

## PERCEPTIONS OF OCCUPATIONAL HEALTH RISKS, ILLNESSES AND COPING STRATEGIES AMONG WORKERS IN A FACTORY IN SAVAR, BANGLADESH

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### ABSTRACT

**Introduction:** Occupational health risks are emerging topics of interest and concern in Bangladesh. It is important to understand worker perceptions of risks, illnesses and their coping strategies in order to develop interventions relevant to their environment and concerns.

**Methods:** We interviewed 28 factory workers in Savar, Bangladesh identifying their perceptions of illness, risk and coping strategies for illnesses occurred in the factory.

**Results:** All workers identified repeated exposure to dust and industrial chemicals as the main risks within the factory. Additionally, workers reported unsafe conditions from cutting machinery with mechanical injury being the common outcome. Among all workers in the factory, common illnesses attributed to the work environment included respiratory disorders, anorexia and skin infections. It emerged from data collection that socioeconomic conditions and lack of rights added to the burden of illness. Some workers also resorted to self-inflicted injuries in order to receive compensation.

**Conclusion:** Societal factors and perceived hierarchy within the factory has led to an added burden among factory workers. The already dangerous work environment adds to the job insecurity and psychological stress imposed on a worker. Factories should include compulsory safety training and mandatory safety equipment use in order to curb the growing risks of occupational health.

**Key words:** Occupational health, Occupational Risk, Job security, Industrialization, Bangladesh

### I. INTRODUCTION

Bangladesh is a low-income country with a rapidly growing manufacturing and industrial sector. As a consequence, more and more individuals are drawn to the emerging, industrialized areas in Dhaka and other urban areas in search of employment [1]. In Africa and South Asia, studies suggest that gaseous and auditory pollution contribute substantially to worker morbidity [2, 3, 4]. Ahasan, Ahmad, &

Khan [5] found that workers in a cotton textile factory were at a significantly higher risk for acute respiratory illnesses such as asthma than the general population.

Ratnasingam and Scholz [6] revealed that workers are frequently exposed to harmful chemicals such as organic solvents from the coating processes for wood furniture finishing. During surface coating, workers are exposed to these organic resins along

with formaldehyde causing burning sensations in the eyes, nose and throat, with nausea, coughing, chest tightness, wheezing, skin rashes, and other allergic reactions occurring as well [6,7]. Additionally, the spray adhesive used in furniture production routinely contains a bromine derivative that has been shown to affect the peripheral nervous and reproductive systems [8].

According to the Bangladesh Garment and Tailoring Workers League (GTWL) General Secretary report, the legislations related to Occupational Safety & Health (OSH) particularly the Factories Act 1965 and Factories Rules of 1979 are old and inadequate in terms of perspective, provision, specificity and coverage to cope with newer production technology and materials involved in the production process [9, 10]. National statistics concerning OSH are inadequate and information is gathered mainly from secondary sources with no proper primary data collection system in place.

Badrudoza [9] found that almost 80% of industries in Bangladesh store chemicals improperly, lacking ventilation systems and allowing hazardous fumes to accumulate. Furthermore, only 10% of workers use ear, eye and hand protection, with 30% of factories providing safety training for workers [9].

Due to the lack of ratification and enforcement of International Labour Organization (ILO) conventions and lack of national occupational safety and health policies, the government of Bangladesh has done very little compared to other South Asian countries with regards to occupational safety. The industrial working population stands at 20.8% of the total population and is growing rapidly [10]. These new industrial factories can pose substantial health risks for those working there. There is very limited literature on the potential health risks and illnesses encountered in factories, how employees cope with such illnesses and their perception of health risks in a factory setting of Bangladesh. This study hopes to add some initial findings by identifying the common illnesses and health risks and their perceived causes and coping strategies among workers in a factory of Savar, Bangladesh. This study will help to understand a) the common illnesses among factory workers; b) the perceived causes of illness; c) what strategies are employed to cope with the occupational health risks; d) the health seeking

behavior of the workers in the event of an illness; and e) the physical working environment of the factory.

## II. METHODOLOGY

### A. Context Setting

The area of study is Birulia Union in Savar Upazila, which is located 24km from the city of Dhaka in Bangladesh. Savar Upazila is characterized as a rapidly industrializing area and with its close proximity to Dhaka City there has been a recent influx in the construction of factories producing products ranging from garments to batteries. The census conducted by the Bangladesh Bureau of Statistics [11] found that there are 587,061 persons living in the Savar Upazila with 23,760 persons living in the Birulia Union. With rapid industrialization, the physical and economic landscape is transitioning from an agrarian setting to an industrial area. Recent construction of manufacturing facilities is causing an influx of migrants from all over Bangladesh in search of work.

### B. Study Design

This was an exploratory qualitative research study based on the grounded theory approach. Through the process of literature review, we were able to construct a preliminary conceptual framework on the various occupational elements a factory worker in South Asia might encounter and possible health implications they might incur as a result. We then used this conceptual framework as a guide for questioning during in depth interviews and focused group discussions. The information gathered throughout the research was used to construct a new conceptual framework.

### C. Sampling

The study area of focus in factories limited our sample population to employees who currently work, or have recently left their position at a local factory in the Birulia Union with no discrimination between age and gender. To maintain consistency within the data collection, we identified workers at one particular factory and focused exclusively on them. It was determined through data collection that no females were employed in the factory of interest, resulting in data collected from 28 male informants. Through the iterative process of sampling and data collection, we also included a local pharmacist in our sample population as a key informant. Our sample population was identified

purposively and by convenience from local teashops, households and surrounding areas adjacent to the factory of interest. We made every attempt to ensure an equal representation of temporary and contractual (permanent) workers. Additionally, we tried to include employees from all divisions within the factory: sawmill, fitting, treatment, finishing and glass. A majority of the employees were not married but had family responsibilities. Their age ranged from 15 to 35 year. Throughout the sampling process, informants showed no hesitation or reservation in speaking with us regarding their experience in the factory.

#### **D. Data Collection**

Data collection took place between the 7<sup>th</sup> and 15<sup>th</sup> of March, 2010. We conducted four in-depth interviews with two key informants, the medical officer of the factory and a local pharmacist identified by participants in a social mapping exercise. Our first in-depth interview turned into an informal group discussion halfway through the interview. Our presence and location adjacent to the factory had attracted an abundance of factory workers. During our interview with the medical officer, the head security guard at the factory sat down to observe the conversation. Before long, he joined the conversation informally providing social and economic context. The in-depth and informal interviews were semi-structured based on a predetermined interview guide.

We conducted two focused discussion groups of eight and nine persons with the latter doubling as a participatory rural appraisal exercise in which the informants began to draw a body map. Although nine participants were present for the second focused discussion group, one informant was present in both discussions. Due to the nature of sampling, and the short study duration, we decided to include him in both discussion groups in order to provide additional facilitation due to his familiarity with the discussion format. The focused group discussion followed a predetermined guideline of talking points in order to facilitate discussion between the perceived causal factors of illness and perceptions of safety equipment use.

An informal group discussion was used as a setting for a social mapping exercise. This social map identified surrounding areas where factory workers resided and local health facilities utilized by workers, with preference depicted on the map.

Another instance of informal group discussion took place with three informants providing a body map describing common injuries and their etiology among sawmill workers. A second instance of body mapping occurred alongside a focused discussion group of nine individuals (as mentioned above) with a more diverse sample of employees from the factory including individuals from the sawmill, e.g., the treatment and finishing divisions. Like the first body mapping exercise, this allowed the informants to pictorially represent illnesses experienced in the factory showing how conditions related to work manifested into disease. Both body mapping exercises allowed the researchers to understand causal factors associated with occupational illness in a pictorial format and how these factors manifested into clinical symptoms.

The mapping exercises were facilitated by all three researchers. A native Bangladeshi, who was also a research assistant in the study, was our main facilitator in all the field interactions. Bengali to English translation was ongoing throughout all the conversations with the other two research assistants transcribing independently to ensure that all observations and translated material was accurate and complete. Conversations were transcribed verbatim during all in depth and informal interviews, including all informal and focused group discussions. Observatory notes were taken during all three participatory rural appraisals by all researchers.

Throughout data collection, analysis was ongoing. It emerged through analysis that recurring themes and topics were repeating with little deviation. The total volume of raw data collected totaled approximately 35 pages of handwritten field notes per researcher. These were later condensed to 15 pages of computerized data.

A formal request to tour the factory facility was submitted to the headquarters, but this request was later denied due to what the facility officials called, "lack of credentials."

#### **E. Data Analysis**

All field notes, including observations and complete transcriptions of interviews and discussions were computerized and categorized the same day of collection to maintain familiarity of the field visit. Data analysis was ongoing with all three researchers reviewing the transcripts independently. Coding the transcripts by hand was

preferred to maintain familiarity with the information, although Microsoft Excel was used to color code lines of transcript with its respective coding category.

After individual coding was completed, the team compared their codes and categories for consistency. The emerging codes were, illnesses, perceived causes, coping strategies, health seeking behavior, demographics and factory environment. Recurring themes and concepts that emerged initially were: poverty, job security, and migration along with occupational risks of chemical exposure. A group reanalysis of the data allowed for relevant links to be made for interpretation. The new themes were then used to construct a new explanatory framework.

#### **F. Ethical Assurance Procedures**

Verbal informed consent was discussed and obtained before the initiation of any formal or informal informant discussions.

### **III. FINDINGS**

The findings are presented below following the broad themes that emerged: *migration, job security, and the work environment*. Information was collected from workers in all divisions within the factory with varying levels of authority. Additional information was gathered from the Medical Officer and a local Pharmacist that informants had identified during data collection. By gathering information from factory workers and local key informants and comparing their narratives with environmental observations, we were able to obtain a rich and comprehensive overview of occupational health risks and the perception of illness within the factory. Both the views of our key informants were used to either contrast or deepen the understanding of the workers' perceptions of illness.

#### **A. Migration and Family**

The theme of migration became readily apparent as data was collected. Throughout the individual and group discussions, we did not encounter anyone who was originally from the Dhaka division, where Savar Upazila is located, despite the brevity of the data collection period. Workers revealed that they came from all over Bangladesh in search of a better paying job.

Out of the 28 factory employees interviewed, we had directly observed two separate households. The

first household we visited was a five-minute walk from the factory front gates, situated just off the main road in Birulia. There was a concrete and mud border within which approximately forty households were located; each household consisted of one room roughly twelve by twelve feet, with one open window and a fan supported by a bamboo lattice overhead that held an aluminum sheet to function as a roof. Afzal, a thin man with soft features greeted us as we took our shoes off and offered us a seat on his bed, which was the only sitting arrangement in the room. Despite conducting our interview with his wife, two children, brother and grandmother huddled nearby and a small contingent of curious onlookers peering through the doorway, the informant was relaxed.

Afzal had been employed at the factory for two years in the finishing division. His brother was also employed at the same factory. Both brothers were actually aware of the dangers of factory work. Afzal described that he handled *bishh* [poison] on a daily basis, and tried to trivialize the effects it had on his body. Afzal's story, like many of the other factory workers we encountered, showed that the workers considered exposure to such chemical poisons as a fact of life and a means to provide for his family. His story was unique only in the fact that he migrated with his whole family from Mymensingh.

For others, migration to Savar in search of work usually entailed leaving loved ones behind in order to provide them with adequate financial support to ensure a dignified and secure lifestyle. The familial mindset of the daily workers became personified when Raffik, a young man in a clean short sleeve shirt and jeans, originally from the west of Bangladesh described how his attention during work affected job performance. He described:

*We have to always think about our family back home who are waiting for our money. The man working next to me can send money but I cannot. So it's very often that my hand goes into the machine and gets cuts here and there.*

#### **B. Job Security**

The constant flux of the employment market in Savar makes it difficult to maintain a steady job longer than a few years. During a focused group discussion, it became evident that a clear delineation existed between permanent union workers and the daily-wage workers. The

perception of wages and job security may determine the different mindsets of different types of workers.

Some of the factory workers we encountered had the luxury of joining the workers union established by the factory. Only permanent contractual workers were allowed to join the union. When the factory initially opened in 2006, the outlook for transition from temporary to permanent work was more favorable. In an informal group discussion, we heard that the workers had to be employed for six months only before he/she was conferred permanent status. However, when the new management took over a few years later, the policy for becoming a permanent worker was changed to six or seven years of consistent temporary work. This new guideline was considered to be a big obstacle. Sanin, a man no older than 20 years, employed in the sawmill division for less than a year expressed apprehension when he said, “*We won’t be here [meaning they might not be alive] in ten to twenty years if we keep working here.*”

During another focused discussion group, Sufjan, a permanent worker in the chemical treatment division expressed that a sense of health and well-being appeared to be lacking amongst the other workers in the group who were daily-wage workers. When the group was asked how much they spent per month on health care, the overwhelming consensus was around Tk. 1,000 to 1,200 per month. Although this figure was representative of this focus group, informants reported monthly expenditures on health care ranging from Tk. 100 to Tk. 2,000. Sufjan, made it clear he did not “*pay as much as these guys.*” ‘These guys’ were the union workers, distinguishable from the daily-wage workers who had less job security.

One narrative illustrated a worker who had his hand amputated at the wrist by a machine and received a Tk. 200,000 (approximately 1,400 USD) settlement for his injuries sustained in the factory. This unfortunate event resulted in the worker forgoing any formal medical treatment with which the settlement was intended but instead was sent back to his family. But this case seems to be the exception and not the norm. In most cases, factory policies and hierarchy complicate the process of receiving compensation for injuries.

For those workers who did not suffer from injuries, remittance back to their homes was the

preferred method of providing for their family. One worker had to send Tk. 100 back to his family out of his Tk. 115 earnings for the day. In order to provide for his own living costs, he resorted to 5 hours of overtime to earn an additional Tk. 50.

Daily workers received lower wages when compared to other factories in the area, but for the security of a regular paycheck, the situation was favorable. For those who had the luxury of permanent work, it instilled a sense of well-being, security and a sense of superiority over their peers.

### **C. The Factory Worker and His Environment**

Faiz, an unmarried factory foreman for the past year and a half from Pabna, sat with us in an open field across the road from the factory gates. With the wind quietly moving the dry leaves across the grass, he described his position. He supervises approximately 60 workers. By chance, Faiz happened to be our first in depth interviewee and provided us with a broad overview of the factory functions. He described three distinct departments: sawmill, [wood] seasoning and chemical treatment. In order to have a better understanding of the hierarchy in the factory and the different perceptions of risk, we compared his view with those of his subordinates.

That same early Sunday afternoon we spoke with Faiz, the sun was hanging particularly high, bathing the landscape and raising the temperature to 35°C. In a heated environment like this with a pungent smell emanated from the lowered windows of the factory – this was not a place to hang out. Despite the factory being closed on Sundays and the ventilation fans being switched off, our eyes would still water and we would notice our breathing begin to labor, just a bit. With the chemical smell that comes through those windows, “*everyone is affected*” describes Apu, a local teashop owner situated right across the road from the main gate of the factory. “*The ones [pipes] facing the road are emitting gas into the road. Those who are passing by are also affected.*”

#### *Perceptions of illness and consequences*

When workers were pressed to describe possible causes or coping strategies for factory related illnesses, both focused discussion groups and the informal group discussion expressed nutrition as a key underlying theme for both. Although there was no difference between job descriptions for both daily and permanent workers within the same

division, daily workers repeatedly stressed lack of money for nutritious foods. During the same discussion group with Sufjan, Aladdin described his feeble stature and dwindling body mass to a lack of money for “*fruits or milk*” and further qualified his appearance due to the delineation between permanent and daily workers. Ali, a daily worker dressed in a faded lungee and T-shirt further added that, “*temporary workers make Tk. 120 per day, with permanent workers making Tk. 130 per day.*” This seemingly insignificant difference in wages was perceived to have a drastic effect on an individual’s health.

The working conditions in the sawmill are evidently detrimental to the workers health. The danger to injury is ever present. Workers are routinely vigilant with the omnipresent threat of injury and serious disfigurement due to large, openly exposed blades used for cutting down large logs to size. One worker described an accident:

*One day we were working together. He carelessly put his hands into the blade and his wrist was cut off. He was at once taken to a hospital and he had been treated there for three months. Factory provided all the expenses. But after being cured, factory did not take him [back].*

Narratives such as these were so recurrent and prevalent that the workers talked about it as a matter-of-fact.

If the workers are successful in their quest to remain injury free for the day, they are rewarded with a fate worse than bleeding. They called it *jam*. *Jam* as described by Sufjan, is caused by the inhalation of dust from the cutting of the wood. Sufjan and the other members of one of our group discussions belonged to the sawmill division of the factory, and drew a body map of illnesses incurred at the factory where they clearly showed which part of the body is affected by *jam*.

According to their description, the saw dust passes through the nose and mouth and when it goes into the lungs, it caused “*black sputum.*” Eventually, *jam* would spread throughout the body via the blood and cause itching throughout the limbs. After spreading from the limbs, *jam* would terminate in the head where it would manifest as vertigo.

The Medical Team at the factory however does not perceive these symptoms to be caused by the dust

from the wood. The team often overlooks them as health complaints. According to Faiz, workers from all departments, including the sawmill would “*go to the Medical Team for fake problems, so they can get a break from working.*” Symptoms without an evident cause, typically go unnoticed by the Medical Team. However, workers understand that the dust in the environment is causing their symptoms. During an informal group discussion, Krishno described:

*One of my co-workers developed spots [dag] in his lungs and was operated for that. After the operation he lost his strength and cannot do heavy work. If the workers ingest the “bishh” through food or water it goes through your stomach and causes a problem in the urine and changes the color either to yellow or red.*

Babu added, “*The virus travels through the blood and affects the whole body.*”

Repeated exposure to “*bishh*” was so harmful it caused reduced appetite [*ruchi noshto*], nausea [*bomi bomi vab*] and reduced weight [*shastho noshto*] among workers. It affected the body so profoundly, that Hanif described, “*Those who work in the lacquer section are skinny due to the chemical, despite protection,*” and that another reiterated that fact with, “*You will not recognize me if you see my picture taken six months back. I was almost double my size.*”

A worker in the veneering division, Aladdin, proclaimed, “*You will not be able to stand in the veneer room even for a single minute but we are working there for hours and hours.*” Descriptions like this were recurrent throughout all the interviews except with the Medical Officer, Minhaz and Faiz, the foreman. Although Faiz mentioned that, “*workers handle boric [acid] powder with bare hands,*” and that the “*chemicals are not harmful to the touch*”, his account contrasts starkly with Ali whose visibly marked skin is littered with lesions. Ali narrates, “*[I mix] the white powder [boric acid] with water and to do so, I need to get into the tank. I’ve had these symptoms since two years back. The Medical Team does not relate them to exposure from work.*” Skin discoloration [*dag*], rash [*khujli-chulkani*] and infection [*gha*] are not the only illnesses experienced by workers who handle chemicals in the factory. In addition to skin related issues, eye

burning [*chokh jala*], headache [*matha batha*], runny nose and pain [*shordi and nak jala*], and cough [*kashi*] are considered as the first stages of illness. When the *bishh* [poison] advances through the body to the next stage, colored sputum [*rongin kashi*] and lung spot [*dag*] progress to [*jam*] in the chest and causes chest pain [*buk batha*].

#### *Health seeking behavior*

Protective equipment such as masks and cotton gloves are provided free of charge to the workers for use. Since their use is not mandatory, their prevalence throughout factory workers is variable. Those who do decide to wear them are aware of their inherent limitations. Firstly, those who decide to wear a mask, understand that the gap between the mask and face caused by the bridge of the nose allows for particulates such as dust to enter the body. For even those who do decide to wear the mask, their use throughout the day is inconsistent due to the discomfort of wearing them in a hot environment. The cotton gloves also have a pattern of inconsistent use. Their poor fitting results in workers routinely removing them, as Rahman exclaimed during a focused group discussion, “*I can’t wear gloves because I won’t be able to properly finish the job.*”

Taufique, a sawmill employee for about ten months described his experiences as, “*When I first joined in the cutting-boarding section my hands used to cut almost all the days and I bled. I went to personnel [Medical Team] and they gave me tape [band-aid], one Clofenac tablet for pain and one antacid tablet all the times. Now my skin over palm [chamra] got thicker and I do not bleed so easily. Factory is the best place for treating cut injuries. I never go to outside doctors.*” As a sawmill worker, cuts and bleeding were a common occurrences, with frequent trips to factory Medical Team. For workers who suffered from cuts and bleeding, or as they were described, “*visible*” injuries, the Medical Team was their first and usually only method of treatment for injuries.

According to the Medical Officer, Minhaz, “*hand and foot cut injuries including amputations*” were common. Minhaz described giving primary treatment in stopping the bleeding, and if needed in cases of emergency, the worker was referred to a specialty hospital in Dhaka via their own private ambulance. *Visible* injuries such as these were viewed as direct consequences of working with

factory machinery, and were thus provided with medical care, cost free.

With a varied and unique display of illnesses presented by workers, with a multitude of etiological mechanisms, there was a surprising consensus among the workers for coping strategies. Since the Medical Team disregarded many of the symptoms experienced by these workers as make believe, or a result of outside factors, workers had to resort to coping strategies outside the factory.

A social map drawn during a focused discussion group helped us outline the process of selection of health facilities in the area. The map identified a pharmacy conveniently located adjacent to a local bazaar, approximately at a walking distance of 10 minutes from the factory gates. The group identified a number of other pharmacies, but selected this particular one for its proximity to the factory and worker homes.

During an interview with the head pharmacist in the aforementioned pharmacy, Dr. Farrukh confirmed that he does indeed get a large number of factory workers coming in for treatment. “*Fever, cough, cold and general pain*” were the chief complaints presented by “*about 20 to 30 workers per day*” Dr. Farrukh added. He commonly prescribed Paracetamol for fever, anti-histamine for colds and either Cirpofloxin or Livofloxin for coughs. Additionally, during our interview with Min, workers routinely showed up at the Medical Office asking specifically for Paracetamol for fever or cough. However, during our interview with Afzal, he described, “*I go outside and get medication from the pharmacies that are more expensive. My wife and I prefer them.*” When asked to why he does not trust the medicine in the factory, he added, “*I don’t trust the medications in the factory that they try and give us. They’re cheap.*” But if the medications from the pharmacy do not cure his symptoms after a few days, he goes to a private health care clinic in Savar. Afzal made an important distinction between symptoms caused by the factory and those caused by the evil air [*batash laga*]. Since his symptoms were chemical in origin from the factory, he sought aide from pharmaceuticals. Dr. Farrukh made the same distinction when we asked him if he saw patients from the factory with jaundice, which is considered an illness treated by traditional healers; “*For jaundice, they don’t come to me. They go to the local healer for that... they use herbal medicines*”

Although physical safety barriers such as gloves and masks are available, their use is sparse. Mahmud, who was employed in the factory for three months before he had to leave due to an unrelated event explained, *“Not sure if there is a policy for gloves, but some wear gloves and other do not. Those that do wear gloves, tell the other workers to wear gloves, but they don’t pay much attention to them.”* We heard numerous accounts of workers foregoing protective measures for chemical spraying or mixing because they did not come into physical contact with the substances. During an informal group discussion, Nakib said, *“Those who mix the chemicals wear gloves, but those who spray wear masks and not gloves because they think that they don’t get into contact with the chemicals.”*

The narratives quoted are not exclusive to the factory in question. Mahmud added about his friend who worked in another factory with him:

*My friend who was 20 years old was working in another factory for seven or eight years and developed skin problems. He was engaged in varnishing activities in the factory. He eventually died. I don’t have evidence, but if you investigate you will find something. I’m certain they use the same chemicals in this factory and that is why he died. He was suffering for one and a half years with the sores on his hands and feet before he died.*

As we spoke with Afzal, in his quaint one room home, we noticed out in the corner of the room, tucked underneath a table were two containers. When we asked where they came from, he responded, *“from work.”* Upon closer inspection, we noticed that the containers were of organic solvents. The warning label on the large metal drum read, *“Liver, kidney and blood toxin. Central nervous system depressant, eye, skin and respiratory irritant.”* The label was written in many different languages, but Bengali was not one of them. For Afzal, or any of the other factory workers interviewed, a label would not matter. With education levels among the work force being low, they likely would not be able to recognize the dangers associated with the contents of the container.

#### IV. DISCUSSION AND CONCLUSION

The working environment of the factory is such that there is no escaping the air saturated in dust or

chemicals. By using multiple qualitative methodological tools, we were able to obtain both rich narratives on illness perception and etiology among workers in all divisions within the factory and their health seeking behavior and coping strategies and also verified the narratives by interviewing the pharmacist and medical officer.

Many workers were aware that work within the factory was particularly harmful, with visible effects on their bodies. However, the use of protective equipment was not clear. We could not distinguish when the protective equipments were used, whether they were used before or after an illness episode, but the physical act of wearing protective equipment conferred a sense of security as indicative of their perception of illness and its cause.

Sawmill workers were “afforded” the added benefit of being able to readily utilize the free of cost medical facilities within the factory if their injuries were “visible,” which was reported to be a common occurrence. Despite all workers having free and open access to the Medical Team in the factory, the common illnesses experienced by the non-sawmill workers were not treated in the same light as those who did work in the sawmill section. But for those unfortunate enough to be subjected to the persistent exposure to chemical sprays and dust, their health seeking strategies were focused away from the factory. With the onset of illness, workers either self-treated with nutritional supplementation (tea and/or bananas), or went directly to the pharmacy or public or private health facility.

If consistent and proper occupational safety equipment were used, for example, particle masks and safety goggles for dust and debris and proper ventilation when chemicals are prepared and leather gloves for use during cutting work, the majority of worker experienced morbidity could be greatly reduced.

The other emerging theme that came from this study was one on industrialization and migration and its contribution to perceived wealth and social status. We found that the recent mushrooming of factories in the area has contributed to the greater economic good. However, individuals who must resort to dangerous work and provide remittance for families in their places of birth are under substantial stress, both physically and emotionally. Apart from the physical and environmental



vulnerabilities, these workers also have poor nutrition habits and the overriding concern of providing for a family many hundreds of miles away made them emotionally fragile.

From the information and context gathered from these qualitative research tools, we were able to identify a situation that was further complicated by the social ranking within the factory as defined by union status.

Individuals who live in a persistent state of job insecurity, such as the temporary workers in this factory have an additional risk factor in the occupational setting. Temporary workers are over six times more likely to sustain an occupational injury than those who are permanent workers [12]. Whether the possible increase in injuries sustained are accidental or deliberate remains to be investigated. However the added burden provided by this particular socioeconomic stressor remains foundational to the conceptual framework for illness endured within the factory. The definition of a breadwinner is concisely summed up by a quote, “We have to do this [work]... what else to do?”

### Recommendations

It is recommended that a policy change should be implemented in order to address both the lack of regulation and mandate for proper safety equipment and thorough examination of factory workers as they present at the Medical Office.

Further studies should focus on the measurable effects of the policies recommended above and the contextual improvement of the factory environment as per a qualitative study. It is further recommended that workers should be regularly orientated on occupational health risks and monitored to ensure compliance. It might be of interest to also explore the benefit and challenges of host communities in the face of industrialization, urbanization and migration.

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