RESEARCH PAPER

Depression, Anxiety and Stress: An Empirical Study among Manual Scavengers in Tiruchirappalli District of Tamil Nadu state

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ABSTRACT

Manual scavenging continues in some communities despite its legal prohibition in India, and is amongst the most dangerous and dehumanising forms of work. Manual scavenging workers are often exposed to unsafe working circumstances, poor living conditions, occupational dangers, economic insecurity and social shame that may significantly affect their psychological wellbeing. The present study attempted to examine the levels of depression, anxiety and stress among manual scavengers and identify important factors linked with their psychological suffering. Data were collected using a standardised Depression Anxiety Stress Scale (DASS-21) from a sample of 120 manual scavengers of chosen urban locations. Results suggested that poor living conditions, work hazards, financial problems, absence of social security and social stigma were significant factors related with psychological distress among the participants. The study highlights that the repercussions of manual scavenging are not limited to physical and occupational health but are compounded by major emotional issues. Comprehensive rehabilitation programs, alternative career alternatives, better occupational safety, awareness activities, accessible mental health services, counselling and social support are required to overcome these issues. Strengthening the application of legislative safeguards and encouraging social inclusion and dignity can also benefit the overall health and quality of life of this marginalised community.

Keywords: Manual scavenging; Depression; Anxiety; Stress; DASS-21; Occupational hazards; Social stigma; Mental health; Rehabilitation.

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INTRODUCTION

The preamble of the Indian constitution, which was adopted on November 26, 1949, highlights equality of status and opportunity as well as liberty of thought, expression, belief, faith, and worship. In the sixty-seven years that have since followed, India has made significant progress and established its place in the world in terms of democracy, technology, culture, and its rich and varied heritage, but it has failed to eliminate the current system of manual scavenging and to achieve the "Equality of status" that the preamble mentions. Dry latrines are still used in many regions of the nation, creating an unsanitary and hazardous environment that encourages the growth of mosquitoes and produces odours and gases. The health of those who live close by is negatively impacted, as is "The Scavenger," who manually gathers dry waste and disposes of it in a location that is either farther from the gathering area or closer to the Scavenger's home. The caste structure of the Hindu religion in India is the source of the concept that manual scavenging is a social practice rather than a simple vocation. The four divisions of the Indian caste system are Brahmins, Kshatriyas, Vaishyas, and Shudras. In the caste system, the Scavengers are at the bottom.

The Dalits, also known as Shudras, risk their lives to perform various unhealthy tasks for the sake of society, such as clearing clogged gutters (also known as "the sewer lines"), removing dead animals from streets, towns, and cities, and manually handling human waste. People's mindsets remain the same even after achieving higher levels of education. Most of the scavengers are female. Although men participate in this type of work as well, women do so at a higher rate. The Asian Human Rights Commission states that "Lifting and removal of human excreta manually" at private residences and municipally maintained restrooms is the official definition of manual scavenging in India. Using bare hands, a broom, or metal scrappers, people collect human waste from private or public dry latrines and place it in woven baskets or buckets.

These scavengers carry their loads into landfills or bodies of water on their heads, shoulders, or hips (or in wheelbarrows if they can afford it). In addition, numerous scavengers are used in a similar manner to gather, transport, and get rid of waste from drains, septic tanks, sewers, and railway tracks. The International Dalit Solidarity Network believes that there are 1.3 million manual scavengers in India, the most of whom are women, despite the lack of government statistics on the number of persons compelled to engage in the practice. Men are asked to perform the more physically taxing tasks of cleaning septic tanks and sewers, while women often clean dry toilets and both sexes clean waste from open defecation sites, gutters, and drains. Human rights organisations claim that touching human waste repeatedly without protection poses a major health risk in addition to being a question of dignity. It can result in trachoma, anaemia, jaundice, respiratory and skin disorders, chronic headaches and nausea, and carbon monoxide poisoning.

Sujith Koonan, (2013) highlighted in their article that In India, manual scavenging poses significant sanitation problems. In this practice, human waste is collected from individual or communal restrooms using bare hands, brooms, or metal scrapers by persons from lower castes. The waste is then transported to disposal places in broader baskets or buckets. More than 700,000 Indians still rely on manual scavenging for their livelihood, according to a 2009 Asian Development Bank estimate. In addition to being a sanitation issue given its effects on the environment and human health, this is a grave insult to human dignity. It is fairly uncommon for sanitation workers to be killed or seriously injured while cleaning sewers without proper safety precautions. One of the main issues to be addressed under the sanitation framework is the safety of sanitation workers or guaranteeing the scientific technique of sanitation-related tasks like sewage cleaning.

Kalaiyarasan.M Dr.Suresh kumar.M, (2014) expressed in their article that the main objectives of this study are to and out the economic status and lifestyle of the respondents. The study revels result that only 38.2 percentage of the respondent earn income between Rs.4500 to 6500 per month. 61.8 percentage of the respondent were not having nutritional food. (44.6%) were facing the stigma and discrimination from the society. (54.5%) feel that the society had a bad opinion about their occupation. (72.73%) were getting debt form different enhance agencies.

Rangamani, S Obalesha, KB Gaitonde, R (2015) mentioned in their article there is no there are official statistics on the mortality and morbidity rates among Indian sanitation workers, especially manual scavengers. In light of their occupational dangers (work practices and exposures), little is known about their health problems and health-seeking behaviours. Using a lay epidemiological approach, we tried to comprehend the kind of health issues that sanitation workers face. A community-based organization working in Chitradurga town in Karnataka for the development of sanitation workers recorded the health problems of workers and their treatment-seeking practices every month using a health-monitoring tool. Through the story of workers' perceptions of their sickness, we employed a lay epidemiological technique to discover occupational health issues and gaps in healthcare access. The occupational health status, healthcare-seeking behaviours, and social support systems were mapped using descriptive analysis.

Virendra B.Shahare, (2016) viewed that One of the most marginalised and exploited groups in Indian society is the manual scavengers. They endure many sorts of discrimination and social isolation at the hands of the caste system since they are viewed as the lowest in the Hindu caste hierarchy. They are found in practically every Indian city, where they move soil at night by hand. Since Dalit women make up over 90% of the workforce of manual scavengers, they are the worst victims. In addition to the societal shame they experience, they are compensated poorly for their labour. The objectives of the study were to describe the socio-demographic characteristics of manual scavengers, assess the levels of depression, anxiety, and stress among the respondents, determine the association between family income and depression, anxiety, and stress, and examine the relationship among depression, anxiety, and stress among manual scavengers in Tiruchirappalli District.

METHODOLOGY

The present study was conducted based on the primary data collected through field surveys with the well-structured interview schedule and purposive sampling. This research is pioneer work in the Tiruchirapplli district of Tamilnadu, the research used a descriptive research design. DASS-21 items scale was used. The data collected was collected between the periods of October-November 2024 and analyzed with the use of Statistical Package for Social Science (SPSS) and suitable statistical analysis was employed.

ANALYSIS AND INTERPERTITION

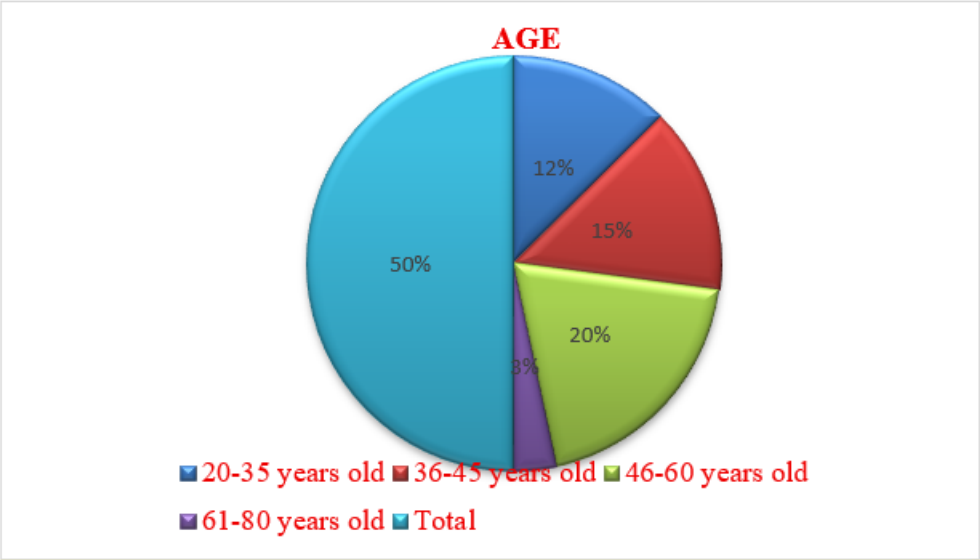


Figure:1 Distribution of Respondents of the Age Source: computed from primary data

The distribution indicates that the study sample was predominantly composed of respondents in the middle-adult age groups (36–60 years), who collectively accounted for 68.4% of the respondents. This age composition is relevant to the study because prolonged exposure to physically demanding and socially stigmatized occupational conditions may be particularly important when examining psychological well-being among sanitation workers. However, the descriptive age distribution alone does not establish an association between age and depression, anxiety, or stress; such relationships are examined separately through inferential statistical analysis.

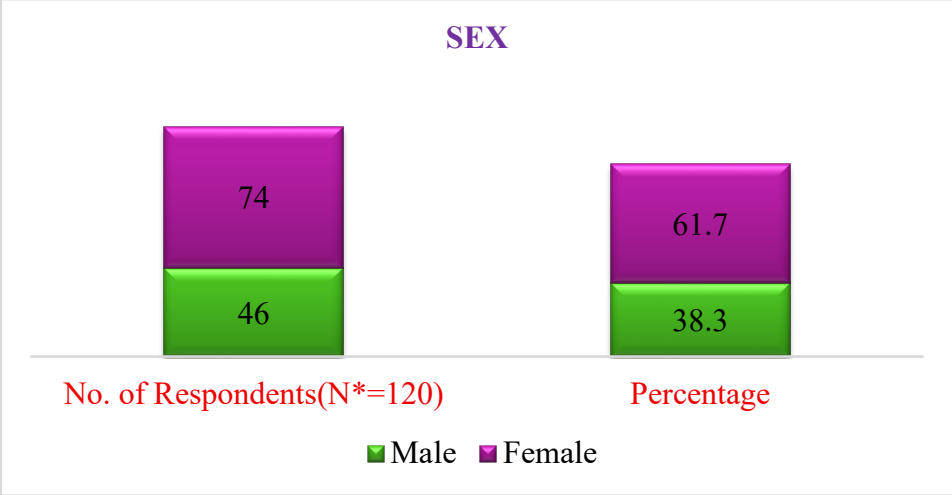


Figure :2 Distribution of Respondents of the Sex *Source: computed from primary data*

Table 2 presents the sex-wise distribution of the 120 respondents. The findings show that 74 respondents (61.7%) were female, whereas 46 respondents (38.3%) were male. Thus, females constituted the larger proportion of the study sample, accounting for nearly three-fifths of the respondents, while males represented slightly more than one-third. The observed distribution indicates a higher representation of female respondents within the study population. This finding is relevant to the socio-demographic profile of the respondents and provides an important contextual characteristic for interpreting the subsequent findings on depression, anxiety, and stress. Nevertheless, the present descriptive distribution should not be interpreted as evidence that sex is associated with psychological outcomes, as no sex-wise inferential analysis is reported in the study.

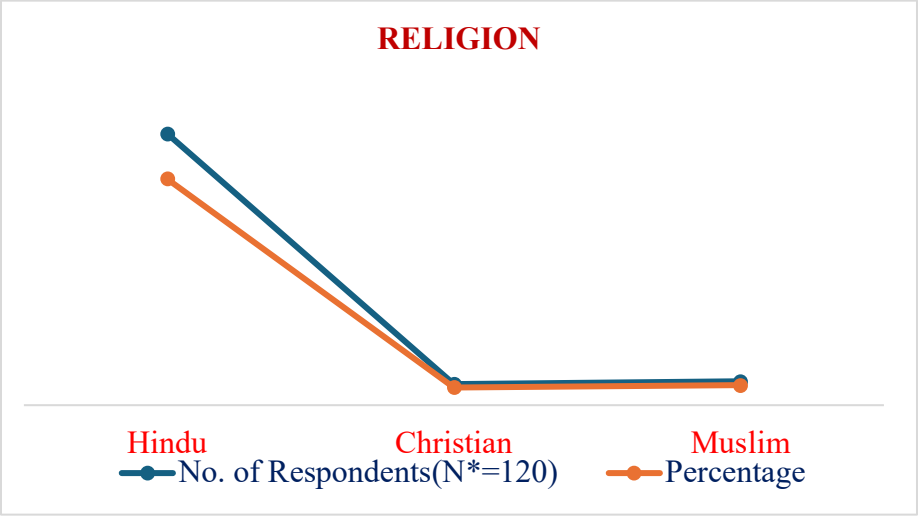


Figure:3 Distribution of Respondents of the ReligionSource: computed from primary data

Table 3 presents the religious composition of the 120 respondents. The findings indicate that 103 respondents (85.8%) identified as Hindu, constituting the overwhelming majority of the study sample. In comparison, 9 respondents (7.5%) were Muslim, while 8 respondents (6.7%) were Christian.The distribution demonstrates that the respondent group was predominantly Hindu, with the remaining respondents distributed between Muslim and Christian religious affiliations. This profile provides useful socio-demographic context for understanding the characteristics of the study population. However, the observed distribution should be interpreted descriptively, as the present analysis does not examine whether religious affiliation is statistically associated with depression, anxiety, or stress.

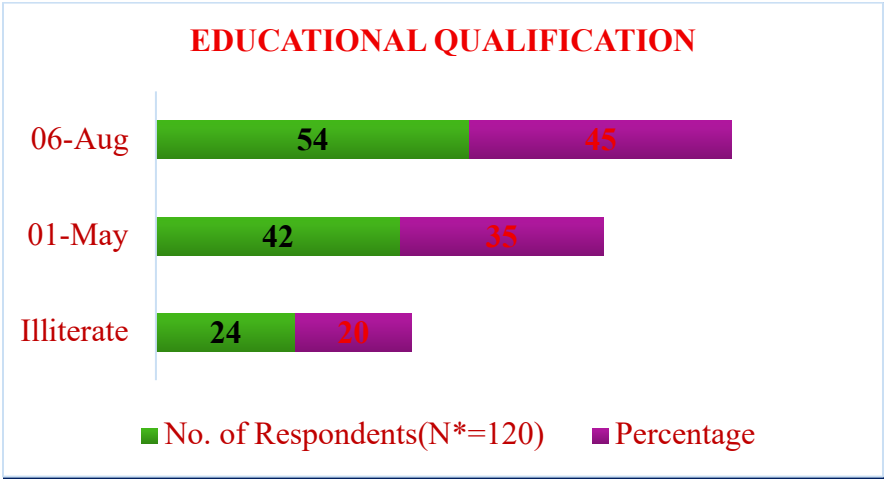


Figure:4 Distribution of Respondents of the Educational Qualification

Source: computed from primary data

Table 4 presents the educational profile of the 120 respondents. The findings indicate that 54 respondents (45.0%) had completed education at the 6th–8th standard level, representing the largest proportion of the sample. This was followed by 42 respondents (35.0%) who had completed education at the 1st–5th standard level. A further 24 respondents (20.0%) were illiterate. Overall, the findings indicate that 80.0% of the respondents had received at least some formal schooling, although their educational attainment was concentrated at the primary and upper-primary levels. At the same time, the presence of one-fifth of respondents with no formal education reflects a considerable level of educational disadvantage within the study population. This socio-demographic characteristic provides important contextual information for understanding the respondents' broader social and occupational circumstances. However, the present table is descriptive and does not provide sufficient evidence to determine whether educational attainment is statistically associated with depression, anxiety, or stress.

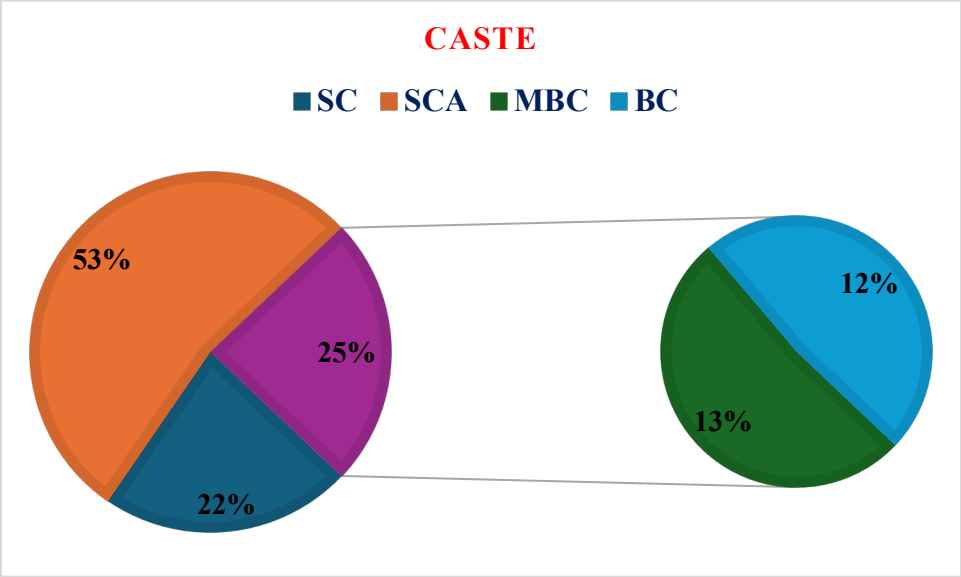


Figure:5 Distribution of Respondents of the Caste Source: computed from primary data

Table 5 presents the caste-wise distribution of the 120 respondents. The findings indicate that 64 respondents (53.3%) belonged to the Scheduled Caste Arunthathiyar (SCA) category, constituting the largest proportion of the study sample. This was followed by 27 respondents (22.5%) belonging to the Scheduled Caste (SC) category. The remaining respondents were distributed across the Most Backward Class (MBC) category, comprising 15 respondents (12.5%), and the Backward Class (BC) category, comprising 14 respondents (11.7%). The distribution therefore shows that 75.8% of the respondents belonged to the SC and SCA categories, indicating that the sample was substantially concentrated within these social categories. This finding provides important socio-demographic context for interpreting the occupational and psychological characteristics examined in the study. However, the descriptive distribution of caste does not, by itself, establish a statistical relationship between caste and depression, anxiety, or stress.

Table:1 Distribution of Respondents of the Marital Status

S.No	**Marital Status**	**No. of Respondents(N*=120)**	**Percentage**
1.	Married	107	89.2
2.	Unmarried	13	10.8
	Total	**120**	**100.0**

Source: computed from primary data

Table 6 presents the marital status of the 120 respondents. The findings indicate that 107 respondents (89.2%) were married, whereas 13 respondents (10.8%) were unmarried. Thus, married respondents constituted the overwhelming majority of the study population, accounting for nearly nine-tenths of the total sample. The predominance of married respondents provides an important socio-demographic characteristic of the sample and indicates that most participants were living within a marital or family context. This characteristic is relevant when interpreting the respondents' overall social and occupational circumstances. However, the present descriptive findings do not establish whether marital status is significantly associated with depression, anxiety, or stress, as no corresponding inferential analysis is reported for this variable.

Table – 2 Distribution of Respondents of the Nature of Work

S.No	**Nature of Work**	**No. of Respondents(N*=120)**	**Percentage**
1.	Permanent staff	37	30.8

2.	Contract base	83	69.2
	Total	**120**	**100.0**

Table 7 presents the distribution of respondents according to the nature of their employment. The findings indicate that 83 respondents (69.2%) were employed on a contract basis, whereas 37 respondents (30.8%) were permanent staff. Thus, contract-based workers constituted more than two-thirds of the total sample, while permanent employees represented less than one-third. The predominance of contract-based employment indicates that employment arrangements were largely non-permanent within the study population. This provides an important contextual dimension for understanding the occupational circumstances of the respondents. In particular, employment status may be relevant when considering issues related to occupational security and working conditions; however, the present descriptive data do not permit conclusions about whether the nature of employment is statistically associated with depression, anxiety, or stress.

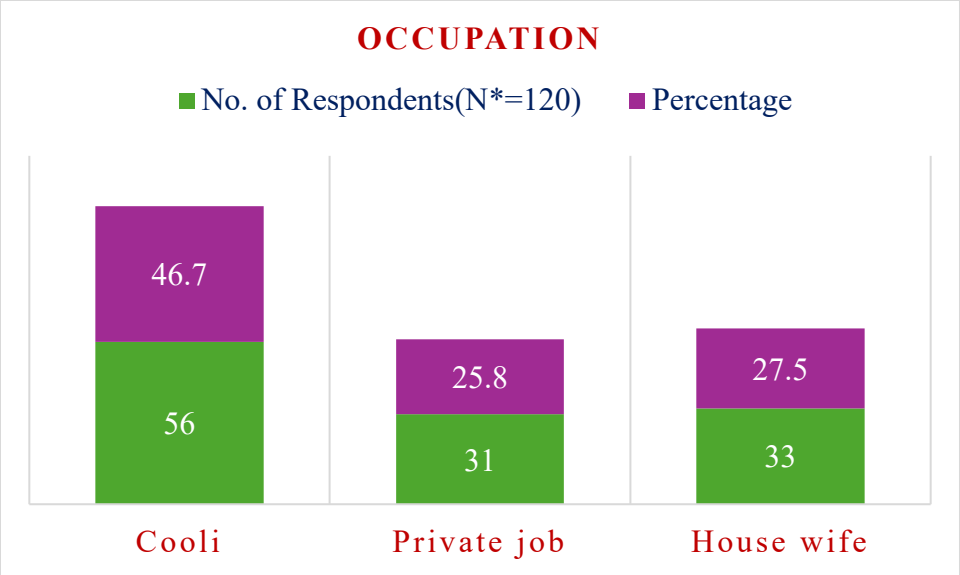


Figure -6 Distribution of Respondents of the Family Members Occupation

Table 8 presents the occupational profile of the respondents' family members. The findings indicate that 56 respondents (46.7%) reported that their family members were engaged in coolie work, representing the largest occupational category. This was followed by 33 respondents (27.5%) whose family members were homemakers, while 31 respondents (25.8%) reported that their family members were employed in private-sector jobs. The findings indicate that nearly half of the respondents belonged to families in which members were engaged in daily-wage/coolie work, while the remaining respondents were distributed relatively evenly between homemaking and private employment. The occupational composition suggests that a substantial proportion of respondents came from families with predominantly labour-oriented or non-professional employment backgrounds. However, this table provides only a descriptive profile and does not establish whether family members' occupation is associated with the respondents' depression, anxiety, or stress levels.

Table – 3 Distribution of Respondents of the family income

S.No	**family income**	**No. of Respondents(N*=120)**	**Percentage**
1.	1000-5000 INR	69	57.5
2.	5001-45000 INR	51	42.5
	Total	**120**	**100.0**

Table 9 presents the distribution of respondents according to monthly family income. The findings indicate that 69 respondents (57.5%) reported a family income of INR 1,000–5,000, while 51 respondents (42.5%) reported a

family income of INR 5,001–45,000. Thus, more than half of the respondents belonged to the lower income category, whereas slightly less than half reported incomes within the higher category. The findings indicate that low household income was prevalent among a substantial proportion of the respondents, reflecting the economically constrained circumstances of the study population. Family income is particularly relevant to the present study because economic circumstances constitute an important socio-demographic characteristic when examining psychological well-being. However, the descriptive distribution should not be interpreted as evidence of a direct relationship between income and depression, anxiety, or stress. The statistical significance of income differences in relation to these psychological variables is examined separately in Table 17.

Table – 4 Distribution of Respondents of the House

S.No	**House**	**No. of Respondents(N*=120)**	**Percentage**
1.	Yes	109	90.8
2.	No	11	9.2
	Total	**120**	**100.0**

Table 10 presents the distribution of respondents according to house ownership. The findings indicate that 109 respondents (90.8%) reported owning a house, whereas 11 respondents (9.2%) did not own a house. Thus, house ownership was reported by the overwhelming majority of respondents, with only a relatively small proportion living without an owned house. The findings indicate a high prevalence of house ownership within the study population. This provides an important socio-economic and living-condition characteristic of the respondents. However, house ownership should be interpreted as a descriptive socio-demographic indicator in this table, and the findings do not establish whether ownership status is associated with depression, anxiety, or stress because no inferential test is reported for this variable.

Table – 5 Distribution of Respondents of the Toilet

S.No	**Toilet**	**No. of Respondents(N*=120)**	**Percentage**
1.	Yes	47	39.2
2.	No	73	60.8
	Total	**120**	**100.0**

Table 11 presents the availability of toilet facilities among the 120 respondents. The findings indicate that 47 respondents (39.2%) reported having access to a toilet facility, whereas 73 respondents (60.8%) reported that they did not have access to a toilet facility. Thus, the majority of respondents lacked access to a toilet facility within their household or living environment.The findings highlight a substantial gap in access to basic sanitation facilities among the respondents. The fact that more than three-fifths of the sample reported no access to a toilet facility is an important contextual characteristic of the population studied. It is particularly relevant to the broader occupational and social conditions examined in the study. However, this descriptive finding alone does not establish a statistical relationship between access to sanitation facilities and depression, anxiety, or stress.

Table –6 Distribution of Respondents of the Water Facility

S.No	**Toilet Water Facility**	**No. of Respondents(N*=120)**	**Percentage**
1.	Yes	47	39.2
2.	No	73	60.8
	Total	**120**	**100.0**

Table 12 presents the availability of water facilities among the 120 respondents. The findings indicate that 47 respondents (39.2%) reported having access to a water facility, whereas 73 respondents (60.8%) reported that they did not have access to this facility. Thus, the majority of respondents reported an absence of access to

the water facility considered in the study. The distribution indicates that limited access to basic water facilities was a substantial characteristic of the study population, with more than three-fifths of respondents reporting no access. This finding provides important contextual information regarding the respondents' living and sanitation conditions. However, because the table presents only a descriptive distribution, it does not establish whether access to water facilities has a statistically significant relationship with depression, anxiety, or stress.

Table – 7 Distribution of Respondents of the Food Habit

S.No	**Food Habit**	**No. of Respondents(N*=120)**	**Percentage**
1.	Vegetarian	46	38.3
2.	Non-Vegetarian	74	61.7
	Total	**120**	**100.0**

Source: computed from primary data

Table 13 presents the food habits of the 120 respondents. The findings indicate that 74 respondents (61.7%) were non-vegetarian, while 46 respondents (38.3%) were vegetarian. Thus, non-vegetarian respondents constituted the larger proportion of the study population, accounting for nearly three-fifths of the sample. The findings demonstrate a higher representation of non-vegetarian respondents compared with vegetarian respondents. This distribution provides descriptive information about the dietary characteristics of the study population. However, the observed food-habit pattern should not be interpreted as an indicator of nutritional status or psychological well-being, as the table does not provide information on dietary adequacy, nutritional intake, or statistical associations between food habits and depression, anxiety, or stress.

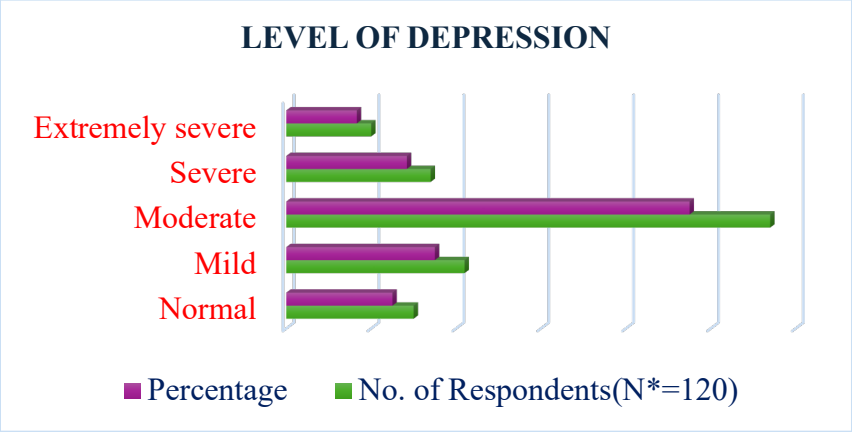


Figure: 7 Distribution of Respondents of the Level of depression

Source: computed from primary data

Table 14 presents the distribution of respondents according to their level of depression as assessed using the DASS-21. Among the 120 respondents, 57 (47.5%) were classified as experiencing moderate depression, representing the largest proportion of the sample. This was followed by 21 respondents (17.5%) with mild depression and 17 respondents (14.2%) with severe depression. In addition, 15 respondents (12.5%) were classified within the normal range, while 10 respondents (8.3%) experienced extremely severe depression. The distribution indicates that 87.5% of the respondents fell into one of the reported depression categories above the normal level, while only 12.5% were classified as normal. The largest concentration was observed in the moderate category. This pattern suggests that depressive symptoms were prevalent within the study sample and that a considerable proportion of respondents experienced depression at moderate or higher levels. Nevertheless, these findings represent the distribution of DASS-21 depression classifications within the sample and should not be interpreted as a clinical diagnosis of depressive disorders.

Table – 8 Distribution of Respondents of the Level of anxiety

S.No	**Level of anxiety**	**No. of Respondents(N*=120)**	**Percentage**
1.	Normal	13	10.8
2.	Mild	15	12.5
3.	Moderate	39	32.5
4.	Severe	20	16.7
5.	Extremely severe	33	27.5
	Total	**120**	**100.0**

Source: computed from primary data

Table 15 presents the distribution of the 120 respondents according to their level of anxiety as assessed using the DASS-21. The findings indicate that 39 respondents (32.5%) were classified as experiencing moderate anxiety, representing the largest proportion of the sample. This was followed by 33 respondents (27.5%) with extremely severe anxiety and 20 respondents (16.7%) with severe anxiety. A further 15 respondents (12.5%) experienced mild anxiety, while 13 respondents (10.8%) were classified within the normal range.

The findings demonstrate that 89.2% of the respondents were classified in anxiety categories above the normal range, while only 10.8% fell within the normal category. Notably, moderate anxiety constituted the largest single category, while more than one-fourth of the respondents were classified in the extremely severe category. This distribution indicates a substantial burden of anxiety-related symptoms within the study population. However, as with the depression findings, the DASS-21 categories should be interpreted as levels of psychological symptoms rather than clinical diagnoses of an anxiety disorder.

Table – 9 Distribution of Respondents of the Level of Stress

S.No	**Level of Stress**	**No. of Respondents(N*=120)**	**Percentage**
1.	Normal	49	40.8
2.	Mild	22	18.3
3.	Moderate	40	33.3
4.	Severe	8	6.7
5.	Extremely severe	1	.8
	Total	**120**	**100.0**

Source: computed from primary data

Table 16 presents the distribution of the 120 respondents according to their level of stress as assessed using the DASS-21. The findings indicate that 49 respondents (40.8%) were classified within the normal range, representing the largest proportion of the sample. This was followed by 40 respondents (33.3%) with moderate stress and 22 respondents (18.3%) with mild stress. In comparison, 8 respondents (6.7%) were classified as experiencing severe stress, while only 1 respondent (0.8%) was classified in the extremely severe category.

The distribution shows that 59.2% of the respondents were classified above the normal range, while 40.8% fell within the normal category. Moderate stress was the predominant non-normal category, accounting for one-third of the sample. In contrast, the proportion classified with severe or extremely severe stress was comparatively small (7.5% combined). Thus, the pattern of stress differs from the distribution observed for depression and anxiety, where the proportion of respondents outside the normal range was higher.

Table – 10 Difference between family income of the respondents and depression, anxiety, and stress

VARIABLE	CATEGORY	MEAN	STANDARD DEVIATION	STATISTICAL INFERENCE
Depression	1000-5000 INR	16.6377	6.71690	Z= 0.183 df = 108.496 P>0.05
	5001-45000 INR	16.8627	6.64837	
Anxiety	1000-5000 INR	13.5942	5.73513	Z=1.516 df=99.341 P>0.05
	5001-45000 INR	15.3333	6.54421	
Stress	1000-5000 INR	15.9710	7.05018	Z=0.179 df=111.370 P>0.05
	5001-45000 INR	16.1961	6.62426	

Source: computed from primary data

Table 17 examines whether respondents' depression, anxiety, and stress scores differed significantly according to their family-income category. The analysis compares respondents with a family income of INR 1,000–5,000 and those with a family income of INR 5,001–45,000 using an independent-samples statistical test.

For depression, respondents in the INR 1,000–5,000 income group obtained a mean score of 16.64 (SD = 6.72), compared with 16.86 (SD = 6.65) among respondents in the INR 5,001–45,000 group. The reported test statistic was Z = 0.183, p > 0.05, indicating that the difference between the two income groups was not statistically significant.

For anxiety, the lower-income group recorded a mean score of 13.59 (SD = 5.74), while the higher-income group recorded a mean of 15.33 (SD = 6.54). Although the higher-income group showed a comparatively higher mean anxiety score, the reported result (Z = 1.516, p > 0.05) indicates that this difference was not statistically significant.

Similarly, for stress, the mean score was 15.97 (SD = 7.05) among respondents in the INR 1,000–5,000 income category and 16.20 (SD = 6.62) among those in the INR 5,001–45,000 category. The reported test result (Z = 0.179, p > 0.05) indicates no statistically significant difference between the two income groups.

Table – 11 Correlation of different variables

Sl.No	Variables	r=value	Strength	Statistical inference
1	Age and Depression	0.22	Very weak	0.809>0.05 Not Significant
2	Age and Anxiety	0.007	Very weak	0.938>0.05 Not Significant
3	Age and Stress	0.42	Very weak	0.627>0.05 Not Significant

Source: computed from primary data

Table 18 examines the relationship between the respondents' age and their levels of depression, anxiety, and stress using Pearson's correlation coefficient. The results indicate that the correlations between age and the three psychological variables were weak and statistically non-significant.

The correlation between age and depression was reported as r = 0.022, p = 0.809, indicating a negligible positive association that was not statistically significant. Similarly, the relationship between age and anxiety was r = 0.007, p = 0.938, demonstrating an almost negligible association with no statistical significance. The correlation between age and stress was reported as r = 0.045, p = 0.627, again indicating a very weak positive association that did not reach statistical significance.

Taken together, these findings indicate that age was not significantly linearly associated with depression, anxiety, or stress in the present sample. The near-zero correlation coefficients suggest that variation in age did not correspond to a meaningful linear change in the psychological outcome scores. Therefore, the findings do not provide sufficient statistical evidence to conclude that age is an important linear correlate of depression, anxiety, or stress among the respondents.

Table – 12 Correlation of different variables

	Depression	Anxiety	Stress
Depression	1		
Anxiety	0.554**	1	
Stress	0.574**	0.603**	1

Table 19 presents the Pearson correlation coefficients among depression, anxiety, and stress scores of the respondents. The findings demonstrate that all three psychological variables were positively and statistically significantly correlated with one another.

A moderate positive correlation was observed between depression and anxiety ($r = 0.554$, $p < 0.001$), indicating that higher depression scores tended to be associated with higher anxiety scores. Similarly, depression demonstrated a moderate positive correlation with stress ($r = 0.574$, $p < 0.001$), suggesting that respondents reporting higher levels of depressive symptoms also tended to report higher levels of stress.

The strongest association among the three variables was observed between anxiety and stress ($r = 0.603$, $p < 0.001$). This represents a positive relationship of moderate-to-strong magnitude, indicating that higher anxiety scores were associated with higher stress scores. All three correlations were statistically significant at the 0.001 level, providing strong evidence against the null hypothesis of zero correlation in this sample.

CONCLUSION

The present study examined the levels of depression, anxiety, and stress among manual scavengers in Tiruchirappalli District of Tamil Nadu, based on primary data collected from 120 respondents using the DASS-21. The socio-demographic findings indicate that the respondents were predominantly from the middle-adult age groups, female, married, and employed predominantly on a contract basis. A substantial proportion belonged to the Scheduled Caste and Scheduled Caste Arunthathiyar categories, while the majority reported relatively low family income. The study also identified considerable limitations in access to basic sanitation and water facilities among the respondents.

The psychological findings indicate a substantial prevalence of depressive and anxiety-related symptoms within the study population. Nearly half of the respondents (47.5%) were classified in the moderate depression category, while only 12.5% fell within the normal range. Similarly, 32.5% were classified with moderate anxiety and 27.5% with extremely severe anxiety, whereas only 10.8% were within the normal anxiety range. In contrast, stress exhibited a comparatively more heterogeneous distribution, with 40.8% of respondents falling within the normal range and 33.3% experiencing moderate stress. These findings indicate that psychological symptom profiles were not uniform across the three dimensions, with depression and anxiety showing a greater concentration of respondents above the normal range than stress.

The inferential analysis further demonstrates that family income was not significantly associated with differences in depression, anxiety, or stress scores. Although the higher-income group recorded slightly higher mean scores for all three psychological variables, none of these differences reached statistical significance at the 5% level. Thus, the findings do not provide sufficient evidence to conclude that the two income categories differed significantly in their psychological outcomes.

The correlation analysis provides an important finding concerning the interrelationship among the psychological variables. Depression was significantly and positively correlated with anxiety ($r = 0.554$, $p < 0.001$) and stress ($r = 0.574$, $p < 0.001$), while anxiety was significantly and positively correlated with stress ($r = 0.603$, $p < 0.001$). These results indicate that higher levels of one psychological symptom dimension tended to occur alongside higher levels of the other dimensions. However, the correlational nature of the analysis does not permit causal conclusions.

Overall, the findings underscore the importance of addressing the psychological well-being, occupational safety, and social conditions of manual scavengers. The observed levels of depression and anxiety, together with the significant interrelationships among depression, anxiety, and stress, indicate a need for appropriate psychosocial support and accessible mental-health services for this occupationally and socially marginalised population. At the institutional level, interventions should incorporate regular psychological screening, counselling and referral mechanisms, occupational health monitoring, adequate protective equipment, and improved access to basic sanitation and welfare services. Measures aimed at reducing social stigma and strengthening rehabilitation and social-support mechanisms may further contribute to improving the overall well-being and dignity of sanitation workers. The study therefore highlights the need for an integrated approach that addresses psychological,

occupational, socio-economic, and social dimensions rather than treating mental health in isolation.

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