



# Study On Health Wellbeing And Lifestyle Practices Among Persons With Locomotor Disabilities In North 24 Parganas District West Bengal

<sup>1</sup>Subhra Srimani, <sup>2</sup>Dr. Thoudam Kheroda Devi, <sup>3</sup>Dr. Irom Shirly,

<sup>4</sup>Dr. Ameer Equebal (MD, PMR), <sup>5</sup>Dr. Lata Mandal

<sup>1</sup>PhD Scholar, Manipur International University and Faculty (Nursing), National Institute for Locomotor Disabilities (Divyangjan), Kolkata,

<sup>2</sup>Professor, Manipur International University, Manipur,

<sup>3</sup>Professor, Manipur International University, Manipur,

<sup>4</sup>Assistant Professor cum Assistant Director (Training), National Institute for Locomotor Disabilities (Divyangjan), Kolkata ,

<sup>5</sup>Guest Faculty (Nursing), Nursing Researcher and Educator

## **ABSTRACT**

A descriptive study was conducted to assess functional health status, NCD risk factors, wellbeing, and lifestyle practices among persons with locomotor disabilities. The study was carried out in two clinical settings in a district of West Bengal and included 300 individuals aged 18–60 years, selected through non-probability consecutive sampling. The findings indicated poor functional health status, with severe limitations in daily functioning, particularly among individuals with spinal cord injury (SCI) and congenital disorders. A substantial proportion of participants required assistance with basic activities, including dressing, eating, and walking. A high prevalence of (NCDs) risk factors, unhealthy lifestyle practices, and poor wellbeing was also observed. Lifestyle practices demonstrated weak but statistically significant associations with both health status and wellbeing. Targeted interventions, particularly promoting healthier lifestyle practices may contribute to better overall health and wellbeing.

**Key words:** Locomotor disabilities, health, wellbeing, lifestyle practices

## **INTRODUCTION**

Disability inclusion is essential for achieving Universal Health Coverage (UHC) and Sustainable Development Goals (SDGs) by 2030. Accessible, quality healthcare improves health outcomes and social participation among persons with disabilities (1). In 1986, WHO described health as “a resource for everyday life, not the objective of living,” emphasizing personal, social, and physical resources. Mental health involves wellbeing, coping with stress, productive functioning, and community participation. (2). Population Census and NSSO reported nearly 21 million (2%) persons with disabilities in India, while the World Bank estimated 5–8% (55–90 million)(3). Globally, WHO reported over 1 billion (15%); the

2011 Census recorded 2.2%, including rural 2.24%, urban 2.17%(4,5). Persons with disabilities often have greater unmet healthcare needs despite requiring similar essential services. As disability may contribute to or result from NCDs, regular health assessment and medical check-ups are important. Regular physical activity and adequate sleep promote health, whereas smoking and excessive stress may negatively affect health and wellbeing (6). Unhealthy lifestyle practices contribute to disease, disability, and premature death and are associated with metabolic, musculoskeletal, cardiovascular disorders, hypertension, and overweight. Healthy lifestyle promotion is therefore important for prevention and health promotion (7).

## NEED OF THE STUDY

The study assessed health and wellbeing among persons with locomotor disabilities and generated evidence for need-based awareness programmes promoting healthy lifestyles and quality of life. The findings may provide better understanding of these aspects and support the planning of appropriate healthcare strategies and intervention.

## OBJECTIVE OF THE STUDY

The study aimed to assess functional health, NCD risk factors, wellbeing, and lifestyle practices among persons with locomotor disabilities and determine their correlation.

## METHODOLOGY

The variables of the study were health, wellbeing, and lifestyle practices of persons with locomotor disabilities. The study population comprised persons with locomotor disabilities aged 18–60 years with  $\geq 40\%$  locomotor disability certified by a specialized medical board and registered for OPD services. The study was conducted in two institutions of North 24 Parganas district, West Bengal, one government institute in an urban setting and one non-government organization in a rural setting. A sample of 300 persons was selected using non-probability consecutive sampling.

Data were collected using five tools i.e. HAQ-DI, a standardized Likert-scale tool for functional health; CBAC for NCD risk; WHO STEPS Instrument-Step 2 for physical and anthropometric measures; WHO-5 Wellbeing Index, a Likert-scale tool for wellbeing; and a structured questionnaire for lifestyle practices. The lifestyle questionnaire showed good reliability (Cronbach's  $\alpha = 0.83$ ). Ethical clearance was obtained from concerned Institute. Data were collected through self-report and structured interviews, requiring approximately 20–25 minutes per participant.

## RESULTS

Collected data were computed, scrutinized, and analyzed using descriptive and inferential statistics. The baseline data showed that the majority of respondents were younger adults aged 18–39 years, with males comprising a significantly higher proportion (65.3%). Regarding the types of locomotor disabilities, spinal cord injury (SCI), including paraplegia and quadriplegia was the most common disability (33.7%), while 56.3% had moderate disability (40%–75%). A major gap in health education was evident, as 91.7% had not been exposed to awareness programmes on lifestyle modification.

Table 1: Distribution of the respondents according to their nature of disabilities N = 300

| Variables                                                   | Total      |             |
|-------------------------------------------------------------|------------|-------------|
|                                                             | F          | %           |
| <b>Type of locomotor disability</b>                         |            |             |
| Congenital and Developmental disorders                      | 55         | 18.3        |
| SCI (Traumatic/ Non traumatic/<br>Paraplegia/ Quadriplegia) | <b>101</b> | <b>33.7</b> |
| CVA (Hemiplegia/ Hemiparesis)                               | 41         | 13.7        |
| Amputation                                                  | 33         | 11          |
| Others (Traumatic/ infective/ Spinal<br>deformities)        | 70         | 23.3        |
| <b>Percentage of disability</b>                             |            |             |
| Moderate (40%-75%)                                          | <b>169</b> | <b>56.3</b> |
| Severe (75%-90%)                                            | 117        | 39          |
| Profound (91%- 100%)                                        | 14         | 4.7         |

Table 1 shows that SCI was the most common locomotor disability (33.7%), followed by other conditions (23.3%). Most respondents had moderate disability (56.3%), while 39% had severe and 4.7% had profound disability.

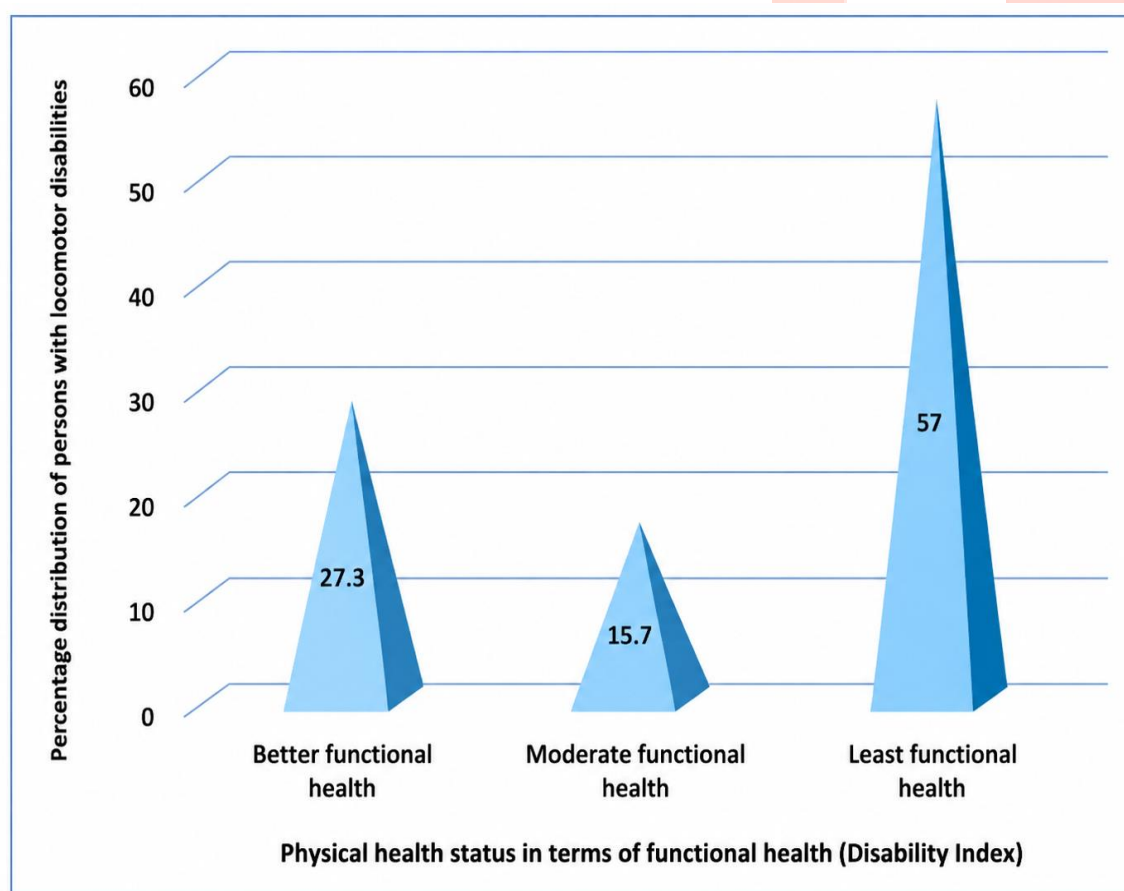


Fig.1: Percentage distribution of persons with locomotor with Physical health status in terms of functional health (Disability Index)

Table 2: Distribution of respondents' physical health status in terms of functional ability across type of locomotor disabilities.

N=300

|                                                                                    |                                                                | Types of locomotor disabilities |               |              |                     |                 | Total<br>n=300 | f(%) |
|------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------|---------------|--------------|---------------------|-----------------|----------------|------|
| Domain                                                                             | Category                                                       | Congenital<br>n1=55             | SCI<br>n2=101 | CVA<br>n3=41 | Amputation<br>n4=33 | Others<br>n5=70 |                |      |
| f (%)                                                                              | f (%)                                                          | f (%)                           | f (%)         |              |                     |                 |                |      |
| <b>Dressing<br/>And<br/>personal<br/>care, rising<br/>up, eating,<br/>walking.</b> | No assistance needed                                           | 4 (1.3)                         | 15 (5)        | 1 (0.3)      | 2 (0.7)             | 9 (3)           | 31 (10.3)      |      |
|                                                                                    | Special device used                                            | 13 (4.3)                        | 25 (8.3)      | 12 (4)       | 13 (4.3)            | 18 (6)          | 81 (27)        |      |
|                                                                                    | Help from another person                                       | 43 (14.3)                       | 69 (23)       | 31 (10.3)    | 21 (7)              | 49 (16.3)       | 213 (71)       |      |
|                                                                                    | Needs both (special device<br>and help from another<br>person) | 5 (1.7)                         | 8 (2.7)       | 3 (1)        | 3 (1)               | 6 (2)           | 25 (8.3)       |      |
| <b>Hygiene,<br/>reach,<br/>grip,<br/>activities.</b>                               | No assistance needed                                           | 7 (2.3)                         | 16 (5.3)      | 6 (2)        | 2 (0.7)             | 9 (3)           | 40 (13.3)      |      |
|                                                                                    | Special device used                                            | 13 (4.3)                        | 25 (8.3)      | 12 (4)       | 13 (4.3)            | 18 (6)          | 81 (27)        |      |
|                                                                                    | Help from another person                                       | 44 (14.7)                       | 71<br>(23.7)  | 29 (9.7)     | 25 (8.3)            | 50 (16.7)       | 219 (73)       |      |
|                                                                                    | Needs both (special device<br>and help from another<br>person) | 9 (3)                           | 11 (3.7)      | 6 (2)        | 7 (2.3)             | 7 (2.3)         | 40 (13.3)      |      |

\*Data showed in this table is not mutually exclusive and yet correction is done where the cell value is less than 5.

\*\*yet correction is done where the cell value is less than 5.

Table 2 shows that 71% required help from another person for dressing/personal care, rising, eating and walking, while 73% required assistance with hygiene, reach, grip and activities.

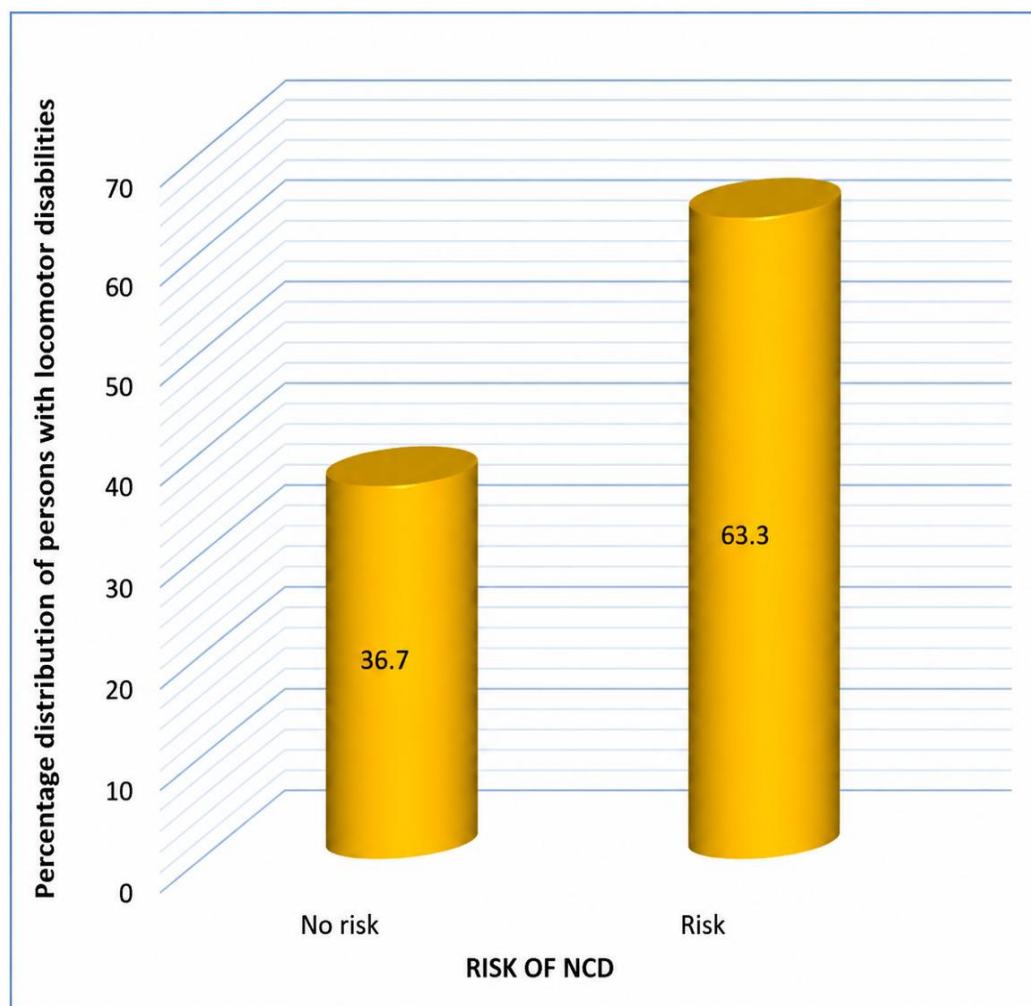


Fig 2: Percentage distribution of persons with locomotor disabilities with risk of NCD

Table 3: Distribution of respondents' physical health status in terms of prevalence of risk factors of non-communicable diseases with types of locomotor disabilities.

N=300

| NCDs Risk Factors                | Types of locomotor disabilities          |                                    |                                   |                                          |                                      | Total      |
|----------------------------------|------------------------------------------|------------------------------------|-----------------------------------|------------------------------------------|--------------------------------------|------------|
|                                  | Congenital<br>n <sub>1</sub> =55<br>f(%) | SCI<br>n <sub>2</sub> =101<br>f(%) | CVA<br>n <sub>3</sub> =41<br>f(%) | Amputation<br>n <sub>4</sub> =33<br>f(%) | Others<br>n <sub>5</sub> =70<br>f(%) |            |
| <b>Hypertension based on SBP</b> |                                          |                                    |                                   |                                          |                                      |            |
| Normal                           | 38 (12.7)                                | 52 (17.3)                          | 17 (5.7)                          | 15 (5.0)                                 | 37 (12.3)                            | 159 (53.0) |
| Pre-hypertensive                 | 8 (2.7)                                  | 36 (12.0)                          | 16 (5.3)                          | 9 (3.0)                                  | 21 (7.0)                             | 90 (30.0)  |
| Stage I Hypertensive             | 8 (2.7)                                  | 11 (3.7)                           | 6 (2.0)                           | 8 (2.7)                                  | 10 (3.3)                             | 43 (14.3)  |
| Stage II Hypertensive            | 1 (0.3)                                  | 2 (0.7)                            | 2 (0.7)                           | 1 (0.3)                                  | 2 (0.7)                              | 8 (2.7)    |
| <b>Hypertension based on DBP</b> |                                          |                                    |                                   |                                          |                                      |            |
| Normal                           | 46 (15.3)                                | 87 (29.0)                          | 29 (9.7)                          | 25 (8.3)                                 | 53 (17.7)                            | 240 (80.0) |
| Pre-hypertensive                 | 3 (1.0)                                  | 8 (2.7)                            | 8 (2.7)                           | 6 (2.0)                                  | 11 (3.7)                             | 36 (12.0)  |
| Stage I Hypertensive             | 6 (2.0)                                  | 5 (1.7)                            | 4 (1.3)                           | 2 (0.7)                                  | 6 (2.0)                              | 23 (7.7)   |
| Stage II Hypertensive            | —                                        | 1 (0.3)                            | —                                 | —                                        | —                                    | 1 (0.3)    |
| <b>BMI</b>                       |                                          |                                    |                                   |                                          |                                      |            |
| Normal                           | 29 (9.7)                                 | 61 (20.3)                          | 26 (8.7)                          | 17 (5.7)                                 | 37 (12.3)                            | 170 (56.7) |
| Obesity                          | 5 (1.7)                                  | 5 (1.7)                            | 1 (0.3)                           | 2 (0.7)                                  | 4 (1.3)                              | 17 (5.7)   |
| Overweight                       | 10 (3.3)                                 | 18 (6.0)                           | 4 (1.3)                           | 6 (2.0)                                  | 16 (5.3)                             | 54 (18.0)  |
| Underweight                      | 11 (3.7)                                 | 17 (5.7)                           | 10 (3.3)                          | 8 (2.7)                                  | 13 (4.3)                             | 59 (19.7)  |

\*yet correction is done where the cell value is less than 5.

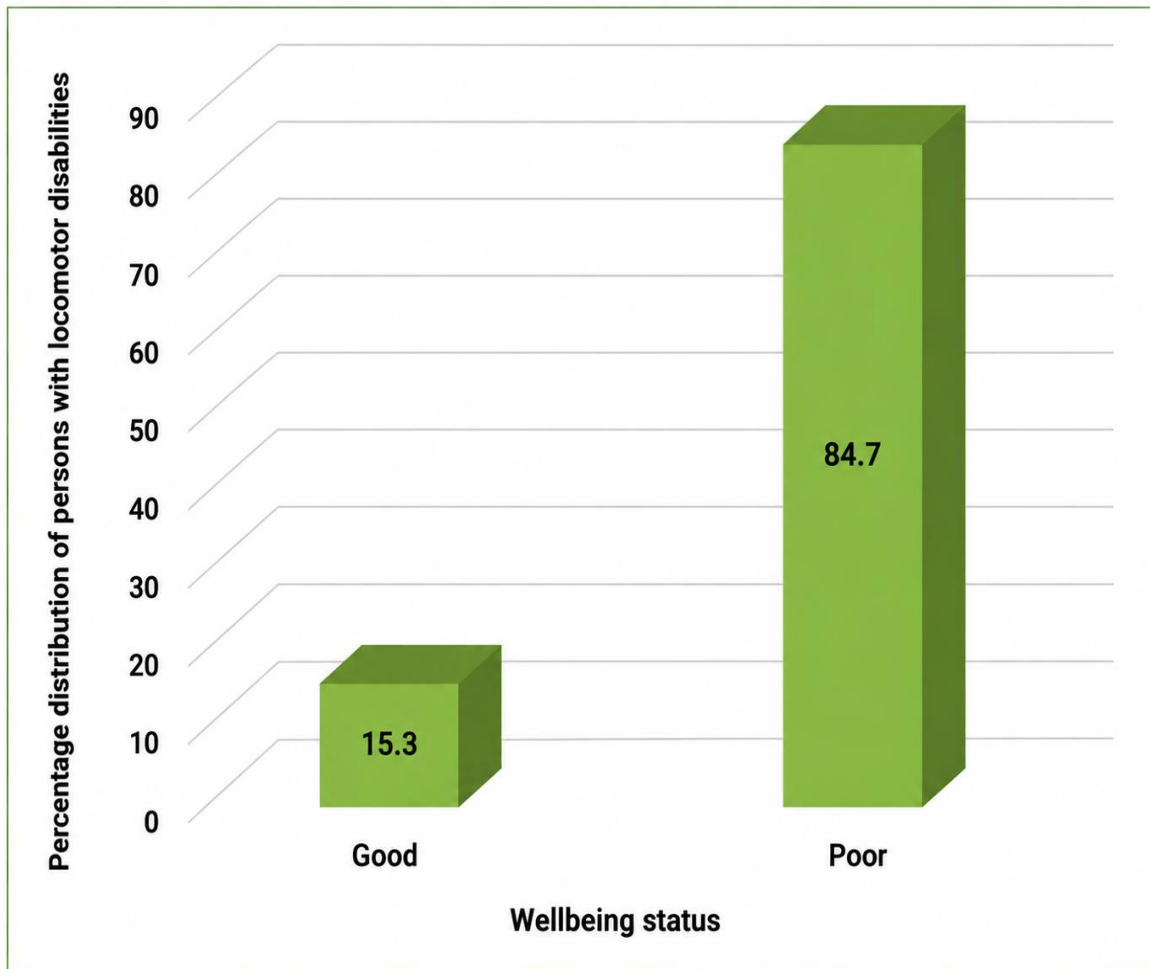
Table 3 shows that 53.0% had normal SBP and 30.0% were pre-hypertensive, while 80.0% had normal DBP; 56.7% had normal BMI, 19.7% were underweight, 18.0% overweight, and 5.7% obese.

Table 4: Distribution of respondents' physical health status in terms of prevalence of risk factors of non-communicable diseases with types of locomotor disabilities. N= 300

| NCDs Risk Factors          | Types of locomotor disabilities |                             |                            |                            |                            |               |
|----------------------------|---------------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|---------------|
|                            | Congenital                      | SCI                         | CVA                        | Amputation                 | Others                     | Total         |
|                            |                                 |                             |                            |                            |                            |               |
|                            | n <sub>1</sub> =55<br>f(%)      | n <sub>2</sub> =101<br>f(%) | n <sub>3</sub> =41<br>f(%) | n <sub>4</sub> =33<br>f(%) | n <sub>5</sub> =70<br>f(%) | n=300<br>f(%) |
| <b>Waist Circumference</b> |                                 |                             |                            |                            |                            |               |
| Normal                     | 25 (8.3)                        | 38 (12.7)                   | 16 (5.3)                   | 17 (5.7)                   | 29 (9.7)                   | 125 (41.7)    |
| Elevated risk              | 22 (7.3)                        | 49 (16.3)                   | 17 (5.7)                   | 11 (3.7)                   | 20 (6.7)                   | 119 (39.7)    |
| High risk                  | 8 (2.7)                         | 14 (4.7)                    | 8 (2.7)                    | 5 (1.7)                    | 21 (7.0)                   | 56 (18.6)     |
| <b>Waist Hip Ratio</b>     |                                 |                             |                            |                            |                            |               |
| Normal                     | 16 (5.3)                        | 21 (7.0)                    | 3 (1.0)                    | 8 (2.7)                    | 13 (4.3)                   | 61 (20.3)     |
| High risk                  | 39 (13.0)                       | 80 (26.7)                   | 38 (12.7)                  | 25 (8.3)                   | 57 (19.0)                  | 239 (79.7)    |
| <b>Heart Rate</b>          |                                 |                             |                            |                            |                            |               |
| Bradycardia                | –                               | 1 (0.3)                     | –                          | –                          | 2 (0.7)                    | 3 (1.0)       |
| Normal                     | 50 (16.7)                       | 96 (32.0)                   | 37 (12.3)                  | 30 (10.0)                  | 62 (20.7)                  | 275 (91.7)    |
| Tachycardia                | 5 (1.7)                         | 4 (1.3)                     | 4 (1.3)                    | 3 (1.0)                    | 6 (2.0)                    | 22 (7.3)      |

\*yet correction is done where the cell value is less than 5.

Table 4 shows that 41.7% had normal waist circumference and 39.7% had elevated risk, while 79.7% had a high-risk waist-hip ratio; 91.7% had normal heart rate and 7.3% had tachycardia.



**Fig 3:** Distribution of respondents with their wellbeing status.

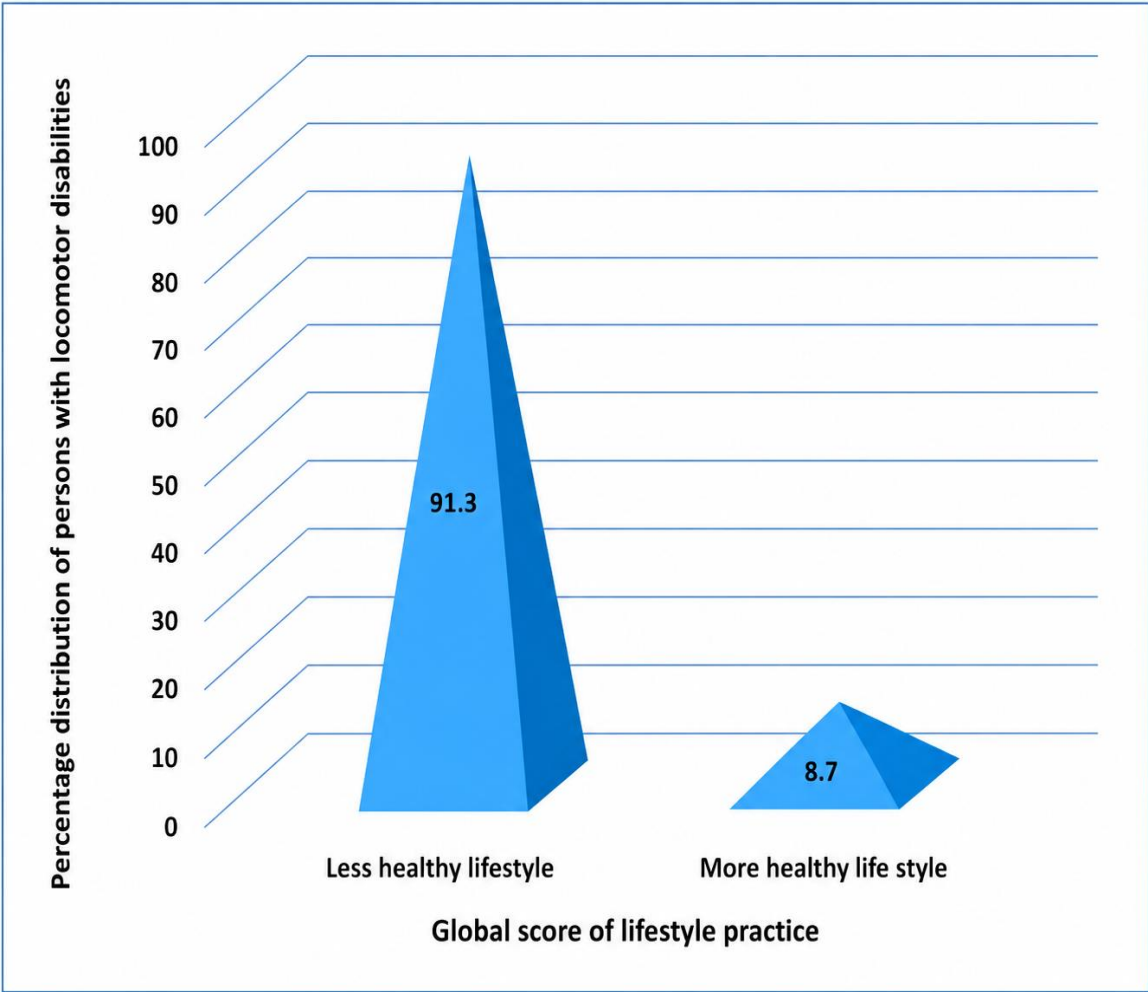
**Table 5:** Distribution of respondents' life style practice across types of locomotor disabilities.

|                                |                                 |              |              |              |              |              | N=300         |
|--------------------------------|---------------------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Lifestyle<br>n3=41<br>practice | Types of locomotor disabilities |              |              |              |              | Total n1=55  | n2=101        |
|                                | Congenital<br>n4=33             | SCI<br>n5=70 | CVA<br>n=300 | Amputation   | Others       |              |               |
|                                | f(%)                            | f (%)        | f (%)        | f (%)        | f (%)        | f (%)        |               |
| Poor practice                  |                                 | 49<br>(16.3) | 92<br>(30.7) | 41<br>(13.7) | 31<br>(10.3) | 61<br>(20.3) | 274<br>(91.3) |
| Moderate<br>healthy practice   |                                 | 6<br>(2)     | 9<br>(3)     | 0<br>(0)     | 2<br>(0.7)   | 9<br>(3)     | 26<br>(8.7)   |

\*\*\*yet correction is done where the cell value is less than 5.

Table 5 shows that the majority of respondents (91.3%) had poor lifestyle practices, while only 8.7% demonstrated moderate healthy practices. Poor practices were highest among respondents with SCI (30.7%), followed by other disabilities (20.3%), congenital disorders (16.3%), CVA (13.7%), and

amputation (10.3%). Moderate healthy practices were observed in 8.7% overall, with the highest proportion among SCI (3%) and other disabilities (3%).



**Fig. 4:** Percentage of distribution of persons with locomotor disabilities with global score of lifestyle

Table 6: Distribution of respondents' life style practice in each category across types of locomotor disabilities

N=300

| Practice Domain            |          | Congenital                 | SCI                         | CVA                        | Amputation                 | Others                     | Total         | $\chi^2$ value (p value) |
|----------------------------|----------|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|---------------|--------------------------|
|                            |          | n <sub>1</sub> =55<br>f(%) | n <sub>2</sub> =101<br>f(%) | n <sub>3</sub> =41<br>f(%) | n <sub>4</sub> =33<br>f(%) | n <sub>5</sub> =70<br>f(%) | n=300<br>f(%) |                          |
| <b>Diet Practice</b>       | Poor     | 25 (8.3)                   | 47 (15.7)                   | 24 (8.0)                   | 21 (7.0)                   | 32 (10.7)                  | 149 (49.7)    | 12.741 (0.121)           |
|                            | Moderate | 30 (10.0)                  | 52 (17.3)                   | 16 (5.3)                   | 12 (4.0)                   | 33 (11.0)                  | 143 (47.7)    |                          |
|                            | Healthy  | —                          | 2 (0.7)                     | 1 (0.3)                    | —                          | 5 (1.7)                    | 8 (2.6)       |                          |
| <b>Physical Activities</b> | Poor     | 41 (13.7)                  | 65 (21.7)                   | 25 (8.3)                   | 19 (6.3)                   | 40 (13.3)                  | 190 (63.3)    | 10.942 (0.205)           |
|                            | Moderate | 11 (3.7)                   | 33 (11.0)                   | 16 (5.3)                   | 11 (3.7)                   | 28 (9.3)                   | 99 (33.0)     |                          |
|                            | Healthy  | 3 (1.0)                    | 3 (1.0)                     | —                          | 3 (1.0)                    | 2 (0.7)                    | 11 (3.7)      |                          |
| <b>Substance Abuse</b>     | Poor     | 9 (3.0)                    | 13 (4.3)                    | 4 (1.3)                    | 4 (1.3)                    | 8 (2.7)                    | 38 (12.6)     | 15.429 (0.051)*          |
|                            | Moderate | 6 (2.0)                    | 32 (10.7)                   | 12 (4.0)                   | 4 (1.3)                    | 11 (3.7)                   | 65 (21.7)     |                          |
|                            | Healthy  | 40 (13.3)                  | 56 (18.7)                   | 25 (8.3)                   | 25 (8.3)                   | 51 (17.0)                  | 197 (65.7)    |                          |
| <b>Sleep</b>               | Poor     | 34 (11.3)                  | 57 (19.0)                   | 23 (7.7)                   | 25 (8.3)                   | 36 (12.0)                  | 175 (58.3)    | 15.980 (0.043)*          |
|                            | Moderate | 15 (5.0)                   | 22 (7.3)                    | 10 (3.3)                   | 2 (0.7)                    | 26 (8.7)                   | 75 (25.0)     |                          |
|                            | Healthy  | 6 (2.0)                    | 22 (7.3)                    | 8 (2.7)                    | 6 (2.0)                    | 8 (2.7)                    | 50 (16.7)     |                          |
| <b>Life Skill</b>          | Poor     | 27 (9.0)                   | 79 (26.3)                   | 35 (11.7)                  | 27 (9.0)                   | 38 (12.7)                  | 206 (68.7)    | 31.379 (<0.001)*         |
|                            | Moderate | 28 (9.3)                   | 22 (7.3)                    | 6 (2.0)                    | 6 (2.0)                    | 31 (10.3)                  | 93 (31.0)     |                          |
|                            | Healthy  | —                          | —                           | —                          | —                          | 1 (0.3)                    | 1 (0.3)       |                          |

\*\*yet correction is done where the cell value is less than 5.

Table 6 shows that poor practices were highest for physical activity (63.3%), life skills (68.7%), sleep (58.3%), and diet (49.7%), while substance-abuse practices were healthy in 65.7%. Significant differences were found in substance abuse ( $p = 0.051$ ), sleep ( $p = 0.043$ ), and life skills ( $p < 0.001$ ).

## MAJOR FINDINGS

Functional health assessment revealed that 57% of respondents had the least functional health, indicating severe limitations in daily functioning, particularly among those with SCI and congenital disabilities. More than half were unable to independently perform dressing and personal care (57%), rise independently (56.3%), eat independently (55.3%), and walk independently (44%), while 49% experienced difficulty with gripping and 35.7% were unable to perform daily activities independently. Although no significant difference in overall health status was found across disability types, 71% of respondents required assistance from another person for basic activities such as dressing, eating, and walking.

Regarding NCD risk, 110 (36.7%) respondents were at low risk (CBAC score  $<4$ ), whereas 190 (63.3%) were at high risk (CBAC score  $\geq 4$ ), with SCI representing the largest proportion. Physiological assessment showed normal SBP and DBP in 53% and 80% of respondents, respectively, while pre-hypertension was observed in 30% for SBP and 12% for DBP. Although 56.7% had normal BMI, 19.7% were underweight and 18% overweight. Furthermore, 39.7% had elevated and 18.6% had high waist-circumference risk, while 79.7% had a high-risk waist-hip ratio ( $p = 0.118$ ). Most respondents (91.7%) had normal heart rates, although 7.3% had tachycardia.

Wellbeing findings showed that respondents with congenital disabilities had the highest wellbeing score (36.29), whereas those with SCI had the lowest (27.80), followed by individuals with CVA (25.37); participants with amputations (32.12) and other disabilities (33.26) demonstrated moderate wellbeing.

Lifestyle practices were generally poor, particularly in diet, physical activity, sleep, and life skills. Nearly half had poor dietary practices (49.7%) and with only 2.6% reporting healthy dietary practices. Poor physical activity practices were observed in 63.3% of respondents. In contrast, 65.7% demonstrated healthy substance-use practices. Sleep practices were poor in 58.3% and moderate in 25%, while 68.7% had poor life-skill practices and only 0.3% had healthy practices.

Correlation analysis demonstrated a weak but significant positive association between lifestyle practices and health status ( $r = 0.12$ ,  $p = 0.04$ ), wellbeing and health outcomes ( $r = 0.18$ ,  $p = 0.001$ ), and lifestyle practices and wellbeing ( $r = 0.35$ ,  $p < 0.001$ ).

Overall, the findings highlight substantial functional limitations, high NCD risk, poor lifestyle practices, and compromised wellbeing among persons with locomotor disabilities, emphasizing the need for targeted interventions focusing on physical activity, sleep, life skills, health education, and overall lifestyle modification.

## DISCUSSIONS

The present study found that spinal cord injury (SCI), including paraplegia and quadriplegia, was the most common type of locomotor disability, accounting for 33.7% of the respondents, which was consistent with the findings of Krishnan (2021) and Jain et al. (2023) (8,9). This finding highlights the substantial contribution of SCI to locomotor disability and the associated limitations in mobility, functional independence, and activities of daily living. A major gap in health education was also identified, as 91.7% of the respondents had not been exposed to awareness programmes on lifestyle modification, emphasizing the need for accessible and disability-inclusive health education initiatives (10). Furthermore, 71% required assistance from another person for basic activities, demonstrating a considerable level of dependence in everyday functioning. Difficulties were particularly evident in dressing (57%), eating (55.3%), and walking (44%). Evidence emphasizing the importance of maintaining muscle strength, range of motion (ROM), appropriate prosthetic use, and early rehabilitation further supports the need for individualized and continuous rehabilitation programmes according to the functional requirements of each person (11).

A high level of risk for non-communicable diseases (NCDs) was also identified, with 63.3% of respondents categorized as being at high NCD risk. Previous studies conducted among Indian populations have reported substantial risks for NCDs, and the present findings similarly demonstrate important physiological risk factors among persons with locomotor disabilities (12). In the present study, 79.7% of respondents had a high-risk waist-hip ratio. The Haryana STEPS survey reported 35.2% overweight, 26.2% hypertension, and 15.5% diabetes, whereas the present study identified 39.7% of respondents with elevated waist-circumference risk and 79.7% with a high-risk waist-hip ratio (13). These findings indicate the importance of integrating disability-inclusive NCD screening with routine rehabilitation and healthcare services. Regular monitoring of blood pressure, body composition, and other metabolic risk factors, together with appropriate dietary, physical activity, and lifestyle interventions, may help reduce the long-term burden of NCDs among persons with locomotor disabilities.

With regard to wellbeing, the highest wellbeing score was observed among respondents with congenital disabilities (36.29), whereas the lowest scores were reported among those with SCI (27.80) and CVA (25.37). These differences suggest that the nature and consequences of disability may influence an individual's perceived wellbeing. Previous evidence indicates that social support, accessibility of healthcare and rehabilitation services, pain, fatigue, depression, and emotional support can substantially influence wellbeing among persons with disabilities (14). Greater functional limitation has also been associated with poorer wellbeing, which is consistent with the present study, where a significant difference in wellbeing was observed according to disability type ( $p = 0.002$ ). Positive perceptions of health may further contribute to improved life satisfaction and adaptation to disability (15). These findings emphasize that rehabilitation should extend beyond physical recovery and incorporate psychosocial support, emotional wellbeing, social participation, and strategies to promote independence.

Lifestyle practices in the present study demonstrated weak but significant associations with health and wellbeing. A positive association between lifestyle practices and wellbeing was observed ( $r = 0.35$ ,  $p < 0.001$ ), which is consistent with evidence supporting the beneficial role of exercise, stress management, and other healthy lifestyle behaviours in promoting wellbeing (16). Physical activity may also contribute to improved mobility and functional capacity among persons with locomotor disabilities (17). Overall, these findings suggest that lifestyle modification should be integrated with rehabilitation and health promotion rather than addressed as an isolated intervention.

Following completion of data collection, awareness programmes were conducted to address the identified gaps in health education and disability-related support. These programmes included health screening, provision of assistive devices about 50 beneficiaries, and education regarding lifestyle modification and procedures for obtaining UDID cards. The provision of assistive devices was particularly relevant in view of the substantial functional limitations identified in the study, including the high proportion of respondents requiring assistance with basic activities. Health screening and lifestyle-modification education provided an opportunity to promote early identification of health risks and encourage healthier practices among persons with locomotor disabilities. Education regarding UDID-card procedures also aimed to improve awareness and access to disability-related government services and entitlements.

## CONCLUSION

The study found that persons with locomotor disabilities having least functional health and high NCD risk. Diet and physical activity practices were similar across disability groups but sleep and life-skill practices differ. Lifestyle factors have weak but meaningful links to wellbeing. Low health-education exposure was common. Wellbeing varied by disability type, with spinal cord injuries showing the poorest outcomes. The post-data-collection activities complemented the study findings by translating the identified needs into practical, community-oriented interventions addressing health screening, functional independence, lifestyle modification, assistive support, and access to disability-related services. Study have great implication in nursing education and practices in creating personalized care plans tailored to individual needs, focusing on functional independence, NCD risk management, and pain control.

## CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

## ACKNOWLEDGEMENT

The authors thank all the participants who spent time and effort in responding to the questionnaire. They also express thank to the FRC members of Manipur International University and IEC members of National Institute for Locomotor Disabilities, Kolkata for providing ethical approval of the study.

## REFERENCES:

1. Kahneman D, Deaton A. High income improves evaluation of life but not emotional well-being. *Proc Natl Acad Sci [Internet]*. 2010 Sep 21; 107(38):16489–93. Available from: <https://pnas.org/doi/full/10.1073/pnas.1011492107>
2. Corrao G. A meta-analysis of alcohol consumption and the risk of 15 diseases. *Prev Med (Baltim) [Internet]*. 2004 May; 38(5):613–9. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0091743503003384>
3. Halder S, Talukdar A, Pharm M. *Nature and Causes of Locomotor Disabilities in India*. 2013.
4. Kumar Sg, Roy G, Kar S. Disability and rehabilitation services in India: Issues and challenges. *J Fam Med Prim Care*. 2012; 1(1):69.
5. Ministry of Statistics and Programme Implementation. *Persons with Disabilities (Divyangjan) in India-A Statistical Profile: 2021*. Gov India [Internet]. 2021; 325. Available from: [www.mospi.gov.in](http://www.mospi.gov.in)
6. Öhlin B. Chronic psychosocial stress predicts long-term cardiovascular morbidity and mortality in middle-aged men. *Eur Heart J [Internet]*. 2004 May; 25(10):867–73. Available from: <https://academic.oup.com/eurheartj/articlelookup/doi/10.1016/j.ehj.2004.03.003>
7. Zeki AM, Ramadan AM, Zeb FK, Ibrahim M. Impact of life-style on health and physical capability: A data mining approach. *ACM Int Conf Proceeding Ser*. 2018; 2018-March (11):119–24.
8. Krishnan L, Madankumar P. Oral health status of people with locomotor disability in India: A systematic review. *Sci Dent J*. 2021; 5(1):12.
9. Jain S, Khalique N, Ahmad S, Khan MNA, Maroof M, Shah MS. Locomotor disability among adult population of a north Indian district: a cross sectional study. *Indones J Public Heal*. 2023 Mar 15; 18(1):11–20.
10. Jung H, Tanaka S, Iwamoto Y, Kawano T, Yamasaki M, Tanaka R. Reduction in muscle strength and Range of motion Cause Locomotion Disability via Locomotion Related Functional Limitation in Japanese Older Adults: A Cross Sectional Study. Coelho-Junior HJ, editor. *J Aging Res [Internet]*. 2021 Jul 7; 2021:1–8. Available from: <https://www.hindawi.com/journals/jar/2021/6627767/>
11. Mishra K, Siddharth V, Bhardwaj P, Elhence A, Jalan D, Raghav P, et al. The prevalence pattern of locomotor disability and its impact on mobility, self-care, and interpersonal skills in rural areas of Jodhpur District. *Niger Med J*. 2019; 60(3):156.
12. Sarma PS, Sadanandan R, Thulaseedharan JV, Soman B, Srinivasan K, Varma RP, et al. Prevalence of risk factors of non-communicable diseases in Kerala, India: results of a cross-sectional study. *BMJ Open*. 2019 Nov 10; 9(11):e027880.
13. Thakur J, Jeet G, Nangia R, Singh D, Grover S, Lyngdoh T, et al. Non-communicable diseases risk factors and their determinants: Across-sectional state-wide STEPS survey, Haryana, North India. *PLoS One*. 2019 Nov 27; 14(11):e0208872.
14. Devassy SM, Scaria L, Yohannan S V., Pathrose SI. Protective Role of Social Networks for the Well-Being of Persons with Disabilities: Results from a State-Wide Cross-Sectional Survey in Kerala, India. *Int J Environ Res Public Health [Internet]*. 2023 Feb 27; 20(5):4213. Available from: <https://www.mdpi.com/1660-4601/20/5/4213>
15. Mahmud I, Clarke L, Ploubidis GB. Socio-demographic determinants of the severity of locomotor disability among adults in Bangladesh: a cross-sectional study, December 2010–February 2011. *Arch Public Heal [Internet]*. 2017 Dec 20; 75(1):47. Available from: <http://archpublichealth.biomedcentral.com/articles/10.1186/s13690-017-0217-5>
16. Van Helm S, Krops LA, Dekker R, Vrieling AH. Effectiveness of (Active) Lifestyle Interventions in People With a Lower Limb Amputation: A Systematic Review. *Arch Rehabil Res Clin Transl [Internet]*. 2022

Dec;4(4):100207.Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2590109522000350>

17. Pahor M, Guralnik JM, Ambrosius WT, Blair S, Bonds DE, Church TS, et al. Effect of Structured Physical Activity on Prevention of Major Mobility Disability in Older Adults. JAMA [Internet]. 2014 Jun 18; 311(23):2387. Available from: <http://jama.jamanetwork.com/article.aspx?doi=10.1001/jama.2014.5616>

