Healthcare Seeking Behaviour of

Migrant Workers in Singapore

Community Health Project Group 7[1]

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ABSTRACT

Introduction

This paper aims to explore health-seeking behaviours of migrant workers, discover possible barriers in accessing healthcare in Singapore as well as the prevalence of common illnesses and injuries among migrant workers.

Methods: A cross-sectional study of 525 male migrant workers, $\geq$ 21 years old and of Indian, Bangladeshi or Burmese nationality, was conducted via a self-administered questionnaire at a commercial dormitory in Jurong. Data collected included general demographics, prevalence of medical conditions and health-seeking behaviours through scenarios and personal experience. Results were analysed using SPSS. Chi-square test was used to determine associations between demographics and health-seeking beliefs. Confounders affecting prevalence were analysed using Mantel – Haenszel formula and recalculated for those statistically significant.

Results: Majority (73.1% - 91.7%) of our respondents would seek medical attention and even against the opinion of their superiors for all 4 scenarios ranging from the common flu to physical impairment. The most common reason cited for positive health-seeking behavior is ownership of health. The most common reason for not seeing a doctor is perceived non-severity of illness, however respondents cited fear of deportation as most important reason. Respondents with less education were found to have greater fear in losing their jobs secondary to taking leave (P = 0.04).

Conclusions: Most migrant workers would actively seek healthcare when they are ill and there are no demographic factors that would pose as an active barrier towards health-seeking behavior. However, for the minority, more education and entitlement to insurance could be a possible solution.

Word Count: 247

CHP INTRODUCTION

Singapore's rapid rise from an ex-colonial shipping port to a prosperous metropolitan city-state was built on the back of its migrant settlers who made her their home. To this day, approximately 35 percent of the total workforce in Singapore consists of foreign labour.[1]

These migrant laborers hail largely from South East Asia (Malaysia, Thailand, Indonesia, Philippines, Myanmar) and South Asia (India, Bangladesh) and China.[2] These Migrant Workers, are largely semi-skilled or unskilled workers who mainly work in the construction, manufacturing, marine and domestic services sectors.[3],[4] It is estimated that there are 1,113,200 Migrant Workers employed in Singapore as of December 2010.[1] The foreign workforce has been growing at a faster rate than the local workforce.[5] These foreign workers most commonly cite reasons such as good pay, good prospects and sense of security as reasons for working in Singapore.[6]

Industries like construction and manufacturing employ a very high percentage of Migrant Workers and given that these industries are inherently high-risk areas for workplace accidents[7], there is consequently a higher incidence of them being involved in occupational accidents[8],[9]. These migrant workers work an average of 60 hours a week including paid overtime, with a median of 6 days of work per week,[10] as opposed to the local population which works an average of 49.9 hours a week.[11]According to Dembe et al's study on impact of long working hours and occupational accidents, this may place these migrant workers at a 23% increased hazard rate, given that they mostly work more than 60 hours a week. [12] In Carangan et al's study on Work-related injury sustained by foreign workers in Singapore, the pattern and severity of injuries were similar between foreign and local workers, but more foreign workers were hospitalized, with a ratio of 2 foreign workers to 1 local worker hospitalized.[13]

In addition to the increased risk of occupational accidents, Migrant Workers are also commonly exposed to several occupational related diseases such as occupational skin diseases, occupational lung diseases, toxin exposure, noise induced hearing loss, work related musculoskeletal disorders amongst others.[14] There is also a suggestion that migrant workers are at increased risk of certain infectious diseases such as typhus,[15] dengue[16] and pneumonia[17], possibly due to their high-density living conditions in dormitories and in some situations inadequate hygiene.

Under the Employment of Foreign Manpower Act, employers are responsible for and must bear the costs of the provision and maintenance of medical insurance with coverage of at least $15,000 per 12-month period of the foreign employee's employment (or for such shorter period where the foreign employee's period of employment is less than 12 months) for the foreign employee's inpatient care and day surgery. [18]

The Work Injury Compensation Act (WICA) provides injured employees with a fast and cheap means to claim compensation for injuries sustained during work; the worker only has to prove that he suffered an accident or incurred any diseases due to work for the employer or employer's insurer to pay for his medical fees of up to $30,000 or one year from date of accident, whichever is reached first.[19]

In reality, there have been reports in the media where employers under-report workplace accidents so as to avoid submitting accident reports which may result in blacklisting by the Ministry of Manpower.[20]

This has resulted in reluctance to allow workers to visit doctors if their illness is not deemed to be severe, and workers not wanting to report sick due to fear of losing a day's pay for missing work or even being blacklisted for taking too many sick days.[21]

In addition, researchers from Migrant Worker advocacy group Humanitarian Organization for Migration Economics (HOME) cite that unfair practices such as employers deducting workers' salaries in order to recover money spent on medical

expenses are common. Even though deductions are not allowed under the Employment Act [22], some employers circumvent this problem by re-labeling these expenses as authorised ones. When employers refuse to bear expenses for medical treatment, migrant workers may be denied access to medical care.[23]

Despite their contributions and their increasing size, there appears to be a dearth of information on health-seeking behavior for Migrant Workers; these Workers are often under-represented and form a large, silent group who have needs which are as real as the rest of the population.

There has been yet to be a study that looks in depth into health seeking behavior of migrant workers in Singapore. Previous research in Singapore has highlighted Migrant Worker demographics and working conditions[1-10] as well as difficulties faced by Migrant Workers with regards to work, pay, and compensation. [4, 21, 23] Prior local research has also documented the frequency of different types of presentations at the emergency department, [13, 27] as well as their appropriateness,[28] while others have examined risk factors for different infectious diseases in the Migrant Worker population.[15-17]

However, there has yet to be a study that looks into the healthcare beliefs of Migrant Workers to Singapore or the factors affecting their health-seeking behavior in local literature. There is no knowledge of the prevalence of common symptoms in Migrant workers and of the proportion that goes untreated. Moreover, the experiences and attitudes of Migrant workers have yet to be explored.

The investigation hence aims to understand health-seeking behaviour of Migrant Workers and to discover the barriers they face to accessing primary healthcare in Singapore. Prevalence of illnesses and injuries commonly reported will also be assessed, as a means of framing health-seeking behaviour in the context of specific conditions.

With the better understanding that we will gain of the health-seeking behaviour of Migrant Workers, we hope to pave the way to identifying potential problems where

policies could be implemented for the betterment of the quality of life for the large group of semi-skilled or unskilled Migrant Workers in Singapore.

MATERIALS AND METHOD

A cross-sectional study was conducted via a self-administered questionnaire at a Commercial Dormitory for Migrant Workers in Jurong.

Study Population

The commercial dormitories were chosen as the target site for this study as these dormitories house migrant workers of multiple nationalities, who work in varied industries under various companies. As such, it is the ideal location for a cross-sectional study of the migrant worker population of Singapore. The commercial dormitory targeted in this study is the residence of approximately 7000 migrant workers, and is situated in Jurong East, a major industrial area. This is an all-male dormitory, and the workers are predominantly Indian (45%) and Bangladeshi (35%), with a significant minority of Burmese (10%). It was chosen because a partner organization, Healthserve, was able to secure access to the dormitory site though access was limited to the dormitory entrance.

The table below lists the Inclusion and Exclusion Criteria of the study.

Table 1: Inclusion and Exclusion Criteria of the Study

Inclusion Criteria	Male
	≥ 21 years old
	Non-Singaporean and Non- Permanent Resident
	Valid Work Permit for $\geq$ 3 months
	Indian, Bangladeshi and Burmese Ethnicity
Exclusion Criteria	Females

	<21 years old
	<3 months Work Permit
	Unable to understand questionnaire
	Those not from India, Bangladesh or Myanmar (excluded due to small representation)

Materials Used

1. Participant Information Sheet (PIS)

The PIS was designed as a brief overview of the objectives and scope of the study. It also assured participants of their anonymity and of the confidentiality of their questionnaire responses. Participants were also informed of their right to decline or withdraw from the survey at any point without consequences.

2. Participant Flyer

The Participant Flyer was designed to increase the awareness of the research study and increase the participant response rate. The flyer contained the details of the location, timing and the duration of the study, as well as the inclusion criteria of the study (See Appendix E: Participant Flyer Protocol).

3. Questionnaire

The Questionnaire was divided into 6 main sections.

Section A: Personal and Socio-demographical information: Data obtained included personal variables such as Age, Gender, Ethnic group, Religion, Marital Status, Educational qualification, Occupation, Monthly salary, Number of years in Singapore and Past Medical History.

Section B: Health Beliefs: This section of the survey was based on the validated Health Belief Model. Survey respondents were assessed on their response to multiple hypothetical scenarios in which they had fallen ill or sustained an injury. 3 main

categories were assessed - Musculoskeletal, Respiratory and Dermatological. These categories were chosen, as they were relatively easy to assess through a short survey and were likely to be common conditions amongst migrant workers. Participants were also assessed on their health-seeking choices through a series of 4 hypothetical common scenarios. These hypothetical scenarios were designed with a measure of severity, with 2 mild conditions and 2 severe conditions depicted. These scenarios were based on upper respiratory tract infection and musculoskeletal symptoms. Hypothetical scenarios were employed to assess health seeking behavioural patterns regardless of the prevalence of past illnesses and injuries.

Section C: Previous Health-Seeking Experience: This section explored participants' response to a previous illness or injury and assessed their knowledge of and access to healthcare resources. It also aimed to discover reasons for and against seeking medical attention. Alternative sources of healthcare were also screened for, such as self-medication and traditional medicine.

Section D-F: Prevalence of medical conditions: These sections aimed to screen for the prevalence of Musculoskeletal, Dermatological and Upper Respiratory Tract Infections in the past 3 months. The questions were developed and modified from validated questionnaires.[29, 30]

4. Translation of Materials

In addition to being available in English, the Participant Information Sheet, and Questionnaire were translated and back translated into 5 Asian languages (Bangladeshi, Burmese, Hindi, Tamil, and Telugu) to reflect the demography of our study population. The Flyer was also translated into Bangladeshi, Burmese, and Tamil and distributed as double-sided sheet of paper with English and the respective language on opposing sides. Only 3 languages for the flyer were used since our pilot study found that most of the

Indian nationals understood Tamil and there were logistical difficulties when distributing flyers at the first point of contact.

The intent of having the Participant Information Sheet and Questionnaire in 5 Asian languages was to increase the accuracy of the results obtained by ensuring that the participants were able to understand the information. In addition, volunteers from amongst the workers were also present at the survey site to aid our trained facilitators to answer the queries of the survey participants.

Ethical Considerations

Ethical approval was sought from the National University of Singapore Institutional Review Board (IRB). Verbal consent was individually obtained from each participant prior to the questionnaire and confidentiality of the participants was maintained by ensuring that no identifiable information was collected during the entire survey process.

Method

1. Observational Study

An observational study was conducted at the dormitory on 2 weekday evenings to establish patterns of human traffic, identify key sites at which to conduct the survey and to identify the appropriate timeframe at which to conduct the survey. The gantry point where all the residents pass through was identified as the ideal location for recruitment of survey participants. The observational study also identified the timeframe of 5pm to 10pm as the window in which 5334 out of 7000 residents of the dormitory returned. Table 2 illustrates the human traffic flow over time.

Table 2: Human Traffic at the Gantry Point from 5-10pm

Time Interval	No. of persons entering through gantry point	Percentage of total Human Flow
5-6pm	520	9.8%
6-7pm	680	12.8%
7-8pm	**2257**	**42.3%**
8-9pm	**959**	**18.0%**
9-10pm	**918**	**17.2%**

The peak inflow of residents occurred from 7-8pm, where 42.3% of the residents returned home. However, our access was limited to 7pm onwards (by dormitory management) and hence 22.6% of the traffic flow was not captured. Although the bulk of the human traffic was captured, this was a limitation of our study.

2. Pilot study

A pilot study was conducted on the 18th of February to assess the feasibility of the questionnaire. The pilot study was conducted in English, to assess the English proficiency of the target population and the need for translation. Fifty participants were recruited using systematic sampling, with every 1 in 5 residents who entered the dormitory being approached. A standard protocol for refusal was used. Following the pilot study, changes were made to the questionnaire to reduce ambiguity and reduce the length of the survey. The revised questionnaire was then re-submitted to and approved by the IRB before the actual field study.

3. Survey Protocol

The actual survey was carried out from the 25th to 28th of February, from 7pm to 10pm. A total number of 525 valid survey forms were obtained over the course of 3 days (no surveys were conducted on 27th February). The sample size needed was derived with the aid of an exact binomial confidence interval calculator. We postulated (and subsequently confirmed) in our pilot survey that around 50% would seek care. The range of proportions for those who seek care was unknown, but for sensible estimates from 30% to 90%, we would obtain confidence intervals within ±6% of the estimate (see Table 3 in Appendix C). Taking into consideration limitations of time and resources, this was deemed to be an acceptable margin of error.

Table 4: Time Stratification of Sample Collection Method

Time Interval	Percentage of Sample Size to be collected	No. of surveys to be collected in each hour
7-8pm	54.6%	273
8-9pm	23.2%	116
9-10pm	22.2%	111
	Total:	500

Time stratification was employed to distribute our sample collection in proportion to human traffic over time, based on the Observational Study results. With a target of 500 surveys in mind, 273 surveys should be conducted from 7-8pm, 116 from 8-9pm and 111 from 9-10pm. Within each hour, systematic sampling was employed and, based on the estimated total human traffic per hour, 1 in 10 workers were approached to participate in the survey (Refer Appendix E for further details). Non-responders, defined as those who refused participation in the survey despite meeting the inclusion criteria, were dealt with

according to a standard protocol. The workflow at the survey site is attached in the appendix.

Participants of the study were given the Participant Information Sheet and were assured of anonymity and confidentiality. They were also reminded that they could withdraw from the study at any point. The study questionnaire was self-administered. Participants were given the questionnaire in the language they were most comfortable with (out of 6 languages). Facilitators were present to answer any queries, responding based on a standardized prompt sheet. Volunteers from amongst the workers were also present at the survey site to aid the facilitators. After completion, the questionnaires were checked and the participants were given a packet drink and biscuit as a token of appreciation.

4. Statistical Analysis

A total of 525 completed survey responses were collected. The table below illustrates the number of completed surveys collected in each language.

Table 5: Number of Completed Surveys Per Translated Language

English	Tamil	Telugu	Hindi	Bengali	Burmese	Total
75	151	39	8	225	29	527

Completed survey forms were sent to the Saw Swee Hock School of Public Health, where entry of data was carried out using Microsoft Excel. Statistical analysis was performed using SPSS v20.0 for Mac (SPSS, USA). Chi-square test was used to examine association between health seeking decision and demographic features. The analysis compared differences in responses to the clinical vignettes for age, ethnicity, socioeconomic status (salary, education, number of people supporting a month), main type of work, average working hour and rest days in a month. The characteristics of the study sample and healthcare seeking outcome variables were summarized by descriptive

analysis. Prevalence and 95% confidence intervals (95% CI) of the healthcare seeking outcomes and utilization were calculated for each condition. The Chi-square test was used for comparison between groups. A p-value <= 0.05 was considered statistically significant.

RESULTS

Demographic Profile of Sample

For this study, we approached 1305 migrant workers from Avery Lodge through systematic sampling. 51 people did not fit the inclusion criteria, and 714 migrant workers refused participation. The remaining 15 were excluded from this study, as answers to substantial sections of the survey from were either ambiguous or unanswered. Out of those that we approached, 525 migrant workers successfully finished the survey questionnaire. This gives us a total participation rate of 45.3%, and we used a total of 40.2% of people we approached in our study sample after taking out the incomplete surveys.

All the respondents were males (100%). Majority of the respondents are between 21-29 years of age (63.4%, CI: 59.3% - 67.5%). In terms of nationality, 48.8% were Indians (CI: 44.5% - 53.1%), 45.1% were Bangladeshi (CI: 40.8% - 49.4%) and 6.1% Burmese (CI: 4.05% - 8.15%). The majority of our respondents were either Hindu (45.7%, CI: 41.4% - 50/0%) or Muslim (40.3%, CI: 36.1% - 44.5%). Majority were single (63.3%, CI: 59.2% - 67.4%), with a highest education level of secondary and below (57.9%, CI: 53.7% - 62.1%), had a monthly income of more than S$500 but less than S$1000 (51.7%, CI: 47.4% - 56.0%), and a majority supported 4-6 people in their family (52.5%, CI: 48.2% - 56.8%) (Appendix C: Table 6).

Industrial Profile of Sample

Generally most of the respondents were from the Marine/ Shipyard Industry (79.0%, CI: 75.5% - 82.5%). The work they were involved in covered a large variety of roles. However the more common roles would be that of Piping (25.8%, CI: 22.0% - 29.6%), Welding (24.0%, CI: 20.3% - 27.7%) and Electrical Work (12.7%, CI: 9.8% - 15.6%). Most of them work for 45-65 hours in a week (51.4%, CI: 47.1% - 55.7%) and are given 4 days or less of rest days in a month (78.1%, CI: 74.6% - 81.6%). A large

proportion of the workers have been in Singapore for more than 4 years or less. (54.9%, CI: 50.6% - 59.2%)(Appendix C: Table 7).

Health Profile of Sample

Out of all the workers surveyed, we found that up to 39.8% (CI: 35.6% - 44.0%) of the workers claimed not to have a health insurance plan and 31.0% (CI: 27.0% - 35.0%) did not know if they had such a plan. Most of the workers have no medical history of Skin (93.1%, CI: 90.9% - 95.3%), Lung (98.0%, CI: 96.8% - 99.2%), Bone/Joints/MSK problems (94.0%, CI: 91.9% - 96.1%) or Long-term problems like Diabetes and Hypertension (90.9%, CI: 88.3% - 93.5%). Majority of them do not smoke (76.0%, CI: 72.3% - 80.0%), have any previous hospital admission (86.6%, CI: 83.6% - 89.6%) nor any previous work-site related injuries (93.7%, CI: 91.6% - 95.8%). However it is also noted that 50.4% (CI: 46.1% - 54.7%) of the respondents mentioned that they had never visited a doctor before since coming to Singapore (Appendix C: Table 8).

Choice of Action

Generally, most respondents (82.8%, CI: 79.5%-86.1%) would seek advice from healthcare service providers if their illness or disease were a result of their work; 46.4% (CI: 40.7%-48.9%) would see a doctor for itchy skin in the groin, 32.4% (CI: 28.6%-36.2%) for fingernail problems, 33.5% (CI: 29.4%-37.6%) for itchy or painful hands and 34% (CI: 29.9%-38.1%) for a skin lump that was red and painful.

Generally, when asked about an imagined minor respiratory illness scenario, most respondents mentioned that they would still go to work (63.8%, CI: 60.0% - 68.0%). 76.3% (CI: 72.6% - 80.0%) of them said that they would report their condition while 72.7% (CI: 68.8% - 76.6%) would go and see a doctor. A large majority of them (78.6%, CI: 75.1% - 82.1%) would still see a doctor even if their supervisor did not allow them to.

However, when it is a more severe scenario, with the addition of a fever for 3 days, only 26.6% (CI: 22.8% - 30.4%) of the respondents would go to work, 77.1% (CI: 73.5% - 80.7%) would report their condition, 87.5% (CI: 84.6% - 90.4%) would see a doctor and 86.2% (CI: 83.2% - 89.2%) would still see a doctor if their supervisor does not allow.

This pattern is similar when in the scenario of a work related injuries. When asked about minor hand injury scenario, 26.4% (CI: 22.6% - 30.2%) of respondents would go to work, 83.8% (CI: 80.6% - 87.0%) of them said that they would report their condition while 84.9% (81.8% - 88.0%) would go and see a doctor; 85.8% (CI: 82.8% - 88.8%) would still see a doctor even if their supervisor did not allow them to. When there is functional impairment, only 14.8% (CI: 11.7% - 17.9%) of the respondents would go to work, 83.4% (CI: 80.2% - 86.6%) would report their condition, 91.8% (CI: 89.4% – 94.2%) would see a doctor and a further 89.3% (CI: 86.3% - 91.7%) would still see a doctor if their supervisor does not allow. (Appendix D: Figure 1)

When it came payment, most respondents believe that their company will have either full or partial involvement, across all the four scenarios of a minor (68.0%) and major respiratory disease (62.0%) and a minor (65.4%) and major work related injury (64.6%).

Health Seeking Real Experience

For this section, we had 519 respondents who answered. Out of these respondents the majority of them (52.6%, N=273, CI: 48.3% - 56.9%) had fallen in or gotten injured since working in Singapore with 61.1% (CI: 55.3% - 66.9%) of them who fell ill more than 3 months ago. When characterizing their symptoms, the common symptoms would be that of fever (30.2%, CI: 26.1% - 34.3%), cough (24.4%, CI: 21.0% - 28.6%) and blocked/runny nose (20.6%, CI: 17.0% - 24.2%). That episode of illness was not seen as

severe by the respondent with an average severity mean of 1.44 (95%CI: 1.30 – 1.57) on a scale of 5. Majority also sought prompt treatment within 3 days or less (57.3%, CI: 51.7% - 62.9%). During these episodes, 44.3% (CI: 38.7% - 49.9%) of respondents took their own traditional medicine, 30.6% (CI: 25.4% - 35.8%) took their own old medicine, 11.5% (CI: 7.13% - 15.9%) took medicine from their friends and 39.7% (CI: 32.1% - 43.3%) stopped working. Out of these, a large majority (85.3%, CI: 81.4% - 89.2%) of the respondents saw a doctor during the episode. Majority of them (50.3%, CI: 44.7% - 55.9%) went to see a private doctor or the doctor located at their workplace. 19.7% (CI: 15.2% - 24.2%) of these respondents claimed they were hospitalized for this episode.

Reasons For and Against Seeking Healthcare Advice

266 respondents had gone to see a doctor during their illness. From the respondents' own experience, the five common reasons for seeking medical advice would be that it would help them do their work better (83.6%, CI: 79.2% - 88.0%), their ownership over their own health (76.7%, CI: 71.6% - 81.8%), their willingness to listen to the doctor (74.9%, CI: 68.8% - 81.0%), that they were told to see a doctor (64.2%, CI: 58.4% - 70.0%) and their friends had previously saw a doctor when they had the same condition (52.3%, CI: 46.3% - 58.3%). However, when asked what was the most important reason, 32.3% (CI: 26.2% - 38.4%) quoted ownership over their health as the main reason as compared to 21.1% (CI: 15.7% - 26.5%) who felt that the main reason was to help them do their work better.

46 respondents did not see a doctor. The top reasons for not seeking medical advice would be: that they felt their illness was not serious (43.8%, CI: 29.8% - 57.8%), did not know where to see a doctor (25.0%, CI: 12.8% - 37.3%), insufficient money (24.5%, CI: 12.5% - 36.5%), that no one said they should go see a doctor (24.5%, CI: 12.5% - 36.5%), that they were scared that they might be sent back to their home country

(22.4%, CI: 10.7% - 34.1%), and that they were afraid that if they did not go to work, they would lose their jobs (22.4%, CI: 10.7% – 34.1%). However, when asked what was the most important reason, most said that it was because they did not perceive their illness to be serious (30.2%, CI: 16.5% - 43.9%).

Discussion

Confounding Factors Within Socio-Demographics

When looking at the salary of the migrant workers, we found that Bangladesh workers earn less income per month as compared to other nationalities, with 48.3% (CI: 41.9% - 54.7%) of Bangladeshi earns less than $499 a month ($p<0.001$). However, there may be other confounding factors that affect their salary such as education and age. Education showed a positive association with salary ($p=0.001$) and workers who are supervisors earned more than other types of work ($p<0.001$). A larger proportion of the younger migrant workers aged between 21-29 earn less than $499 a month (43.2%, CI: 37.8% - 48.6%) as compared to the other age groups of 30-39 (27.5%, CI: 20.7% - 34.3%) and those more than 40 years old (29.2%, CI: 11.0% - 47.4%) ($p=0.007$). We also observed a general trend that migrant workers who spend more years in Singapore have higher pay with 23.5% (CI: 9.2% - 37.8%) of migrant workers who spend more than 10 years in Singapore having a monthly income of more than $1000 as compared to only 6.1% (2.8% - 9.4%) of the workers who spend less than 3 years in Singapore ($p<0.001$). In addition, we also observe that 51.3% (44.3% - 58.3%) of migrant workers who earn less $499 a month have less than 3 rest days a month ($p=0.154$).

When looking at the number of working hours per week, we noted that age was a significant factor. A larger proportion of migrant workers who are older than 40 years old work <44 hours per week (43.5%, CI: 23.2 – 63.8) as compared to the age group of 21-29 years old (27.4%, CI: 22.6% - 32.2%) and 30-39 years old (18.9%, CI: 12.9% – 24.9%) ($p=0.03$). Other factors such as educational level, salary, industry of work, job scope, hours of work per week and number of years in Singapore did not affect the average number of hours of work per week.

As for their awareness of having a healthcare insurance plan in Singapore, we noted that Bangladeshi workers have the largest proportion of workers without knowledge

of their personal healthcare insurance status. 35.4% are unsure if they have a healthcare plan (CI: 29.3% - 41.5%, p=0.008). Those who were previously admitted to a hospital in Singapore are also more aware of their own healthcare plan ownership. 41.2% (CI: 29.5% - 52.9%) who were previously admitted to a hospital, report knowledge of a healthcare plan. (p=0.025)

An interesting observation that we noted was that, a large group of smokers were seen in the 21-29 year olds (72.6%, CI: 64.7% - 80.5%) (p=0.039). Among the nationalities, the largest proportion of smokers is seen among the Burmese (37.5%, CI: 20.7% - 54.3%) (p=0.040). When comparing the percentage of smokers among migrant workers and the smokers among the local population, the latest National Health Surveys 2010 showed that 23.7% of men aged between 18-69 year olds in Singapore smoke, similar to findings of our survey where 24.0% smoke.

While exploring the idea of excessive health care utilization, we found that there is a positive association between previous visits to the doctor, and the number of years working in Singapore (P<0.033). However, previous visits to the doctor are independent of age, nationality, educational level, type of work or rest days.

When looking at the number of rest days, the workers in the marine industry were seen to have less rest days than the construction industry. 52.6% (CI: 47.8% - 57.4%) of marine workers have less than 3 rest days as month as compared to 35.6% (CI: 24.6% - 46.6%) of construction workers (p= <0.001). Moreover, they had the lowest salary among all the other industries with 42.0% (CI: 37.2% - 46.8%) of marine workers earning less than $499 (p<0.01). It is not clear if differences in the salary between industries reflect the relative wages in the two industries nationally or the particular mix of companies housing their workers in Avery Lodge. On the other hand, lesser working hours in construction are consistent with national restrictions on the working hours in the construction line regulating against working past sleeping hours within residential areas.

1) **Health Belief System**

From our results, it is evident that 82.8% of the respondents (regardless of nationality or income) would seek treatment if their ailments were a result of their work. However, less than 50% of all respondents would seek treatment for the minor ailments e.g. itchy groin, skin lump etc. This could probably be due to the recurrent nature of these ailments, or the perceived non-severe nature of these ailments. When we consider non-organic postulations for this behavior, we could reason that migrant workers do not find it beneficial to seek treatment for these ailments in their perceived cost-benefit analysis of treating these ailments.

We should also consider that migrant workers have alternative ways to treat ailments instead of seeing the doctor. 44.4% of the respondents took traditional medicine and 32.2% took their own medicine. Future studies could possibly elucidate the nature of these traditional medicines, which could potentially be harmful, or costly yet non-beneficial with respect to the illness.

Based on our hypothetical scenarios, we expected to see correlations of education, number of rest days, number of working hours and ownership of healthcare plan, with health belief. However, our cross tabulations show that these variables do not affect an individual's choice in seeing a doctor across all 4 hypothetical scenarios.

We constructed our 4 hypothetical scenarios based on validated surveys to determine the health belief model of migrant workers. These 4 scenarios constitute 4 major organic domains such as Upper Respiratory Tract Infection, Fever, Foot injury and functional impairment. Based on our results (figure 1), majority (73.1% - 91.7%) of our respondents chose to see a doctor, report their condition, and seek medical attention against the opinion of their superiors for all 4 scenarios. This is encouraging, as it shows that migrant workers are able to take initiative to care for their own health, and are able to distinguish the severity of each symptom. However, we observed that majority of the

respondents would still go to work for the URTI scenario. (63.6%) We postulate that Musculoskeletal, Fever and Skin symptoms impair their function at work to a greater extent compared to the self-limiting and non-debilitating nature of URTI.

We observed a strong positive correlation between respondents who chose to see a doctor in the hypothetical scenario with high fever, and respondents who have actually seen a doctor in the past 3 months, with fever as one of the symptoms. (p=0.001) This provides some validation of our use of hypothetical scenarios.

There exists a minority of respondents who chose not to see the doctor when it is against the opinion of their superiors. This group can be targeted for education on workers' rights as well as channels for redress. Migrant workers should be educated on their rights, as well as channels to approach should they face such difficulties at work. No migrant worker should be wrongfully made to work if he/she suffers from medical problems that could pose a threat to their health and livelihood.

With regard to payment, majority of the respondents believe that their company will play a role in the management of their healthcare costs and at least partake in the compensation of medical bills.(figure 2) However, for the minority, their belief is that that they will have to foot majority of the bill. This may be detrimental to their health-seeking predisposition. Once again, efforts to educate migrant workers of their rights and their company's obligation to be responsible for their healthcare should be stepped up.

2) **Actual Experience and Potential Barriers to Healthcare**

87.1% (n=236) of our respondents who had fallen sick in Singapore before chose to see a doctor when they suffered an illness/injury (figure 3). Skin problems, body pains, and runny nose symptoms were associated with a longer time interval between falling ill and seeing the doctor. We postulate that this is the result of the chronic and recurrent

nature of these problems, as well as their insidious onset. Furthermore, it may be seen as a natural, "normal" and unavoidable consequence of their occupation or living environment.

The most common reasons (figure 4) for seeing a doctor included better performance at work, responsibility for their own wellbeing, fear of losing jobs due to illness, and willingness to accept advice from the doctor. These results indicate that migrant workers in Singapore are not only cognizant of the relationship between their health and their ability to sustain a livelihood, but that they are also concerned about their health as an independent entity. This is supported by the fact that the most crucial reason cited was ownership over their health. This is encouraging, as it shows that migrant workers represent a population that will be receptive to policies that are targeted at their health and general well being. However, we recognize the possibility of a social desirability bias when respondents cite this as the most important reason; as they were aware of being surveyed by medical students. However, given the anonymous, confidential and self-administered nature of the questionnaire, it is unlikely that this bias would be significant.

We expected variables comprising the demographics (e.g. Education, Age, Nationality, etc.) to have a positive correlation with the respondents' health seeking behaviour. However, no significant correlations could be drawn from the demographics and the respondents' health seeking behavior. We postulate that this could be due to the lack of heterogeneity in the type of migrant workers based in Avery Lodge, as well as peer influences from the sharing of information and experiences within the larger migrant worker community.

We expected severity of illness to correlate with health seeking behavior. However, our results showed that respondents with high severity scores were no more likely to seek medical attention than those with lower severity scores (figure 5). Our postulation for this observation is that self-reported severity is subjective, and may not reflect the actual

severity of the illness. However, when we plotted severity against hospitalization rates (figure 6), we found that respondents with higher severity scores were more likely to be hospitalized. Hence it may be premature to dismiss the utility of the severity scores collected in this survey. One alternative explanation is that there may be other barriers to seeking care unrelated to severity. Unfortunately, the number of individuals who reported not seeking care was too few to permit meaningful sub-analyses stratified by severity and reasons for not seeking care.

Of the respondents who chose **not** to seek medical treatment from a doctor (figure 7), the most common reasons for not doing so included the non-serious nature of illness, fear of being deported, and fear of loss of job due to leave-taking. The latter 2 reasons are potential areas that the Ministry of Manpower and health education agencies can look into. Migrant workers should not be hindered from seeking medical attention by the real or perceived threat of being deported, especially if they have a misconception that one can be deported due to any illness (except TB and HIV).

The fear of job loss due to leave taking may be an unfounded belief or might be imposed by the superiors themselves. An association between education and a fear of job loss secondary to taking leave was observed.(p=0.04) (Figure 8) Respondents who had lower levels of education were more likely to have that fear. This shows that increased efforts should be taken to educate we workers that taking leave for medical reasons is completely legitimate, and should not threaten their livelihood in any way. One of the other reasons cited was that of a lack of finances to seek medical treatment. In addition, the workers may have misinterpreted the term "lack of finances" as "not worth it" when they filled in the questionnaire. That is to say, they might have not seen a doctor due to the cost outweighing the perceived benefit, instead of an absolute lack of money to pay for the medical bills.

Despite the fact that majority of the respondents are aware that their companies partake in at least a portion of the medical compensation, the aforementioned reason is still one of the most common. Insurance plans may not cover medical bills adequately. Future studies can elucidate the percentage of the total cost that companies compensate, as well as the details of the health insurance plan that covers migrant workers in Singapore. 39.8% of the respondents do not have an insurance plan and 31.0% of them do not know if they have insurance coverage. This is especially important when considering the fact that migrant workers are 1.12 times more likely to seek medical treatment for minor illnesses when they have a healthcare plan.(p=0.043)

There are some significant **negative** findings from the group of respondents who did not see the doctor. Only a very small fraction cited a lack of trust in the Singaporean healthcare system and the lack of accessibility to healthcare. This is encouraging, as it shows that migrant workers trust the local healthcare system, and are cognizant of how and where to access medical services when needed.

Conclusion

In conclusion, the results of the survey have shown that most migrant workers would actively seek healthcare when they are ill. While upper respiratory tract infections were the commonest illness reported, the majority of the workers were also able to recognize that 'red flag' symptoms like high fever or work related physical impairment indicates that they should stop work and visit a doctor even against the wishes of their supervisors. This stems from the recognition that they must take ownership of their health. There is thus potential for health related policy implementation among the workers in future. The majority of the migrant workers also did not indicate a problem with access to healthcare and would visit a private company clinic when they are ill.

Through the survey results, there was also a minority who chose not to visit a doctor despite their illness. Among the reasons cited, the commoner ones were the fear of deportation, the lack of finances and fear of losing their jobs. In particular, fear of losing their jobs was associated with a lower educational level. This is indeed worrying and such fears should be clarified. Majority of workers in the survey had also displayed a lack of knowledge of a health insurance. This calls for more education on the rights of workers and entitlement to insurance claims, as stated under the employment and foreign manpower act.

The survey also highlighted that more than 75% of the workers work > 44 hours per week, and 23.3% report working more than 65 hours per week. Moreover, majority get <3 rest days a month, with some having no rest days at all. These are certainly areas that could be looked at in future studies, and also possible areas for intervention by the Ministry of Manpower.

Strengths:

This study on the health seeking behavior of migrant workers in Singapore is a novel one. There is very limited published literature regarding the health problems in migrant workers in Singapore, and hence it is a stepping stone for future studies. With a large sample size of 525 migrant workers, we believe the results may be extrapolated to the general health seeking behavior of most workers in Avery lodge, and possibly also apply to the wider community of Indian and Bangladeshi migrant workers in Singapore. As the surveys were self administered, interviewer bias was reduced; and in order to circumvent the language barrier, the surveys were translated into the various languages (Tamil, Hindi, Telugu, Bengali, Burmese) to cater to the population of migrant workers in Avery Lodge (with back translation to English to very that there was no loss in meaning

through the process of translation). There were also volunteers and translators on-site to aid in translation of any questions arising during the survey process.

To minimize the variance of questioning styles among the interviewers, there was a standardized list of prompters for each question should clarifications be needed. As for the recruitment process, systematic sampling of subjects was performed, as thoroughly elaborated in the methodology, to reduce any bias or confounding effects. For the non-respondents, the nationality and reasons of non-response were recorded, and when compared to the surveyed population, sociodemographics factors proved to be similar between the 2 groups, allaying some concerns about non-response bias.

Limitations:

Firstly, this study of the health seeking behavior of migrant workers was a cross-sectional one and hence precluded the establishment of temporal relationships. Given that a large majority of workers in Avery Lodge are of Indian, Bangladeshi and Burmese nationality, Chinese migrant workers, who make up a large proportion of migrant workers in Singapore, were not accounted for in this survey, hence not representative of all the migrant workers Singapore. A large majority of workers from Avery lodge work in the Marine Industry, hence their health issues may differ from workers working in another line, for instance, construction.

From the field survey, permission for recruitment of subjects and conducting of surveys was granted only after 7pm (when the HealthServe room was opened), thus between 5-7pm, the 22.6% of migrants workers returning were missed out in our surveys. From the observational survey, the heaviest human traffic was seen between 7-8pm where 42.7% of migrant workers return to the dormitories. There was no system in place to ascertain that the participant returning with a flyer in hand was the intended original participant. Also, there was no system to ensure that the participant who completed the

survey was not a repeat participant, though we attempted to exclude such participants by asking before each survey if they had done the survey before. The decision to base this on self-reporting was made after the pilot study when we tried to record their identification numbers and found it to be logistically unfeasible.

In total, there was a non-response rate of 55.4%. This may have resulted in non-response bias and there may be some correlation between their disinterest towards the survey and disinterest in health-seeking. There may be some social desirability bias as participants may give 'ideal' responses instead of honest opinions. Recall bias is also present as participants may report the more severe episodes, when asked about the most recent episode of illness 3 months or more ago, which bias the upwards our estimates on the proportion that would seek care. Language bias was another factor identified during the observational study. Hence, surveys were translated to the native languages of the workers and back translated, and there were volunteers from other workers conversant in English who were on-site to aid in conduct of the surveys. To reduce interview bias, the questionnaires were self-administered.

In the questionnaire, the health problems chosen for the various scenarios were based on information provided by the Ministry of Manpower, which may leave out other health conditions. Also the questionnaire did not sufficiently explore the company related factors that could affect the health seeking behavior of the workers, for instance, the process of making claims for medical bills and the time taken for compensation.

Although several confounding factors were identified in the study, there is possibly more which were not identified due to the time constraints. Due to lack of similar local studies conducted to date, there is limited existing literature to provide assistance in this.

The study was not able to rate the strength of each of these confounding factors with certainty due to lack of information regarding the presence and value of any unmeasured

confounding factors which were not studied in our project (for example, company factors influencing health-seeking behavior).

Recommendations for future studies

Firstly, this study is the first of its kind to study the fairly large community of Indian and Bangladesh migrant workers in Singapore, and sets the platform for future studies, such as larger (and possibly cohort type) studies in other dormitories in Singapore. Perhaps also, a similar study on the health belief model and health seeking behaviors could be replicated in the local Singapore population, to compare the barriers to accessing healthcare identified by the locals to the migrant workers. This will aid in the decision of the government in a better allocation of healthcare resources between the locals and foreign workers.

For the minority of workers who reported working >65 hours per week or those who did not get any rest days per month, there could be future studies looking into the honesty of such responses, such as conducting an in-depth face-to-face interview with the workers and finding out the amount of control they have over the working hours. The research could also look into reasons and justifications behind such extended working hours, and consequences of such practices, that could be detrimental to the workers' physical and psychological health.

Also when migrant workers fell ill, substantial numbers also quoted the additional use of 'traditional medicine'. There could be more research looking into what such 'traditional medicines' are, and if they are harmful to health. There was also a minority who reported not seeing a doctor when they were ill as their supervisors did not allow them to or due to fear of being sent home. Future studies may want to elucidate the reasons behind perceiving submission to authority to be more important to one's own health, and whether it is due to discrimination or threats from the employers. With an

increase to 2.5million migrant workers by 2030 as stated in the population white paper, more studies can look into the accessibility of healthcare for the migrant workers, and whether cost or convenience etc. (e.g. due to long waiting times and referrals to various departments) are deterring factors to workers seeking medical treatment.

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