SWEPT UNDER:

A Study on the Health Status of Municipal Pourakarmikas (Solid Waste Management Workers) in Bengaluru

Anusha Purushotham

A dissertation submitted in partial fulfilment of the requirements for the Degree of Master of Public Health (MPH) in Social Epidemiology

> School of Health Systems Studies Tata Institute of Social Sciences Mumbai 2019

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DECLARATION

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I, Anusha Purushotham, hereby declare that this dissertation entitled, "Swept Under: A Study on the Health Statús of Municipal Pourakarmikas (Solid Waste Management Workers) in Bengaluru" is the outcome of my own study undertaken under the guidance of Dr. Harshad Thakur, Professor, Centre for Public Health, School of Health Systems Studies, Tata Institute of Social Sciences, Mumbai. It has not previously formed the basis for the award of any degree, diploma or certificate of this or any other university. I have duly acknowledged all the sources used by me in the preparation of this dissertation.

Date: 22nd February 2019

Ame shotham

Master of Public Health in Social Epidemiology School of Health Systems Studies Tata Institute of Social Sciences Mumbai

CERTIFICATE

This is to certify that the dissertation entitled "Swept Under: A Study on the Health Status of Municipal Pourakarmikas (Solid Waste Management Workers) in Bengaluru" is the record of the original work done by Anusha Purushotham under my guidance and supervision. The results of the research presented in this dissertation/thesis have not previously formed the basis for the award of any degree, diploma, or certificate of this Institute or any other institute or university.

04/12/9 Dr. Harshad Thakur

Date: 22nd February 2019

MBBS, MD, DBM

Professor Centre for Public Health School of Health Systems Studies Tata Institute of Social Sciences Mumbai

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LIST OFABBREVIATIONS

BBMP – Bruhat Bengaluru Mahanagara Palike

BWSSB - Bangalore Water Supply and Sewerage Board

ESI – Employee State Insurance

IT - Information Technology

NMR - Nominal Muster Roll

NFHS - National Family Health Survey

PHC - Primary Health Center

PF - Provident Fund

SAGE - Study on Global Ageing and Adult Health

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CHAPTER 1

INTRODUCTION

This chapter introduces the concept of urbanisation, migration and describes the situation of the urban poor in Bengaluru. The problem of solid waste management as a consequence of rising population in the city is brought to notice and the role of solid waste management workers, also known as pourakarmikas, is introduced. A brief description about their historical background and socioeconomic status is presented and the chapter concludes with the rationale for the research study.

1.1 The Phenomenon of Urbanisation

India, like most emerging economies, is facing a phenomenon of rapid urbanization. The process of urbanisation is one in which an increasing number of people leave behind villages and rural areas to live in cities. India is urbanising at a rapid pace with a quarter of the urban population living in slum areas.

Around one-third of Indians live in urban areas, which translates to 377.1 million of the 1.2 billion Indians living in 7935 towns (Census 2011). Urban India contributes to 60% of the national income. However, 26.4% of urban population is poor and 102.5 million urban people live below urban poverty line (Times of India 2014).

1.2 Migration

A large number of rural Indians migrate to urban areas in search of better job opportunities because of low income from agriculture and lack of other livelihood options in villages. When increasing numbers of migrants enter cities that are already over populated, they do not find proper housing. Therefore, 26.31% of urban population lives in slums (Government of India, Ministry of Housing and Urban Poverty Alleviation, National Buildings Organization 2011). Further, without formal education or formal training, most of the urban poor work in the informal and unorganized work sector as labourers, domestic helpers, rickshaw pullers, construction workers, small service providers, drivers, beggars and other such temporary occupations. Many do not have any identity cards like ration cards or voter IDs since they live in unregistered slums, pavements and squatter settlements. Without proper identity, they are largely excluded from getting government benefits and are unaccounted in the census (SOCHARA 2007).

1.3 Urban Poor in Bengaluru

Bengaluru is one of the biggest metropolitan cities in the country with 8.52 million people and is the home for approximately 1.4 million people who live in 1,500 slums (notified and non-notified) (DNA India 2015). According to Census 2011, "The population density in Bangalore has risen 47% in the past decade as job opportunities and economic growth have lured people from across the nation to India's Silicon Valley. The number of people living per square kilometer in the city has increased to 4,378 in 2011 from 2,985 in 2001." Like the rest of India, however, the situation of the urban poor in Bengaluru is a major concern and the municipal corporation of Bengaluru, Bruhat Bengaluru Mahanagara Palike (BBMP) and other non-governmental organizations are working towards the betterment of the urban poor.

1.4 The Mounting Problem of Waste Accumulation in Bengaluru

Rising population, economic growth and increasing consumption has resulted in accelerating waste generation. On an average, Bangalore generates 3000- 4000 tonnes of municipal solid waste per day as per the latest estimates (Chandran et al. 2013) and the numbers are rising. Solid wastes are classified as domestic waste, litter (organic and inorganic wastes), chemical waste and market waste. Human and animal excreta are also mixed up with solid waste (Nagaraj et al. 2004). As per the study by Chandran et al. (2011), Bangalore's waste production is divided as follows – 60% of organic waste, 30% of inorganic waste and 10% of inert waste.

The management of solid waste in Bangalore has the following four methods (Beukering et al. 1996 and Nagaraj et al. 2004):

1. Formal collection for disposal by the municipality – organised group of pourakarmikas under the BBMP

2. Private Contractors – who have auto tippers and other waste collection vehicles as well as their own labour force

3. Unorganised group of rag pickers for recovery and recycling

4. Waste that remains uncollected

BBMP has a centralized approach of collection and transportation of the waste to the landfills. Solid waste management is handled by three departments in the BBMP – Health Department (waste collection and transportation), Engineering Department (silt collection from drains) and Sanitary Engineering Department (waste disposal) (Parameshwara 2016).

In Karnataka, people employed in any form of waste collection, cleaning sewage pits and drains, sweeping roads and collecting and disposing human and animal excreta and animal corpses are called as pourakarmikas. All municipal conservancy workers came to be referred as pourakarmikas through a Government order in 1972 (Rangamani, Obalesha and Gaitonde 2013).

However, according to the BBMP only street sweepers, waste collectors and those who load the lorries from the street collection points are the only ones referred to as pourakarmikas. There are approximately 17,500 pourakarmikas in solid waste management (Economic Times 2018). The drivers of auto tippers and helpers who collect solid waste from households are not called pourakarmikas and all their jobs are contracted out. Those who clean sewage pits, drains and other sewage-related components are also not called as pourakarmikas. They are employed by a different wing of the government called Bangalore Water Supply and Sewerage Board (BWSSB). The participants of this study are 17,500 solid waste management workers under the Health Department whom the BBMP refers to as pourakarmikas.

1.5 Historical Background of Pourakarmikas (municipal solid waste management workers)

Cultural values have been attached to waste for a long time now (Blincow 1986) and waste collection in India dates back to 17th century: bones, rags and paper were the first commodities that were collected. Historically, any occupation related to waste, garbage, handling of carcasses and human excreta has been traditionally bound to the lowest caste (Chandran et al. 2013). In the hierarchical structure of the caste system in India, scheduled caste is at the bottom most rung of the ladder (Darokar 2010). Occupations assigned to scheduled castes like sweeping streets, removing garbage, removal of dead animals, leather work, funeral work and manual scavenging are considered to be polluting occupations and the communities engaged in it are considered as 'untouchables' or 'asprushas' in the Indian society (Beck and Darokar 2005). Therefore, members of this occupation face discrimination, stigma, social exclusion and isolation due to the concepts of purity and pollution (Sicular 1992).

The castes involved in waste collection in Karnataka are: Adi Andhra, Adi Dravidas (Holeyas), Adi Karnataka (Madigas) and Bovis (Oddas) (Karanth 1995). A 2010 study on informal waste pickers by Mythri Sarva Seva Samithi (MSSS) concluded that scheduled caste (SC), other backward caste category (OBC) and Scheduled Tribes (ST) including nomadic tribes, sheik, kounder, Hakki Pikki Tribes are also involved in waste-picking (as stated in Chandran et al. 2013). The survey conducted by the Committee on Improvement of Living and Working Conditions of Sweepers and Scavengers headed by I.P.D Salappa (1976) showed that Scheduled Castes, Scheduled Tribes, Muslims,

Christians and non-Scheduled Castes like Lingayats, Kurubas and Mudaliars are engaged in wasterelated occupations. Chandran et al. 2013 states that people from non-scheduled castes and religions join the vocation due to economic pressures.

1.6 Socioeconomic Status of Pourakarmikas (municipal solid waste management workers)

Caste based social exclusion and discrimination in the pourakarmika community is common. Social exclusion is defined as the "limited capability of an individual to participate in the society" (Darokar 2010). Due to social exclusion that is either subtle or evident, members of the social group are prevented from enjoying full participation in the larger society in terms of economic resources, educational opportunities, political participation or participation in other organisations (Kadam 2017).

A study conducted on the sanitation workers in the Municipal Corporation of Ahmedabad found that most of the sanitation workers belonged to the Valmiki community (Mishra, Dodiya and Mathur 2012). Houses of members of this community were built with mud, bamboo, plastic sheets. Many of them did not have toilets at home. Children had high dropout rates and those who dropped out had to take up traditional caste based occupations. Widows of workers who did their husbands' duties received half the wages or lesser. Many workers did not receive provident fund, medical insurance or other benefits (Mishra, Dodiya and Mathur 2012). Such discriminations and neglect are evidence of how the interlinking of occupation and caste affects their lives.

Similarly, a study in Gulbarga district, Karnataka, by Bhimasha and Sedamkar (2015) described how sanitation workers experienced a low socio-economic status due to the nature of their work. Society's attitude along with low salary and limited job opportunities further isolated them.

The health status of pourakarmikas is also dismal, considering their role as the backbone of the waste management system in the city. Their absence for a day will bring the city to a standstill. Despite their crucial role in the smooth functioning of the city, pourakarmikas are largely neglected both by the government and the society. With majority employed under contracts which have only been recently converted to direct payment under the BBMP, pourakarmikas have low job security and inadequate employment benefits, especially with respect to healthcare and occupational safety. Faced with the harsh elements of nature, they are left to fend for themselves with little assistance from the state or their employers.

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1.7 Health Risks of Pourakarmikas

A study in Lobatse, Botswana, showed that lack of protective equipment and clothing results in respiratory illnesses and other health issues among landfill employees and scavengers (Gwisai, Areola and Segosebe 2014). Similarly, there are studies in the Indian context that point towards a higher morbidity rate among sanitation workers when compared to the general population. The job of pourakarmikas involves collecting waste – organic and inorganic, collecting recyclable material and transporting it to the waste pick-up lorries. There is an inherent occupational risk since the wastes that they handle can be hazardous since most of the solid waste in developing countries like India is not segregated at the household. Therefore, the waste maybe mixed with infectious medical waste, toxic waste materials and sharp objects to name a few. Pourakarmikas have higher exposures to injuries and health hazards and consequently suffer from a variety of illnesses and injuries (Jayakrishnan, Jeeja and Bhaskar 2013).

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1.8 Rationale for the Study

There are studies that look into the health problems of sanitation workers across India but most of these studies come from metropolitan cities like Mumbai. The only systematic study on the health status of pourakarmikas in the municipal corporation of Bengaluru was conducted back in 2004 by Nagaraj et al. The situation in Bangalore has drastically changed over the past decade with the advent of the Information Technology (IT) Sector. Bangalore is the fastest growing city in India with an exponential population growth and a mounting waste management problem. The number of pourakarmikas and the scenario of solid waste management have changed since 2004 and hence, there is a need for a study that is more relevant to the current scenario.

Majority of the waste management in the city falls under the purview of pourakarmikas and hence, studying their health status becomes paramount from the perspective of urban development and planning. From the rights perspective, pourakarmikas are the most marginalized section of society with both caste, class and gender discrimination. Civil society organizations like Environment Support Group and Alternative Law Forum are working with labour unions like BBMP Guttige Pourakarmika Sangha to implement the law that has been passed to regularize contractual work and remove the nexus between the government and the contractors (The Hindu 2017). Therefore, a systematic study on the health status of pourakarmikas will be beneficial to all the stakeholders involved, including the government, civil society organizations and the pourakarmikas, themselves.

CHAPTER 2

REVIEW OF LITERATURE

This chapter details the existing literature on the various health risks associated with solid waste management, occupational injuries, use of personal protective equipment and safety measures. The chapter then gives insights into available literature on alcohol and smoking habits of solid waste management workers. Finally, the chapter lists literature on the various health ailments (divided by organ systems) experienced by workers who work with waste in the developing countries, specifically India.

2.1 Health Risks of Solid Waste Management

Solid waste management involves risks to not only those involved in the occupation but also the residents living near the landfills, dumping grounds or waste collection points. A country's waste composition depends on many factors – income level, industrialisation and cultural norms (Cointreau 2006). Sanitation workers in poor and developing countries have higher exposure to risks because of the lack of proper and safe equipment, improper waste segregation, open dumping grounds and more labour intensive work (Cointreau 2006). Developed countries manage their waste much better than developing nations due to their strong regulatory and enforcement frameworks. Such regulatory bodies are either weak or absent in developing nations.

Risks are associated along all points of the solid waste management chain - collection of waste, transportation of waste and disposal of waste. According to the study by Cointreau, 2006, "risks to health of workers can be caused due to many factors including: composition of the waste itself that can be toxic, allergic or infectious; decomposition of waste materials may lead to toxic gases, dust, particulates; handling of waste in accidents; working in unsafe and traffic conditions; processing of waste that may result in explosions, fire, odours, air and water emissions."

2.2 Types of Occupational Injuries

In developing countries, waste management is labour intensive and waste is collected directly by hand. This increases direct exposure to all types of waste as well as all other pests like rats and rodents that feed on the waste. Occupational accidents and injuries are higher among sanitation workers than the general population (Kadam 2017). A study by Mishra, Dodiya and Mathur (2012) reported many cases of blindness among sanitation workers while they were on duty. Another study

by Jayakrishnan, Jeeja and Bhaskar (2013) found incidents of animal bites and rat bites to be higher in sanitation workers. A study on Mumbai sewage workers found 26% experienced occupational injuries due to work (Giri, Kasbe and Aras 2010). Needle pricks and injuries by sharp objects are more common among workers in municipal teaching hospitals of Mumbai (Palve et al. 2014). A study in Egypt found that sweepers have more occupational accidents and are constantly in contact with blood, sharp metallic objects, needles, faeces, mice, rats, dead animals, mosquitoes (Ewis et al. 2013).

A study by Gizaw, Gebrehiwot, Teka and Molla (2014) conducted in Ethiopia showed that 64% of work related injuries occurred annually among municipal solid waste management workers. The study reported that the factors causing such a high rate of injuries were: inadequate quantity and quality of protective equipment; and workers who were not properly trained to use the equipment. Workers were mainly injured on the hands, legs, neck and back. Injuries were caused due to sharp objects, heavy waste containers, dust, falling objects and strained body postures. There was also a seasonal pattern in the number of accidents – more accidents occurred during summers perhaps due to more waste collection in summer and improper clothing. The same study also reported a direct relationship between age and number of accidents. It reported an inverse relationship between education level and number of work related accidents. Increasing levels of education was found to be associated with decreased incidence of work related injuries. Alcoholism was positively associated with work related injuries. Workers without health and safety training were more likely to be injured and those with personal protective equipment were less likely to be injured. (Gizaw et al. 2014).

2.3 Use of Personal Protective Equipment and Safety Measures

It is quite evident that lack of personal protective equipment and occupational safety measures can lead to increased health risks resulting from contact with solid waste. Despite this knowledge, there is abundant literature from the Indian context that illustrates the dismal condition working conditions of sanitation workers.

In Ahmadabad Municipal Corporation, 90% of the sanitation workers (including workers handling human excreta) reported not receiving any safety equipment from the corporation (Mishra, Dodiya and Mathur 2012). Similarly, in Kozhikode Corporation, Kerala, 78% of women workers reported handling waste with bare hands and only wearing sandals to step on waste (Jayakrishnan, Jeeja and Bhaskar 2013). Even in Nagpur, none of the sweepers used protective equipment because they were not provided with the safety gears regularly and no training was given (Sabde and Zodpey 2008). Among sewage workers in Mumbai, awareness regarding the importance of protective equipment like goggles, mask and gumboots was very low (Giri, Kasbe and Aras 2010). Although around 85% of sweepers working in Mumbai Municipal Teaching Hospital reported using personal protective equipment, close to half did not use it on a regular basis (Palve et al. 2014).

2.4 Smoking and Alcohol Consumption

A study of Mumbai sewage workers showed all the respondents were involved in smoking, tobacco and alcohol consumption (Giri, Kasbe and Aras 2010). Smoking tobacco was seen in 26.2% of the employees and smokeless tobacco addiction was seen in 32.2% of the sweepers employed in a municipal teaching hospital in Mumbai (Palve et al. 2014). Percentage of sweepers who consumed alcohol in the same study was 33.3% and 24.7% reported addiction to alcohol. On the contrary, a study conducted among women solid waste management workers in Kozhikode Corporation area in Kerala showed that they neither had the habit of tobacco consumption nor any other addictions (Jayakrishnan, Jeeja and Bhaskar 2013).

2.5 Health Ailments

The different health ailments that sanitation workers experience will be classified based on organ systems as follows:

2.5.1 Respiratory Ailments

Sanitation workers in Ahmadabad Municipal Corporation spent around 25% of their income on medical expenditure and respiratory problems such as tuberculosis, respiratory infections were high among the workers (Mishra, Dodiya and Mathur 2012). In the Kozhikode Municipal Corporation study, it was seen that exposure to organic dust containing high concentrations of bacteria, fungi, toxic gases and other gases increased the chances of respiratory illness (Jayakrishnan, Jeeja and Bhaskar 2013). Among sweepers in a Mumbai teaching hospital, 7.9% have respiratory problems due to high exposure to dust, aerosols and volatile organic matters (Palve et al. 2014).

Chronic bronchitis due to occupational exposure and smoking habits was seen in street sweepers of Nagpur (Sabde and Zodpey, 2008). However, when controlled for the effect of smoking, a significant relationship was seen between street sweeping and respiratory issues in a study conducted in Egypt (Ewis, Rahma, Mohamed, Hifnawy, and Arafa, 2013).

Waste collection is done in high-traffic density areas in developing countries where the vehicular pollution is not controlled and the job of solid waste management is so physically challenging that it requires high pulmonary ventilation and breathing through the mouth rather than the nose (Cointreau-Levine 1998). Consequently oxygen consumption is much higher in waste collectors than the recommended limits (Cimino 1975). A study in Lobatse, Botswana in 2014 by Gwisai, Areola and Segosebe showed high prevalence of respiratory illnesses due to lack of protective clothing and safety

equipment, atmospheric dust, offensive odours and absence of soil cover materials in landfill employees and scavengers.

2.5.2 Musculoskeletal Disorders

Musculoskeletal problems are the most commonly reported ailment among sanitation workers. Waste collection and sweeping puts undue stress on the major joints and there is high risk for low back pain, disorders of the neck, shoulders and arms (Cointreau2006). In Mumbai, 68% of sewage workers reported musculoskeletal problems like backache and weakness (Giri, Kasbe and Aras 2010). Musculo-skeletal problems had the highest morbidity affecting 20.6% of sweepers working in the municipal teaching hospital in Mumbai being affected by them (Palve et al. 2014). Even in Bangalore sweepers, 29.9% of the participants reported musculoskeletal problems (Nagaraj et al. 2004). Among women solid waste management workers in Calicut Corporation area, 56.5% had musculoskeletal problems and the joints affected in the order of most commonly reported pain were knee, back, shoulder, elbow, ankle and neck (Jayakrishnan, Jeeja and Bhaskar 2013). It is seen from global literature that lower back disorders are strongly associated with occupations which involve work-related lifting and forceful movements (Jayakrishnan, Jeeja and Bhaskar 2013). Therefore, sanitation workers in India who work under difficult circumstances with improper equipment and safety measures have high musculoskeletal problems.

2.5.3 Gastrointestinal Ailments

When protective equipment is not provided to sweepers, there is more risk of infectious diseases, particularly gastrointestinal diseases. More than half of the sanitation workers in Mumbai city had diarrhoea, flatulence and worm infestations (Giri, Kasbe and Aras 2010) and 9.7% of sweepers in the Mumbai teaching hospital reported gastrointestinal problems (Palve et al. 2014). In Kozhikode Municipal Corporation, there was a significant statistical association between not bathing after work and skin diseases (p = 0.041), jaundice (p = 0.043) and diarrhea (p = 0.001) (Jayakrishnan, Jeeja and Bhaskar 2013). Unlike other studies, only 2% of the women workers reported diarrheal diseases in the last year perhaps due to good awareness, good food hygiene and toilet practices (Jayakrishnan, Jeeja and Bhaskar 2013).

In a study conducted in Egypt on street sweepers and waste collectors, Hepatitis C Virus seropositive cases were found (Ewis et al. 2013). Sweepers were also infested with parasites like Entameba histolytica, Giardia and H. Nana. When compared to university employees, sweepers had much higher prevalence of gastrointestinal diseases. This is again explained by the level of socio-economic status,

working conditions, hygiene practices and awareness about the importance of hygiene and health (Ewis et al. 2013).

2.5.4 Urinary and Reproductive Tract Infections

Urinary tract infections were reported in 2.2% of the sweepers in a Mumbai teaching hospital (Palve et al. 2014) while 2.8% of pourakarmikas in Bangalore reported genitourinary infections (Nagaraj et.al 2004). Around one third of women workers in Kozhikode Corporation reported urinary and reproductive tract infections (Jayakrishnan, Jeeja and Bhaskar 2013). There are no toilets and drinking water facilities at work and hence, this results in decreased water intake and delayed emptying of bladder leading to urinary tract and reproductive tract infections. Interestingly, there was no difference in the results between married or unmarried women highlighting the fact that occupation is more important than marital status in this context.

2.5.5 Vector Borne Infections

Waste collection sites can be breeding sites for insects, rodents and other pests. Bites and direct contact with rodents increases the risk of leptospirosis. Aedes aegypti mosquito the dengue vector breeds in small, clean, water pools and since there are many coconut shells in solid waste management sites which could be mosquito breeding areas (Jayakrishnan, Jeeja and Bhaskar 2013). Dengue and malaria were also reported in women workers in Kozhikode Municipal Corporation (Jayakrishnan, Jeeja and Bhaskar 2013) and 12.73% of the sanitation workers in Mumbai teaching hospital reported malaria (Palve et al. 2014).

2.5.6 Ophthalmic Ailments

The highest morbidity among sewage workers in Mumbai City was due to eye problems which were reported by 70.7% workers (Giri, Kasbe and Aras 2010). Eye redness, burning sensation, irritation and watering of the eye were the common complaints. Palve et al. (2014) also found ophthalmic conditions in 8.6% of sweepers in Municipal Teaching Hospital of Mumbai. 2.5% sweepers in Bangalore reported problems of the eye according to the 2004 study by Nagaraj et al. Around one third of women working in solid waste management in Kozhikode Corporation, reported eye ailments (Jayakrishnan, Jeeja and Bhaskar 2013).

2.5.7 Cardiovascular and Endocrinological Ailments

Among Mumbai sewage workers, it was reported that 12% had hypertension, 6.7% had ischemic heart disease and 3.3% had diabetes mellitus (Giri, Kasbe and Aras 2010). Sanitation workers in a Mumbai teaching hospital also reported 17.2% hypertension, 6.7% diabetes mellitus and 1.9% cardiovascular system diseases (Palve et al. 2014). Similarly, the 2004 study on sweepers in Bangalore Municipal Corporation showed 18.9% had hypertension (Nagaraj et al. 2004).

2.5.8 Nutritional Deficiencies

In the health survey conducted by Bombay Municipal Corporation in 1994, 1.2% was found to have anemia (Giri, Kasbe and Aras 2010). Close to 100% of male sweepers and 72.4% of female sweepers were found to have mild to moderate anemia in 2004 (Nagaraj et al. 2004). 14.4% of women workers in Kozhikode Corporation area in Kerala were found to be malnourished with a BMI of less than 18.5 (Jayakrishnan, Jeeja and Bhaskar 2013). In Egypt, a study comparing street workers with clerical workers showed that lack of proper diet and under-nutrition caused more anaemia in street workers (Ewis et al. 2013).

2.5.9 Skin Ailments

Skin infections and skin related issues are extremely prevalent in sanitation workers. 3.11% of street sweepers in Bangalore reported skin ailments, which was the third most common ailment reported (Nagaraj et al. 2004). Skin ailments were seen in 52% of sewage workers in Mumbai city (Giri, Kasbe and Aras 2010). Among women solid waste management workers in Calicut Corporation, 37 % reported skin lesions due to dermatitis, eczema, bacterial or fungal infections (Jayakrishnan, Jeeja and Bhaskar 2013). The same study reported nail infections due to frequent contact of the workers with fungi and bacteria in dirt and water. Additionally, personal hygiene practices like not bathing after the job was associated with skin diseases. A comparative study between street sweepers and university workers in Egypt showed huge differences in complaints of skin irritations with street sweepers reporting higher incidences of skin complaints due to direct contact with waste and dust (Ewis et al. 2013).

CHAPTER 3

OBJECTIVES AND METHODOLOGY

This chapter describes the broad objectives, specific objectives, research questions and methodology of the study. It includes details about the sampling strategy, research design and data collection method. Finally, the chapter concludes with the data analysis plan and challenges faced on the field.

3.1 Broad Aim

The study aims to understand the health status and occupational safety of solid waste management workers called pourakarmikas of Bruhat Bengaluru Mahanagara Palike (BBMP).

3.2 Specific Objectives

1. To understand the socio-cultural and economic context of the municipal pourakarmikas

2. To describe the health status of the municipal pourakarmikas

3. To identify their healthcare seeking behaviour

4. To identify occupational safety measures and healthcare entitlements provided by the government

5. To understand barriers of utilization of the above entitlements from the perspective of the pourakarmikas

3.3 Research Questions

1. What is the social, economic and cultural background of pourakarmikas?

2. What are their working conditions and safety measures?

- 3. Are there any occupational safety measures implemented?
- 4. What are the common health problems faced by them?
- 5. What are the health treatment facilities from where they seek treatment?
- 6. What other means do they resort to take care of their health?
- 7. What are the government entitlements provided to safeguard their health?
- 8. Are the pourakarmikas aware of their entitlements?
- 9. What are the difficulties faced by them in utilizing these governmental entitlements?

3.4 Research Design

The aim of the study is to understand the health status of municipal sanitation workers. Considering the time and logistical constraints, a cross-sectional and descriptive study was conducted.

In order to meet the study objectives a mixed method approach was adopted. The quantitative study captured information from the pourakarmikas and the qualitative study included insights from officials.

3.5 Operational Definitions

Pourakarmikas: Solid waste management workers i.e. street sweepers and waste collectors in the municipal corporation of Bengaluru City

Health Status: Measurements of health included self-reported ratings on 7 domains of health – mobility, pain and discomfort, cognition, sleep and energy, affect, interpersonal activities and vision.

Working Conditions: Availability of proper clothes and tools for work; basic amenities like drinking water, restrooms, changing rooms, place to rest and eat; provision of breaks during work hours and paid leaves

Occupational Safety Measures: Safety measures in the workplace like masks, boots, gloves, availability of first aid and other measures that have a strong focus on primary prevention of hazards

Healthcare Seeking Behaviour: Sequence of remedial actions that individuals undertake to rectify perceived ill-health by visiting formal or informal healthcare facilities including home remedies

Healthcare Entitlements: Entitlements to access healthcare facilities like Employee State Insurance (ESI) Scheme or other health insurance coverage.

Migrants: All residents who are not born in Bengaluru City

Chronic Ailment: An ailment that is life-long and continues to persist although the intensity may differ at different points in time for example diabetes, hypertension, arthritis

Recurrent Ailment: An ailment that occurs repeatedly with periods of complete remission for example headaches, back pain or redness of the eye

3.6 Study Area

The study was conducted in Bengaluru District

3.7 Study Period

The data was collected between May 2018 and June 2018

3.8 Demographics of Study Area

Bangalore is the capital city of the South Indian state of Karnataka and has an estimated population of 10 million. It is the third most populous city in the country and is well known as the "Silicon Valley of India" because of its role as the major hub of Information Technology companies in the country.

Table 3.1

Demographics of Bengaluru

Census 2011	
96.22 lakhs	
47.18%	
2,196	
4,381	
15.75%	
	Census 2011 96.22 lakhs 47.18% 2,196 4,381 15.75%

Table 3.2

Socio-Demographics of Urban-Rural Bengaluru

Description	Rural	Urban
Population (%)	9.06%	90.94%
Total Population	871,607	8,749,944
Male Population (%)	53.26%	52.1%
Female Population (%)	46.74%	47.9%
Sex Ratio	877	920
Child Sex Ratio	953	943
Average Literacy	78.21%	88.61%
Male Literacy	84.54%	91.66%
Female Literacy	70.92%	85.27%

3.9 Ward Map of Bengaluru

Bangalore City has 10 municipal zones and 198 administrative wards.





3.10 Sampling Universe

All the municipal solid waste management sanitation workers in Bengaluru City: 17,500

3.11 Characteristics of Participants

Inclusion criteria:

- Should be employed under the job title "Pourakarmika" in the BBMP
- Willing to participate

Exclusion criteria:

- Not willing to participate
- Not an official employee
- Employed in the Solid Waste Management department but under a different designation like auto driver or lorry driver

3.12 Sampling Strategy

Quantitative Study: The sampling technique followed was purposive sampling.

Bengaluru city has 10 municipal zones and 198 wards. Out of the 198 wards, 2 wards were purposively selected for the study based on inputs from resource personnel working on the issue of pourakarmikas. From each ward, all the pourakarmikas were selected. This resulted in 61 samples from one ward and 39 samples from the other ward.

Qualitative Study: Purposive Sampling technique was followed.

Five key informants were purposively selected based on consultations with resource personnel in BBMP. Key informants were identified based on their involvement with solid waste management in the city and the corresponding wards. Once they key informants were identified, those willing to participate were included in the study.

3.13 Data Collection Instrument Preparation

Quantitative: The questionnaire was designed by using National Family Health Survey and WHO's Study on Global Ageing and Adult Health questionnaires are references. Modifications were done considerably to suit the present context and new appropriate questions were added.

The questionnaire consists of self-reported questions on socio-economic status, dietary pattern, health habits, health-seeking behaviour and occupational and safety measures. There were mostly closed questions with a few open-ended questions. The questionnaire was tested before implementing on the field.

Qualitative: Interview guides were prepared for the key informant interviews.

3.14 Data Collection Procedure

Quantitative: After the two wards were identified purposively, the junior health inspectors of each ward were contacted to request a convenient time to conduct the interview with the pourakarmikas. Based on the availability of the pourakarmikas and their health inspectors, the interviews were scheduled. All the interviews were conducted in the respective BBMP Ward Office. Each of the respondents was allowed to take a break from their regular work schedule and attend the interview. The interviews were conducted in as confidential a manner as possible and the researcher ensured that the supervisors were not present so that the participants could answer in a comfortable manner. However, some interviews were conducted in the presence of other participants as long as all the participants were comfortable in each other's' presence.

The interview was conducted by the researcher in the local language of Kannada and all the answers were recorded in real-time on the interview schedule in English.

Qualitative: The first key informant was identified based on their position in the BBMP solid waste management department. With their recommendation, the other four key informants who were also BBMP employees (contractual and permanent) were identified. The responses to the interview questions were written down in a notebook in real time.

3.15 Ethical Considerations

All respondents were explained the details of the study including the reasons for why the study was being conducted. It was clearly mentioned that no monetary benefits would be obtained by participating in the study. Additionally, participants were given the opportunity to withdraw from the study at any point in time and no reasons would be asked. After the respondents fully understood the details and consent was obtained from them, the interviews began. No personal identifiers were used during the interview process and all information was only used for the purpose of research.

3.16 Field Experiences

The main challenges faced were contacting the BBMP officials since Karnataka had parliamentary assembly elections at the time of the data collection in May 2018. This delayed the interviews considerably and the interviews had to be conducted towards the end of the scheduled period.

Once the elections ended and the BBMP official in-charge of solid waste management was available for an interview with the researcher, the official cooperated in identifying the wards and the corresponding key informants. Rapport was established with the mid-level supervisory staff in the wards selected for the study. Continuous engagement with the officials and the pourakarmikas enabled for basic rapport to be established. The data collection process then proceeded smoothly and all the interviews were conducted in the ward offices with the cooperation of all the respondents.

3.17 Data Analysis

Responses to the questionnaires were analysed using SPSS software and then presented in Excel tables. The transcripts from the key informant interviews were thematically analyzed. Manual coding of the transcripts were done and the codes were organized and arranged to generate themes.

CHAPTER 4

SOCIOECONOMIC STATUS OF POURAKARMIKAS

This chapter describes the socio-demographic profile of pourakarmikas. It also provides information about the migration status, language fluency, characteristics of the household and physical features of their housing. Finally, the chapter touches upon the reasons for joining the pourakarmika occupation and other household members who are involved in the same occupation.

4.1 Socio-Demographic Profile

Table 4.1 describes the socio-demographic characteristics of the pourakarmikas (N= 100). Majority of the participants were women (81%) between the age group 30-50 years. Since the sampling was done exhaustively in both the wards, we can assume within reason that the number of women in the pourakarmika occupation is higher than men. This is perhaps due to the nature of work, which mainly involves sweeping the streets and picking up waste. Men employed as pourakarmikas were involved in loading lorries with garbage from street corners and from waste pick-up points. The sweeping was primarily done by women. Additionally, with the introduction of auto tippers for door-to-door collection of waste in many neighbourhoods, most pourakarmikas were not involved in direct collection of waste from households. Only in a few localities, they collected wastes from households, stored them in the pushcarts and dumped them in the waste collection centres.

The mean age of the respondents was 40.7 years with standard deviation 9.24 years and the median age was 40 years. Hindus comprised of 73% of the pourakarmika population with Christian and Muslim were 23% and 4% respectively. The most commonly reported caste was Scheduled Caste (79%). Five percent of the respondents identified with no particular caste. When it came to presence of BPL card, 79% reported having a BPL card while 21% said that they did not have a BPL card or they had to apply for it. Sixty percent of the respondents were illiterate and among those who were literate, 75% had some form of primary schooling. Formal education and schooling saw an improvement in the next generation (Table 4.6) i.e. 92% of the children of pourakarmikas attended schools. Pourakarmikas who were married comprised of 68% of the population and 24% had spouses who had passed on. Languages spoken included Telugu (66%), Kannada (19%) and Tamil (15%).

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Table 4.1

Socio-demographic characteristics of respondents

TOTAL	%	TOTAL	%	
Gender		Education Status		
Male	19	Illiterate	60	
Female	81	Literate but no formal schooling	1	
Age		Primary School	30	
21 - 30	15	High School	9	
31-40	39	BPL Card		
41 - 50	30	Yes	79	
51-60	16	No	21	
Religion		Marital Status		
Hindu	73	Single	3	
Christian	23	Married	68	
Muslim	4	Separated	5	
Caste		Widow/Widower	24	
General Caste	4	Language Spoken		
Scheduled Caste	79	Telugu	66	
Scheduled Tribe	1	Kannada	19	
No Caste	5	Tamil	15	
Did not answer	11	Number of Migrants	63	

4.2 Migration

Sixty three out of the 100 respondents were migrants in the study. The reasons for migration reported in order of frequency were marriage (58.3%), livelihood (33.33%) and family (7.9%). Majority of the women respondents stated that they moved to Bangalore from their hometown after their wedding. Respondents of both sexes stated that they moved to Bangalore in search of better job opportunities either before marriage or after marriage. Around 8% of the respondents said that they moved to Bengaluru in childhood with their parents.

While 37% pourakarmikas interviewed are native Bangaloreans, 34% of the pourakarmikas have migrated from Andhra Pradesh alone. Even among those who are born and raised in Bangalore, majority are Telugu speaking. This is consistent with other studies that report most of the pourakarmikas in Karnataka are migrants or descendants of migrants from neighbouring Andhra

Pradesh since the locals did not want to involve themselves in the occupation (Parameshwara 2016). The remaining 20% of the pourakarmikas reported that they have migrated from other parts of Karnataka, especially North Karnataka which is also similar to what was reported by Parameshwara 2016 and only 4% are from Tamil Nadu.

Among those who migrated, mean years spent in Bengaluru was 24.5 years with standard deviation 9.87 years and median of 25.0 years. Only six respondents migrated to Bangalore less than 10 years ago and 79% were fluent in a language additional to their mother tongue. All these are indicators of strong cultural assimilation and enable pourakarmikas to assimilate into the community despite being migrants.

Table 4.2

Migration

Reasons for Migration	%
Livelihood	21
Family	5
Marriage	37
Place from which migrated	
Andhra Pradesh	34
Other parts of Karnataka	20
Tamil Nadu	4
Number of Years Spent in Benga	luru
Up to 10 years	6
11 to 20 years	20
21 to 30 years	24
31 to 40 years	11
41 to 50 years	2
Born and Raised in Bengaluru	37

4.4 Household Composition

Average number of members in the household is 4.74 and standard deviation is 1.66. The median number of members in the household is 5. In terms of other socio-economic characteristics, 44% lived in joint families while 50% lived in nuclear families. This dwindling number of joint families could be a by-product of urbanisation that is seen even in the pourakarmika community. Since 63% of the

pourakarmikas are migrants, this perhaps explains the rising number of nuclear families because those who migrate from villages cannot afford to bring their extended families to the cities.

As seen in Table 4.4, 57% of the pourakarmikas had relatives (excluding parents and spouse) who are pourakarmikas. 14% and 11% of the pourakarmikas interviewed had mothers and fathers respectively who were also involved in the pourakarmika occupation. Among those who are married, 34% stated that their spouses were in the same occupation. On the contrary, only 3% of the children of pourakarmikas are employed in the same profession.

Interestingly, however, it is important to note that although no explicit mention of a family tradition or family history of working in this occupation was mentioned. This could be perhaps due to internalised stigma about the occupation but the study could not explore this aspect further due to time constraints.

Table 4.3

Number of Members in Household	%
UPTO 3 members	14
4 - 7 members	70
9 to 12 members	4
Did not answer	12
Type of Family	
Alone	2
Joint Family Same Kitchen	42
Joint Family Separate Kitchen	2
Nuclear Family	50
Did not answer	4

Members of the Household

Table 4.4

Family Members in the Pourakarmika Occupation

Family Members	(%)
Relatives who are pourakarmikas	57
Mother is/was a pourakarmika	14
Father is/was a pourakarmika	11
Spouse is/was a pourakarmika	33
Children are pourakarmikas	3

4.3 Familial Characteristics

Spouse's occupation was reported as pourakarmika by 33% of the respondents and 29% reported that their spouse's occupation as daily wage worker. 8% reported that their spouse is unemployed and 5% reported that their spouse is retired. The remaining reported miscellaneous jobs including carpentry, painting etc.

49% of the respondents have spouses who are illiterate and 4% have spouses that are literate without any formal schooling. Among those who have some schooling, 25% have attended primary school, 15% have attended high school and 2% have done diploma courses.

Spouse's Occupation	%
Pourakarmika	28
Posthumous PK	5
Daily Wage (Construction Worker etc)	29
Unemployed	8
Retired	5
Others	2
Spouse's Education	
Illiterate	49
Literate (no formal schooling)	4
Primary School	25
High School	15
IT Diploma/Office Secretary	2

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Spouse and Children's Occupation

Ninety five respondents reported that they have children and among them 91.6% attended school. 71.3% went to government school and 18.4% went to private school. This is a sharp increase in school attendance among children when compared to their parents. This is a positive trend that shows that literacy has been increasing in their familial context. Seven respondents stated that they sent their girl children to government school and boy children to private school. This is an example of gender discrimination although there was no scope to explore this further.

Table 4.6

Education of Children

	N = 95	%
Children attending school	87	91.6
Type of School Attended	N = 87	
Government School	62	71.3
Private School	16	18.4
Daughter in Government School and Son in Private School	7	8.04
Did not answer	2	2.3

4.5 Physical Characteristics of the Houses

Pucca and semi-pucca houses are the most common type of houses reported with only 3% respondents reporting living in kuccha houses. 61% of the respondents live in rented houses, 37% own their own houses and 1% live in leased houses.

The average number of rooms per house reported is 2.76 (SD 1.11) and median is 3. The average number of windows per house is 1.97 (SD 1.3) and median is 2.

Seven percent of the pourakarmikas in the study reported living in houses with no windows. This could potentially have an impact on their health.

Only 37% owned the houses in which they lived while the rest (62%) lived in semi-pucca or pucca rented accommodation. This is a consequence of migration as well as economic status. The respondents lived in relatively large houses with a median of 5 family members and 3 rooms. Unfortunately, 3% respondents stated that they lived in kuccha houses while 7% lived in houses with no windows. These could have potentially harmful effects on their health due to indoor air pollution, poor ventilation and exposure to smoke from cooking (only 17% have a separate kitchen). Among those who responded, no one had a problem with access to drinking water and several participants had multiple sources for drinking water.

	(%)		(%)
Type of House		Rooms in house	
Kuccha	3	1 to 2	43
Semi-Pucca	40	3 to 4	50
Pucca	56	5 to 6	5
Did not answer	1	Did not answer	2
		Number of	
House-Ownership		Windows	
Rented	61	No windows	7
Own	37	1 to 2	59
Lease	1	3 to 4	25
Did not answer	1	5 to 6	4
		Did not answer	3

Table 4.7: Physical Characteristics of houses

Majority of the pourakarmikas have a separate toilet at home or a common toilet for the building (86%). Eleven percentage use the public Pay and Use toilets and 1% resort to open defecation.

Only 17% have a separate kitchen at home while the rest use the living room or any other room in the house as a kitchen. LPG/Natural Gas is the most common type of cooking fuel used (83%) and wood is used by 10% of the interviewees. The remaining 5% of the respondents use wood, kerosene or biogas.

Majority of the neighbourhoods in which the pourakarmikas live have municipality waste collection services (87%). 4% reported disposing their own household waste in street corner, 4% reported disposing in street dustbin and 4% use their own dustbins at home.

In terms of drinking water source, all the respondents have sufficient drinking water supply (N=98; 2 did not respond). Majority have Cauvery water supply which is a piped drinking water supplied from the government (54%). 18% have both Cauvery and borewell water supply; 15% have only borewell water supply and 6% use mineral water supply – either solely or in combination with other water supplies. The use of mineral water is questionable and the data needs to be validated again. Only 2% get water supplied by water tanker.

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Table 4.8: Basic Amenities in the houses

Type of Toilet	%	Garbage Disposal		
Common Toilet for the	3			
building	13	Municipality Waste Collection	87	
Separate Toilet at Home	73	Street Corner	4	
Pay and Use	11	Street Dustbin	4	
Open Defecation	1	Dustbin at home		
Did not answer	2	2 Did not answer		
Separate Kitchen		Drinking Water Source		
Yes	17	Piped drinking water only	54	
No	81	Piped drinking water and borewell	18	
Don't Know	2	2 Borewell only		
Cooking Fuel		Tanker water	2	
		Piped drinking water and mineral		
LPG/Natural Gas	83	water		
Kerosene	2	Corporation water		
Wood	10	Mineral water		
Wood in combination with				
kerosene or LPG	3	Borewell and mineral Water		
Biogas	- 1	No answer		
Did not answer	1			

4.6 The Pourakarmika Occupation

This study delved into the reasons why people chose the pourakarmika occupation and interestingly, the reasons emerged were contrary to the popular notion that it was a hereditary occupation mandated by their caste. Most respondents (57%) reported that the main reason for joining the pourakarmika occupation is that they consider the job to be better than their previous occupations – domestic work, construction work, agriculture and plumbing. Many women reported that domestic work was unfavourable for them since they had to spend many hours working in the water, which affected their health. Moreover, the timings were too long and the salary was insufficient. The respondents felt that their previous jobs that were in the unorganized work force gave them little benefits, irregular wages and the availability of work year-long was questionable. They were involved in hard physical labour and had to work under the harsh sun for many hours in a day. Especially for mothers with school-going children, the timings of pourakarmika occupation of working between 6:30 am to 2:30 pm were

convenient. Additionally, the work was less dangerous or strenuous like construction work and the quantity of work was lesser than in domestic work. Women reported that it was difficult to take care of their children when they were involved in construction work or domestic work.

Twenty two percentage of the respondents reported that they considered the pourakarmika occupation as a good livelihood option – most of them were not involved in other jobs prior to this and even if they were, they did not mention it during the interview. They said they preferred this job due to the timings and stable salary.

Eleven percentage reported that they joined this occupation because they knew other family members in the same occupation. Although none of the respondents explicitly mentioned that this was their family tradition, most of them reported that this was a common occupation in their family and hence, they decided to continue in the same line of work.

The remaining respondents quoted financial hardship (1%) or inability to find jobs elsewhere (9%) as reasons for joining the occupation.

Table 4.9

The Pourakarmika Occupation

Reasons for joining the occupation	%
Better than domestic work	27
Consider this as a good livelihood option	22
Better than construction work	18
Better than other types of work - agriculture, plumbing, vegetable/fruit selling	12
Family tradition/other family members introduced to occupation	11
Unable to find jobs elsewhere	9
Financial Hardship	1

CHAPTER 5

HEALTH STATUS OF POURAKARMIKAS

This chapter explains the different aspects of the health of pourakarmikas including a self-scoring on different domains of health (adapted from WHO's Study of Global Ageing and Adult Health). The chapter also delves into the dietary habits of the pourakarmikas (adapted from NFHS). The chapter discusses major surgeries, chronic diseases, recurrent diseases and symptoms experienced in the last month. The health-seeking behaviour of the pourakarmikas in terms of their preferred health facilities and health facility that they visited in the past month is reported. Finally, the chapter touches upon alcohol use, tobacco use and knowledge about substance abuse in the community.

5.1 Health Status

Interviewees were asked to score themselves on the following seven aspects of their own health – mobility, pain/discomfort, cognition, sleep and energy, affect, interpersonal activities and vision.

Mobility: 67% reported of the respondents reported that they never or rarely had any difficulty with household activities. 28% reported that they had difficulties sometimes, most of the times or always with household activities. 5% did not respond.

On the contrary only 16% of the respondents stated that they have problems with moving around but 30% reported that they have problems with vigorous physical activity.

Pain and discomfort: 52% of the respondents have body aches sometimes, most of the times or always. This is an important finding since majority report the problem. 37% state that they fall ill with fever, cough and cold sometimes while 45% state that they never fall ill or 14% rarely fall ill.

Cognition: Overall self-reported cognition is good. 84% state that they have no difficulty concentrating or remembering things. 10% state they sometimes have problems with memory and 1% has problems most of the times and 1% has this problem all the time.

Sleep and energy: Difficulty waking up or sleeping was seen sometimes, most of the times and always in 9%, 5% and 3% of the respondents respectively. 76% reported that they had no difficulties in sleeping and 78% said that they felt well-rested/refreshed during the day.

Affect: 81% said that they never feel sad or depressed and 72% reported that they never feel anxious or worried. 13% and 20% reported sadness/depression and anxiety/worry respectively sometimes,

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most of the times or always. Those who experienced these symptoms were either single mothers, lost their spouses or were experiencing family problems.

Interpersonal Activities: 97% of the pourakarmikas had never or rarely experienced any difficulties in interpersonal interactions or participation in the community. 85% had no problems dealing with conflicts or tensions.

				Most of the	
Description	Never	Rarely	Sometimes	Times	Always
Mobility					
Difficulty in Household Activities	59	8	16	7	5
Difficulty moving around?	73	11	8	4	4
Difficulty in vigorous physical activity	61	9	14	5	11
Pain and Discomfort					
Body aches	37	11	32	7	13
Physical illness like fever, cough, cold,					
headache	45	14	37	1	3
Cognition					
Difficulty concentrating or remembering					
things	84	4	10	1	1
Sleep and Energy					
Difficulty in waking up, sleeping	76	7	9	5	3
Not feeling well-rested/refreshed during					
the day	78	8	8	3	3
Affect				_	
Feeling sad, low or depressed	81	6	7	4	2
Feeling worried or anxious	72	8	15	3	2
Interpersonal Activities					
Difficulty with personal relationships or					
participation in the community	95	2	3	0	0
Dealing with conflicts and tensions with					
others	82	3	13	2	0

Table 5.1:	Self-Reported	Health	Status
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Cumulative Health Status:

The self-reported health score of each individual was added for each of the 12 questions by assigning the following values: never = 0, rarely = 1, sometimes =2, most of the times = 3, always = 4. The scores for individuals ranged from 0 to 48. Categories were made further as follows – 0-16 as good, 17 - 32 as average and 33 - 48 as poor. As seen in Table 5.2, 90% of the individuals rated their health as "good" while 8% rated their health as "average" and finally, 2% belonged to the "poor" category.

Cumulative Score	%
Good (0-16)	90
Average (17 - 32)	8
Poor (33 - 48)	2

Table 5.2: Cumulative Score of Self-Reported Health Status

Health status of the pourakarmikas was overall good with very small percentage of the study respondents complaining of any difficulties in the domains of physical, mental, emotional and social health. There could be a tendency of the respondents to not reveal the true nature of their problems due to a variety of reasons, including fear of losing their job if they complained. This bias could have been overcome had the researcher approached the respondents through a community based organisation or after continued engagement with the respondents. Due to time constraints, although the rapport established was cordial and healthy it might not be sufficient to ensure the respondents reveal all their issues. Secondly, since the SAGE scale is subjective and it is difficult to interpret and generalise the findings to other contexts. However, the strength of the scale is that it provides an overview of the various aspects of functional health.

Vision Status

Nineteen percentage of those interviewed reported wearing contact lenses or spectacles while 23% said that they experienced blurred vision or problems with seeing. Among the 23 who reported blurred vision, only 9 wear glasses or contact lens. The remaining fourteen have not sought medical help to improve their vision.

Table 5.3: Vision Status

	Vision	Yes	No
1	Used contact lens or glasses	19	81
2	Experienced blurred vision	23	77

5.2 Dietary Habits

30% of the respondents have home-cooked meal all three times of the day. These respondents are usually older and live close to their work. Hence, they can go back home during their break at 10:30 am to have a meal. 60% respondents reported that they eat home-cooked meals twice a day. Minority of them eat only twice a day while most of them report that their breakfast is eaten in a hotel since they do not have time to cook early in the morning before coming to work at 6:30 am. The breakfast eaten is usually idly, upma, poori or chapatti. A small fraction (6%) state that they eat home-cooked meal only once a day and 4% do not eat at home even once.

Number of times home cooked meal is eaten	%
None	4
Once	6
Twice	60
All three times	30

Table 5.4: Pattern of Consumption

The diet comprises of milk/curd on a daily or weekly basis for 87% of the respondents. Pulses/beans (76%), dark green leafy vegetables (74%), eggs (57%), chicken/mutton (66%) are consumed weekly by majority of the respondents. Fruits are consumed occasionally (55%) or weekly (29%) by most of the respondents. Fast foods saw a split between 41% who state that they eat outside the house daily and 41% who state they never eat fast food. Fried foods is consumed by most either occasionally (45%) or never (30%). 72% said that they never have cold drinks while only 18% report drinking cold drinks occasionally.

Table 5.5: Ty	pe of Foo	ds Consumed
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	Daily	Weekly	Occasionally	Never
Milk/Curd	74	13	13	0
Pulses/Beans	15	76	6	3
Dark Green Leafy Vegetables	15	74	10	1
Fruits	10	29	55	6
Eggs	9	57	26	8
Fish	4	22	36	36
Chicken/Mutton	26	66	7	1
Fried Foods	5	19	45	30
Fast Foods	41	4	12	41
Cold Drinks	3	7	18	72

5.3 Major Surgeries

A total of 74 respondents (both men and women) reported major surgeries. 87 surgeries were reported in total with few individuals reporting multiple surgeries. Tubectomy was the most commonly reported surgery (71%) followed by C-section (13%). Hand/leg surgeries were undergone by 3 individuals – 2 men and one woman. Among the men, only 32% stated that they had surgeries including limb surgeries and throat surgery. On the contrary only 85% of the women interviewed had undergone a major surgery (either tubectomy or C-section or both). Although the majority of the surgeries reported by women are obstetric surgeries, further research is needed to understand if there is a higher prevalence of surgeries in women pourakarmikas when compared to men.





5.4 Chronic Diseases

Chronic diseases were reported in 46% of the individuals. Cardiovascular diseases were seen in 17 individuals followed by musculoskeletal issues in 9 individuals. Diabetes and thyroid issues were seen in 4 and 5 individuals respectively. Respiratory ailments were seen in 8 individuals and ophthalmic ailments in 6 individuals. Auditory problems and anemia was seen in only one individual each. Gastrointestinal problems were seen in 4 individuals and skin allergies in 3 individuals. Two women reported dysmenorrhea and two men reported alcoholism when asked about chronic diseases.

Chronic diseases reported were hypertension, musculoskeletal problems (chest pain, back pain, knee pain, body aches), respiratory ailments (breathing difficulties, asthma, cough), diabetes, skin-related

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conditions (itching, redness, infections), ophthalmic conditions (irritation, watering, itching, redness) and gastrointestinal problems (stomach pain, diarrhoea). These findings are similar to other studies conducted in Mumbai (Palve et al. 2014), Bangalore (Nagaraj et al. 2004) and Calicut (Jayakrishnan, Jeeja and Bhaskar 2013).

A unique finding from this study is that women reported gynaecological health problems like dysmenorrhea which has not been explored in the previous studies. Dysmenorrhea was reported under three different instances - chronic diseases, recurrent diseases as well as symptoms experienced in the last month. Only two studies – Palve et al (2014) on sweepers in a municipal teaching hospital and Jayakrishnan, Jeeja and Bhaskar (2013) touched upon the higher prevalence of genitourinary infections among women sanitation workers when compared to other employees in Calicut Municipal Corporation. This throws light on the fact that most of the studies conducted on health status of sanitation workers focus on general health problems and often miss the gender related health problems. Therefore, it is important to incorporate the gender lens and consider occupational health in the context of biological as well as societal gender roles.

Ailments Hypertension	% 15
Hypertension	15
Hypotension	2
Body aches	6
Hip/Knee Pain	2
Arthritis	1
Vision Problems	6
Asthma	1
Difficulty	
Breathing/Allergy	3
Thyroid Disease	5
Diabetes	4
Stomach related problems	4
Skin allergies	3
Dysmenorrhea	2
Alcoholism	2
Anemia	1
Hearing Problems	1

Table 5.6: Types of Chronic Ailments

5.5 Recurrent Health Problems

Majority (88%) of the interviewed pourakarmikas reported recurrent health problems. Musculoskeletal problems (42%) topped the list followed by headache (39%); cough/cold/fever (36%) and body aches (26%). Eye irritation/redness was seen in 15% of the individuals followed by difficulty breathing (8%) and stomach related illnesses (7%). Only 3 individuals reported skin allergies and 1 reported dysmenorrhea and 1 reported frequent urination.

Types of recurrent health	
problems	%
Musculoskeletal Problems:	
back pain, hip pain, chest pain	42
Headache	39
Cold/Cough/Congestion/Fever	36
Tiredness/Body aches	26
Eye Irritation/eye redness	15
Difficulty Breathing	8
Stomach related	7
Skin itching/allergies	3
Dysmenorrhea	1
Frequent Urination	1

Table 5.7: Types of Recurrent Diseases

5.6 Symptoms Experienced in the Last Month

When asked about the symptoms they experienced in the last month, 62 respondents said they in fact did experience symptoms.

The most commonly reported symptoms were cold/cough/congestion/fever (25%) and bodyaches (9%). Headaches (8%) and musculoskeletal problems (6%) like hip pain/back pain were the next most frequently reported problems. Dysmenorrhea was seen in women (4), stomach related ailments, skin itching, typhoid, boils on leg and other miscellaneous were also reported.

Table 5.8: Symptoms experienced in the last month

Description of Symptoms	%
Cold/cough/congestion/fever	25
Bodyaches with fever/cold/cough	9
Headache	8
Musculoskeletal Problems	6
Dysmenorrhea	4
Stomach related ailments	3
Skin itching	1
Miscellaneous = typhoid, boils on leg, follow-up of DM	6

5.7 Health-seeking Behaviour of Pourakarmikas

5.7.1 Health Facility visited in the Last Month

When asked if they sought any treatment in the last month, out of the 62 who said that they had some symptoms only 55 said that they availed a remedy. 54.5% said that they went to a private healthcare facility and 36.4% said that they went to a pharmacy. Only 9.1% said that they went to a government healthcare facility. This is consistent with what was reported earlier about the preference for government facilities being low.



Figure 5.3 Type of Health Facility visited in the last month

Another interesting finding was that among 62 respondents who reported that they experienced symptoms/illness of any kind in the last month, majority of them (71%) did not do anything about it and instead continued working. 17.7 % took up to 2 days of leave. Most of the pourakarmikas said that they could not afford to miss a day's work since their salaries would be deducted and hence, decided to take care of their illness after their work hours.

Number of sick days at work	%
Resumed work immediately	44
Half a day	2
1 to 2 days	9
3 to 5 days	2
1 week	3
22 to 30 days	2

Table 5.9: Number of sick day leaves in the last month

5.7.2 Preferred Health Facilities

Only 22% of the pourakarmikas said that they prefer a government healthcare facility when they are ill. Majority of them preferred going to a private health facility (62%) or pharmacy (4%). 12 respondents did not answer the question or said that they did not have the need to go to a healthcare facility thus far.

As with the general population, pourakarmikas also prefer private health facilities (62%) over public health facilities (22%). When asked about the health facility that they visited in the past month, only 9% of the respondents who visited a health facility actually went to a public health facility (Figure 5.3). This discrepancy in their reported preference and actual utilisation is not uncommon. This indicates that pourakarmikas, even those who report preference for public health facilities, actually visit private health facilities for various reasons including convenience of timings, distance as well as more trust in private health practitioners.





5.8 Substance Use

Tobacco use was seen in 48 respondents while 11 respondents reported alcohol use. No alcohol consumption was reported among women. When asked about substance use, only one respondent said that they knew of ganja use in their community..



Figure 5.4: Substance Use

Smokeless tobacco consumption (70.6%) far exceeded the smoking tobacco consumption (29.4%). Pan with tobacco was the most common form of tobacco consumed followed by bidi, guthka and cigarettes. 15 women reported consuming pan without tobacco. Women consumed smokeless tobacco mixed with paan while men consumed tobacco in all forms – bidi, cigarette, pan and guthka. Many of

the respondents confined their tobacco use only during work hours. "*It masks the smell of garbage*," said many respondents and some even reported that they started chewing tobacco after joining the occupation so that they do not have to experience the stench. Few women attributed their habit to the company of coworkers, "*We all chew paan and spend time together during our breaks.*"

When it came to alcohol use, eleven out of the nineteen men said they drink alcohol on a regular basis. All the men pourakarmikas work with large piles of garbage that has to be loaded on to the lorry. Most of them have to walk through heaps of garbage inside the lorry as well as the street corners from which they pick it up. The men, therefore, revealed that without having a drink of alcohol in the morning, they will be unable to work in such filthy and physically strenuous conditions. The alcohol gives them "energy" and allows them to work faster while handling the garbage. Similar findings of higher prevalence of alcohol and tobacco use among sanitation workers are seen in other studies (Palve et al. 2014 and Giri, Kasbe and Aras 2010).



Figure 5.5: Type of Tobacco Used

CHAPTER 6

OCCUPATIONAL HEALTH AND SAFETY

This chapter describes the working conditions of the pourakarmikas in terms of safety measures and work related injuries. Healthcare benefits provided to them by the BBMP and the pourakarmikas' perspectives on barriers faced in terms of availing these entitlements are also documented. The latter part of the chapter describes the perception of pourakarmikas in terms of how the occupation has impacted their health and the benefits they would like to receive to improve their working conditions. Finally, the chapter concludes with salient themes that arose from the interviews with key informants regarding the provisions given to the pourakarmikas from the government, the difficulties the pourakarmikas face and the challenges the government experienced by officials in terms of implementation and management.

6.1 Details of Employment

Among the pourakarmikas interviewed seventy five were contractual employees (not permanent employees). From January 2018, they were promised a direct contract with the government and hence, their salary and benefits like ESI and PF would be handled by the BBMP. Before January 2018, the contractual pourakarmikas were working for a contractor who had in turn been selected by the government through a tendering process. At the time of interview in May 2018, although the BBMP had promised to do away with the middle-men contractors, their presence was still strong. The pourakarmikas were still managed by them in one of the wards where the research was conducted.

The remaining 25 pourakarmikas were permanent employees under the BBMP. They were employed by the BBMP decades ago and are said to be on the Nominated Muster Roll (NMR). They receive a higher salary than the contractual workers and also have a health card that promises them free treatment in all empanelled hospitals. However, apart from two supervisors in the study, others did not have any pension benefits.

The job roles were of 4 main categories – sweeping, loading lorries, loading autos, and supervision. Each ward had one pourakarmika supervisor and hence, the study which was conducted in two wards had 2 supervisors in the sample. 83% of those interviewed were street sweepers. 10% were involved in loading lorries i.e. they collect the waste from street corners, street dustbins and load the municipal lorries. All the participants involved in loading lorries were men. Only 3% were loading autos i.e. they assist the auto tippers that go door to door for waste collection.

In general, those involved in load autos were not called pourakarmikas, and were primarily employed by the contractors. In our study, there were only 3 who did the job of loading autos though their designation was a pourakarmika. The remaining 2 participants did multiple jobs – sweeping, loading lorries, helping the supervisors, gardening and other odd jobs.

The average year of employment was 13.62 years (S.D 9.7 years) and median was 7 years. The range was from 2 years to 40 years.

Terms of Employment	%
Permanent	25
Contract	75
Job Role	
Sweeper	83
Auto Loader/Driver	3
Lorry Loader	10
Multiple Jobs	2
PK Supervisor	2
Work Experience (in years)	
2 to 10	57
11 to 20	11
21 to 30	29
31 to 40	3

Table 6.1: Employment Details of Pourakarmikas

6.2 Occupational Safety Measures Provided

The BBMP is mandated to provide personal protective equipment (PPE) to all the pourakarmikas. This includes uniforms, gloves, masks, chappals for sweepers and gum boots for lorry loaders. In addition to the PPE, government medical officers from Urban Primary Health Centres (U-PHCs) are required to visit the pourakarmikas of their respective wards and conduct health check-ups once in 2-3 months. These well thought out and thorough guidelines to improve the living and working conditions of pourakarmikas exist since the time of I.P.D Salappa report of 1976.

However, the ground realities are very different from the policy documents. Around one third of the pourakarmikas do not use PPE and among the two thirds who do use, many do not use it on a regular basis. Majority (78%) of the pourakarmikas had problems using the PPE. The most common complaint was regarding the mask (33%). Respondents complained that the masks were ill fitting, became very hot and caused problems with breathing. Therefore, most of them tie a piece of cloth

over their noses as well as another piece of cloth to cover their heads. Standing in the sun for long periods of time causes headaches and it is the second most common health problem reported by the pourakarmikas (Table 5.7). There was no provision of caps or sunglasses to protect them from the harsh sun or dust.

The second most common complaint was related to gloves (29%). Gloves tore easily and workers could not grip the broom or pick up waste properly with gloves since they tend to slip. Some even complained that the smell of the gloves was hard to tolerate after handling garbage and they needed to wash the gloves every day to use, which becomes a cumbersome process. If the gloves tears or wears out, they do not get replacement gloves on time. These are some of the deterrents from using gloves. Instead, they use plastic bags to cover their hands when touching the waste and dispose these bags every day.

Among those who load lorries, the common complaint was the footwear (9%). Gum boots are worn which are too loose and all the waste leaks into the boots when they are sorting through heaps of garbage. Sometimes, the replacement boots take a long time to arrive and many have experienced foot injuries even while wearing boots. The women pourakarmikas also have problems with the chappals that are given since they are not replaced if worn out.

Five percent complained that they lost the PPE that was given to them or they were not given PPE at all. Finally, a small proportion (2%) of the workers reported they feel comfortable working without PPE and viewed PPE as an impediment to their work.

Reports of problems with PPE	%
Gloves	29
Footwear	9
Mask	33
PPE not given/lost	5
Can work without it	2

Table 6.2: Problems with existing Personal Protective Equipment

Only 13 pourakarmikas, all belonging to the same ward reported that there are additional safety measures excluding PPE. 64.3% reported among them reported that there was a first aid box in the office for any small injuries or cuts experienced on the job and the remaining 35.7% considered the weekly exercises under the supervision of the health inspector was a safety measure that benefited them.

6.2 Work Injuries and Healthcare Entitlements

6.2.1 Types of Work Injuries

Around one third experienced injuries while working. Cuts on hands or fingers were the most common types of injury with 16 respondents stating that they have been cut by a sharp object like a glass piece at least once and more commonly multiple times while handling the waste.

Cuts on both hand and feet were reported by 8 individuals and 3 individuals reported getting cuts only on their feet. All these three individuals involved in loading lorries cut their feet when glass pieces pierced through their gum boots. Needle pricks was seen in 3 individuals – they were usually syringes in the waste that injured them. Dog bites was also experienced by 3 individuals and finally, 2 individuals reported that they injured themselves by tripping and falling down while at work.

Work Injuries	%
Experience of work injuries	32
Cuts on hands/finger only	16
Cuts on foot/leg only	3
Cuts on hand and feet	8
Dog bites	3
Needle pricks	3
Fell down and injured	2

Table 6.3: Type of Work Injuries

More men experienced work injuries as compared to women and what was more unique was the way in which they tended to their wounds – rarely did they go to any professional healthcare provider. They used the grease oil from the lorries to apply on their injuries, tied a piece of cloth around them and continued working. Even for needle pricks, glass cuts, cuts by other sharp objects, the most common method of treatment was self-care – home remedies like turmeric was used in some cases but mostly, the workers covered their wounds with a piece of cloth and continued working. Only in cases of deep cuts or dog bites, did the workers go to a health professional. Most reported that they had to pay out of their own pockets for the treatment while few reported that the government paid for their treatment. This sheds light on the dismal situation of how workplace injuries are handled. Due to the fear of loss of pay, most workers do not take a break to seek medical help even when they are injured or experience any form of illnesses.

In one of the wards in the study, with new health inspector introduced measures like a sanitary pad dispenser, first aid box and exercises twice a week. The pourakarmikas of this ward, primarily the women, appreciated these unique interventions by the health inspector and reported that they have experienced many benefits as a result of them.

6.2.2 Employee Benefits and Healthcare Entitlements

Majority (72%) of the employees reported that they received an appointment letter or ID card from the employer. However, 28% had no proof of employment. 70 pourakarmikas reported that they were aware of the benefits that they receive as being part of this occupation and 30% said they do not know much about what the benefits are. When these 70 were probed further about their benefits, only 37 mentioned ESI, PF or healthcard as benefits. The remaining reported salary, uniform and PPE as benefits and the others said that although they knew there are benefits they were not sure what exactly the benefits entailed. However, on the contrary, when asked directly about ESI and healthcard, 84% said that they had heard about the two terms and knew that they are eligible for it. 16% on the other hand, said that they had not even heard about ESI or health card. Although majority of the workers mentioned that they were aware about ESI or health card, only 9 had actually utilised these services.

6.2.3 Barriers to ESI or Health Card Utilisation

When asked about the barriers to utilisation, 47 individuals out of the 100 individuals in total reported that they have never gone to the facilities. No further explanation was provided. Thirteen individuals said that they had not been provided any ESI card and hence, they did not utilise the services and 13 other individuals mentioned that they do not know the procedures on how to use the ESI.

Eleven employees mentioned that the ESI hospital was too far away and one person mentioned that they had to miss a whole day of work to go to the ESI hospital. Five respondents felt that the process of getting prior authorisation to use the ESI card from the head contractor and other formalities involved in seeking care from the ESI hospital was very cumbersome. Seven individuals who have the BBMP health card which only the permanent employees are eligible for mentioned that they can use the health card only for in-patient procedures and hence, for minor out-patient procedures they seek care from private facilities. Among the remaining employees, 2 stated that they need more information like location and one respondent felt that they do not treat patients properly in the ESI hospital. 3 respondents preferred other facilities like private hospital or charitable hospital over ESI or other government hospitals and hence, they do not seek services from the ESI hospital.

Barriers to Utilisation	%
Have never gone	47
No card is given	13
Too far away	11
Lose whole day of work	1
Too many formalities	5
Need more details like	
location	2
Don't know the procedures	13
Used the card (mainly IPD)	
procedures	7
Don't treat the patients well	1
Prefer other facilities	
(charitable, government,	
private)	3

Table 6.4: Barriers to Utilisation of ESI or Health Card

Awareness about entitlements associated with their occupation among the workers with 70% reporting that they know they are eligible for certain benefits. However, when these 70 were probed further about the types of benefits for which they are eligible, only 52% mentioned about Employee State Insurance (ESI) and Provident Fund (PF) benefits. The remaining 48% said that they did not know the exact nature of their benefits and some mentioned salaries and PPEs as benefits.

On the contrary, the permanent NMR pourakarmikas were well aware of their benefits which included a BBMP health card that they could utilise for hospitalisations as well as out-patient visits. The contractual pourakarmikas, who were at the time of the interview, still for all practical purposes under the middle-men contractors, had little or no idea about how to use their ESI card or what their PF benefits meant.

Key informant interviews with mid-level supervisory BBMP officials gave further insight into this issue. The contractors withheld the ESI cards of the workers because many of the workers on the payroll submitted to the BBMP were actually non-existent. The inflated numbers of workers projected by the contractors was to exploit the contract system by employing only half the workforce as promised and thereby, profit illegally. In some situations, the key informants reported to the researcher that the contractors had made no contribution to the ESI or PF accounts of pourakarmikas

who had been working for more than 5 years. ESI and PF account numbers were also falsified and in reality, these accounts did not exist.

On a positive note, from the time when data was collected for the purposes of this study in May 2018, the situation for pourakarmikas has improved. From July 2018, all the pourakarmikas received salaries directly into their bank account from the government. Their ESI numbers had been handed over to them and they also have access to their PF accounts. Without the middle-men between the workers and the government, the situation in terms of accessibility to health care services at the ESI hospitals and other government healthcare facilities is projected to improve.

However, just ensuring that pourakarmikas are aware about their right to free healthcare treatment is not sufficient. In the study, it was seen that although all the 25 permanent pourakarmikas had awareness about the benefits of the BBMP health card, only 9 utilised them. Some of the barriers cited by both contractual as well as permanent pourakarmikas are the bureaucratic procedures to obtain permission to utilise the healthcard or ESI card is very cumbersome. Therefore, they avail these services only for in patient procedures. Private facilities are more convenient because their timings do not conflict with the pourakarmika work timings. Additionally, they are closer to their houses and hence, one does not have to take leave from work or spend on transportation. Few reported that they have a good rapport with their local doctors and trust them more. Therefore, they would rather spend money out of pocket to see a doctor whom they trust than seeing a doctor in a government health care unit who is not very familiar with them and who sometimes does not treat them well.

Therefore, it is important to explore further the reasons that prevent the pourakarmikas from using their healthcare entitlements. Measures must also be taken to ensure that their out of pocket healthcare expenditure is reduced.

6.3 Perceived Impact on Health and Facilities Needed

6.3.1 Perceived Impact on Health

Majority (73%) of the respondents perceived that their occupation has no impact on their health. On the contrary, 7% of the respondents felt that their health has actually improved due to various reasons. Some stated that they have lost weight and are healthier because of the job. Others feel that this job is better than their previous physically strenuous job like domestic work or construction work. Majority feel that they have made friends on this job and this has improved their overall health.

Only 17% of the total respondents perceive a negative impact on their health due to their occupation. 3% did not have any opinion. Of those who perceived a negative impact on their health, 8 reported

more body aches due to the occupation. 4 reported more allergies and 4 felt that their health has declined because they are unable to eat, drink or use the bathroom regularly because of work conditions. 2 reported that their overall health has declined.

Health Impact	%
No impact on health	73
More body aches and pain	8
Health has improved - lost weight, made	
friends	7
More allergies and cold/cough	4
Cannot eat on time, drink water and go to	
the bathroom	4
Overall health declined	2
Do not know	3

Table 6.5: Perceived Impact on Health and Facilities Needed

6.3.2 Facilities Needed

Only 25 out of the 100 pourakarmikas interviewed felt that all their needs were being met at work. Among the remaining 75 who desired certain facilities that improve their working conditions, 32 reported that toilet facilities and drinking water facilities need to be arranged for them. 14 reported lack of toilet facilities as a major hurdle and some women reported that separate toilets for women, especially when menstruating is an absolute necessity.13 reported that better quality personal protective equipment as well as basic tools like brooms, shovel need to be provided to enable them to work better. 9 respondents wanted job security by converting the position from contractual to permanent. Salary related issues like timely payment of salaries, proper system of attendance and increase in salary was requested by 6 interviewees. Permanent housing or any form of accommodation was also requested by 4 respondents. Employees also requested a place to eat and a place to rest during work. More breaks were requested and monthly leave options were also brought to notice. 4 interviewees had no opinion or did not answer when asked about additional benefits that they would like to be provided with.

Requirements	%
Toilet and drinking water facility at work	32
Toilet facilities	14
Canteen or place to eat	5
Place to rest	2
Monthly leave	2
Better quality PPE and better equipment to deal with the garbage	13
Salary-related issues	6
Convert to permanent job	9
Provide housing	4
No answer/Don't know	4
No problems – satisfied with all the facilities available	25

Table 6.6: Additional benefits needed to improve working conditions

An interesting finding from the study is that 73% of the pourakarmikas felt that their occupation had no impact on their health. Among those who reported health problems arising the most common problems were musculoskeletal problems like hip pain, back pain and knee pain. This can be attributed to the poor working conditions that require the pourakarmikas to bend and lift large amounts of garbage, bend to sweep roads and collect waste. The second most common negative health impact reported is allergies (skin and eye) and cold/cough. If provided with better ergonomic tools and equipment to handle the wastes and better PPE to protect from the hazards of waste collection, these two problems could be alleviated to some extent. Not surprisingly, when asked about what they would like to see improve in their work environment, one of the most popular answers was improved quality of personal protective equipment and tools to well-designed tools work efficiently without undue strain on their health.

Pourakarmikas also report that the lack of drinking water and toilet facilities has a major impact on their health. In order to relieve themselves, some workers have to walk more than a kilometre to find a public pay and use toilet since the households do not allow them to enter their houses due to caste and occupational stigma. Similarly, drinking water is not easily available and few households and hotels oblige to give drinking water to pourakarmikas on duty. This means that while working under the hot sun, many pourakarmikas go long hours without drinking water or walk all the way to the ward office to drink water. A feasible and economic solution to this problem has to be formulated.

Pourakarmikas have no resting place for them during breaks, no place to eat and women do not have changing rooms. All these deprivation of basic necessities for a safe and healthy work environment will have detrimental cumulative impacts on their health and well-being.

When considering other occupations that are available to the urban poor, some pourakarmikas are of the opinion that their occupation is more desirable. The fixed salaries, timings and job security (now that they are contracted directly by the BBMP) are the attractive aspects of their job. A small proportion (7%) of pourakarmikas is of the opinion that their health has improved because their job is less physically strenuous and they have a good company of colleagues to work with.

However, the overall consensus among the solid waste management workers is that basic facilities like proper tools and machinery to handle garbage, good quality PPE, toilet/drinking water/eating/resting facilities, regular work breaks and monthly leaves are critical requirements for them to perform better at work and improve their quality of life.

6.4 Perspectives of BBMP Officials

The following are the results that emerged from key information interviews with the BBMP officials.

6.4.1 Facilities Provided to Pourakarmikas by BBMP

"Uniforms are provided to all pourakarmikas, both contractual and permanent, so that there is dignity of work," said one of the key informants from the BBMP. All pourakarmikas are supposed to receive health care entitlements. Pourakarmikas receive ESI card if they are contractual and BBMP Health Card if they are permanent. These cards ensure that all their hospitalisations in BBMP empanelled hospitals are free of charge and out-patient visits are also covered. Additionally, BBMP doctors are scheduled to visit the pourakarmikas once in 2-3 months and conduct regular health checkups. "As preventive and promotive measures, personal protective equipment like masks, gloves and chappals are provided after several consultations with the groups working with pourakarmikas and the pourakarmikas themselves," said the second key informant.

Salary of permanent pourakarmikas is Rs. 18,000 and they get a BBMP health card. They do not receive any pension or Provident Fund (PF). On the other hand, contractual pourakarmikas receive a

salary of Rs. 16,000 but get only Rs. 12,500 in-hand after deductions for Employee State Insurance (ESI) and Provident Fund (PF).

Additionally, mid-day meal is supplied every day at 10:30 am to all the pourakarmikas across the city from The Akshaya Patra Foundation (TAPF), an NGO that provides nutritious and hygienic food. However, only 10-20 out of the 60 workers consume this mid-day meal and the others prefer to eat outside in the hotels.

6.4.2 Challenges faced by BBMP staff

Two main challenges were iterated by all the five key informants: the problem of delayed salaries and withholding of ESI cards by contractors.

Salaries were delayed due to various reasons – the newly installed biometric attendance system was not conducive to many workers. They complained of faulty machines that did not register their finger prints and hence, they felt that their salaries were unreasonably deducted even when they were present on the job. Biometric attendance was installed to overcome the problem of "free-riders" who were employees who existed only on paper and not in reality.

Contractors tend to inflate the numbers of employees, falsify ESI accounts and PF accounts and resort to other illegal measures to increase their profits according to one of the key informants. ESI cards, even if present, are withheld from the workers by the contractors. "*Many workers are not even aware of their ESI eligibility*," said one of the key informants. This has led to many workers resorting to multiple loans and bankruptcy due to rising healthcare costs. This was a very disturbing trend that was seen in both the wards and the mid-level BBMP officials were in a helpless situation since they could not counter the political pressure of the contractors.

On the other hand, corruption existed even between the lower-level supervisory staff and pourakarmikas. The pourakarmikas had to bribe their supervisors to ensure that they were not marked absent on certain sick days as the system does not allow more than one day of leave per month.

CHAPTER 7

CONCLUSIONS

The role of pourakarmikas as the backbone of the city's waste management system is indisputable. This study was conducted with the broad aim to understand the health status of solid waste management workers called pourakarmikas in Bengaluru city. It also intended to understand the context in which pourakarmikas live and work. Their occupation health, healthcare entitlements and safety measures were also explored.

7.1 Socioeconomic Status

Municipal pourakarmikas working in Bengaluru belong primarily to the scheduled caste community and are Telugu speaking. These are families migrated to Bengaluru from North Karnataka and Andhra Pradesh for livelihood options. Mainly women pourakarmikas migrated to Bengaluru after their marriage. Most workers are married and live with their joint families in rented pucca/semi-pucca houses with LPG/natural gas connection, drinking water supply and indoor bathroom facilities. Most pourakarmikas had family members who were also involved in the pourakarmika occupation and pourakarmikas who were previously employed considered the fixed salary and fixed timings of their occupation as attractive options that other jobs in the unorganised work sector could not offer.

7.2 Health Status

Self-reported health status appears to be largely good among the pourakarmikas. Similarly, selfreported food consumption was fairly balanced and most pourakarmikas not consume fried foods, soft drinks and other junk foods. Mid-day meals provided by the government were utilised only by a small proportion and most preferred to eat in a hotel during their morning break. The disadvantage of their occupation was the early morning timings which prevented them from consuming breakfast and other timely meals.

Most women pourakarmikas have undergone major surgical procedures, the most common of which was tubectomy followed by C-section. Hypertension, arthritis, asthma, diabetes and anemia are the chronic ailments while headache, eye problems, cough/cold/fever; breathing difficulty and stomach related ailments are the recurrent illnesses.

7.3 Working Conditions

Pourakarmikas are supplied with gloves, face masks, boots and chappals. However, there are many complaints including some claiming that they were not supplied any personal protective equipment. Other issues are poor quality and design of the PPE, and no stocks to replenish the existing PPE when it is either lost or worn out.

Lack of sufficient bathroom facilities, place to rest and eat, drinking water facilities and changing rooms for women also have an impact on the health and wellbeing of pourakarmikas. Delayed salaries are another serious concern that hampers pourakarmikas from fulfilling their most basic necessities, including health.

7.4 Healthcare Seeking Behaviour and Healthcare Entitlements

For minor illnesses, pourakarmikas use home remedies or take over the counter medication. Even for work-related injuries, rarely do they visit any health facility. Instead, they treat their cuts/wounds with grease oil or turmeric. If they are ill at work, pourakarmikas do not take a leave of absence for the fear of loss of pay. Instead, they visit private health facilities that are closer to their homes after work. Only permanent pourakarmikas visit empanelled hospitals for treatment of major ailments and for hospitalisations as they are aware of the benefits of their health card. Most contractual workers visit private health facilities and not the ESI hospital for which they are eligible. Lack of knowledge about the entitlements, withholding of the ESI card by the contractors, distance and bureaucratic procedures to navigate within the ESI hospital are the deterrents that prevent pourakarmikas from using ESI facilities. Therefore, pourakarmikas prefer paying out of pocket in a private health facilities even if it means that they have to take loans or go into debt.

7.5 Recommendations

7.5.1 Better occupational safety measures and working conditions

Pourakarmikas should be provided with good quality personal protective equipment that is designed well. The masks should be well-fitted, gloves should be durable and boots should be designed in a way that prevents leakage into the feet. Additionally, caps and goggles should also be provided to prevent headaches from the sun and eye irritation respectively. A continuous supply chain of these safety gears should be maintained for replacements.

Basic cleaning tools like brooms, shovels and equipment to pick up large amounts of waste by the lorry loaders should be provided to reduce the undue burden. The cleaning tools should also be well designed to reduce strain on the musculoskeletal system.

Training should be provided on how to use safety equipment as well as the work equipment. First aid kits should be mandatory in all ward offices with health inspectors and pourakarmikas trained in basic first aid to treat work place injuries before being referred to a higher facility.

Finally, basic amenities like bathroom facilities, changing rooms, drinking water facilities and a place to eat/rest during breaks must be provided to ensure better working conditions and overall wellbeing.

7.5.2 Healthcare Entitlements

Pourakarmikas must be made aware of their healthcare entitlements and their ESI cards should be handed to them. The procedures to avail ESI services should be simplified and assistance should be provided to help the pourakarmikas navigate the system.

Linkages between the urban Primary Health Centres (PHC) and the solid waste management department should be strengthened so that there is a regular health check-up by the medical officers from the PHCs. Screening and early detection for common non-communicable diseases should also be conducted. Awareness sessions on preventive and promotive measures to reduce common ailments like musculoskeletal problems can also be conducted.

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ANNEXURE 1

TYPE I OUESTIONNAIRE: POURAKARMIKA HEALTH STATUS, HEALTH-SEEKING BEHAVIOUR AND OCCUPATIONAL SAFETY MEASURES

INTERVIEW NO:	PK NO:	DATE:
INTERVIEWER(S):		TIME:

	PART A: SOCIO	ECONO	MICDATA
1001	CURRENT JOB TITLE	i, ii, iii, iv,	SWEEPER DRIVER AUTO TIPPER OPERATOR OTHER (SPECIFY)
1002	SEX	i. ii. iii.	MALE FEMALE OTHER (SPECIFY)
1003	AGE	SPEC	IFY IN YEARS
1004	RELIGION	i. ii. iii. iv.	HINDU MUSLIM CHRISTIAN OTHER (SPECIFY)
1005	CASTE	i. ii. iii. iv. v,	SCHEDULED CASTE (SPECIFY) SCHEDULED TRIBE (SPECIFY) GENERAL CASTE (SPECIFY) OTHER BACKWARD CLASS (SPECIFY) OTHER (SPECIFY)
1006	MOTHER TONGUE	i. ii. iii. iv. v. v.	KANNADA TAMIL TELUGU MALAYALAM HINDI OTHER (SPECIFY)
1007	SPEAKING FLUENCY IN (CIRCLE ALL THAT APPLY)	i. ii. iii. iv. v. v. vi.	KANNADA TAMIL TELUGU MALAYALAM HINDI OTHER (SPECIFY)
1008	CURRENT MARITAL STATUS	i 11 11 12 14 14 14 14 14 14 14 14 14 14 14 14 14	MARRIED WIDOWED DIVORCED SEPARATED SINGLE OTHER (SPECIFY)
1009	EDUCATION STATUS		ILLITERATE LITERATE BUT NO FORMAL SCHOOLING COMPLETED UNTIL STANDARD COMPLETED 10 TH STANDARD COMPLETED 12 TH STANDARD/DIPLOMA COLLEGE/BACHELOR DEGREE POST GRADUATE DEGREE OTHER (SPECIFY)
1010	HOW LONG HAVE YOU LIVED IN BENGALURU?	SPEC	IFY (IN YEARS)

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1011	WHERE DID YOU LIVE FOR MOST OF YOUR CHILDHOOD?	SPEC SPEC	IFY STATE:
1012	IF YOU MIGRATED TO BENGALLIBLE WHAT		LIVELINGOD
	WERE THE REASONS?		EDUCATION
		121	EAMILY
		121.	FAMILI BELICION
		W.	KELIGION
		۷.	OTHER (SPECIFY)
1013	MOTHER'S OCCUPATION	i.	POURAKARMIKA
		¥i,	DOMESTIC HELP
		iii.	DAILY WAGE WORKER
		×۲.	OTHER (SPECIFY)
1014	MOTHER'S HIGHEST LEVEL OF EDUCATION	- <u>.</u>	ILLITERATE
		I II	LITERATE BUT NO FORMAL SCHOOLING
		m	COMMETER LATE CTANADA
		1	COMPLETED UNTIL STANDARD
		I IV.	COMPLETED I0 STANDARD
		V.	COMPLETED 12" STANDARD/DIPLOMA
		VI.	COLLEGE/BACHELOR DEGREE
		VII.	POST GRADUATE DEGREE
		VIII.	OTHER (SPECIFY)
015	FATHER'S OCCUPATION	+ i	POURAKARMIKA
		1	DAILY WAGE WORKER
		111	ACRICIT THE WARKER
		u.	AURCULTURE WORKER
		iV,	OTHER (SPECIFY)
016	FATHER'S HIGHEST LEVEL OF EDUCATION	1.	ILLITERATE
		11.	LITERATE BUT NO FORMAL SCHOOLING
		III.	COMPLETED UNTIL STANDARD
		IN.	COMPLETED ION STANDARD
		1 1	COMPLETED 12 TH CTANDARD DIDLOUD
			COMPLETED 12 STANDARD DIPLOMA
		VI.	COLLEGE/BACHELOR DEGREE
		VII.	POST GRADUATE DEGREE
		VIII.	OTHER (SPECIFY)
017	EXCLUDING PARENTS AND SPOUSE, OTHER	i.	BROTHER
	MEMBERS OF YOUR FAMILY WHO WORK AS	ii.	SISTER
	POURAKARMIKAS	III	UNCLE
	and an encounter and an encounter	in.	ATINT
			ATUED RECORDA
	-	V.	UTHER (SPECIP ()
018	YOUR REASONS FOR JOINING THE	Í.	FAMILY TRADITION
	OCCUPATION TO BECOME A POURAKARMIKA	11.	NOT ALLOWED TO WORK ANYWHERE ELSE
		lii.	UNABLE TO FIND JOBS ELSEWHERE
		N.	CONSIDER THIS AS A GOOD LIVELIHOOD OPTION
		٧.	OTHER (SPECIFY AND ELABORATE)
1010			
. 1019	- & EVEN UNLE FOR PAS WHO ARE MARKIED AND Q.	1021 - Q	W23 FOR PKS WITH CHILDREN
)19	SPOUSE'S CURRENT OCCUPATION	i.	POURAKARMIKA
		l ü.	DOMESTIC HELP
		iti.	DAILY WAGE WORKER
		iv.	OTHER (SPECIFY)
20	SPOUSE'S HIGHEST LEVEL OF EDUCATION	L	ILLITERATE
	1	1.	LITERATE BUT NO FORMAL SCHOOLING
	1		TAME PERINTE CONTACT
			LAPATELE (PE) LOVEDE ALAMEDAMENT
			COMPLETED INTIL STANDARD

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		V. COMPLETED 12 th STANDARD/DIPLOMA VI. COLLEGE/BACHELOR DEGREE VII. POST GRADUATE DEGREE
1021	NUMBER OF CHILDREN	GIRLS: BOYS:
1022	DO DID ALL YOUR CHILDREN ATTEND SCHOOL WHEN BELOW THE AGE OF 18?	YESNO
1023	IF YES, WHAT TYPE OF SCHOOL DO THEY ATTEND?	1. GOVERNMENT SCHOOL 11. PRIVATE SCHOOL 111. TRUST/CHARITABLE SCHOOL 11V. OTHER (SPECIFY)
1024	IF NO, PLEASE SPECIFY THE REASON WHY YOUR CHILD&CHILDREN DROPPED OUT OF SCHOOL OR DID NOT GO TO SCHOOL TO BEGIN WITH	REQUIRED TO WORK BECAUSE OF FINANCIAL NEED NOT INTERESTED IN GOING TO SCHOOL MARRIED EARLY V. ELOPED V. SUBSTANCE ABUSE VI. PEER INFLUENCE VI. OTHERS (SPECIFY)
1025	IF ANY OF YOU CHILDREN ARE ABOVE THE AGE OF 18, PLEASE DESCRIBE THEIR CURRENT STATUS -	EMPLOYED FULL TIME EMPLOYED PART-TIME MARRIED V. UNEMPLOYED BUT SEEKING EMPLOYMENT V. UNEMPLOYED BUT NOT SEEKING EMPLOYMENT VI. OTHERS
1026	HOW WOULD YOU DESCRIBE THE NEIGHBOURHOOD YOU LIVE IN?	i. GOVERNMENT HOUSING ii. COMMUNITY HOUSING iii. NOTIFIED SLUM iv. DE-NOTIFIED SLUM v. OTHER (SPECIFY) DESCRIPTION:
1027	WHAT TYPE OF FAMILY DO YOU LIVE IN?	i. JOINT FAMILY and SAME KITCHEN ii. JOINT FAMILY and SEPARATE KITCHEN iii. NUCLEAR FAMILY (ONLY SPOUSE and KIDS) iv. OTHER (SPECIFY)
1028	HOW MANY MEMBERS LIVE IN YOUR HOUSE?	GENDER AGE RELATIONSHIP TO YOU
1029	WHAT TYPE OF HOUSE DO YOU LIVE IN?	vi, KACHHA vii, SEMI-PUCCA viii, PUCCA
		MATERIAL USED IN ROOF:

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,	I MATERIAL UNED IN FILMER
	NUMBER OF WINDOWS: SPACING BETWEEN HOUSES:
HOUSE OWNERSHIP	i. OWNED BY SELF ii. JOINTY OWNED WITH SPOUSE iii. JOINTLY OWNED WITH FAMILY MEMBERS (SPECIFY) iv. RENTED HOUSE
NUMBER OF ROOMS IN THE HOUSE	SPECIFY
TYPE OF TOILET USED	i. SEPARATE TOILET AT HOME ii. COMMON TOILET FOR THE BUILDING iii. PUBLIC TOILET - PAY and USE iv. OPEN DEFECATION v. OTHER (SPECIFY)
SEPARATE KITCHEN	YES/NO
COOKING FUEL	i. ELECTRICITY ii. LPG/NATURAL GAS iii. BIOGAS iv. KEROSENE v. COAL/LIGNITE vi. CHARCOAL vii. WOOD viii. STRAW/SHRUBS/GRASS / AGRICULTURAL CROI WASTE / DUNG CAKES / b. OTHER (SPECIFY)
HOW IS GARBAGE DISPOSED AT YOUR HOME?	i. STREET DUSTBIN ii. MUNICIPALITY WASTE COLLECTOR iii. STREET CORNER iv. OPEN GROUND v. OTHER (SPECIFY)
DRINKING WATER SOURCE	i. CAUVERY/ARKAVATHY WATER CONNECTION ii. BOREWELL iii. MINERAL WATER (Bisleri) iv. OTHER (SPECIFY)
PART B: HEALTH STATUS AND I	IEALTH-SEEKING BEHAVIOURS
IN GENERAL HOW WOULD YOU RATE YOUR HEALTH TODAY? (RATING FROM © TO 10)	
HOW WOULD YOU RATE YOUR HEALTH IN THE PAST 30 DAYS? (RATING FROM 0 TO 10)	
IN THE PAST 30 DAYS, HOW MUCH DIFFICULTY DID YOU HAVE WITH WORK OR HOUSEHOLD ACTIVITIES?	I. NEVER II. RARELY III. SOMETIMES IV. MOST OF THE TIMES V. ALWAYS
<u>2004 – O. 2014</u>) SCALE: – I – NEVER; II – RARELY; III-SOMETIMI	ES: IV – MOST OF THE TIMES; V - ALWAYS
TY: OVERALL IN THE LAST 30 DAYS, HOW MANY DAYS	DID YOU HAVE DIFFICULTY -
	HOUSE OWNERSHIP NUMBER OF ROOMS IN THE HOUSE TYPE OF TOILET USED SEPARATE KITCHEN COOKING FUEL HOW IS GARBAGE DISPOSED AT YOUR HOME? HOW IS GARBAGE DISPOSED AT YOUR HOME? DRINKING WATER SOURCE PART B: HEALTH STATUS AND I IN GENERAL HOW WOULD YOU RATE YOUR HEALTH TODAY? (RATING FROM 0 TO 10) HOW WOULD YOU RATE YOUR HEALTH IN THE PAST 30 DAYS. HOW MUCH DIFFICULTY DID YOU HAVE WITH WORK OR HOUSEHOLD ACTIVITIES? 2004 - O. 2014 2004 - O. 2014 2004 - O. 2014 2004 - O. 2014

2004	WITH MOVING AROUND?	
2005	IN VIGOROUS PHYSICAL ACTIVITY?	
PAIN A	ND DISCOMFORT OVERALL IN THE LAST 39 DAYS -	
2006	HOW MANY DAYS OF BODY ACHES DID YOU HAVE?	
2007	HOW MANY DAYS OF PHYSICAL ILLNESS LIKE FEVER, COUGH, COLD, HEADACHE OR OTHER PHYSICAL ILLNESS DID YOU HAVE?	
COGNI	TION: OVERALL IN THE LAST 30 DAYS, HOW MUCH DI	FFICULTY -
2008	DID YOU HAVE WITH CONCENTRATING OR REMEMBERING THINGS?	
<u>SLEEP</u>	AND ENERGY :OVERALL IN THE LAST 30 DAYS. HOW,	MANY DAYS DID YOU -
2009	HAVE DIFFICULTY WITH SLEEPING, WAKING UP FREQUENTLY DURING THE NIGHT OR WAKING UP TOO EARLY IN THE MORNING?	
2010	NOT FEEL WELL-RESTED AND REFRESHED DURING THE DAY (FOR EXAMPLE, FEELING TIRED, NOT HAVING ENERGY)?	
SFFEC	T: OVERALL IN THE LAST 30 DAYS, HOW MANY DAYS I	ND YOU
2011	FEEL SAD, LOW OR DEPRESSED?	
2012	FEEL WORRIED OR ANXIOUS?	
INTER	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA	YS HOW WELL WERE YOU ABLE TO COPE WITH
INTER 2013	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY?	YS HOW WELL WERE YOU ABLE TO COPE WITH
INTER 2013 2014	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY? IN DEALING WITH CONFLICTS AND TENSIONS WITH OTHERS?	YS HOW WELL WERE YOU ABLE TO COPE WITH
1NTER 2013 2014 VISION	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY? IN DEALING WITH CONFLICTS AND TENSIONS WITH OTHERS?	YS HOW WELL WERE YOU ABLE TO COPE WITH
INTER 2013 2014 <u>VISION</u> 2015	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY? IN DEALING WITH CONFLICTS AND TENSIONS WITH OTHERS? : IN THE PAST 30 DAYS - HAVE YOU USED GLASSES OR CONTACT LENSES TO SEE <u>FAR AWAY OBJECTS OR</u> NEARBY OBJECTS?	YS HOW WELL WERE YOU ABLE TO COPE WITH
INTERI 2013 2014 <u>VISION</u> 2015 2016	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY? IN DEALING WITH CONFLICTS AND TENSIONS WITH OTHERS? : IN THE PAST 30 DAYS - HAVE YOU USED GLASSES OR CONTACT LENSES TO SEE FAR AWAY OBJECTS OR NEARBY OBJECTS? HAVE YOU EXPERIENCED BLURRED VISION?	YS HOW WELL WERE YOU ABLE TO COPE WITH
INTERI 2013 2014 <u>VISION</u> 2015 2016 MEDIC	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY? IN DEALING WITH CONFLICTS AND TENSIONS WITH OTHERS? : IN THE PAST 30 DAYS - HAVE YOU USED GLASSES OR CONTACT LENSES TO SEE FAR AWAY OBJECTS OR NEARBY OBJECTS? HAVE YOU EXPERIENCED BLURRED VISION? AL HISTORY	YS HOW WELL WERE YOU ABLE TO COPE WITH
INTERI 2013 2014 VISION 2015 2016 MEDIC 2017	PERSONAL ACTIVITIES: OVERALL IN THE LAST 30 DA WITH PERSONAL RELATIONSHIPS OR PARTICIPATION IN THE COMMUNITY? IN DEALING WITH CONFLICTS AND TENSIONS WITH OTHERS? : IN THE PAST 30 DAYS - HAVE YOU USED GLASSES OR CONTACT LENSES TO SEE FAR AWAY OBJECTS OR NEARBY OBJECTS? HAVE YOU EXPERIENCED BLURRED VISION? AL HISTORY HAVE YOU EVER UNDERGONE ANY MAJOR SURGERIES?	I. HEART SURGERY I. EYE SURGERY II. OTHER (SPECIFY)

vii. DIABETES vini. DEPRESSION OTHER MENTAL DISORDERS ix. (SPECIFY) HYPERTENSION (HIGH BP) Χ., xi. HYPERCHOLESTEROLEMIA (HIGH CHOLESTEROL) ISCHEMIC HEART DISEASE xii. xiii. OTHER CARDIOVASCULAR DISEASES (SPECIFY) xiv. CANCER (SPECIFY) ASTHMA XV. CHRONIC BRONCHITIS avi. xvii. CHRONIC/RECURRENT TUBERCULOSIS OTHER RESPIRATORY DISEASES xviii. (SPECIFY) PTERYGIUM XIX. CATARACT XX. xi. OTHER EYE/VISION PROBLEMS (SPECIFY)_ HEARING PROBLEMS xxii. (SPECIFY)_ xxiii. EPILEPSY STROKE xxiv. ALZHEIMER'S XXV. **OTHER NEUROLOGICAL PROBLEMS** XXVI. (SPECIFY) THYROID DISEASE xxvii. xviii. CHRONIC HEPATITIS CHRONIC KIDNEY DISEASE XXIX. PYORRHEA XXX. OTHER ORAL HEALTH PROBLEMS xxxi. (SPECIFY) **PSORIASIS** xxxii. axin. **OTHER SKIN DISEASES** (SPECIFY) FOR WOMEN **ENDOMETRIOSIS** xxiv. XXXV. POLYCYSTIC OVARY SYNDROME OTHER OBSTETRIC/GYNECOLOGICAL DISEASES xxxvi. (SPECIFY)_ 2019 WHERE DO YOU GENERALLY GO FOR DO NOT SEEK TREATMENT CURRENTLY BUT i. TREATMENT FOR THE ABOVE CHRONIC USED TO SEEK BEFORE DISEASES? ii. NEVER STARTED TREATMENT GOVERNMENT HOSPITAL ΠĽ. (SPECIFY) PRIVATE HOSPITAL/NURSING HOME iv. (SPECIFY) NGO/TRUST HOSPITAL ٧.

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NO LIVE TO GO TO CLANCHOSPITAL	.11	STOPPED TREATMENT, WHAT ARE THE	
100 EXFENSIVE	1	IF YOU NEVER SOUGHT TREATMENT OR	5050
ils	vcintie I	WHY DO YOU PREFER THE ABOVE FACILITY (F	0202
(SPECIFY)			
OTHERS	inz		
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PHARMACY/DRUGSTORE	iv .		
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CELECTER)	34		

				x. Xi.	FRIENDLY OR HELP OTHER (SPECIFY)	PROFESSIONAL A FUL	KE NOI
2022	WHAT ARE	OUR RECURRE	UT NEAT TH		010	*****	
****	PROBLEMS?	(CIRCLE ALL TH	IAT APPLY)		COLO		
		(111	FEVER		
				xii.	LEG PAIN		
				xini.	BACK PAIN		
				xiv.	HIP PAIN		
	1			XV.	HEAD ACHE		
				XVI .	CHEST PAIN		
				xvii.	GENERAL BODY AC	HES	
				XVIII.	TIREDNESS		
				XIX.	EYE IRRITATION		
				XX.	SNEEZING		
				XU.	DIFFICULTY BREAT	HING	
				XXII.	SKIN INFECTION		
				XXIII.	CUTS/BRIUSES		
				XXV.	OTHER		
					(SPECIEY)		
1024	WHAT ARE T	HE FACTORS TH	AT HAVE HELP	ED YOU MC	IST IN COPING WITH Y	OUR ILLNESS(ES)	? (family,
2024	WHAT ARE T friends, colleag substances, acc	HE FACTORS TH ues, other social su ess to health facilit	AT HAVE HELP pport, employer or ics, government su	ED YOU MC o-operation, s pport etc]	IST IN COPING WITH Y elf-motivation, education,	OUR ILLNESS(ES) awareness, alcohol	? [family, other
2024 <u>RECEN</u> 2025	WHAT ARE T friends, colleag substances, acc TILLNESS EPISO IN THE LAST SYMPTOMSJ	HE FACTORS TH ues, other social su ess to health facilit DE(S) MONTH, DID YO LINESS THAT C	AT HAVE HELP pport, employer o ics, government su U FACE ANY AUSED YOU	ED YOU MC o-operation, s pport etc] YES/N	IST IN COPING WITH Y elf-motivation, education, 0	OUR ILLNESS(ES) awareness, alcoholi	? [family, other
2024 RECEN 2025	WHAT ARE 1 friends, colleag substances, acc <i>TILLNESS EPISO</i> IN THE LAST SYMPTOMSJ SIGNIFICANT	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LINESS THAT C. DISCOMFORT?	AT HAVE HELP pport, employer o ics, government su U FACE ANY AUSED YOU	ED YOU MC o-operation, s pport etc] YES/N	IST IN COPING WITH Y elf-motivation, education,	OUR ILLNESS(ES) awareness, alcoholi	? [family, other
2024 <u>RECEN</u> 2025 2026	WHAT ARE T friends, colleag substances, acc TILINESS EPISO IN THE LAST SYMPTOMST SIGNIFICANT IF YES, DESC	HE FACTORS TH ues, other social su ess to health facilit <u>DE(S)</u> MONTH, DID YO LLNESS THAT CJ DISCOMFORT? RIBE ALL THE IL	AT HAVE HELP poot, employer o ics, government su U FACE ANY AUSED YOU LNESSES YOU I	ED YOU MC o-operation, s pport esc] YES/N	IST IN COPING WITH Y elf-motivation, education, 0 HE LAST MONTH	OUR ILLNESS(ES) awareness, alcoholi	? [family, other
2024 <u>RECEN</u> 2025 2026	WHAT ARE T friends, colleag substances, acc THLNESS EPISO IN THE LAST SYMPTOMS/I SIGNIFICANT IF YES, DESC Outcome Code improvement n Effect on work three hours and than 1 day.	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LLNESS THAT C: DISCOMFORT? RIBE ALL THE IL s are as follows: 1	AT HAVE HELP pport, employer of ics, government su U FACE ANY AUSED YOU INESSES YOU I failly cured; 2- pa s: 1 - resumed wo ; 3- took half day of	ED YOU MC o-operation, s ipport etc] YES/N FACED IN T rtially cured; ek immediate off; 4 missed	IST IN COPING WITH Y elf-motivation, education, o HE LAST MONTH 3 – no improvement had t ly: 2 – took rest for about the next day also; 5 – mise	OUR ILLNESS(ES) awareness, alcohold o go to another doct two to sed more	? [family, other or; 4 – no
1024 1ECEN 1025 1026	WHAT ARE T friends, colleag substances, acc interferences, acc interfe	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LLNESS THAT C DISCOMFORT? RIBE ALL THE IL s are as follows: 1	AT HAVE HELP pport, employer o ics, government su U FACE ANY AUSED YOU LNESSES YOU I fully cured; 2- pa s: 1 resumed wo ;3- took half day o OLD/NEW	ED YOU MC o-operation, s ipport etc] YES/N FACED IN T rtially cured; ek immediate off; 4 missed WH	IST IN COPING WITH Y elf-motivation, education, O HE LAST MONTH 3 – no improvement had t ly: 2 – took rest for about the next day also; 5 – miss AT DID YOU DO?	OUR ILLNESS(ES) awareness, alcohold o go to another doct two to sed more OUTCOME	er; 4 - no er; 4 - no er; 2 - no
024 EECEN 025 026	WHAT ARE T friends, colleag substances, acc interferences, acc interfe	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LLNESS THAT C: DISCOMFORT? RIBE ALL THE IL s are as follows: 1 o further action. codes are as follow went back to work SYMPTOM	AT HAVE HELP pport, employer of ics, government su U FACE ANY AUSED YOU LNESSES YOU I fully cured; 2- pa s: 1 resumed wo ;3- took half day of OLD/NEW	ED YOU MC o-operation, s ipport etc] YES/N FACED IN T rtially cured; ek immediate off; 4 missed WH	IST IN COPING WITH Y elf-motivation, education, O HE LAST MONTH 3 – no improvement had t ly: 2 – took rest for about the next day also; 5 – miss AT DID YOU DO?	OUR ILLNESS(ES) awareness, alcohold o go to another doct two to sed more OUTCOME	er; 4 - no er; 4 - no EFFECT ON WORK
024 ECEN 025 026	WHAT ARE T friends, colleag substances, acc In THE LAST SYMPTOMS/I SIGNIFICANT IF YES, DESC Outcome Code improvement n Effect on work three hours and than 1 day.	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LLNESS THAT C: DISCOMFORT? RIBE ALL THE IL s are as follows: 1 - o further action. codes are as follow went back to work SYMPTOM	AT HAVE HELP pport, employer of ics, government su U FACE ANY AUSED YOU LNESSES YOU I fully cured; 2- pa s: 1 resumed wo ;3- took half day of OLD/NEW	ED YOU MC o-operation, s ipport etc] YES/N FACED IN T rtially cured; ek immediate off; 4 missed WH	IST IN COPING WITH Y elf-motivation, education, O HE LAST MONTH 3 – no improvement had t ly: 2 – took rest for about the next day also; 5 – miss AT DID YOU DO?	OUR ILLNESS(ES) awareness, alcohold o go to another doct two to sed more OUTCOME	er; 4 - no er; 4 - no er; WORK
024 ECEN: 025 026	WHAT ARE T friends, colleag substances, acc In THE LAST SYMPTOMS/I SIGNIFICANT IF YES, DESC Outcome Code improvement n Effect on work three hours and than 1 day.	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LLNESS THAT C: DISCOMFORT? RIBE ALL THE IL s are as follows: 1 o further action. codes are as follow went back to work SYMPTOM	AT HAVE HELP pport, employer of ics, government su U FACE ANY AUSED YOU LNESSES YOU I fully cured; 2- pa s: 1 resumed wo ;3- took half day of OLD/NEW	ED YOU MC o-operation, s ipport etc] YES/N FACED IN T rtially cured; ek immediate off; 4 missed WH	IST IN COPING WITH Y elf-motivation, education, O HE LAST MONTH 3 - no improvement had t ly: 2 - took rest for about the next day also; 5 - miss AT DID YOU DO?	OUR ILLNESS(ES) awareness, alcohold o go to another doct two to sed more OUTCOME	er; 4 - no er; 4 - no er; 4 - no er; 4 - no er; 4 - no
024 ECEN 025 026	WHAT ARE T friends, colleag substances, acc In THE LAST SYMPTOMS/I SIGNIFICANT IF YES, DESC Outcome Code improvement n Effect on work three hours and than 1 day.	HE FACTORS TH uess, other social su ess to health facilit DE(S) MONTH, DID YO LLNESS THAT C: DISCOMFORT? RIBE ALL THE IL s are as follows: 1 o further action. codes are as follow went back to work SYMPTOM	AT HAVE HELP pport, employer of ics, government su U FACE ANY AUSED YOU LNESSES YOU I fully cured; 2- pa s: 1 resumed wo ; 3- took half day of OLD/NEW	ED YOU MC o-operation, s ipport etc] YES/N FACED IN T rtially cured; ek immediate off; 4 missed WH	IST IN COPING WITH Y elf-motivation, education, O HE LAST MONTH 3 – no improvement had t ly: 2 – took rest for about the next day also; 5 – miss AT DID YOU DO?	OUR ILLNESS(ES) awareness, alcohold o go to another doct two to sed more OUTCOME	? [family, other or; 4 — во EFFECT ON WORK
2027	DID YOU VISIT A DOCTOR OR ANY OTHER HEALTHCARE PROFESSIONAL IN THE LAST MONTH?		YES/	YES/NO			
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2028	IF YES. DESCRIBE ALL YOUR VISITS						
	S.NO REASON	TYPE OF DOCTOR/HEALTH FACILITY		TREATMENT GIVEN	TOTAL COST (IN RS.)	OUTCOME	
		1	1				
RISK FA	CTORS AND PREVENTIVE HEALTH	BEHAVIOURS					
2029	HOW OFTEN DO YOU AND YO MEMBERS EAT THE FOLLOWI DAILY, WEEKLY, OCCASIONA	UR FAMILY NG FOOD ITEMS: LLY, OR NEVER?	DAIL	Y WEEKLY OCCAS	SIONALLY	NEVER 4	
	A) MILK/CURD B) PULSES/BEANS						
	C) DARK GREEN LEAFY VEGETABLES						
	D) FRUITS						
	E) EGGS						
	F) FISH						
	G) CHICKEN/MUTTON						
	H) FRIED FOODS						
	J) COLD/DRINKS						
			<u> </u>				
2030	HOW MANY TIMES A DAY DO COOKED FOOD?	YOU EAT HOME	1. 11. 11. 11. 11.	ALL THREE TIMES TWICE ONCE NONE			
2031	DO YOU OR ANY MEMBER OF YOUR FAMILY USE TOBACCO?		YES	YES/NO/DON'T KNOW			
2032	WHAT FORM OF TOBACCO IS USED?		L IL IIL	I. BIDI II. CIGARETTES III. HOOKAH			
			IV. V. VI.	GUTKHA/PAAN MA KHAINI PAN WITH TOBACO	ISALA WITH	TOBACCO	
			VII. VII.	SNUFF OTHER CHEWING	говассо		
2033	IN WHAT FREQUENCY?		L L	ALMOST EVERY D ABOUT ONCE A WI	AY IFK		

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ANNEXURE 2

Interview Guide

- 1. Describe your role and how long you have been in this job.
- 2. What are the entitlements and benefits provided to the pourakarmikas?
- 3. What are the type of pourakarmikas and their job responsibilities?
- 4. What are the common health problems that they face?
- 5. What are the safety measures provided by the BBMP?
- 6. Are there any benefits, leave policy, retirement policy, pension, salary and other benefits?
- 7. Are there any dedicated health personnel for pourakarmikas? Are there any dedicated services for the pourakarmikas?
- 8. What are the challenges you face?
- 9. Do you have any other comments?