. Who paid the medical expenses? H85 [ ]
Siapakah yang membayar kos rawatan kesihatan anda?

1. Self Sendiri
2. Employer Majikan
3. Insurance Insuran
4. Others Lain-lain (**Specify**/Nyatakan _____)

86. Where do you normally seek treatment for your diseases or injuries? H86 [ ]
Dimanakah anda selalu mendapat rawatan untuk penyakit atau kecederaan yang anda alami?

1. **Government Hospital / Clinic**
   Rumah sakit/Klinik Pemerintah
2. **Private Hospital/Clinic**
   Rumah sakit/Klinik Persendirian
3. **Traditional healers**
   Perubatan traditional
4. **Self medication**
   Mengubat sendiri

87. How many working days did you lose to work related illnesses/injuries during the past one year? H87 [ ]
Berapa harikah anda tidak dapat hadir bekerja keran amasalah kesihatan atau kecederaan Pekerjaan dalam masa setahun yang lepas ? _____ **(days/** hari)

1. **0 day**
   0 hari
2. **4 days or less**
   4 hari atau kurang
3. **5 – 9 days**
   5 - 9 hari
4. **10 - 19 days**
   10 - 19 hari
5. **20 - 29 days**
   20 - 29 hari
6. **30 days or more**
   30 hari atau lebih
8. **Not applicable**
   Tidak berkenan

PART I: PSYCHOLOGICAL COMPONENT

We would like to know if you have had any medical complaints, and how your health has been in general, over the past few weeks. Please remember that we want to know about present and recent complains, not those you had in the past. (Kami ingin mengetahui sama ada anda mempunyai sebarang masalah kesihatan dan keadaan kesihatan anda keseluruhannya pada minggu-minggu kebelakangan ini. PERINGATAN: Kami ingin masalah kesihatan anda masa kini dan akhir-akhir ini sahaja dan tidak dimasa-masa yang lampau)

Have you recently (Adakah anda kebelakangan ini) .....

88. been able to concentrate on whatever you're doing? H88 [ ]
boleh menumpukan perhatian pada apa yang anda lakukan?

1. **Better than usual**
   Lebih boleh menumpukan perhatian dari pada biasa
2. **Same as usual**
   Sama seperti biasa
3. **Less than usual**
   Kurang dari pada biasa
4. **Same as usual**
   Sangat kurang dari pada biasa

89. lost much sleep over worry H89 [ ]
tidak boleh tidur karena risau

1. **Not at all**
   tidak langsung bermasaalah tidur
2. **No more than usual**
   Boleh tidur seperti biasa
3. **Rather more than usual**
   Lebih dari pada biasa dari pada biasa
4. **Much more than usual**
   Amat lebih dari biasa

90. felt you are playing a useful part in things? H90 [ ]
merasa dapat mengambil bagian yang berguna dalam banyak hal?

1. **More so than usual**
   Lebih merasa dapat mengambil bagian dari biasa
2. **Same as usual**
   Merasa sama seperti biasa
3. **Less useful than usual**
   Merasa kurang berguna dari biasa
4. **Much less useful**
   Sangat kurang dari biasa

91. felt capable of making decision about things? H91 [ ]
merasa berupaya membuat keputusan dalam sesuatu hal/perkara?

1. **More so than usual**
Lebih merasa dapat mengambil bagian dari biasa
2. **Same as usual**
Merasa sama seperti biasa
3. **Less so than usual**
kurang dari biasa
4. **Much less capable**
Merasa sangat kurang dari biasa

92. felt constantly under strain? H92 [ ]
merasa sentiasa tertekan ?

1. **Not at all**
tidak langsung merasa sentiasa tertekan
2. **No more than usual**
Tidak lebih dari biasa
3. **Rather more than usual**
Lebih dari pada biasa
4. **Much more than usual**
Amat lebih dari pada biasa

93. felt you couldn't overcome your difficulties? H93 [ ]
merasa tidak boleh mengatasa masalah anda?

1. **Not at all**
tidak langsung merasa sentiasa tertekan
2. **No more than usual**
Tidak lebih dari biasa
3. **Rather more than usual**
Lebih dari pada biasa
4. **Much more than usual**
Amat lebih dari pada biasa

94. been able to enjoy your normal day-to-day activities? H94 [ ]
boleh merasa seronok menjalani kegiatan harian?

1. **More so than usual**
Lebih merasa dapat mengambil bagian dari biasa
2. **Same as usual**
Merasa sama seperti biasa
3. **Less so than usual**
kurang dari biasa
4. **Much less usual**
Merasa sangat kurang dari biasa

95. been able to face up to your problems? H95 [ ]
berupaya menghadapi masalah anda?

1. **More so than usual**
Lebih merasa dapat mengambil bagian dari biasa
2. **Same as usual**
Merasa sama seperti biasa
3. **Less so than usual**
kurang dari biasa
4. **Much less usual**
Merasa sangat kurang dari biasa

96. been feeling unhappy and depressed? H96 [ ]

1. **Not at all**
tidak langsung merasa sentiasa tertekan
2. **No more than usual**
Tidak lebih dari biasa
3. **Rather more than usual**
Lebih dari pada biasa
4. **Much more than usual**
Amat lebih dari pada biasa

97. been losing confidence? H97 [ ]

1. **Not at all**
tidak langsung merasa sentiasa tertekan
2. **No more than usual**
Tidak lebih dari biasa
3. **Rather more than usual**
Lebih dari pada biasa
4. **Much more than usual**
Amat lebih dari pada biasa

98. been thinking of yourself as a worthless person? H98 [ ]
merasa diri sendiri tidak berguna?

1. **Not at all**
tidak langsung merasa sentiasa tertekan
2. **No more than usual**
Tidak lebih dari biasa
3. **Rather more than usual**
Lebih dari pada biasa
4. **Much more than usual**
Amat lebih dari pada biasa

99. been feeling reasonably happy, all things cconsidered? H99 [ ]
merasa agak gembira pada keseluruhan?

1. **More so than usual**
merasa lebih gembira dari biasa
2. **About same as usual**
Merasa sama seperti biasa
3. **Less so than usual**
Agak kurang dari biasa
4. **Much less than usual**
Merasa sangat kurang dari biasa

PART J: SEXUAL HEALTH

100. Have you ever had any sexual intercouse? J100 [ ]
Pernahkah anda melakukan perhubunngan sex?

1. **Yes (Proceed to Q101)**
Ya (Teruskan ke soalan 101)
2. **No (This is end of the interview)**
Tidak (Temubual tamat di sini)

101. How many sexual partners have you had in the last 5 years? J101 [ ]
Berapa pasangan sex anda ada dalam masa 5 tahun kebelakangan ini? _____
(**No** /Bil)

88. **Not applicable**
Tidak berkenaan

102. What kind od sexual partner(s) do / did you have?
Apakah jenis pasangan seks yang anda pernah ada?

a. **Husband / Wife** Suami /Istri	1. **Yes** Ya	2. **No** Tidak	88. **Not applicable** Tidak berkenaan	J102a [ ]
b. **Casual** Seks	1. **Yes** Ya	2. **No** Tidak	88. **Not applicable** Tidak berkenaan	J102b [ ]
c. **Homosexual** Homoseksual	1. **Yes** Ya	2. **No** Tidak	88. **Not applicable** Tidak berkenaan	J102c [ ]
d. **Commercial sex worker** Pelacur	1. **Yes** Ya	2. **No** Tidak	88. **Not applicable** Tidak berkenaan	J102d [ ]
e. **Other** _____ Lain-lain (Specify / Nyatakan)	1. **Yes** Ya	2. **No** Tidak	88. **Not applicable** Tidak berkenaan	J102e [ ]

103. Do you use condom each time you have sexual intercouse?
Adakah anda menggunakan kondom setiap kali bersetubuh?

J103 [ ]

1. Yes Ya
2. No Tidak
88. Not applicable Tidak berkenaan

THE END ON INTERVIEW
TEMUBUAL TAMAT

THANK YOU FOR YOUR COOPERATION
TERIMA KASIH DI ATAS KERJASAMA TUAN / PUAN

Interviewer by : _____

Signature : _____

Date of interview : ____ / ____ / ____

PART K: PHYSICAL EXAMINATION

104. Height : _____ **cm**	K104 [ ][ ][ ]
105. Weight : _____ . _____ **Kg**	K105 [ ][ ][ ]
106. Weight : **a. Systolic** : _____**mmHg** **b. Diastolic** : _____**mmHg**	K106a [ ][ ][ ] K106a [ ][ ][ ]
107. Pulse : **1. Normal** **2. Abnormal** (Specify_____)	K107[ ]
108. Cardiovascular system : **1. Normal** **2. Abnormal** (Specify_____)	K108 [ ]
109. Respiratory system : **1. Normal** **2. Abnormal** (Specify_____)	K109 [ ]
110. Hepatomegaly : **1. Yes** **2. No**	K110 [ ]
111. Splenomegaly : **1. Yes** **2. No**	K111 [ ]
112. Lymph nodes : **1. Yes** **2. No** (**Specify** / Nyatakan _____)	K112 [ ]
113. Skin rash : **1. Yes** **2. No** (**Specify** / Nyatakan _____)	KJ113 [ ]
114. Genitalia : **1. Yes** **2. No** (**Specify** / Nyatakan _____)	K114 [ ]
115. Any other abnormalities : **1. Yes** **2. No** (**Specify** / Nyatakan _____)	K115 [ ]

Examine by : _____

Signature : _____

Date of examination : _____ / _____ / ____

PART L: HOME VISIT / WORK SITE VISIT

Date of Visit / Tarikh Lawatan : _____ / _____ / _____

Report based on your own observation regarding the following :

		For office use only
116. Type of dwelling Jenis kediaman		[ ]
117. Type of water supply Jenis sumber air		[ ]
118. Type of toilet Jenis tandas		[ ]
119. Type of lighting Jenis sumber cahaya		[ ]
120. Ventilation Pengudaraan		[ ]
121. Bedroom Bilik tidur		[ ]
122. Kitchen Jenis kediaman		[ ]
123. Compuund Halaman		[ ]
124. Work site Tempat kerja		[ ]

Visited by : _____

Signature : _____

Date of visit : _____ / _____ / ____

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