

**Health-related Lifestyle Behaviour and Self-reported
Morbidity Among Interstate Migrant Workers in
Thiruvananthapuram District, Kerala.**

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DECLARATION

I hereby declare that this dissertation titled “**Health-related Lifestyle Behaviour and Self-reported Morbidity Among Interstate Migrant Workers in Thiruvananthapuram District, Kerala,**” is an original account of my field research. It has not been presented to any other university or institution for the purpose of obtaining a degree or diploma. Any information taken from other published or unpublished sources has been appropriately cited within the text.

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CERTIFICATE

Certified that the dissertation entitled “**Health-Related Lifestyle Behaviour and Self-reported Morbidity Among Inter-State Migrant Workers in Thiruvananthapuram District, Kerala**” is an original research work conducted by Dishari Khan. This study was carried out under my guidance and supervision as part of the requirements for the award of the degree of Master of Public Health.



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Glossary of Abbreviations

Abbreviation	Full form
TVM	Thiruvananthapuram
SDGs	The Sustainable Development Goals
IMO	International Organization for Migration
NACO	National AIDs Control Organization
PCA	Principal Component Analysis
WHO	World Health Organization
SCAT	Social Capital Assessment Tool
NGO	Non-Governmental Organization
MSA	Measure of Sampling Adequacy

Abstract

Background: Interstate migrant workers in Kerala face significant health challenges due to precarious living conditions, occupational uncertainties and mostly a fragmented social support. The COVID-19 pandemic primarily highlighted the vulnerabilities faced by this population due to their transient nature, emphasizing the need to address health disparities and integrate migrant workers into public health frameworks aligned with Sustainable Development Goals (SDGs). This study triangulated lifestyle behaviours, self-reported morbidity, social capital, and living conditions among migrant workers.

Methodology: A cross-sectional study conducted among 280 migrant labourers (predominantly male construction workers from West Bengal, Assam, and Bihar) using cluster sampling. Data were collected via structured interview translated into Hindi and Bangla. Social capital was assessed using a 10-item scale analyzed through principal component analysis (PCA). Multivariable logistic regression identified an association between some variables like hygiene, social network and morbidity.

Results: key findings reveals that 60% reported at least one health issues which are predominantly musculoskeletal disorders like backache (16%), tobacco use (33% smoked, 28% smokeless) and consume alcohol (42%). Among them 92% are living in overcrowded place and poor hygiene maintenance doubled morbidity risk. Gender difference in social capital was shown where men reported a higher social capital then women. Longer residency (>48 months) increased social capital ($p < 0.001$) but also morbidity.

Conclusion: This study highlights that economic stress, cohesive social network, and poor hygiene are the modifiable determinants in migrant workers. An integrated approach- such as expanding migrant-focused outreach through initiatives like the Link-Worker Scheme and

adopting a cross-state “corridor approach,” can ensure continuous care. Addressing these gaps can advance equitable health outcomes, aligning with SDGs to ensure no migrant is “left behind”.



Chapter 1

Introduction

Background

Migration means the movement from one place to another. Migration is a phenomenon as ancient as human civilization itself, dating back to our nomadic ancestors who moved from one location to another in search of food, safety, and improved living conditions. Migration can occur either voluntarily or involuntarily. Voluntary migration typically involves individuals seeking better opportunities in life by choice, whereas involuntary migration can take various forms, such as human trafficking for sex trade or slavery. During migration, a person transitions from an emigrant to an immigrant, each status carrying its importance. Migration has a significant impact not only on the individual but also on their family.

Unplanned migration can place stress on public services and create economic, social, and environmental challenges for the host region. Migrants often constitute a vulnerable group with specific health needs.

Migration and health are now recognized as a global public health priority. The Sustainable Development Goals (SDGs) highlight the essential role of including migrants in fulfilling their commitment to "leave no one behind." (Coordination, 2017). The complexities of migration in India were highlighted during the COVID-19 pandemic, revealing the challenges faced by migrants.

Inter-State Migrant (ISM) labourers are defined as individuals from the Lower Income Group who migrate from their home state to another within India in search of higher wages,

improved quality of life, better amenities, and other push and pull factors that drive their migration. Due to their constant movement, they are often referred to as a floating population(Ashok and Thomas, 2015).

The health of migrant workers is a critical concern, particularly in regions like Kerala, where the influx of migrants has been significant. An estimated 3.5 million interstate migrant workers have become an indispensable part of Kerala's economy (Kallungal, 2021). Trivandrum, the capital of Kerala, has seen a rapid increase in the number of migrant workers, predominantly from other states of India. These workers are often employed in low-paying, labor-intensive jobs and live in suboptimal conditions, which can significantly impact their health. This study aims to explore the relationship between the health-related life-style behavior and self-reported morbidity of interstate migrant workers in the Trivandrum district and their social capital, with a particular focus on how their living conditions influence health outcomes.

Rationale for the Study

The health-related behaviour of migrant workers is a critical area of public health research, particularly in the context of the growing number of interstate migrants in states like Kerala. Understanding the factors that influence their health behaviours, self-reported morbidity, and social capital is essential for developing targeted interventions that can improve their health outcomes. This study aims to fill the knowledge gap by providing insights into the health-related behaviour of migrant workers in Thiruvananthapuram, Kerala, and identifying strategies to enhance their well-being.

Objectives

- To analyze the factors associated with health-related lifestyle behaviours and self-reported morbidity among migrant workers.
- To explore the contribution of social capital to health-related lifestyle behaviours among interstate migrant workers
- To assess the role of living conditions in shaping the health outcomes of migrant workers.

Chapter 2

Literature Review

2.1 Definitions

2.1.1 Migration

According to the International Organization for Migration (IMO), migration refers to the movement of people from one location to another, which can be within a country (internal migration) or across international borders (international migration). This movement of people involves various forms, regardless of the duration, nature, or reasons behind it. It includes the movement of refugees, displaced individuals, and those who are uprooted and economic migrants. *(International Organization for Migration, 2022)*

2.1.2 Migrant

The term "migrant" does not have a universally accepted definition. Nonetheless, it typically refers to individuals and families who move to another country or region in search of improved material or social circumstances, seeking to create better opportunities for themselves and their families. Migrants are those who, either by choice or necessity, leave their regular place of residence for various reasons, such as pursuing employment, education, or fleeing conflict.

2.1.3 Migrant Worker

The term "migrant worker" refers to a person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national. *(OHCHR, 2018)* Migrant workers are a specific subset of migrants who move

primarily for work-related reasons, often seeking better employment opportunities and living conditions.

2.2 Types of Migration

Migration can be categorized into several types based on the direction and duration of movement. Migration basically is classified into international and internal migration. The migration across an international border is different from the movement across the administrative boundary within a country.(Skeldon, 2004) Based on duration of migration it can be termed long term or short term migration. Seasonal migration is common in agriculture, where workers move based on the agricultural calendar. In contrast, forced migration occurs due to conflict, persecution, or environmental disasters.

2.2.1 International Migration

International migration refers to the movement of people across national borders leaving their country of origin with the intention of settling temporarily or permanently in a new country.(*International Organization for Migration*) International migration is as old as human civilization. Famine, victory in war and other factors play an important role in international migration(*Sociology Discussion - Discuss Anything About Sociology*, 2016)

2.2.2 Internal Migration

A movement of people from one area of a country to another for the purpose or with the effect of establishing a new residence. Internal migration is an important and pervasive feature of the Indian economy and society. The 2011 Census enumerated 450 million internal migrants based on place of last residence, or 37 percent of the total population (Policy Brief - Internal Migration and Urbanization - India Policy Brief 12 Feb 2021).Internal migration is

further subcategorized, can be interstate either the migration from one state to another or intrastate migration, where the migration is within one state.

The distribution of migrants can be categorized according to migration streams, which are determined by comparing their place of last residence or birth with their current place of enumeration (Raman and Bhagat, 2006). Based on the place of last residence (or birth) and the place of enumeration, internal migrants can be classified into three migration streams: intra-district, inter-district and interstate migrants which roughly indicate the distance of migration. Interstate migrants are individuals whose last residence was in India but outside the state of enumeration. Based on the rural or urban context, internal migrants are further classified into four categories: rural-to-rural, rural-to-urban, urban-to-rural, and urban-to-urban migration streams.(Raman and Bhagat, 2021)

2.2.3 Circular migration

Circular migration is defined as the fluid movement of people between countries, encompassing both temporary and long-term migration. When it occurs voluntarily and is aligned with the labour needs of both the countries of origin and destination, it can be beneficial for all parties involved. Circular labour migration is emerging as a new form of labour migration in which economically disadvantaged individuals migrate on a seasonal basis to more prosperous areas in search of better opportunities. This type of migration helps prevent further impoverishment by providing temporary access to employment and income (Bird and Deshingka, 2009)

2.2.4 In migration and out migration

The two main dimensions of migration, in-migration and out-migration, coexist and are interconnected. Mueser and White, in their paper on explaining the association between rates of in-migration and out-migration, highlight that areas attracting a large number of migrant arrivals tend to have populations that are more prone to migration. This increased migration propensity, in turn, raises the potential for out-migration from those areas.(Mueser and White, 1989)

2.3 Reasons for Migration

Migration is a multifaceted phenomenon influenced by various push and pull factors. Understanding these factors is crucial.

Economic Factors:

Economic motivations are often cited as primary drivers of migration. Many individuals migrate in search of better employment opportunities, higher wages, and improved living standards. For instance, the International Labour Organization (2021) reported that economic inequalities and poor labor standards in home countries compel individuals to seek work abroad, particularly in high-income nations(*Migration data portal*, 2024). In India, the 2020-21 Periodic Labour Force Survey indicated that approximately 10.8% of migrants moved for employment-related reasons, highlighting the significant role of economic factors in migration decisions(Migration of Labour in the Country, 2023).

Social and Political Factors:

Social and political conditions also play a critical role in migration. Factors such as persecution, conflict, and human rights violations can push individuals to leave their home

countries. The European Parliament (2020) emphasizes that many migrants flee from armed conflicts or oppressive regimes, seeking safety and stability elsewhere(*Europarl*, 2020). In India, demographic changes—such as population growth and urbanization—further exacerbate these conditions, leading to increased migration from rural to urban areas in search of better opportunities(Kumar and Choudhury, 2021)

Environmental Factors:

Environmental changes are increasingly recognized as significant drivers of migration. Natural disasters and climate change compel individuals to relocate for survival(*World Bank*, 2023). . According to the International Organization for Migration, environmental migrants are those who leave their homes due to adverse environmental changes.

Demographic Trends:

Demographic shifts within both sending and receiving countries also affect migration dynamics. A youthful population in certain regions may lead to increased labour migration as young individuals seek employment opportunities abroad. Conversely, aging populations in destination countries create demand for migrant labour to fill gaps in the workforce. This interplay between demographics and labour needs shapes the migration landscape significantly (Chomik et al., 2017).

The reasons for migration among workers are complex and interrelated, encompassing economic aspirations, social and political pressures, environmental challenges, and demographic trends.

2.4 Magnitude of the Phenomenon

Migration is a multi-dimensional phenomenon which extends beyond the simple movement of people from one place to another. It covers all broader spectrum of social, political, economic and cultural factors that affect both places of origin and the places of destination (Skeldon, 2006). Regional differences in job opportunities, pay and living conditions have contributed to the significant increase in internal migration in India over years, particularly for employment (Migration and Human Development in India, 2009)

2.4.1 Global Scenario

Migration has become a significant global phenomenon, with an estimated 270 million people living outside their country of birth as of 2019, marking an increase of 120 million since 1990. This accounts for approximately 3% of the world's population, a figure that has remained relatively stable over the past six decades. Notably, the share of immigrants in advanced economies has risen from 7% to 12%, while emerging markets and developing economies maintain a steady rate of around 2% (IMF, 2020). The drivers of migration are multifaceted, encompassing economic disparities, social and political instability, environmental factors, and demographic changes (Castelli, 2018; *Europarl*, 2020).

2.4.2 Indian Scenario

In India, migration is primarily driven by economic factors, with many individuals seeking better job opportunities and living conditions. According to the Periodic Labour Force Survey of 2020-21, about 10.8% of migrants moved for employment-related reasons (Migration of Labour in the Country, 2023). The country has seen a significant outflow of labour migrants to regions like the Middle East and Southeast Asia due to income disparities

and demand for labour. Furthermore, internal migration within India is substantial, with rural-to-urban migration patterns reflecting a search for improved livelihoods amidst urbanization and economic growth(MFA, 2023).

2.4.3 Kerala Scenario

Kerala presents a unique case within India regarding migration patterns. From census 2001, of the 31.83 million population of Kerala, 1.3% of the populations were interstate migrants and the 2001 census data reveals a share of about 11.77% interstate migrants in Kerala is from Thiruvananthapuram district (Surabhi and Kumar, 2007). The state has a long history of labour migration, particularly to the Gulf countries. As of recent estimates, around 2 million Keralites are working abroad, contributing significantly to the state's economy through remittances. The socio-economic landscape in Kerala is influenced by these remittances, which have been pivotal in reducing poverty and enhancing living standards. However, this reliance on external migration also poses challenges such as brain drain and social issues related to family separation (MFA, 2023). The state's demographic profile—characterized by a high literacy rate and a relatively young population—further drives migration as individuals seek opportunities beyond local employment markets.

Kerala has seen a significant rise in migrant workers from states like Tamil Nadu, Karnataka, West Bengal, Odisha, Bihar, Assam, and Manipur. Many of these workers leave their home regions due to low wages, lack of jobs, or limited employment opportunities in agriculture and other fields. In Kerala, they find work primarily in construction, agriculture, plantations, and road maintenance, often taking on the more challenging and hazardous jobs. Migrant vulnerability stems from living in an environment with unfamiliar culture, language, social norms, legal protections, and consumption habits, coupled with the loss of their traditional

support systems. Moving from one state to another can also mean losing access to certain entitlements, as many central government schemes are primarily accessible through local or state governments. For example, migrant workers in Kerala often cannot benefit from the public distribution system and rely more on the open market, leaving them more exposed to fluctuations in prices. (Kumar, 2013)

2.5 Health-Related lifestyle Behaviour

Health-related behaviours, also known as health behaviour, refer to the activities individuals engage in that have an impact on their health or lifespan. These activities can be either deliberate or accidental and may either enhance or harm the health of the individual or others. There are numerous examples of behaviours that fall into this category, including smoking, substance use, dietary choices, physical exercise, sleep patterns, engaging in risky sexual practices, seeking healthcare, and following prescribed medical treatments. While health behaviours are often considered at the individual level, they can also be assessed and aggregated for groups or populations. These behaviours are not static; they change throughout a person's life, vary among different groups, and settings, and evolve over time (Short and Mollborn, 2015). Our health-related behaviours are not just random actions; they tend to occur together in patterns that are influenced by the social groups we belong to.

2.6 Self-Reported Morbidity

Self-reported morbidity refers to individuals' perceptions of their own health status and the prevalence of illness or health-related issues. This subjective measure is crucial for understanding the health challenges faced by various populations, including migrant workers. Studies indicate that migrant workers often report higher levels of morbidity compared to

non-migrants due to several factors, including poor living conditions, lack of access to healthcare, and occupational hazards (Kusuma and Babu, 2018).

Migrants' populations health is determined by various factors like nutrition, housing, healthy environment, occupational conditions, access to health care and education. Migrant workers are often concentrated in lower-income labour markets, where they face a heightened risk of unsafe working conditions and have limited job security. These workers frequently take on high-risk jobs, often with minimal protection or oversight, which increases their exposure to workplace hazards. Public health risks also emerge within migrant populations, especially when contagious diseases are involved, as the mobility of infected individuals can facilitate the spread of illnesses across regions. Health risks among migrants are influenced by various factors, including the motivations behind their migration, the nature of their work, and conditions both in their place of origin and at their destination. These motivations might include the search for better income, job security, or escaping conditions of poverty, which often push individuals toward accepting hazardous work environments. At the destination, environmental factors—such as overcrowded housing, inadequate sanitation, limited access to healthcare, and the availability of safe drinking water—further contribute to the vulnerability of migrant health. The health of migrant workers is additionally impacted by poor living conditions. Many live in cramped quarters with insufficient access to essential services, which increases their risk of infectious diseases. Poor nutrition, inadequate sanitation, lack of proper shelter, and poor-quality drinking water are all common issues faced by migrant populations, and these factors collectively deteriorate their overall well-being. These conditions underscore the need for comprehensive policies that address both the occupational and environmental health concerns of migrant workers, as their welfare is often

compromised in the absence of such support (Krishna and Raj, 2022a). Research shows that migrant workers frequently experience mental health issues, such as anxiety and depression, stemming from social isolation and the stress of adapting to new environments (Singh, 2021). For instance, a study conducted among migrant workers in Kerala found that 30% reported experiencing significant psychological distress. Furthermore, physical health issues, including respiratory problems and musculoskeletal disorders, are prevalent among workers engaged in labor-intensive jobs (Gupta, 2021). The lack of access to healthcare services exacerbates these health issues, as many migrants are unaware of available health resources or face barriers such as cost and mobility (Santalahti et al., 2020).

A study in urban setting of migrants reported the prevalence of 43.5% of self-reported morbidity. The extent to which individuals report illnesses often depends on their level of awareness regarding health issues, influenced by factors at the individual, household, and community levels (Sreejini, 2012a). Self-reported morbidity measures may introduce biases, since they reflect individual perceptions of health and measures something different to actual health. Among migrant labourers in the construction sector, there is a strong link between the type of job performed and the likelihood of health issues.(Ghosh and Arokiasamy, 2009)

2.7 Social Capital

Social capital refers to the networks, relationships, and norms that facilitate collective action within a community. It encompasses the value derived from social networks that can enhance individuals' ability to achieve their goals. According to Putnam (2000), social capital is crucial for fostering cooperation and collaboration among individuals, which can lead to improved health outcomes and social well-being (Putnam, 2000). In the context of migration,

social capital plays a significant role in shaping the experiences of migrants, influencing their integration into host communities, and affecting their access to resources. Migrants often rely on social networks to navigate their new environments. These networks can provide emotional support, information about job opportunities, and assistance with housing and healthcare (Portes, 1998). The presence of strong social ties can mitigate the challenges faced by migrants, such as discrimination and isolation, ultimately contributing to better health outcomes (Ehsan et al., 2019).

2.7.1 Health and Social Capital

The interplay between health and social capital is well-documented in literature. Higher levels of social capital are associated with better health outcomes due to increased access to resources and support systems. For instance, studies have shown that individuals with strong social ties are more likely to engage in health-promoting behaviors, adhere to medical advice, and access healthcare services (Berkman et al., 2000). Conversely, lack of social capital can lead to increased stress and poorer health outcomes among migrants (Kawachi and Berkman, 2014). In India, where migration is prevalent, understanding the role of social capital is essential for addressing health disparities among migrant populations. Migrant workers often face barriers to healthcare access due to their transient nature and lack of integration into local communities (Krishna and Raj, 2022b). Enhancing social capital through community engagement initiatives can improve health literacy and access to services for these populations

2.7.2 Social capital and Migration

Social capital and migration are deeply interconnected phenomena that shape individual and collective experience in both origin and destination communities. Social capital broadly

defined as the resources embedded in social network and relationships that play a crucial role in migration processes by influencing the decision of migrate, facilitating integration and shaping outcomes of migrants and their families.(Editör, 2023). Social capital is often a key factor in the decision to migrate and in the ability to do so. Individuals with stronger connections to previous migrants or established networks in destination areas have greater access to information, financial resources, and emotional support, all of which lower the risks and costs associated with migration(Lőrincz and Németh, 2022). For example, studies from rural Thailand show that the probability of internal migration increases with the availability and accessibility of social capital resources, such as information about job opportunities or assistance with relocation(Garip, 2008)

2.7.3 Mechanisms of Social Capital in Migration

The literature identifies several mechanisms through which social capital influences migration.

Social Facilitation: Networks provide practical assistance, such as information about jobs and housing, which makes migration more feasible.

Normative Influence: Social networks can create a "culture of migration," where migration becomes a normalized or even expected pathway, further encouraging others to follow.

Network Externalities: Established migrant networks can create institutions or informal systems (such as employment brokers or community organizations) that further reduce barriers to migration.(Williams et al., 2020)

2.7.4 Social Capital and Integration in Destination Communities

Upon arrival, migrants rely heavily on social capital to navigate new environments.

Networks of friends, family, or compatriots provide essential support in securing employment, accessing housing, and understanding local norms and institutions. The presence of social capital not only eases the initial transition but also contributes to longer-term economic and cultural integration, as migrants leverage their networks to build new forms of capital in the host society.(Park et al., 2022; Roskrug and Poot, 2024)

7.2.1 Differentiation and Stratification of Social Capital

Access to and returns from social capital are not evenly distributed. Higher-status individuals often have greater access to diverse and resource-rich networks, while lower-status migrants may be more dependent on tightly knit but less resourceful connections. This stratification can reinforce existing socioeconomic inequalities but expanding networks within a community can also democratize access to migration opportunities over time (Mao-Mei Liu,2018).

7.2.2 Challenges of social capital ion migrant status

While social capital is generally beneficial, its depletion can pose challenges. Over time, the intensity of social ties may diminish due to distance, changing priorities, or the demands of daily life, which can reduce the support available to migrants and potentially hinder their integration. Additionally, bonding social capital-strong ties within a close-knit group-can sometimes limit broader integration by discouraging connections with other groups or communities(Roskrug and Poot, 2024).

2.8 Indian Migration Data

India is characterized by significant internal migration patterns driven by various factors including economic opportunities, education, and marriage. According to the 2011 Census, approximately 45.36 crore individuals were identified as internal migrants, constituting about 37% of the country's population (*Census of India*, 2011). The Migration in India Report 2020-21 indicated that the all-India migration rate was 28.9%, with a higher rate observed in urban areas at 34.9% compared to 26.5% in rural areas (Migration of Labour in the Country, 2023). The reasons for migration vary significantly between genders.

While 86.8% of female migrants moved for marriage-related reasons, nearly 49.6% of male migrants cited employment as their primary motivation (Bhagat and Keshri, 2020). This gender disparity highlights the socio-cultural dynamics influencing migration decisions in India.

2.9 Migration Rights

Migration rights encompass the legal protections and entitlements afforded to migrants, ensuring their dignity and well-being during the migration process. In India, the legal framework for protecting migrant rights is primarily governed by the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979. This Act mandates minimum wages, equal pay for equal work, and safe working conditions for migrant workers (Bhagat and Keshri, 2020). However, despite existing laws, enforcement remains weak, leading to widespread violations of these rights (Rai, 2020). Migrant workers often face exploitation due to their vulnerable status. Many are employed in informal sectors where labor laws are poorly enforced. Reports indicate that a significant proportion of

migrant workers do not receive minimum wages or adequate working conditions (*World Bank Blogs*, 2021). Additionally, migrants frequently lack access to social security benefits such as healthcare and pensions due to their transient nature (*The Indian Express*, 2021). The COVID-19 pandemic highlighted these vulnerabilities as many migrants were left without support during lockdowns, prompting calls for better protections and welfare measures (Singh, 2021).

2.9.1 Migrant Rights in India

In India, the recognition and enforcement of migrant rights have evolved over time but remain inadequate. The Constitution of India guarantees certain fundamental rights that apply to all individuals; however, specific protections for migrant workers are limited. The Inter-State Migrant Workmen Act is a critical piece of legislation aimed at safeguarding the rights of these workers but suffers from implementation challenges (Bhagat and Keshri, 2020). Moreover, the lack of comprehensive national policies addressing the unique needs of migrants has led to gaps in protection. For instance, while initiatives like the One Nation One Ration Card scheme aim to provide food security across states, many migrants remain unaware or unable to access these benefits due to bureaucratic hurdles (*The Indian Express*, 2021). Advocacy groups emphasize the need for a dedicated national policy focusing on migrant welfare that includes provisions for healthcare access, housing stability, and legal assistance (*World Bank Blogs*, 2021).

2.9.2 Migrant Rights in Kerala

Kerala presents a distinct scenario regarding migrant rights due to its high influx of labour migrants from other states and countries. The state has implemented various measures aimed at protecting migrant workers' rights. For example, Kerala has established facilitation centers

that provide information on legal rights and assistance with grievances (*MFA, 2023*). Furthermore, state policies have been developed to ensure that migrants receive fair wages and safe working conditions. Despite these efforts, challenges persist. Many migrants in Kerala work in informal sectors where labour laws are often circumvented. Reports indicate that while some migrants benefit from state initiatives, others remain excluded from social security schemes due to lack of documentation or awareness (*Krishna and Raj, 2022b*). Additionally, cultural barriers can hinder integration into local communities, affecting migrants' ability to access services and support networks (*Singh, 2021*).

2.10 Impact of Migration

The impact of migration on both sending and receiving communities is profound. Economically, migration can lead to increased remittances for sending regions while providing labor for industries in receiving areas. In Kerala specifically, remittances from overseas Keralites significantly contribute to the state's economy; they account for approximately 30% of the state's GDP (*MFA, 2023*). These funds help improve living standards for families left behind and stimulate local economies. However, migration also poses challenges. In sending areas like Bihar and Uttar Pradesh—where poverty rates are high—migration can lead to social dislocation as families are separated (*World Bank Blogs, 2021*). In receiving areas like Kerala or urban centres across India, rapid influxes can strain local resources and infrastructure if not managed effectively. Moreover, the COVID-19 pandemic has underscored vulnerabilities associated with migration. Lockdowns led to mass reverse migration as workers returned home due to job losses or unsafe conditions abroad. This sudden shift highlighted the need for robust policies that address both immediate needs during crises and long-term integration strategies for migrants (*Singh, 2021*).

Chapter 3

Methodology

3.1 Design and setting

3.1.1 Study design

This was a Cross-sectional survey among the Interstate migrant labourers in Thiruvananthapuram district using a structured interview schedule.

3.1.2 Study Setting

The study was conducted within randomly selected wards of the 100 wards of the Thiruvananthapuram Corporation in Thiruvananthapuram district, Kerala.

Thiruvananthapuram Corporation, being the largest urban local body in Kerala, was chosen due to its significant concentration of interstate migrant workers.

3.2. Population and sample

3.2.1 Target population

Interstate migrant labourers who migrated from states other than Kerala staying within the limits of Thiruvananthapuram district, continuously for a period of two months or more as on January 1st, 2025. Keeping in mind the languages spoken by the principal investigator (PI) migrant labourers who could speak Hindi or Bengla were considered for inclusion in the study.

3.2.2 Sample size:

Sample size calculation was estimated using OpenEpi software version 3.01. Taking 43.8 percent as the anticipated prevalence (P) of self-reported morbidity among migrants and a

population size of in-migrants in Thiruvananthapuram district 1000000, and an absolute precision of 9 (equivalent to relative precision of 20 percent) percent at a 95% confidence interval, and to account for the design effect (2), due to the cluster sampling method, the adjusted sample size was calculated to be 234. Additionally, considering an expected non-response rate of 20 percent, the final adjusted sample size was increased to approximately 281, which is being rounded off to 280, ensuring adequate representation for accurate analysis.

3.2.3 Sample selection procedures

The sample selection procedure for this study was conducted in multiple stages to aim for a representative sample of migrant workers in Thiruvananthapuram Corporation. The study area comprised 100 wards, and among these, data given by labour department Kerala and Thiruvananthapuram corporation health department were used to identify approximately 30 wards with a higher density of migrant workers. At this stage more than 45 wars were suggested by the labour department and 30 were selected Out of these 30 high-density wards, 20 were then randomly selected. Within each of the selected wards, a specific starting point was chosen as a reference for locating potential participants. To ensure accuracy in identifying areas with a high concentration of migrant workers, local support was enlisted; like ASHAs or other individuals familiar with the area will be consulted (Junior Health inspector, political workers) to help identify points within the ward where migrant density is highest. From this designated starting point in each ward, 14 migrant workers were systematically selected to form part of the study sample. In the 20 studied wards, the PI sought migrant workers from the designated starting point till 14 eligible participants were prohibited, however in Peroorkada, Beemapally, Sreekariyam, Chalai, Pappanamkode,

Kudappanakunnu, Manacaud, Cheruvakkal wards the PI accompanied staff of the labour department who collected several migrant workers together at time and recruitment happened from there group as well.

3.2.4 Inclusion criteria

- Migrant labourers migrating from states of India other than Kerala.
- Adult population of 18 years and above.
- People who were Willing to participate in the study.
- People who were willing provide written informed consent.
- Migrant labourers who could understand by themselves Hindi or Bangla language.

3.3. Data collection technique

For this study on the health and social determinants among migrant workers in Thiruvananthapuram, data collection was through interview schedule to get comprehensive and accurate information. The data collection techniques were designed to capture demographic, health, social, and economic variables relevant to understanding the health behaviour and morbidity patterns among migrant population. Here is a detailed description of each data collection technique and procedure:

Interview Schedule- This was the primary method of data collection, allowing the researcher to gather detailed information on health behaviours, social determinants, and morbidity patterns directly from the participants. Interviews ensure that all respondents are asked the same questions, improving data comparability and reliability.

3.3.1 Process:

Questionnaire Design: The interview questionnaire was carefully designed based on the study's objectives. Some questions related to health-related lifestyle behaviours were adapted from WHO STEPS instrument (Standard STEPS instrument, 2024) and the Pittsburgh Sleep Quality Index (PSQI) (Buysse et al., 1989). Questions related self-reported morbidity were framed keeping in mind the ICD10 classifications. Questions related to living conditions were adapted from *Garima* project for assessing living conditions of migrant workers (Gopakumar et al., 2024). Questions related to social capital were adapted from World bank SCAT (Grootaert et al., 2004). Questions were grouped into sections covering socio-demographic details, health behavior, social capital, living conditions, and self-reported morbidity. (Annexure I)

Language and Cultural Adaptation: Given the diverse backgrounds of the migrant population, the questionnaire was translated into relevant languages spoken by participants which are Hindi and Bangla ensuring confidentiality.

Conducting Interviews: Participants were interviewed at their place of choice that is mutually convenient for the investigator and the participants within Thiruvananthapuram. Locations included housing colonies, workplaces, and community centres. Each interview lasted for approximately 10-20 minutes, conducted in a way such that confidentiality was maintained. The interviews were conducted by the PI who can speak Bangla and Hindi languages which would have eliminate the language barriers and possibly enhance the reliability of the responses.

Recording Responses: Responses were recorded directly on mobile phone using ODK software. This digital recording method helps streamline data collection, storage, and later analysis.

Key Areas of Focus:

Demographic Data: Age, gender, ethnicity, language, place of origin, education level, occupation, income, family structure, and migration history.

Health related lifestyle Behaviour: Questions on lifestyle like diet, physical exercise, sleeping pattern etc.

Morbidity and Health Concerns: Self-reported symptoms or illnesses, recent medical visits, medication usage, and chronic health conditions.

Social and Living Conditions: Housing quality, water and sanitation access, social support networks, working conditions, and safety concerns

3.4. Data collection and analysis

Data were collected from interstate migrant workers in Thiruvananthapuram and all the interviews' schedules were conducted by PI. Responses were recorded directly on mobile phone using ODK software. A field diary was maintained by the PI throughout the data collection procedure and a summary of the data collection method is mentioned in the first part of the chapter.

After data collection, data were analysed using R software and SPSS version 25. Data analysis was initially descriptive and comparative statistical analyses to examine health disparities by gender, caste, ethnicity, and other socio-demographic factors. Cronbach's alpha

was used to assess internal consistency, followed by principal component analysis to evaluate sample adequacy, and multivariate regression to identify significant determinants of health outcomes

3.5. Ethical considerations

Given the sensitive nature of the study the migrant workers' confidentiality was maintained throughout the study and with effort to ensure that no participants face further risk or consequences from their participation in the study. Informed consent was taken before data collection from each participant with clear explanations of the study's purpose, procedures, and participants' right to withdraw at any time. Confidentiality was further maintained through secure data storage and anonymization of all personal information during analysis and reporting. Cultural sensitivity was prioritized, depending on spoken language with local language support provided to ensure respectful and accurate communication. The ethical framework to uphold participants' rights, dignity, and privacy throughout the research process was subject to review and clearance by the institutional ethics committee of the SCTIMST (Annexure III). Additionally, permission moved in the field and seek help from field level functionaries was short form the corporation health officer, Thiruvananthapuram corporation. (Annexure IV)

Chapter 4

Results

The results chapter represents the findings obtained from the data analysis. According to the objectives of the study, the results are structured. Data analysis was carried out using R (version 4.4.1), a programming language. The analytical process involved exploring associations between a range of predictor variables and relevant outcome variables to derive meaningful interpretations.

4.1. General Description of the Study

Anticipating a non-response rate of about 20%, the estimated final sample size for the study was set at 280 participants. Fortunately, 100% of the 280 interstate migrant workers who were contacted consented to participate in the study. Data collection was done by the principal investigator through face-to-face interviews using a semi-structured interview schedule translated into Hindi and Bangla, the primary languages spoken by the majority of the participants. Without conducting clinical exams or confirming medical records, the evaluation of morbidity was based solely on self-reported data.

4.2 Descriptive Overview of Study Variables

4.2.1 Socio-demographic attributes of the study Population

The mean age of participants was 32 years, with a standard deviation of nine years. Age was categorized in three groups with a majority of participants (74%) falling within the 21-40 age group. This represent a workforce that is primarily made up of people in their working age. The sample was predominantly men (89%). The marital status of participants revealed that 57% were currently married. Educational qualifications varied widely with 33% having completed their upper primary education.

Table 4.2A: Sociodemographic characteristics of the study population

Variables	N = 280
Age of participant¹	30 (25,39)
Age category	
Less than 20 years	20 (7%)
21-40 years	206 (74%)
More than 40 years	54 (19%)
Gender	
Men	249 (89%)
Women	31 (11%)
Marital status	
Not married	119 (43%)
Currently married	161 (57%)
Education level	
No formal education	75 (27%)
Primary	88 (31%)
Upper primary	93 (33%)
High school & above	24 (9%)

¹Median (Q1, Q3); n (%)

A large segment of the study population (64%) was employed as construction labourers, with a small fraction working as construction supervisors (1.8%) or in the hotel industry (23%).

The remaining 11% worked in other sectors, including vending and various informal roles. Occupations were finally grouped in Construction workers (65%) and other works (35%).

The median of the daily income for these workers was ₹800, with a Inter quartile range from ₹650 to ₹1,000, and they typically worked an average of 26 days per month with 78% of them maintaining consistent employment over the past year.

Table 4.1B: Sociodemographic characteristics of the study population

Variables	N = 280
Occupation	
Construction workers	183 (65%)
Other workers	97 (35%)
Daily income	800 (650,1,000)
Total monthly income¹	20,000 (16,250,24,000)
Days of work per month¹	26.00 (25.00,26.00)
Consistent employment throughout the past year	
Yes	217 (78%)
No	63 (22%)

¹Median (Q1, Q3); n (%)

4.2.2 Migration pattern of the study population

Among the 280 study populations 61% of the participants said that this was their first time migrating. The majority of these migrants (87%), who were from rural areas, were majorly from West Bengal (51%) following Assam (23%), and Bihar (17%). The vast majority of

these workers had moved to Thiruvananthapuram in search of work, and friends (64%) and family (30%) were the most common sources of job information. The median stay duration was 48 months with a range of 12 months to 102 months.

Table 4.2.A: Migration pattern of the study population

Variables	N = 280
First time migration	
Yes	170 (61%)
No	110 (39%)
Migration trajectory	
Rural-Rural-Urban	129 (46%)
Urban-Urban-urban	34 (12%)
Others	117 (42%)
Duration of stay in Trivandrum	
Short term (<12 months)	55 (20%)
Mid-term (<= 60 months)	126 (45%)
Long term (>60 months)	99 (35%)
Migration assistance received	
Self	97 (35%)
Some help	183 (65%)
Regular remittance	
Yes	250 (89%)
No	30 (11%)

With a median monthly remittance amount of ₹10,000 (IQR: ₹10,000–15,000), 89% of the participants routinely sent money back to their families. 23% of participants had not visited their homeland since migrating. Whoever has visited homeland among them mostly they have gone back during festival season (59%).

Table 4.2.B: Migration pattern of the study population

Variables	N = 280
Frequency of home visits	
Did not visit	63 (23%)
Once in 6 months	78 (27%)
Yearly once	137 (49%)
Once in 2 years	2 (1%)
Reason for home visit	
During festive season	129 (59%)
For treatment purpose	2 (1%)
For family affairs	59 (27%)
When need arises	27 (13%)

4.2.3 Self-reported Morbidities among study population

Among the study population of 280, only a small proportion (1.1%) of participants reported having a long-term illness, with asthma, blood pressure issues, and fatty liver each reported by one person. None of these illnesses were reported to have worsened. Among general

medical conditions, fever (11%) and headaches (6.8%) were the most common, while 75% of participants reported no recent medical conditions in last thirty days.

Table 4.3 A: Self-reported Morbidities among study population

Variable	N = 280
Presence of long-term illness	
Yes	3 (1%)
No	277 (99%)
Common medical conditions	
Fever	31 (11%)
Headaches	19 (6.8%)
Body Pain	15 (5.4%)
Fever and Headache	2 (0.7%)
Headache and Body pain	2 (0.7%)

The self-reported morbidity among participants, highlighting a range of health conditions. Respiratory issues (cough, asthma, breathing difficulties) affected around 12% cumulatively, where only 2 person reported minimum 10 days of cough duration. Gastrointestinal symptoms, such as abdominal pain (10%), and skin conditions like rashes (8.9%) were moderately common. Cardiovascular conditions and diabetes were reported less frequently, while dental and ear-related problems were present in a small subset of participants. Musculoskeletal issues were most common, with backache (16%) and joint pain (7.5%) frequently reported. Eye-related issues (13%) and injuries (12%) also had notable presence.

Table 4.3 B: Self-reported Morbidities among study population

Variable	N = 280
Cough	15 (5.4%)
Rashes	25 (8.9%)
Allergies	17 (6.1%)
Abdominal Pain	28 (10%)
Injuries	34 (12%)
Chest Pain	15 (5.4%)
Backache	44 (16%)
Back and Joint pain	27 (9.6%)
Eye related issues	37 (13%)
Ear related issues	24 (8.6%)
Toothache	20 (7.1%)

Among women, 6.5% reported experiencing menstrual issues, primarily in the form of discomfort. Among those who reported any health-related problems, only 4.6% were taking medication, most commonly painkillers. Hospital admission was reported by just 2.1% of the population, with the majority (67%) seeking treatment during their stay. Of those admitted, half received care in Trivandrum, while the other half were treated in their hometowns.

Out of the total 280 participants, 69% reported the presence of at least one morbidity. When categorized by morbidity burden, 46% were classified as having multimorbidity, indicating the presence of two or more health conditions. This highlights a considerable burden of multiple health issues within the population.

Table 4.3 C: Self-reported Morbidities among study population

Variable	N = 280
Presence of any morbidity	
No morbidity	86 (31%)
Presence of morbidity	194 (69%)
Multimorbidity burden	
No morbidity	86 (31%)
One morbidity	66 (24%)
Multimorbidity	128 (46%)

4.2.4 Health related lifestyle behaviour among study population

The usual dietary habits of participants included meat, poultry, or fish as their main source of protein. Mostly they consume 3 meals per day (97%) and take meat/poultry/fish as primary source of protein in diet.

Table 4.4.A: Food Items Consumed on Usual Days

Variable	N = 280
Fruits	14 (5.0%)
Vegetables	280 (100%)
Grains (rice, bread, etc.)	280 (100%)
Meat/Poultry/Fish	278 (99%)
Dairy products	11 (3.9%)

The majority of participants reported being physically active on most days of the week. Specifically, 95% engaged in physical activity 5–6 days per week. When considering the duration of physical activity, 89% of participants reported being active for more than 2 hours per day.

In terms of the type of work-related activities contributing to their physical activity, 70% were involved in manual labour such as construction work.

Regarding the intensity of physical activities, 66% of participants were engaged in vigorous-intensity tasks such as heavy lifting or running, and 16% performed only light-intensity activities such as slow walking.

For the overall physical activity assessment, a composite score was derived by considering all physical activity related variables. Using the median value as the threshold, participants were categorized into "low" and "high" physical activity groups. A notable clustering of high physical activity was observed, with 74% of participants falling into the "high physical activity" group, reflecting the physically demanding nature of most migrants' work and daily routines.

Table 4.4.B: Physical activity among study participants

Variable	N = 280
Physical activity(days/week)	
Less than 5 days	7 (2.5%)
5-6 days	266 (95%)
7 days	7 (2.5%)
Duration of physical activity	
Less than 1 hour	3 (1%)
1-2 hours	29 (10%)
More than 2 hours	248 (89%)
Type of work activities	
Manual labour (e.g., construction)	195 (70%)
Walking or commuting to work	83 (29%)
Household chores (cleaning, cooking)	2 (1%)
Intensity of physical activities	
Light (e.g., walking slowly)	44 (16%)
Moderate (e.g., brisk walking)	51 (18%)
Vigorous (e.g., heavy lifting, running)	185 (66%)
Overall physical activity	
Low physical activity	73 (26%)
High physical activity	207 (74%)

Most participants (71%) reported a late bedtime, though 75% slept for 6 hours or more.

About 27% experienced some trouble sleeping. While 19% rated their overall sleep as bad, a higher 21% were categorized as having poor sleep quality, indicating some discrepancy between perceived and evaluated sleep health.

Table 4.4.C: Sleep quality among study participants

Variable	N = 280
Typical bedtime	
Early/Optimal	81 (29%)
Late	199 (71%)
Average sleep duration (in hours)	
Less than 6 hours	71 (25%)
6 hours and more	209 (75%)
Frequency of trouble sleeping	
Never	205 (73%)
Some trouble	75 (27%)
Overall quality of sleep	
Bad	54 (19%)
Good	226 (81%)

Among the participants, 33% reported using smoked tobacco, while 28% used smokeless tobacco. Alcohol consumption was more common, with 42% indicating use. These figures highlight a notable prevalence of substance use behaviours within the group.

Table 4.4.D: Substance use pattern among study participants

Variable	N = 280
Use of smoked tobacco	
Yes	91 (33%)
No	189 (68%)
Use of smokeless tobacco	
Yes	77 (28%)
No	203 (73%)
Use of alcohol	
Yes	118 (42%)
No	162 (58%)

The overall health-related lifestyle behaviour was derived by summing multiple lifestyle behaviour indicators and categorizing individuals based on the median score. Those scoring below the median were classified as having a poor lifestyle, while those scoring at or above the median were considered to have a better lifestyle. Based on this classification, 51% of participants were identified as having a poor lifestyle, while 49% exhibited a better lifestyle.

Table 4.4.E: Overall health related lifestyle behaviour among study population

Variable	N = 280
Overall health related lifestyle	
Poor lifestyle	143 (51%)
Better lifestyle	137 (49%)

4.2.5 Living condition of the study population

Among 280 study population 88% of the population did not know if the building where they are living is registered under government or not. While 92% of the population were living in an overcrowded space with 86% having no Presence of waterlogging in the living area and 99% having a closed latrine. Among these 98% had closed, solid floored bathroom.

Table 4.5.A: Living condition of the study population

Variable	N = 280
Indicator of whether the residence is registered	
Do not know	247 (88%)
Yes	33 (12%)
Indicator of whether living space is overcrowded	
Overcrowded	257 (92%)
Not overcrowded	23 (8%)

A majority of the study population did not have a flushing system in their toilet and 91% of the populations are sharing one toilet with more than 10 persons with only 61% of the population had a separate bathing area.

Table 4.5.B: Living condition of the study population

Variable	N = 280
Presence of a flushing toilet	
No	239 (86%)
Yes	39 (14%)
Number of people sharing a single latrine	
More than 10	25 (9%)
<=10 person	253 (91%)
Availability of a separate bathing area	
No	108 (39%)
Yes	172 (61%)

Among the participants, 51% reported having a separate kitchen, while 49% did not. A large majority (90%) had access to proper waste management facilities, and 98% reported availability of drinking water. However, hygiene maintenance in the residential premises was relatively lower, with only 66% indicating adequate hygiene, and 34% reporting poor maintenance.

The majority of participants (71%) reported living conditions that were sufficient to meet their basic needs. About one-fourth (25%) described their living environment as optimal or

good, while a small proportion (4.3%) reported compromised or poor and unsustainable living conditions.

Table 4.5.C: Living condition of the study population

Variable	N = 280
Overall Living condition	
Compromised (poor condition, unsustainable)	12 (4%)
Sufficient (meets basic needs)	198 (71%)
Optimal (good condition)	70 (25%)

4.2.6 Social capital among the study population

Among the six dimensions of social capital, no participant reported belonging to any formal or informal group under the '*Groups and Networks*' dimension, indicating a lack of organized group participation within the study population.

In terms of social network, the study population had 3–5 friends and 28% had more than five. Regarding financial support, 34% had no one to turn to, whereas 39% could rely on one or two people and 27% had a broader financial help network. Most participants who sought financial help turned to individuals with a similar or lower economic status (55%), while only 11% sought help from those with a higher economic status. When it came to providing help, 75% reported that no one sought help from them, while 14% said at least one person did, and 11% said more than one person approached them for help. This reflects a mixed but generally limited degree of both social and financial support within their networks.

Table 4.6.A1: Trust and solidarity among the study population

Variable	N = 280
Level of trust in the community and people	
Low trust	65 (23%)
Moderate trust	85 (30%)
High trust	130 (46%)
Need to be alert against exploitation in the neighbourhood	
High alertness	55 (20%)
Moderate alertness	120 (43%)
low alertness	105 (38%)
Getting help from others	
Low help	67 (24%)
Moderate help	92 (33%)
High help	121 (43%)

Among the migrant workers surveyed, the majority expressed a moderate degree of trust in the receiving community of Thiruvananthapuram. Specifically, 75% of participants reported having “some trust” in the local environment. However, the presence of low trust in a subset of the population may point to experiences of marginalization or limited social integration.

Table 4.6.A2: Trust and solidarity among the study population

Variable	N = 280
Level of trust in financial transactions and money matters	
Low trust	85 (30%)
Moderate trust	135 (48%)
High trust	60 (21%)
Willingness to help	
Low support	50 (18%)
Moderate support	124 (44%)
High support	106 (38%)
Overall trust in Thiruvananthapuram (receiving community)	
No trust in Thiruvananthapuram	27 (10%)
Some trust	210 (75%)
High trust	43 (15%)

Most participants reported moderate levels of cooperation in their community, with 98% indicating this. Access to information and communication was more varied, with 55% having low access, while a smaller portion (1.8%) reported high access. In terms of social cohesion and inclusion, 74% experienced moderate levels, and 26% felt there was a high degree of inclusion within their community.

Table 4.6.B: Social capital among the study population

Variable	N = 280
Level of participation in collective action and cooperation in the community	
Low cooperation	2 (0.7%)
Moderate cooperation	273 (98%)
High cooperation	5 (1.3%)
Level of access and engagement in information and communication	
Low access to information & communication	154 (55%)
Moderate access to information & communication	121 (43%)
High access to information & communication	5 (2%)
Degree of social cohesion and inclusion in the community	
Low cohesion & inclusion	0 (0%)
Moderate cohesion & inclusion	208 (74%)
High cohesion & inclusion	72 (26%)

In this dataset, 23% of participants reported experiencing discrimination, while 77% did not. Additionally, 41% of participants indicated that they had experienced different treatment, while 59% reported not having such experiences.

Table 4.6.C: Social capital among the study population

Variable	N = 280
Experience of discrimination	
Yes	65 (23%)
No	215 (77%)
Experience of different treatment	
Yes	116 (41%)
No	164 (59%)

Majority of the participants (78%) reported high levels of empowerment based on decision-making and happiness.

Table 4.6.D: Empowerment and political participation among the study population

Variable	N = 280
Level of empowerment based on decision-making and happiness	
Low empowerment	24 (8%)
Moderate empowerment	39 (14%)
High empowerment	217 (78%)
Political participation	
Less political participation	244 (87%)
Moderate political participation	34 (12%)
High political participation	2 (1%)

In this dataset, social capital was distributed as follows: 36% of participants had low social capital, 34% had medium social capital, and 30% had high social capital.

Table 4.6.D: Overall social capital among study population

Variable	N = 280
Overall Social capital	
Low social capital	102 (36%)
Medium Social capital	95 (34%)
High social capital	83 (30%)

4.3 Factors associated with health-related lifestyle behaviours and self-reported morbidity

To analyze the factors associated with health-related lifestyle behaviours and self-reported morbidity among migrant workers a comparison of socio-demographic characteristics across lifestyle behaviour categories revealed several significant associations (Table 4.7A).

Participants with **better lifestyle behaviours** tended to be younger although this difference was marginally non-significant ($p = 0.053$). Among those with better lifestyles, **50% were not married**, whereas only **36%** of those with poor lifestyles were unmarried. This could be an effect of age. A significant association was also observed with **occupation** ($p = 0.008$). A larger proportion of participants with poor lifestyle behaviours were construction workers (73%).

No significant association was found between **gender** and lifestyle behavior ($p = 0.3$), although males were predominant to have poor lifestyle.

Table 4.7 A: Distribution of Socio-demographic Characteristics by Lifestyle Behaviour Category

Characteristic	Poor lifestyle N = 143	Better lifestyle N = 137	p-value ²
Age of participant ¹	32 (26, 40)	29 (23, 38)	0.053
Gender			0.3
Male	130 (91%)	119 (87%)	
Female	13 (9.1%)	18 (13%)	
Marital status			0.018
Not married	51 (36%)	68 (50%)	
Currently married	92 (64%)	69 (50%)	
Occupation			0.008
Construction workers	104 (73%)	79 (58%)	
Other workers	39 (27%)	58 (42%)	

¹Median (Q1, Q3); n (%)

Although not statistically significant ($p = 0.090$), **migration trajectory** showed a noteworthy trend. A greater proportion of individuals with **better lifestyle behaviours** had migrated along a **rural-rural-urban** path (53%) compared to those with poor lifestyles (40%).

Participants with poor lifestyle behaviours sent a higher median proportion of their income home (62%; IQR: 50–70) compared to those with better lifestyles (57%; IQR: 46–64). This may reflect greater financial stress or limited disposable income, potentially influencing access to healthy lifestyle.

Table 4.7 B. Migration, and Economic Characteristics by Lifestyle Behaviour Category

Characteristic	Poor lifestyle N = 143	Better lifestyle N = 137	p-value
Migration trajectory			0.090
Rural-Rural-Urban	57 (40%)	72 (53%)	
Urban-Urban-urban	18 (13%)	16 (12%)	
Others	68 (47%)	49 (36%)	
Percentage of monthly income sent back home¹	62 (50, 70)	57 (46, 64)	0.020

¹Median (Q1, Q3); n (%)

After adjusting for relevant covariates no factors came as statistically significant but more or less it can be said that a **slight decrease in the prospect of favourable health behaviours** as the percentage of income sent home increased.

Table 4.7 C: Multivariate for Health-related lifestyle behaviour

Characteristic	OR1	95% CI1	p-value
Marital status			
Not married	—	—	
Currently married	0.69	0.38, 1.25	0.2
Occupation			
Construction workers	—	—	
Other workers	1.03	0.54, 1.96	>0.9
Percentage of monthly income sent back home	0.98	0.96, 1.00	0.056

The analysis of sociodemographic factors in relation to morbidity status revealed significant differences in age and marital status, but no significant difference in occupation. Participants with morbidity were found to be older, with a median age of 32 years compared to 28 years among those without morbidity. The distribution of marital status also showed a significant difference, as a higher proportion of individuals with morbidity were married (63%).

However, no significant difference was found in occupation between the two groups. Among those without morbidity 68% of those with morbidity were construction workers.

Table 4.7 D: Association of Sociodemographic Factors with Morbidity Status

Characteristic	No morbidity N = 86	Presence of morbidity N = 194	p-value²
Age of participant¹	28 (23, 34)	32 (26, 41)	<0.001
Marital status			0.003
Not married	48 (56%)	71 (37%)	
Currently married	38 (44%)	123 (63%)	
Occupation			0.3
Construction workers	52 (60%)	131 (68%)	
Other workers	34 (40%)	63 (32%)	

¹Median (Q1, Q3); n (%)

There was no significant difference but in first-time migration, 55% of participants without morbidity and **63% of participants with morbidity being first-time migrants**. However, a significant difference was observed in the duration of stay in Thiruvananthapuram (TVM), with individuals experiencing morbidity having a longer median stay (48 months) compared

to those without morbidity (36 months). These findings suggest that longer stay duration in TVM is associated with the presence of morbidity.

Table 4.7 E: Association of migrant status and morbidity

Characteristic	No morbidity N = 86	Presence of morbidity N = 194	p-value
First time migration			0.2
Yes	47 (55%)	123 (63%)	
No	39 (45%)	71 (37%)	
Others	43 (50%)	74 (38%)	
Stay duration in Thiruvananthapuram (in month) ^I	36 (12, 72)	48 (24, 120)	0.027

^IMedian (Q1, Q3); n (%)

The multivariate logistic regression analysis of factors associated with morbidity indicated that age, marital status, and stay duration in Thiruvananthapuram were not significantly associated with the presence of morbidity. Though the odds ratio for age (OR = 1.04; 95% CI: 0.99, 1.09; p = 0.091) suggests a slight increase in the odds of morbidity as age increases. Similarly, marital status, with currently married participants showing an odds ratio of 1.17 (95% CI: 0.54, 2.54; p = 0.7).

4.4. Contribution of Social Capital in health-related lifestyle behaviours

To examine the role of social capital in shaping health-related lifestyle behaviours, a total of 14 items related to social capital were initially considered for exploratory factor analysis.

Upon preliminary assessment, four items were excluded: one item assessing “Number of people a participant helped financially” was dropped due to cross-loading, the item on collective action and cooperation showed insufficient variation in responses, and two items—empowerment and political participation—were removed due to low communalities, indicating poor representation within the emerging factor structure. Following this refinement, 10 variables were retained for analysis.

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.837, indicating the dataset was well-suited for factor analysis. Bartlett’s Test of Sphericity was statistically significant ($\chi^2 = 1641.153$, $df = 45$, $p < 0.001$), confirming that the correlation matrix was not an identity matrix. The determinant of the correlation matrix was 0.003, suggesting no issues with multicollinearity.

Table 4.8 A: Sampling Adequacy and Factor Analysis Test Results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.837
Bartlett's Test of Sphericity	Approx. Chi-Square	1641.15
	df	45
	Sig.	<0.001

A Principal Component Analysis (PCA) with Oblimin rotation was conducted, revealing three distinct components that cumulatively explained 75.8% of the total variance. The scale demonstrated strong internal consistency, with a Cronbach’s alpha of 0.825.

Table 4.8 B: Sampling Adequacy of Social Capital Indicators (PCA Output)

	Item-MSA*	Communalities	C1	C2	C3
Number of Close friends	0.70	0.77		0.87	
Financial help from origin and destination neighbourhoods	0.62	0.89		0.94	
Economic Status of Sources of Financial Help	0.73	0.74		0.86	
Trust in origin and destination neighbourhoods	0.87	0.82	0.90		
Need of staying Alert in origin and destination neighbourhoods	0.92	0.60	0.76		
Perceived willingness to Help in the neighbourhood	0.86	0.81	0.90		
Trust in lending money	0.93	0.68	0.81		
Help level of origin and destination neighbourhoods	0.90	0.80	0.89		
Information-communication with origin and destination neighbourhoods	0.71	0.97			0.99
Cohesion-inclusion within origin and destination neighbourhoods	0.92	0.50	0.70		

*MSA - Measure of Sampling Adequacy

Component 1 – Trust, Solidarity, and Social Cohesion

The first and most substantial component accounted for 42.9% of the variance and included six items (Trust, alert, help, trust in lending money, help level, and Cohesion-inclusion) with high loadings (≥ 0.70). These social ties with a sense of belonging and emotional security, which are known to positively influence mental health, health-related lifestyle behaviour, and community-level resilience.

Component 2 – Social Networks

The second component, explaining 22.8% of the variance, included three items (close friends, financial help, and Status of financial help gotten) and reflects the breadth and quality of interpersonal relationships within the migrant population. This domain indicates the presence of strong social networks facilitating resource sharing, emotional support, and collective coping strategies that are important for maintaining health behaviours in transient or vulnerable populations.

Component 3 – Information and Communication

The third component accounted for 10.1% of the variance and was defined by a single, strongly loading item (information-communication) representing access to and dissemination of information within the community. This domain aligns with linking social capital, highlighting the importance of communication pathways between individuals and formal systems such as healthcare or administrative institutions.

Table 4.8 C: Explained total Variance from PCA of Social Capital Items

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.3	42.9	42.9	4.3	42.9	42.9	4.2
2	2.3	22.8	65.7	2.3	22.8	65.7	2.5
3	1.0	10.1	75.8	1.0	10.1	75.8	1.1
Extraction Method: Principal Component Analysis.							
a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.							

Among all these social capital variables assessed for association with overall health-related lifestyle behaviour using the chi-square test, only two demonstrated statistically significant relationships. These were the **number of close friends** and the **financial help network**.

Participants with a greater number of close friends were more likely to report a better lifestyle. Specifically, 36% of those with more than five close friends had a better lifestyle.

A similar trend was observed regarding the financial help network. Participants who had access to one or two persons for financial support were more likely to report a better lifestyle (47%) compared to those with no one to turn to (36%).

Table 4.8 D: Association of Social capital dimensions with health-related lifestyle

Characteristic	Poor lifestyle N = 143	Better lifestyle N = 137	p-value ²
Number of close friends			<0.001
Less than 3 friends	65 (45%)	61 (45%)	
3-5 friends	26 (18%)	50 (36%)	
More than 5 friends	52 (36%)	26 (19%)	
Financial help network			0.002
No one	47 (33%)	49 (36%)	
One or two persons	45 (31%)	64 (47%)	
More than two persons	51 (36%)	24 (18%)	

²Pearson's Chi-squared test

Further logistic regression was conducted to explore the relationship between social capital variables and overall health-related lifestyle behaviour, adjusting for other categories within each variable. Among the significant predictors identified in the chi-square analysis, both **number of close friends** and **financial help network** remained statistically significant in the regression model. Participants with **three to five close friends** had significantly higher odds of reporting a better lifestyle compared to those with fewer than three friends (OR = 2.79; 95% CI: 1.32–6.07; $p = 0.008$).

on the other hand, the inverse relationship like participants with more than two financial support systems were substantially less likely to lead a better lifestyle than those without support (OR = 0.34; 95% CI: 0.12–0.90; $p = 0.031$) suggests that reliance on broader financial networks may be indicative of greater vulnerability or financial insecurity, potentially associated with poorer lifestyle practices.

Table 4.8 E: Multivariate model on better lifestyle

Characteristic	OR ¹	95% CI ¹	p-value
Number of close friends			
Less than 3 friends	—	—	
3-5 friends	2.79	1.32, 6.07	0.008
More than 5 friends	1.13	0.46, 2.81	0.8
Financial help network			
No one	—	—	
One or two persons	0.88	0.43, 1.77	0.7
More than two persons	0.34	0.12, 0.90	0.031

¹OR = Odds Ratio, ¹CI = Confidence Interval

4.4.1 Social Capital Score by Gender and Overall Lifestyle

To compare social capital scores across gender we can say males are having better social capital score than females.



Figure 1: Social Capital Score by Gender

Bivariate analysis shows a higher proportion of males reported high social capital (94%) compared to females (6.2). Occupation also showed a significant association ($p = 0.024$); notably, a larger proportion of construction laborers were in the high social capital group (69%) compared to other occupations. Participants with high social capital were slightly older (median age: 31 years) and had stayed longer in the district (median: 60 months) compared to those with low social capital (median age: 29 years; stay duration: 36 months).

Table 4.9 A: Factors Associated with Social Capital (Low vs High)

Characteristic	Low N = 151	High N = 129	p- value²
Gender			0.016
Male	128 (85%)	121 (94%)	
Female	23 (15%)	8 (6.2%)	
occupation			0.024
Construction labourer	89 (59%)	89 (69%)	
Supervisor	1 (0.7%)	4 (3.1%)	
Hotel employee	43 (28%)	20 (16%)	
Street vendor	2 (1.3%)	0 (0%)	
Others	16 (11%)	16 (12%)	
Age of participant ¹	29 (25, 36)	31 (26, 40)	0.038
Stay duration in Thiruvananthapuram (in month) ¹	36 (10, 84)	60 (24, 120)	<0.001

¹ Median (Q1, Q3), ²Pearson's Chi-squared test; Wilcoxon rank sum test

In the multivariate logistic regression model, duration of stay in Thiruvananthapuram only stays as significantly associated with higher social capital (OR = 1.01; 95% CI: 1.00–1.01; p = 0.023).

Table 4.9 B: Multivariable model on social capital

Characteristic	OR ^I	95% CI ^I	p-value
Gender			
Male	—	—	
Female	0.44	0.16, 1.13	0.10
Occupation			
Construction labourer	—	—	
Supervisor	4.61	0.65, 92.1	0.2
Hotel employee	0.78	0.38, 1.57	0.5
Street vendor	0.00		>0.9
Others	1.39	0.62, 3.18	0.4
Age of participant	1.01	0.97, 1.04	0.7
Stay duration in Thiruvananthapuram (in month)	1.01	1.00, 1.01	0.023

^IOR = Odds Ratio, ^ICI = Confidence Interval

Further comparing social capital scores across gender and lifestyle categories a boxplot was plotted, where the overall trend shows migrant workers with a **better lifestyle** tend to have **higher social capital scores** compared to those with a **poor lifestyle**, regardless of gender.

Outliers are present in the female-better lifestyle group, suggesting that while most females in this category have moderate levels of social capital.



Figure 2: Social Capital Score by Gender and Overall Lifestyle

Among females, those with good sleep quality have higher and more consistent social capital scores compared to those with poor sleep. Women who have more stable social capital are more likely to get better sleep.

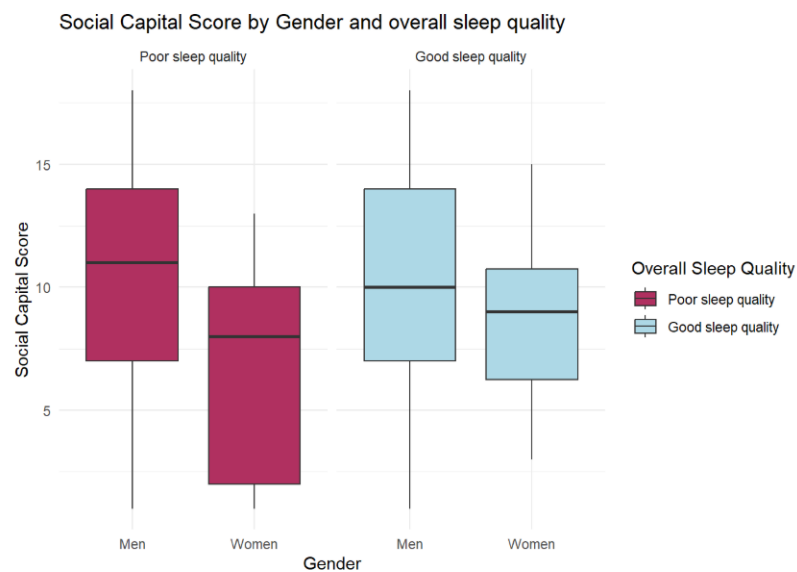


Figure 3: Social Capital Score by Gender and Overall Sleep Quality

Regardless of gender, People with more social capital are slightly more likely to eat fruit, though this relationship seems to be stronger for men.

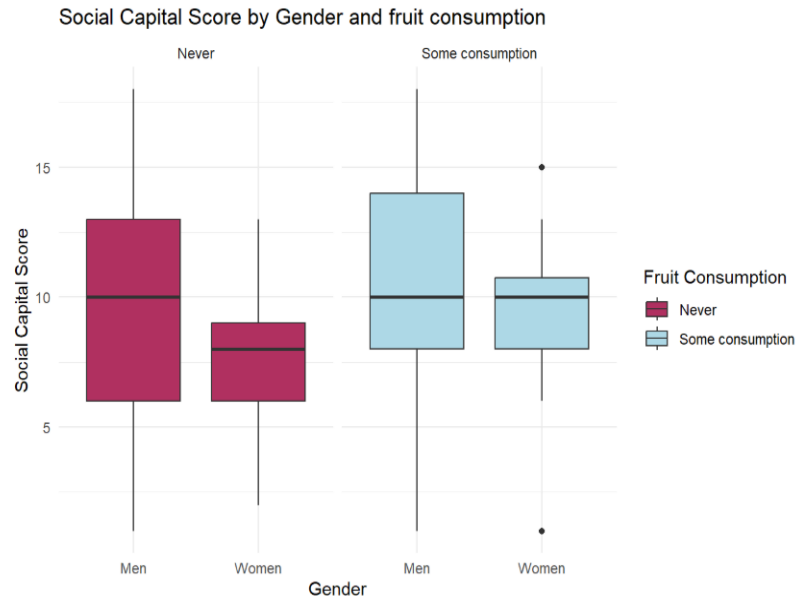


Figure 4: Social Capital Score by Gender and Fruit Consumption

Men with higher social capital tend to use more Smoked tobacco.

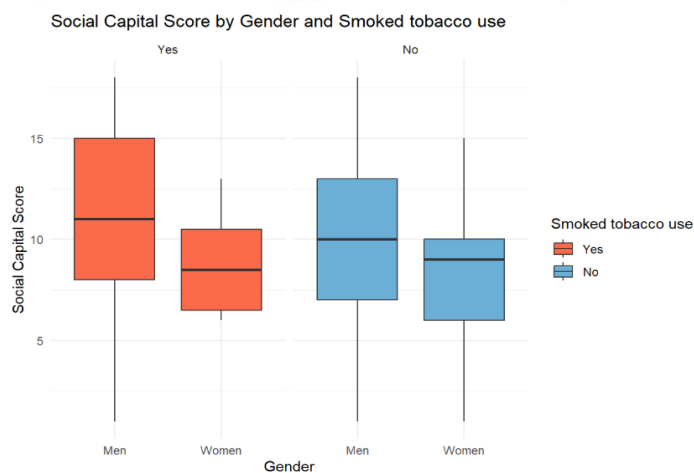


Figure 5: Social Capital Score by Gender and Tobacco use

A scatterplot of social capital score against duration of stay revealed a clustering of data points among individuals with stay durations of less than 48 months. Based on this

observation, a subset analysis was performed on those **with stay durations below 48 months** to explore health related lifestyle patterns more clearly within this dominant group.

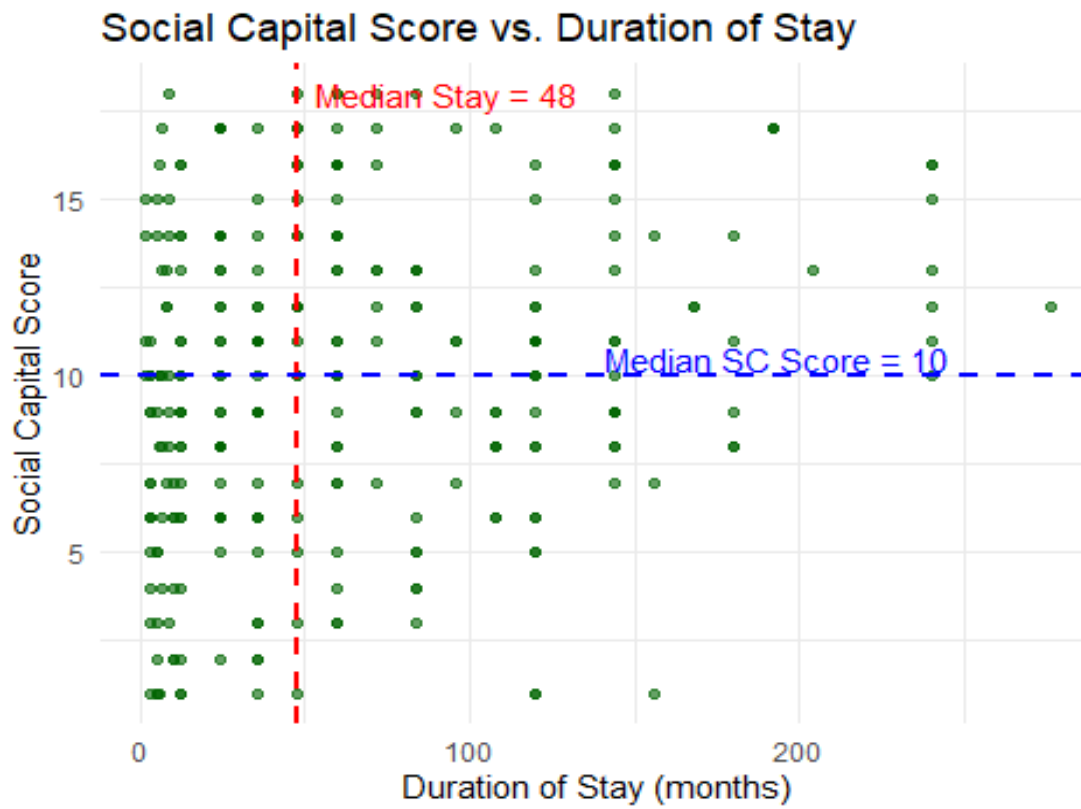


Figure 6: Social Capital Score by Stay Duration In Thiruvananthapuram (in months)

Table 4.10 A: Association of Sleep Quality with Social Capital, Age, and Health Characteristics

Characteristic	Bad N = 30	Good N = 124	p-value²
Overall Social capital			0.003
Low social capital	21 (70%)	45 (36%)	
Medium Social capital	4 (13%)	46 (37%)	
High social capital	5 (17%)	33 (27%)	
Age of participant¹	28 (25, 41)	26 (22, 32)	0.006
GI problems			0.078
No problem	29 (97%)	103 (83%)	
GI problem present	1 (3.3%)	21 (17%)	

¹Median (Q1, Q3)

²Pearson's Chi-squared test; Wilcoxon rank sum test

Among all the health-related behaviours, only sleep quality showed a significant association with these variables. Individuals with poor sleep quality were more likely to have low social capital (70%). Furthermore, people with poor sleep were marginally older (median age: 28 years) than people with good sleep (median age: 26 years). Although gastrointestinal problems were more common among those with good sleep, this association was not statistically significant ($p = 0.078$).

Table 4.10 B: Multivariate model on good sleep quality

Characteristic	OR ¹	95% CI ¹	p-value ²
Overall Social capital			
Low social capital	—	—	
Medium Social capital	7.71	2.45, 30.8	0.001
High social capital	4.44	1.41, 17.2	0.018
Age of participant	0.91	0.86, 0.96	0.001
GI problems			
No problem	—	—	
GI problem present	4.41	0.80, 82.6	0.2

¹OR = Odds Ratio, CI = Confidence Interval

Participants who migrated from town or urban areas had a higher median social capital score (10.0; IQR: 6.0–13.0) compared to those from village or rural areas (8.0; IQR: 4.5–11.0), with a p-value of 0.027.

Table 4.10 C: Association Between Place of Origin and Social Capital

Characteristic	Village/Rural N = 64	Town/Urban N = 90	p-value ²
Overall Social capital score¹	8.0 (4.5, 11.0)	10.0 (6.0, 13.0)	0.027

¹Median (Q1, Q3), ²Wilcoxon rank sum test

This association remained significant in the logistic regression model, where the odds of higher social capital increased by 9% for each unit increase in the social capital score among urban-origin participants (OR = 1.09, 95% CI: 1.01–1.17, p = 0.028).

Table 4.10 D: Multivariable model on Urban as place of origin

Characteristic	OR ¹	95% CI ¹	p-value
Overall Social capital score	1.09	1.01, 1.17	0.028

¹OR = Odds Ratio, CI = Confidence Interval

When social capital was examined across different clusters, a pattern of clustering was observed within the same clusters, with individuals exhibiting similar overall social capital levels.

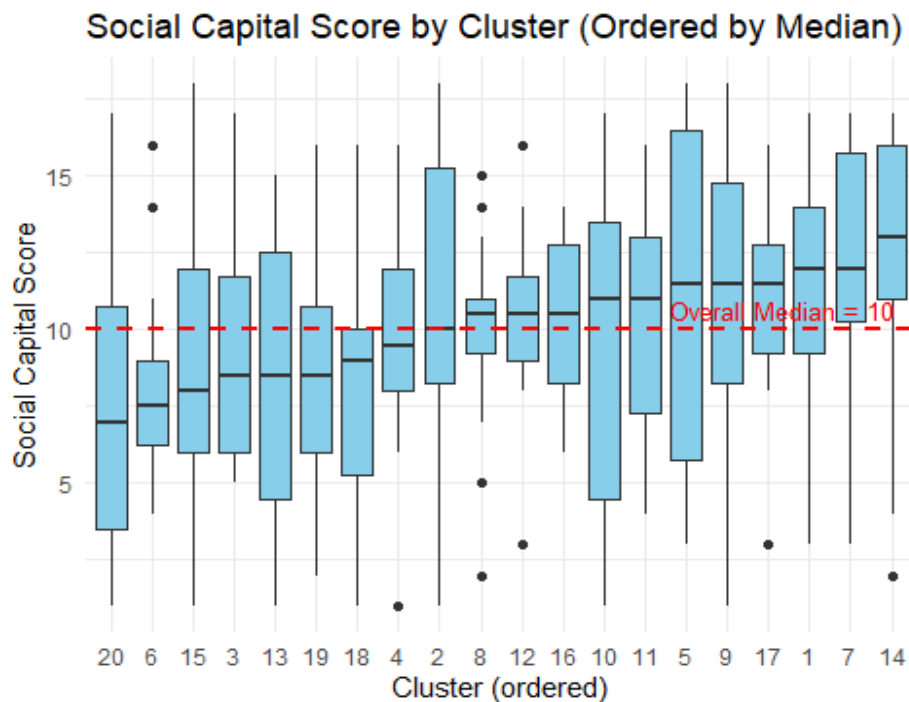


Figure 7: Social capital score by clusters

Although few, supervisors consistently showed high social capital, with all belonging to the highest category. In a similar way, most street vendors, despite being a small group, also showed low social capital, despite belonging from the same the cluster. This suggests that certain occupations may inherently promote stronger social networks and support systems.

4.5 Role of living conditions in shaping the health outcomes

To assess the role of living condition in shaping the health outcomes a Chi-square test was conducted between various indicators of living conditions and the presence of self-reported morbidity among interstate migrant workers.

The analysis revealed among those who reported maintaining hygiene, 78% had no morbidity. This suggests that poor hygiene practices were more common among those with reported health conditions.

Table 4.11A: Association of living conditions with health outcomes

Characteristic	No morbidity N = 86	Presence of morbidity N = 194	p- value¹
Indicator of whether living space is overcrowded			0.4
Overcrowded	77 (90%)	180 (93%)	
Not overcrowded	9 (10%)	14 (7.2%)	
Maintenance of hygiene in the residential premises			0.005
No	19 (22%)	76 (39%)	
Yes	67 (78%)	118 (61%)	

¹Pearson's Chi-squared test

Also, we can see there is a presence of morbidity throughout the groups despite their living conditions.

Table 4.11B: Association of living conditions with health outcomes

Characteristic	No morbidity N = 86	Presence of morbidity N = 194	p- value ^I
Overall Living condition			0.043
Compromised (poor condition, unsustainable)	0 (0%)	12 (6.2%)	
Sufficient (meets basic needs)	63 (73%)	135 (70%)	
Optimal (good condition)	23 (27%)	47 (24%)	

^IPearson's Chi-squared test

After adjusting for relevant covariates, **maintenance of hygiene in residential premises** remained significantly associated with morbidity status.

Participants who reported maintaining hygiene in their living spaces had **53% lower odds** of reporting morbidity compared to those who did not. This finding underscores the importance of clean and sanitary living environments in reducing health risks among migrant populations.

Table 4.12 A: Logistic regression for presence of morbidity

Characteristic	OR ^I	95% CI ^I	p-value
Maintenance of hygiene in the residential premises			
No	—	—	
Yes	0.47	0.25, 0.87	0.019

^IOR = Odds Ratio, CI = Confidence Interval

Chapter 5

Discussion

This cross-sectional study explored health-related lifestyle behaviours, self-reported morbidity, social capital, and living conditions of interstate migrant workers residing in Thiruvananthapuram, Kerala. The study was conducted using structured questionnaire. Participants were selected from key clusters known for high migrant concentration and data was collected in the field setting by the PI. The study adopted both descriptive and analytic approach to explore the pattern and associations aiming to Summarize context specific insights into the health and social factors of this floating and often overlooked population.

Nearly two third of the participants reported at least one self-perceived morbidity, highlighting a noticeable burden of health issues among in interstate migrant workers. Patterns of unhealthy behaviours tended to cluster throughout groups. The findings also pointed to unsatisfactory living conditions which is highly overcrowded and not properly maintained hygiene which is potentially contributing to adverse health outcomes. Social capital, a key determinant of collective resilience and support, varied noticeably across the sample, while certain occupation groups such as supervisor and street vendors demonstrated respectively higher and lower level of social capital. Gender also emerged as a factor influenced the distribution of social capital, with men generally exhibiting a better social capital compared to women.

A fragmented social environment as well as unstable living and working condition constrain the health-related lifestyle of the interstate migrant workers in Thiruvananthapuram. Within a broader context characterized by socioeconomic marginalization and a lack of institutional support, the ability of migrant workers to make consistent and health promoting lifestyle

choices is influenced by intersecting factors like housing instability, occupational demand and access to essential services. In this scenario social capital is a vital but unequally distributed resources that effects the ability of an individual to gather support, adopt healthier habits in daily life and to obtain information. This study points out how compromises between survival, social belonging and structural barriers often play a role in the compromised lifestyle behaviours, such as sleep, nutrition and substance use. The results point out social capital's potential as a protective factor by indicating that it is linked to better lifestyle choices and higher-quality sleep. All these factors thereby reinforce the existing pattern of health inequity. This study found a dual burden of unhealthy lifestyle practices and substantial self-reported morbidity.

5.1. Setting and participants – possible biases

5.1.1 Sample -A Mirror of Thiruvananthapuram's Migrant life?

Although a probability cluster design was applied, due to the limited time available for data collection and the migrant population's inherent dispersed and mobile nature, some data had to be gathered using a convenience sampling technique. However some amount of randomness was achieved due to random selection of 20 wards from approximately 45 migrant dense wards suggested by Thiruvananthapuram corporation and Labour depart Kerala. Reaching highly mobile groups, like contract or temporary construction workers, was especially difficult because certain vulnerable groups like nomadic migrants and street vendors many of them were frequently unavailable during the data collection time because of work obligations. This may give under representation of certain vulnerable groups like nomadic migrants and street vendors. Such workers are typically characterised by heavier alcohol and smoked-tobacco use and looser social networks, as shown in recent site-based

surveys from southern Indian building projects where >90 % of respondents reported use of either substance and 56 % were current tobacco user (Kumar et al., 2021). Their relative absence would lead to conservative estimates of risk behaviour and morbidity, and could partly explain why the prevalence of current smoked-tobacco use in our sample (33 %) fell below construction-sector estimates from Kerala (41.8% smoking but 71.7% chewing tobacco) (Aslesh et al., 2015) yet exceeded general-adult figures.

Since Bengali and Hindi speaking migrants were selected certain migrants, corridors will be overrepresented and other are underrepresented. There is a possibility that some migrant corridors may have better social network. However this study reflects meaningful migration trajectories and corridors of interstate migrant workers, as emphasized in previous literature (CMID-2020).

5.1.2 How valid and reliable were the assessment and measurements?

Main measurements in study comprised of these social capital, health-related behaviours, morbidity and living conditions.

Outcomes relied on self-report without any general or clinical verification which may leads to recall bias. Migrants tend to down-report alcohol intake and symptoms perceived as minor for fear of jeopardising employment or tenancy giving social desirability biases. Likewise, the Pittsburgh Sleep Quality Index, though validated, was administered via interviewer translation into Hindi/Bangla; subtle misinterpretations could have inflated the 21 % “poor-sleep” estimate.

Social capital is a challenging concept to measure, especially within migrant populations. In this study measurement of social capital was based on World Bank Social Capital Assessment

Tool. However, questions were asked about two communities - the community of origin and the host community. Therefore, a composite variable created and to enhance the validity and reliability principal component analysis was performed. Although some important dimensions, such as citizen empowerment, may not have been adequately captured due to a lack of variance in responses. This could be due to a limited variability within migrant group and the absence of a comparison group consisting of non-migrants. Additionally, the lack of heterogeneity in the sample, particularly regarding items related to collective action and corporation, maybe explain why these components were excluded from the final analysis.

While different indicators of living conditions were approximately captured in this study, the inability to measure each room size limited a more comprehensiveness assess. As a result, it was not possible to evaluate crowding against WHO-recommended standards for number of persons per square meter. This may have constrained the ability of the study to fully reflective the adequacy of living arrangements, even though other aspects of housing and sanitation were thoroughly assessed.

5.2 Interpretation in the context of existing evidence

5.2.1 Findings on behaviours, morbidity and living conditions: Consistency across studies

The Finding of this study on health-related lifestyle behaviours, self-related morbidity, and living conditions of the migrant population broadly with align with pre-existing literatures. These similarities portray the shared difficulties faced by migrant workers in diverse urban setting and support the validity of the pattern which has been observed.

The 69 % prevalence of any morbidity is markedly higher than the 43.5 % reported in earlier urban-migrant studies in India (Sreejini, 2012b) and may reflect the older age structure, longer median residence (48 months), and high prevalence of overcrowding (92 %) in the present sample (Nitika et al., 2014). Musculoskeletal pain (backache 16 %; joint pain 7.5 %) topped the symptom list, echoing construction-worker data from northern India attributing such ailments to prolonged manual labour and poor ergonomics (Arokiasamy and Ghosh, 2009)

Our finding that better lifestyle clusters among unmarried, younger workers parallels evidence that marital and caregiving obligations constrain time and resources for self-care. The remittance gradient further supports the “income dilution” hypothesis—when a large share of earnings is earmarked for dependents at home, workers sacrifice diet diversity and recreational physical activity. Similar patterns were documented among Nepali migrants in the Gulf and among seasonal workers in Maharashtra (Dayama and Kosambiya, 2012; Paudyal et al., 2020).

Hygiene in the residential setting emerged as the sole environmental predictor of morbidity after adjustment. Given that 86 % lacked a flushing toilet and 91 % shared one latrine with >10 persons, emphasis on behavioural sanitation—hand-washing stations, structured cleaning rosters—may yield substantial short-term gains even before infrastructure upgrades materialise (Team, 2018)

5.2.2 A First of Its Kind: Measuring Social Capital

The measurement of social capital in this study is a first of its kind in this form, including experiences of home community and receiving community while measuring social capital

and it is internally consistent. However, a test-retest or inter-rater reliability assessment were not been done, so consistency over time or across rater cannot be claimed. Also, validity against the gold standard measure was not performed. However, it is internally consistent as assured by the high Cronbach's alpha and has a meaningful variance which was confirmed by principal component analysis (PCA). Although some important items were excluded in the PCA but could not be retained due to the lack of heterogeneity in the sample.

The three-component social-capital structure—**trust/solidarity**, **social networks**, and **information/communication**—aligns with Putnam's bonding, bridging and linking typology. The trust and solidarity component reflects bonding social capital, which is defined as the close relationship found in close knit groups. Access to resources and information outside of someone's immediate circle is made easier by bridging social capital, which includes relationship across various social groups and consistent with the social network component. The information and communication component highlights the flow of information and access to services, thereby capturing linking social capital, which involves relationships between individuals and institutions or individuals in positions of power which can be explained by the existing literature (Wagner, 2009; Lee, 2020). Migrants who could count on a small, trusted circle of friends enjoyed healthier behaviours, mirroring South-African mining cohorts where friendship density buffered risky alcohol consumption (Ajani, 2011). Conversely, those reliant on many potential lenders may be signalling economic precarity; indebtedness has been linked to poor diet quality in Bangladeshi garment workers (Hasnain et al., 2014).

Measuring social capital is crucial for understanding the wellbeing of migrant workers, and this newly developed scale in this study provide an appealing tool that can be modified and

applied in future studies to evaluate social capital in a comparable setting. However, whether it will perform consistently across different populations and settings remains to be tested.

5.3 Potential conflict of interest due to domicile state of PI

As a researcher coming from shared cultural-linguistic background and same state of origin with many participants, I acknowledge that my personal identity and interest may have influenced the study participation and responses in a subtle way. However, on a positive note, this positionality may have improved rapport and participant trust, especially during field interaction.

5.4 Strength of the study

Cultural-linguistic competence—PI's fluency in Bangla/Hindi improved rapport, minimised translation loss, and reduced item non-response. Novel social-capital measurement—10-item PCA yielded three clear components with strong internal consistency (α 0.83). Despite the combined sampling approach, a degree of randomness was maintained throughout.

Involvement of sectoral actors to identifying the 45 migrant dense wards, and support from the NGO actively working with these groups helped ensure the inclusion of relevant participants.

5.5 Limitations of the study

This study has certain limitations that should be considered. Reliance on the self-reported morbidity without any general physical examination or clinical verification may have underestimated the true burden of health conditions among participants. Also, it is difficult to make direct conclusion about health disparities that are specially attributed to migrant status

when there is an absence of noon-migrant comparison group. Furthermore, the study does not include the migrants who cannot speak Bangla and Hindi, which may affect or limit the generalizability of the study findings to the vast migrant population in the region. Potential underrepresentation of highly mobile or transient migrant workers who may not reside consistently in one place and are therefore less likely to be captured. This also include workers who, due to illness, may have already returned to their homeland, further underestimating the vulnerability.

5.6 Recommendations

To enhance the support for interstate migrant workers a multifaceted approach is recommended, a few recommendations that arose from the study are:

1. Multilingual migrant support help desk in strategic locations such as nakas and transit points which can provide immediate access to health, legal and social support services and promote them via local networks, posters, and community outreach.
2. Strengthening the existing Link-worker scheme (LWS) under National Aids Control Organisation (NACO) by extending its scope to include migrant-focused outreach is important.
3. The trained link workers can be used to especially liaised high-risk groups such as women and isolated workers.
4. To attain all above stated recommend adopting a corridor-approach that links the support system across both migrants' homeland and the destination state (Trivandrum). Which can ensure continuous care and protection throughout the whole migrant cycle.

5.7 Conclusion

In Kerala's growing interstate migrant workforce, this study triangulated lifestyle behaviours, self-reported morbidity, social capital, and living conditions. This study approaches a novel aspect of measuring social capital among migrant workers, incorporating the consideration of the home and receiving states. Over two-thirds of the employees had at least one morbidity, and half of the workers practised sub-optimal health behaviours. Economic pressures, comparatively small but cohesive friendship networks, and household-level hygiene emerged as the critical, modifiable determinants. In practical term, enhancing the health of the interstate migrant workers necessitates an integrated approach that safeguards income, promotes peer relationships and affirms fundamental hygienic standards. Embedding these elements in municipal action plans will advance the Sustainable development goal commitment to “Leave no one behind” and support the very workforce that supports Kerala’s urban economy.

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ANNEXURE – I [Interview schedule]

Health-Related Lifestyle Behaviour and Self-reported Morbidity Among Inter State Migrant Workers in Thiruvananthapuram District, Kerala.

Interview schedule given by ☐ The Respondent
Number:

Serial

☐ The Interpreter

Date:

Cluster Code

Cluster Number

A. Socio-Demographic Information

Sl No.	Questions	Response	Code
1.	What is your age?	____ Years	SD1
2.	Gender	Male ☐ 0 Female ☐ 1 Others ☐ 2	SD2
3.	What is your current marital status?	Unmarried ☐ 0 Married ☐ 1 Widow/Widower ☐ 2 Divorced/Separated ☐ 3	SD3
4.	What is your highest level of education?	No formal education ☐ 0 Primary ☐ 1 Upper primary ☐ 2 High school & above ☐ 3	SD4
5.	What is your current occupation?	Construction laborer ☐ 0 Supervisor ☐ 1 Hotel employee ☐ 2 Street vendor ☐ 3 Others ☐ 4 Others (specify) _____	SD5
6.	What is your average current income per day?	Rupees _____ /day	SD6
7.	On average, how many days usually do you work per month?	____ Day/month	SD7
8.	Have you had consistent employment throughout the past year?	Yes ☐ 0 No ☐ 1	SD8
9.	Is this your first time migrating for work?	Yes ☐ 0 No ☐ 1	SD9
10.	Place of birth	Village/Rural ☐ 0 Town/Urban ☐ 1	SD10
		District	SD11

		State		SD12
11.	Where did you live before moving here?	Village/Rural ☐ 0 Town/Urban ☐ 1		SD13
		District		SD14
		State		SD15
12.	How long have you been living in Trivandrum?	_____ Months		SD16
13.	What was the main reason for your migration?	Employment ☐ 0 Others ☐ 1 Others (please specify) _____		SD17
14.	How did you come to know about the job opportunities in this place?	Friends ☐ 0 Relatives ☐ 1 Employment Agencies ☐ 2 Others ☐ 3 Others (specify) _____		SD18
15.	Who helped you to migrate in this place?	Friends ☐ 0 Relatives ☐ 1 Self ☐ 2 Agencies/Contractors ☐ 3 Others ☐ 4 Others (specify) _____		SD19
16.	How often did you visit your hometown in the past one year?	Did not visit ☐ 0 Monthly ☐ 1 Once in 6 months ☐ 2 Yearly once ☐ 3 Once in 2 years ☐ 4 Others ☐ 5 Others (specify) _____		SD20
17.	When do you visit your native place? (tick all that apply)	During festive seasons ☐ 0 For treatment purposes ☐ 1 For family affairs ☐ 2 When need arises ☐ 3 Others ☐ 4 Others (specify) _____	SD21A SD21B SD21C SD21D SD21E	
18.	Do you regularly send money to your family back home?	Yes ☐ 0 No ☐ 1 [If response is No skip Q No.19]		SD22
19.	How much money do you send to your home each month?			SD23

B. Information on Self-reported morbidity patterns

20.	Are you suffering from any long-term health issues for the past 1 year?	Yes ☐ 0 No ☐ 1 [If response is No skip Q No.22]		SRM1
21.	If yes, did this long-term condition worsen in the past month?			SRM2
22.	In the last 30 days, have you experienced any of the following conditions?			SRM3
22.1	Fever			SRM4
22.2	Do you suffer from intermittent fever?			SRM5
22.3	Headaches			SRM6
22.4	Body pain			SRM7
22.5	Respiratory issues (tick all that apply)		No- 1 Yes- 0	SRM8
	Cough			
	Breathing difficulties			
	Asthma			
	Others (specify)			
22.6	If you have a cough, how long have you had it?			SRM9
22.7	Skin-related issues (tick all that apply)		No- 1 Yes- 0	SRM10
	Rashes			
	Allergies			
	Others (specify)			
22.8	Gastrointestinal issues (tick all that apply)		No- 1 Yes- 0	SRM11
	Abdominal pain			
	Diarrhea			
	Constipation			
	Nausea/Vomiting			
	Loss of appetite			
	Peptic ulcer			
	Other(specify)			
22.9	Injuries, fractures, or burns (tick all that apply)		No- 1 Yes- 0	SRM12
	Injuries			

		Fractures			
		Burns			
22.10	Cardiovascular problems (tick all that apply)		No- 1	Yes- 0	SRM13
		Chest pain			
		High blood pressure			
		Others(Specify)			
22.11	Do you have Diabetes?	Yes ☐ 0 No ☐ 1			SRM14
22.12	Musculoskeletal issues (tick all that apply)		No- 1	Yes- 0	SRM15
		Backache			
		Joint pain			
		Others (Specify)			
22.13	Eye-related issues	Yes ☐ 0 No ☐ 1			SRM16
22.14	Ear-related issues	Yes ☐ 0 No ☐ 1			SRM17
22.15	Urinary tract infections	Yes ☐ 0 No ☐ 1			SRM18
22.16	Dental problems (tick all that apply)		No-1	Yes- 0	SRM19
		Toothache			
		Mouth ulcers			
		Others (Specify)			
23.	Specific to women: Do you experience any menstrual health related issues? (e.g., infections, discomfort)	Yes ☐ 0 No ☐ 1 If yes, please specify:			SRM20
24.	Do you have any other health conditions not mentioned above?	Yes ☐ 0 No ☐ 1 If yes, please specify:			SRM21
25.	Are you currently taking any medication?	Yes ☐ 0 No ☐ 1			SRM22

26.	If yes, specify the reason for taking medication?		SRM23
27.	Have you been hospitalized in the past one year?	Yes ☐ 0 No ☐ 1	SRM24
29.	If yes, what was the reason for your hospitalization?	Treatment/Observation ☐ 0 Surgery ☐ 1 Others ☐ 2 Others (Specify): _____	SRM25
30.	How long was your most recent hospital stay?	_____ Days	SRM26
31.	Where were you Hospitalized?	In Trivandrum ☐ 0 In your hometown ☐ 1 Others ☐ 2 Others (Specify) _____	SRM27

C. Information on Health-Related lifestyle Behaviours

31.1	How many usual meals do you consume per day?	1 meal ☐	0				HLB1
		2 meals ☐	1				
		3 meals ☐	2				
		More than 3 meals ☐	3				
31.2	What types of foods do you typically consume? (Select all that apply)	Fruits ☐	0				HLB2
		Vegetables ☐	1				
		Grains (rice, bread, etc.) ☐	2				
		Meat/Poultry/Fish ☐	3				
		Dairy products ☐	4				
		Processed foods ☐	5				
		(snacks, fast food, etc.)					
31.3	How often do you consume the following?		Never	Rarely (1-2 times/week)	Sometimes (3-5 times/week)	Often (Daily)	HLB3
		Fruits					
		Vegetables					
		Sugary snacks					
		Fast food					

		Home-cooked meals					
32.1	In a typical week, how many days do you engage in any form of physical activity?	No physical activity ☐ 0 1-2 days ☐ 1 3-4 days ☐ 2 5-6 days ☐ 3 7 days ☐ 4					HLB4
32.2	On average, how many hours do you spend in physical activity each day?	Less than 1 hour ☐ 0 1-2 hours ☐ 1 More than 2 hours ☐ 2					HLB5
32.3	What types of physical activities do you engage in during your work? (Select all that apply)	Manual labor (e.g., construction, agriculture) ☐ 0 Walking or commuting to work ☐ 1 Sports or recreational activities ☐ 2 Household chores (cleaning, cooking) ☐ 3 Others ☐ Other (please specify):					HLB6
32.4	Outside of work, what types of physical activities do you participate in? (Select all that apply)	Walking for leisure ☐ 0 Running or jogging ☐ 1 Cycling ☐ 2 Group sports (e.g., football, cricket) ☐ 3 Other ☐ 4 Others (please specify): _____					HLB7
32.5	How would you describe the intensity of your physical activities?	Light (e.g., walking slowly, light chores) ☐ 0 Moderate (e.g., brisk walking, moderate labor) ☐ 1 Vigorous (e.g., heavy lifting, running) ☐ 2 3					HLB8
33.1	On average, what time do you usually go to bed at night?	_____ : _____ (Hour : Minutes)					HLB9

33.2	How many hours of sleep do you usually get each night?	Less than 5 hours ☐ 0 5–6 hours ☐ 1 6–7 hours ☐ 2 More than 7 hours ☐ 3	HLB1 0
33.3	How often do you have trouble falling asleep or wake up during the night?	Never ☐ 0 Occasionally (less than once a week) ☐ 1 Frequently (1-2 times a week) ☐ 2 Almost every night (3 or more times a week) ☐ 3	HLB1 1
33.4	Do you feel refreshed when you wake up in the morning?	Always ☐ 0 Often ☐ 1 Sometimes ☐ 2 Rarely ☐ 3	HLB1 2
33.5	How would you rate your overall sleep quality in the past month?	Very good ☐ 0 Good ☐ 1 Poor ☐ 2 Very poor ☐ 3	HLB1 3
34.1	Do you currently use any kind of tobacco product, such as smoking, chewing, sniffing or dipping?	Yes ☐ 0 No ☐ 1	HLB1 4
34.2	If yes, how frequently do you use tobacco products?	Occasionally ☐ 0 Weekly ☐ 1 Daily ☐ 2	HLB1 5
34.3	If daily, how much do you use per day?	1-5 ☐ 0 6-10 ☐ 1 More than 10 ☐ 2	HLB1 6
35.1	Have you ever consumed any alcohol product such as beer, wine, whiskey, locally prepared alcohol, etc.?	Yes ☐ 0 No ☐ 1	HLB1 7
35.2	Have you consumed any alcohol drink within the past 30 days?	Yes ☐ 0 No ☐ 1	HLB1 8

35.3	During the past month, how many standard drinks did you have during one drinking occasion?	_____ drinks	HLB1 9
35.4	How often do you consume alcohol in a typical week?	Less than once a month ☐ 0 1-3 days per month ☐ 1 1-3 days per week ☐ 2 4 or more days per week ☐ 3	HLB2 0
35.5	Do you use any other substance other than alcohol or tobacco?	Yes ☐ 0 No ☐ 1 Prefer not to say ☐ 2	HLB2 1

D. Information on Living Conditions

36.	Is the building registered with the Local Self-Government Department?	Yes ☐ 0 No ☐ 1 Do not know ☐ 2	LC1
37.	How many people live there in a room?		LC2
38.	Is there any presence of waterlogging near the building?	Yes ☐ 0 No ☐ 1	LC3
39.	Are latrines available in your building?	Yes ☐ 0 No ☐ 1	LC4
40.	If yes, is the latrine closed?	Yes ☐ 0 No ☐ 1	LC5
41.	Is there proper water supply and a flushing system in the latrine?	Water supply Yes ☐ 0 No ☐ 1	LC6A
		Fluhing system Yes ☐ 0 No ☐ 1	LC6B
42.	If yes, how many persons use one latrine?		LC7
43.	Is there a separate area for taking bath?	Yes ☐ 0 No ☐ 1	LC8
44.	Is the floor solid, and is the bathroom properly covered?	Solid floor Yes ☐ 0 No ☐ 1	LC9A
		Covered bathroom Yes ☐ 0 No ☐ 1	LC9B
45.	Is there a separate kitchen in the room?	Yes ☐ 0 No ☐ 1	LC10

46.	Is there a facility for waste management?	Yes ☐ 0 No ☐ 1	LC11
47.	Is safe drinking water available at the premises?	Yes ☐ 0 No ☐ 1	LC12
48.	Is the general hygiene of the premises maintained?	Yes ☐ 0 No ☐ 1	LC13
49.1	Specific to women: Is there a proper waste disposal system for menstrual products in your living area?	Yes ☐ 0 No ☐ 1	LC14
49.2	If no, what are the problem you face in disposing menstrual products?		LC15
49.3	If yes, how do you dispose of used sanitary products?	Public disposal facilities ☐ 0 Burn or bury ☐ 1 Flush ☐ 2 Other ☐ 3 Other (please specify) _____	LC16
50.	Have you ever felt uncomfortable or unsafe using shared facilities (toilets, bathing areas) as a woman?	Yes ☐ 0 No ☐ 1	LC17

Information on social capital

Social capital integrated questionnaire [SC-IQ]- Adapted from world bank

There are 6 dimensions in SC-IQ

- Group and Network
- Trust and Solidarity
- Collective action and cooperation
- Information and community
- Social cohesion and inclusion
- Empowerment and Political action

Groups and Networks

I'd like to start by asking you about the groups or organizations, networks, associations to which you or any member of your household belong. These could be formally organized groups or just groups of people who get together regularly to do an activity or talk about things. As I read the following list of groups, please tell me if anyone in this household belongs to such a group. If yes, tell me which household member is most active in this group, and whether he/she participates actively in the group's decision making

Type of Organization or group	Name of organization or group	Location of the organization (Home state /Elsewhere /This state)	51.1 How does one become a member of this group?	51.2 What is the main benefit from joining this group?	51.3 Does the group help your household get access to any of the following services?	51.4 Who originally founded the group?	51.5 Do you wish to continue your membership in future?
☐ Traders or Business Association			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes
☐ Trade Union or Labor Union			1. Born into the group 2. Required to join	1. Improves my household's current livelihood or	1. Education or Training 2. Health services	1. Central government 2. Local government	1. No 2. Yes

			3. Invited 4. Voluntary choice 5. Other (specify)	access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	3. Local leader 4. Community members 5. Do not know	
☐ Neighbourhood /Village committee			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes

				6. Other (specify)			
☐ Religious group			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes
☐ Political group or movement			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes

				4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	input or technology 6. Irrigation 7. Other (specify)		
☐ Education group (e.g. parent-teacher association, school committee)			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes
☐ Health group			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice	1. Improves my household's current livelihood or access to services	1. Education or Training 2. Health services 3. Water supply or sanitation	1. Central government 2. Local government 3. Local leader	1. No 2. Yes

			5. Other (specify)	2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	4. Community members 5. Do not know	
☐ Water and waste management group			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes

☐ NGO or civic group (e.g. Rotary Club, Red Cross)			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes
☐ Ethnic-based community group			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes

				5. Spiritual, social status, self-esteem 6. Other (specify)	7. Other (specify)		
☐ Other groups			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4. Community members 5. Do not know	1. No 2. Yes
			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5. Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of	1. Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings	1. Central government 2. Local government 3. Local leader 4. Community members	1. No 2. Yes

				emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	5. Agricultural input or technology 6. Irrigation 7. Other (specify)	5.Do not know	
			1. Born into the group 2. Required to join 3. Invited 4. Voluntary choice 5.Other (specify)	1. Improves my household's current livelihood or access to services 2. Important in times of emergency/in future 3. Benefits the community 4. Enjoyment /Recreation 5. Spiritual, social status, self-esteem 6. Other (specify)	1.Education or Training 2. Health services 3. Water supply or sanitation 4. Credit or Savings 5. Agricultural input or technology 6. Irrigation 7. Other (specify)	1. Central government 2. Local government 3. Local leader 4.Community members 5.Do not know	1. No 2. Yes

Networks

52.	About how many <i>close</i> friends do you have these days here in Trivandrum? These are people you feel at ease with, can talk to about private matters, or call on for help.	_____ person	
53.	If you suddenly needed a small amount of money [RURAL: enough to pay for expenses for your household for one week; URBAN: equal to about one week's wages], how many people beyond your immediate household could you turn to who would be <i>willing</i> to provide this money?	No one	☐ 0
		One or two people	☐ 1
		Three or four people	☐ 2
		Five or more people	☐ 3
54.	[IF NOT ZERO] Are most of these people of similar/higher/lower economic status?	Similar	☐ 0
		Higher	☐ 1
		Lower	☐ 2
55.	In the past 12 months, how many people with a personal problem have turned to you for assistance?	_____ person	
56.	[IF NOT ZERO] Are most of these people of similar/higher/lower economic status?	Similar	☐ 0
		Higher	☐ 1
		Lower	☐ 2

Trust and Solidarity

In every community, some people get along with others and trust each other, while other people do not. Now, I would like to talk to you about trust and solidarity in your community.

57. In general, do you feel for the following statements?

A. Most people who live in this ward/ neighbourhood can be trusted. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2	B. Most people who live in the neighbourhood of your hometown can be trusted. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2
C. In this ward/neighbourhood, one has to be alert, or someone is likely to take advantage of you. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2	D. In the neighbourhood of your hometown, one has to be alert, or someone is likely to take advantage of you. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2

E. Most people in this ward/neighbourhood are willing to help if you need it. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2	F. Most people in your hometown neighbourhood are willing to help if you need it. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2
G. In this ward/neighbourhood, people generally do not trust each other in matters of lending and borrowing money. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2	H. In your hometown neighbourhood, people generally do not trust each other in matters of lending and borrowing money. Yes ☐ 0 In some aspects ☐ 1 No ☐ 2

58. Now I want to ask you how much you trust different types of people in Trivandrum. On a scale of 1 to 5, where 1 means a very small extent and 5 means a very great extent, how much do you trust the people in that category?

	1. To a small extent 2. Neither small nor great extent 3. To a great extent
A. People from your ethnic or linguistic group/race/caste/tribe	
B. People from other ethnic or linguistic groups/race/caste/tribe	
C. Shopkeepers	
D. Local government officials	
E. Central government officials	
F. Police	
G. Teachers	
H. Nurses and doctors	
I. Strangers	

59. How well do people in your neighbourhood help each other out these days? Use a five-point scale, where 1 means always helping and 5 means never helping

In this Ward	In your Home town
1. Always helping	Always helping
2. Helping most of the time	Helping most of the time
3. Helping sometimes	Helping sometimes
4. Rarely helping	Rarely helping
5. Never helping	Never helping

Collective Action and Cooperation

60.	Have you ever participated in a community project or activity (e.g., clean-up drives, fund-raising events)?	Yes ☐ 0 No ☐ 1
61.	How often do you cooperate with other migrant workers to solve common problems (e.g., housing, workplace issues)?	Often ☐ 0 Sometimes ☐ 1 Rarely ☐ 2 Never ☐ 3
62.	Do you believe working together with others in the community makes a significant difference in solving local problems?	Agree ☐ 0 Neutral ☐ 1 Disagree ☐ 2
63.	In your experience, do people in the community generally cooperate to handle shared challenges?	Yes ☐ 0 No ☐ 1
64.	Have you ever initiated or led a group effort to address a problem faced by your community?	Yes ☐ 0 No ☐ 1

Information and Communication

65.	How long does it take you to reach the nearest working post office?	Do not know ☐ 0 Less than 15 minutes ☐ 1 15-30 minutes ☐ 2 31-60 minutes ☐ 3 More than one hour ☐ 4
66.	How often do you watch television?	Every day ☐ 0 A few times a week ☐ 1 Once a week ☐ 2 Less than once a week ☐ 3 Never
67.	How many times have you travelled to [URBAN: another part of the city] in the past 12 months?	

68. What are the three most important sources of information about what the government is doing?

In Trivandrum	In your hometown
1. Relatives, friends and neighbours	1. Relatives, friends and neighbours
2. Community bulletin board	2. Community bulletin board
3. Local market	3. Local market
4. Community or local newspaper	4. Community or local newspaper
5. National newspaper	5. National newspaper
6. Radio.	6. Radio.

7. Television	7. Television
8. Groups or associations	8. Groups or associations
9. Business or work associates	9. Business or work associates
10. Political associates	10. Political associates
11. Community leaders	11. Community leaders
12. An agent of the government	12. An agent of the government
13. NGOs	13. NGOs
14. Internet	14. Internet

Social Cohesion and Inclusion

69.	How strong is the feeling of togetherness or closeness in your village/neighbourhood?	Distant ☐ 0 Neither distant nor close ☐ 1 Close ☐ 2
70.	Do you feel accepted by the local community in Thiruvananthapuram?	Agree ☐ 0 Neutral ☐ 1 Disagree ☐ 2
71.	Have you ever faced discrimination in the community based on your status as a migrant worker?	Yes ☐ 0 No ☐ 1
72.	How well do people from different states or regions within the migrant worker community get along?	Well ☐ 0 Neutral ☐ 1 Poorly ☐ 2
73.	Do you believe that people from your home state are treated differently from local residents	Yes ☐ 0 No ☐ 1
74.	How often do you interact with people outside of your own ethnic or language group?	Always ☐ 0 Sometimes ☐ 1 Never ☐ 2

Empowerment and Political Action

75.	In general, how happy do you consider yourself to be?	Very Happy ☐ 0 Happy ☐ 1 Neither happy nor unhappy ☐ 2 Unhappy ☐ 3
76.	How much control do you feel you have in making decisions that affect your everyday activities? Do you have...	No control ☐ 0 Some decisions ☐ 1 Most decisions ☐ 2
77.	Lots of people find it difficult to get out and vote. Did you vote in the last local election?	Yes ☐ 0 No ☐ 1

78.	Have you ever participated in a protest, petition, or collective action to improve conditions for migrant workers?	Yes ☐	0
		No ☐	1
79.	Do you feel that your voice is heard in decisions that affect your community or living conditions?	Yes ☐	0
		No ☐	1
80.	Are you aware of any organizations that advocate for the rights of migrant workers in this area?	Yes ☐	0
		No ☐	1
81.	Have you ever approached local authorities or organizations to resolve a problem related to work or housing?	Yes ☐	0
		No ☐	1

ANNEXURE – II

**Achutha Menon Centre for Health Science Studies (AMCHSS), Sree Chitra Tirunal
Institute for Medical Sciences and Technology, Trivandrum, Kerala-695011**

***Health-Related Lifestyle Behaviour and Self-reported Morbidity Among Inter State
Migrant Workers in Thiruvananthapuram District, Kerala.***

Informant serial number:

Participant Information Sheet

Greetings, I am Dishari Khan, a Master of Public Health (MPH) student at the Achutha Menon Centre for Health Science Studies (AMCHSS), Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala. I am doing a study to fulfil mandatory requirements for my MPH degree. The topic I'm working on is "Health related lifestyle behaviour and self-related morbidity among interstate migrant workers in Thiruvananthapuram district, Kerala". The guide for this study is Dr. Ravi Prasad Varma, Professor at AMCHSS, Thiruvananthapuram, Kerala.

I am inviting you to participate in my study, but before making your decision, I would like to explain why I want to do this study and the potential benefit. I will also explain the study procedures and expectations. I will provide information related to privacy and confidentiality during the study. I request you to carefully read through it, before you decide whether or not to participate in my study.

Please read the information sheet and the consent form carefully and feel free to ask any doubts and concerns. I would be happy to clarify it.

Purpose of the study

The purpose of this study is to assess the health-related lifestyle behaviors and self-reported morbidity among interstate migrant workers in Thiruvananthapuram District, Kerala. This study aims to understand how various lifestyle choices impact health outcomes, along with how living conditions and social networks contribute to these behaviors. By examining the unique challenges migrant workers face in their daily lives, particularly in relation to their living conditions and social support systems, this research seeks to identify potential risk factors for health problems. The findings from this study will help highlight key areas for improving health and well-being among migrant workers and contribute to developing solutions tailored to their needs.

Procedure

If you consent to participate in the study, I will ask you a few questions. The questions will be related to your social and demographic characteristics related to self-reported morbidity pattern, Health related lifestyle behaviour and some question on Social-capital which mainly comprises the social network of yours and about your living conditions. This will take about 20-30 minutes of your valuable time.

Potential risks and discomforts

Participating in the study imposes no risk to your health and work. However, sharing and discussing unpleasant experiences can cause emotional discomfort and stress.

Possible benefits

Although there are no immediate benefits from participating in the study, but your insights will help to bring out strategies that improves the health of the Interstate migrant workers.

Cost and financial benefits

There is no provision of financial benefits for participating in the study. Your participation is completely voluntary. Any transportation related cost related to the interview will be covered by the researcher.

Confidentiality

Care will be taken to ensure that the privacy and confidentiality of all the participants are maintained. Your personal identity will not be revealed to anyone or anywhere. All personal data will be handled with utmost care, and only I, the researcher, and my supervisor will have access to it. All the copies of filled interview schedules and consent forms will be kept under the custody of principal investigator and will be destroyed when they are deemed no longer needed.

Withdrawal from the study

Participation in this study is voluntary. You are free to withdraw from the study at any point during the interview or afterwards. No form of penalty or negative consequences will be yielded for the same.

Contact information

If you have any questions related to the study or would like to verify my credentials, you may contact me or the member secretary of our institute's ethics committee.

Dishari Khan

Principal Investigator

MPH 2023, AMCHSS, SCTIMST

Contact number: 8597985235

Email: disharikhan01@gmail.com

Dr Srinivas G

Member Secretary

Institutional Ethics Committee

SCTIMST, Trivandrum- 695011

Office: 04712524689

Email: iec.mem.sec@sctimst.ac.in

Would you be willing to participate in the study?

ANNEXURE – III

**Achutha Menon Centre for Health Science Studies (AMCHSS), Sree Chitra Tirunal
Institute for Medical Sciences and Technology, Trivandrum, Kerala-695011**

***Health-Related Lifestyle Behaviour and Self-reported Morbidity Among Interstate
Migrant Workers in Thiruvananthapuram District, Kerala***

Informant serial number:

Informed consent form

I confirm that I have read/heard and understood the information sheet for the study “Health-Related Lifestyle Behaviour and Self-reported Morbidity Among Interstate Migrant Workers in Thiruvananthapuram District, Kerala”, as provided in the information sheet. I have been given the opportunity to ask questions, and all my doubts and concerns were addressed to my satisfaction. I have also been informed about any possible harm, discomforts, and benefits (if any) of this study.

I also understand that my privacy and confidentiality will be maintained throughout the study, including the submission of the final document. I acknowledge that my participation in the study is voluntary and that I am free to withdraw at any time, without providing any reason, and without any consequences to myself.

A copy of this form has been given to me.

By signing this form, I agree to participate in this study.

Name of the Participant:

Date:

Signature / Thumb impression:

Place:

Details of witness (In case of Thumb impression)

Name of the witness:

Date:

Signature of the witness:

Name of the investigator:

Date:

Signature of the investigator:

ANNEXURE - IV

IEC Clearance



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)

Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728 / 2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee

CDSO Registration No: ECR/189/Inst/KL/2013/RR-24
DHR Registration No: EC/NEW/INST/2022/2775

SCT/IEC/2331/DECEMBER/2024

15.01.2025

Ms. Dishari Khan
MPH Student, AMCHSS
SCTIMST, Thiruvananthapuram

Dear Ms. Dishari Khan,

The Institutional Ethics Committee held on 30th December, 2024, reviewed and discussed your application to conduct the study titled "HEALTH-RELATED LIFESTYLE BEHAVIOR AND SELF-REPORTED MORBIDITY AMONG INTER-STATE MIGRANT WORKERS IN THIRUVANANTHAPURAM DISTRICT, KERALA" (IEC /2331) .

Principal Investigator	Ms. Dishari Khan, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr. Ravi Prasad Varna P, Professor, AMCHSS, SCTIMST
Duration of the study	6 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2024

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Dr. Manoj Murhekar	MD (Preventive & Social Medicine)	Male	Social Scientist	No
2.	Dr. Annapurna.Y	MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. Indu PV	MBBS, DPM, MPhil, PhD	Female	Clinician	No
5.	Dr. Rejnish Kumar	MBBS, MD, DNB	Male	Clinician	No
6.	Smt. Rekha Radhakrishnan	M.A (Eng.); B.Ed	Female	Lay person	No
7.	Dr. Biju Soman	MBBS, MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes
8.	Dr. Syam K	MBBS, MD, DM	Male	Clinician	Yes
9.	Dr. Srinivas G	PhD	Male	Basic Medical Scientist (Member Secretary)	Yes

The following documents were reviewed:

Original submission

1. IEC Application Form
2. Permission letter
3. Funding details and Budget
4. Covering letter addressed to the Chairperson, IEC, SCTIMST dated 09.12.2024 forwarded by HOD
5. Interview schedule in English, Bangla and Hindi
6. Informed Consent Form in English Bangla and Hindi
7. Participant Information Sheet in Bangla and Hindi
8. Checklist Form
9. Proposal
10. Declaration Form
11. CV of PI and Co-PI

Revised submission

1. IEC Recommendation letter dated 09.01.2025
2. Covering letter addressed to the Member Secretary, IEC, SCTIMST dated 13.01.2025 with response to IEC comments
3. Proposal

IEC Decision

The IEC approved the conduct of the study in the present form.

Remarks:

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,



Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM



ANNEXURE V
Corporation Permission Letter



തിരുവനന്തപുരം നഗരസഭ
പാളയം, വികാസ് ഭവൻ.പി.ഒ, Ph: 0471-2320821,
E-mail: tvpncorpn@gmail.com

H17/2765927

തീയതി: 06.11.2024

Dr. Biju Soman
Professor & Head
Achuthamenon Center for Health Science & Studies
Thiruvananthapuram

സർ

വിഷയം: തിരുവനന്തപുരം നഗരസഭ- ആരോഗ്യവിഭാഗം- ഗവേഷണ പഠനം നടത്തുന്നതിനുള്ള അനുമതി നൽകുന്നത്- സംബന്ധിച്ച്.

സൂചന: 1. 22.10.2024 തീയതിയിൽ Lr. No. AMCHSS/MPH 2023 External letter /51/2024 .

2. ബഹു. നഗരസഭ സെക്രട്ടറിയുടെ 04.11.2024 -ലെ നിർദ്ദേശം.

മേൽ സൂചന (1) പ്രകാരം ശ്രീചിത്ര ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ സയൻസ് & ടെക്നോളജി, തിരുവനന്തപുരം, ശ്രീ അച്യുതമേനോൻ സെന്റർ ഫോർ സയൻസ് & സ്റ്റഡീസ് എന്നിവയുടെ ആഭിമുഖ്യത്തിൽ "Health related life style behaviour and self reported Morbidity among interstate migrant workers in Thiruvananthapuram District, Kerala" എന്ന വിഷയത്തിൽ വിവരശേഖരണത്തിനും പഠനത്തിനും അനുമതി ലഭ്യമാക്കുന്നതിന് താങ്കൾ കത്ത് നൽകിയിരുന്നു. ആയത് പരിഗണിച്ച് ബഹു. നഗരസഭ സെക്രട്ടറി ടി വിഷയത്തിൽ വിവരശേഖരണത്തിനും, പഠനത്തിനും സൂചന (2) പ്രകാരം അനുമതി നൽകിയിട്ടുണ്ട് പഠനം പൂർത്തിയാകുന്ന മുറയ്ക്ക് ഡാറ്റാ കളക്ഷന്റെ ഒരു കോപ്പി നഗരസഭ സെക്രട്ടറിയ്ക്ക് നൽകേണ്ടതാണെന്ന വിവരം അറിയിക്കുന്നു.

Copy To:-

Sri. Disharikhon



ഹെൽത്ത് ഓഫീസർ
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Public Health Officer
Municipal Corporation
Thiruvananthapuram

ANNEXURE – VI

BIVARIABLE AND MULTIVARIABLE MODELS

Bivariate- Factors and lifestyle

Characteristic	Poor lifestyle N = 143 ¹	Better lifestyle N = 137 ¹	p-value ²
Age of participant	32 (26, 40)	29 (23, 38)	0.053
Age category			0.039
Less than 20 years	7 (4.9%)	13 (9.5%)	
21-40 years	101 (71%)	105 (77%)	
More than 40 years	35 (24%)	19 (14%)	
Gender			0.3
Male	130 (91%)	119 (87%)	
Female	13 (9.1%)	18 (13%)	
Marital status			0.018
Not married	51 (36%)	68 (50%)	
Currently married	92 (64%)	69 (50%)	
Education level			0.9
No formal education	41 (29%)	34 (25%)	
Primary	45 (31%)	43 (31%)	
Upper primary	45 (31%)	48 (35%)	
High school & above	12 (8.4%)	12 (8.8%)	
Occupation			0.008
Construction workers	104 (73%)	79 (58%)	
Other workers	39 (27%)	58 (42%)	
Daily income	800 (700, 1,000)	750 (625, 1,000)	0.048
Consistent employment throughout the past year			>0.9
Yes	111 (78%)	106 (77%)	
No	32 (22%)	31 (23%)	

Bivariate- Factors and lifestyle

First time migration			0.2
Yes	81 (57%)	89 (65%)	
No	62 (43%)	48 (35%)	
Migration trajectory			0.09
			0
Rural-Rural-Urban	57 (40%)	72 (53%)	
Urban-Urban-urban	18 (13%)	16 (12%)	
Others	68 (48%)	49 (36%)	

Bivariate- Factors and lifestyle

Stay duration in TVM(in month)	48 (12, 108)	48 (12, 96)	0.6
Migration assistance received			0.2
Self	55 (38%)	42 (31%)	
Some help	88 (62%)	95 (69%)	
Total monthly income	20,000 (16,900, 25,000)	18,750 (15,600, 24,000)	0.12
Percentage of monthly income sent back home	62 (50, 70)	57 (46, 64)	0.020
Unknown	11	19	
¹ Median (Q1, Q3); n (%)			
² Wilcoxon rank sum test; Pearson's Chi-squared test			

Table 3: Bivariate- Factors and morbidity

Characteristic	No morbidity N = 86¹	Presence of morbidity N = 194¹	p-value²
Age of participant	28 (23, 34)	32 (26, 41)	<0.001
Age catagory			<0.001
Less than 20 years	11 (13%)	9 (4.6%)	
21-40 years	70 (81%)	136 (70%)	
More than 40 years	5 (5.8%)	49 (25%)	
Gender			0.3
Male	79 (92%)	170 (88%)	
Female	7 (8.1%)	24 (12%)	
Marital status			0.003
Not married	48 (56%)	71 (37%)	
Currently married	38 (44%)	123 (63%)	

Bivariate- Factors and morbidity

Characteristic	No morbidity N = 86 ¹	Presence of morbidity N = 194 ¹	p-value ²
Education level			0.8
No formal education	20 (23%)	55 (28%)	
Primary	27 (31%)	61 (31%)	
Upper primary	32 (37%)	61 (31%)	
High school & above	7 (8.1%)	17 (8.8%)	
Occupation			0.3
Construction workers	52 (60%)	131 (68%)	
Other workers	34 (40%)	63 (32%)	
Daily income	750 (650, 1,000)	800 (650, 1,000)	0.4
Consistent employment throughout the past year			0.4
Yes	64 (74%)	153 (79%)	
No	22 (26%)	41 (21%)	

Bivariate- Factors and morbidity

First time migration			0.2
Yes	47 (55%)	123 (63%)	
No	39 (45%)	71 (37%)	
Migration trajectory			0.13
Rural-Rural-Urban	36 (42%)	93 (48%)	
Urban-Urban-urban	7 (8.1%)	27 (14%)	
Others	43 (50%)	74 (38%)	
Stay duration in TVM(in month)	36 (12, 72)	48 (24, 120)	0.027
Migration assistance received			0.11
Self	24 (28%)	73 (38%)	
Some help	62 (72%)	121 (62%)	
Total monthly income	19,500 (16,900, 24,000)	20,000 (16,250, 24,000)	0.6
Percentage of monthly income sent back home	58 (47, 66)	59 (48, 69)	0.3
Unknown	11	19	
¹ Median (Q1, Q3); n (%)			
² Wilcoxon rank sum test; Pearson's Chi-squared test			

Bivariate – social capital and lifestyle

Characteristic	Poor lifestyle N = 143 ¹	Better lifestyle N = 137 ¹	p-value ²
Number of close friends			<0.001
Less than 3 friends	65 (45%)	61 (45%)	
3-5 friends	26 (18%)	50 (36%)	
More than 5 friends	52 (36%)	26 (19%)	
Financial help network			0.002
No one	47 (33%)	49 (36%)	
One or two person	45 (31%)	64 (47%)	
More than two person	51 (36%)	24 (18%)	
Economic status of those seeking help			0.090
No help	47 (33%)	49 (36%)	
Low/same economic status	75 (52%)	79 (58%)	
High economic Status	21 (15%)	9 (6.6%)	

Bivariate – social capital and lifestyle

People seeking help			0.4
No one	104 (73%)	107 (78%)	
At least one person	23 (16%)	15 (11%)	
More than one person	16 (11%)	15 (11%)	
Level of trust in the community and people			0.9
Low trust	32 (22%)	33 (24%)	
Moderate trust	45 (31%)	40 (29%)	
High trust	66 (46%)	64 (47%)	

Multivariable – Factors and Morbidity

Characteristic	OR ¹	95% CI ¹	p-value
Age of participant	1.04	0.99, 1.09	0.091
Marital status			
Not married	—	—	
Currently married	1.17	0.54, 2.54	0.7
Stay duration in TVM(in month)	1.00	1.00, 1.01	0.5
¹ OR = Odds Ratio, CI = Confidence Interval			

Multivariable – Factors and Lifestyle

Characteristic	OR ¹	95% CI ¹	p-value
Age of participant	1.04	1.00, 1.10	0.079
Gender			
Male	—	—	
Female	1.60	0.66, 4.31	0.3
Marital status			
Not married	—	—	
Currently married	1.26	0.57, 2.77	0.6
First time migration			
Yes	—	—	
No	0.67	0.38, 1.18	0.2
Stay duration in TVM(in month)	1.00	1.00, 1.01	0.6
¹ OR = Odds Ratio, CI = Confidence Interval			

ANNEXURE - VII

List of migrant-dense wards under Thiruvananthapuram Corporation

Ward number	Ward name	Ward number	Ward name
1	Kazhakuttom	42	Poojappura
2	Chandavila	44	Jagathy
4	Sreekariyam	45	Karamana
5	Cheruvaikkal	47	Mudavanmugal
6	Ulloor	48	Thrikannapuram
9	Chempazhanthi	52	Pappanamcode
16	Medical College	71	Chala
17	Pattom	72	Manacaud
19	Kudappanakkunnu	77	Beemapally
22	Sasthamangalam	78	Muttathara
23	Kowdiar	80	Fort
24	Kuravankonam	81	Thampanoor
28	Thycaud	86	Chakkai
31	Peroorkada	89	Sanghumugham
38	PTP Nagar	93	Pettah
40	Thirumala	96	Akkulam

Source- Thiruvananthapuram corporation, Labour department, Govt. of Kerala.

ANNEXURE – VIII

Plagiarism Report

Health-Related Lifestyle Behavior and Self-reported Morbidity Among Interstate Migrant Workers in Thiruvananthapuram District, Kerala.

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SIMILARITY INDEX

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