

ORIGINAL ARTICLE

FREQUENCY OF LOCOMOTIVE SYNDROME IN ELDERLY WOMEN- A CROSS-SECTIONAL SURVEY

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ABSTRACT:

To ascertain to learn the commonness of train disorder in older ladies. **Methods:** A cross-sectional study was conducted with non-probability convenience Sampling technique was used. This study included 171 elderly females having the age of 65 or above. Data was collected from ULTH (University of Lahore Teaching Hospital) and Chaudhry Muhammad Akram Teaching Hospital. **Results:** Out of 171 participants 69.6% females were 65-75, 24.6% were 76-86 and 5.8% were 87-97 of age Scoring of GLFS-25 shows that 1.17% (n=2) had no locomotive syndrome ,7.61% (n=13) had grade 1 LS, 12.28%(n=21) had grade 2 LS whereas 78.94(n=135) had grade 3 LS. Overall, out of total 171 participants 98.83% (n=169) had locomotive syndrome and only 1.17% (n=2) had no locomotive syndrome. **Conclusion:** The results revealed high frequencies of locomotive syndrome among the elderly women's that may be a risk factor for further impairments and disability in future. **Key Words: Locomotive Syndrome, Aging, GLFS-25, Osteoporosis, Geriatric population, Locomotory organs.**

INTRODUCTION:

In recent years, one of the primary concerns in wealthy countries has been population ageing. Japan's population, in particular, is rapidly ageing as a result of rising life expectancy and a lowering birth rate. The older population requiring nursing care is rapidly increasing as a result of the emergence of super-aged society⁽¹⁾ LS was more prevalent in women than in males, and its occurrence tended to escalate fast after the age of 70.⁽²⁾ The incidence of locomotive disorder among males in their sixties, seventies, and eighties was 35%, 52%, and %, respectively. The percentages for women were 36%, 53%, and 91%.⁽³⁾ Locomotive syndrome is a condition that impedes mobility activities, including walking, standing, and ascending staircases, as well as gait and sit-to-stand movements. . Locomotory and postural instability are two symptoms that may indicate locomotive syndrome. .It is crucial that people are aware of these symptoms and understand that they may be vulnerable to "locomo" as a result⁽⁴⁾ . The Japanese Muscular Association introduced the concept of exercise condition (LS) in 2007 to evaluate moderately aged and elderly individuals who are at a higher risk of requiring medical care services for flexibility issues. This was done to reduce the amount of geriatric adults in need of nursing care.⁽⁵⁾ There are three main components that make up the locomotive system in LS: The initial three constituents comprise of bones, joints, and intervertebral discs, followed by muscles, and ultimately nerves.⁽⁶⁾ Any dysfunction of these organs leads to discomfort, restricted joint or spinal motion, muscle weakness, and imbalance issues. All of these disabilities are linked together and capability as a distinct cluster of chance variables for handicap. The gradual progression of these disabilities results in the need for care support, a decrease in personal satisfaction (QOL), and limitations in activities of daily living (ADL).According to recent studies, LS encompasses both psychiatric illnesses and musculoskeletal conditions such osteoarthritis, spondylosis, sarcopenia, and osteoporosis⁽⁷⁾. Once the degenerative processes of degeneration have progressed to the point that symptoms appear, more therapies are require⁽⁸⁾ As this disease progresses, it limits one's ability to carry out daily duties independently (ADL).Although locomotive degenerative illnesses

appear with acute exacerbation's, their development is typically asymptomatic in the early stages⁽⁹⁾ Numerous factor , like obesity, smoking, not enough regular exercise, poor nutritional intake, degenerative changes with increasing age, osteoporosis, menopause in females and sedentary lifestyle, contribute to the development of progressive LS⁽¹⁰⁾The main strategy against LS is to improve these parameters as well as to prevent and treat musculoskeletal problems⁽¹¹⁾ Three significant health issues—osteoarthritis of the knee (OA), osteoporosis, and spinal canal stenosis from spondylosis—often necessitate specialized assistance or nursing care for older individuals. Individuals with LS are more likely to be diagnosed with knee osteoarthritis (knee OA) (39.5%) than those without LS.⁽¹²⁾ Knee osteoarthritis results in knee discomfort and walking difficulties by decreasing step pace, perseverance, and consistency. These components are inextricably linked to LS, which symbolizes the catastrophic malfunction of the engine.⁽¹³⁾ Patients who are at risk for LS exhibit the following variables: a reduction in trunk adaptability, a decrease in muscle strength, a more lethargic stride velocity, and osteoporosis. and greater VAS pain levels were all significantly higher.⁽¹⁴⁾ An association exists between the decline in motor function, a hallmark of LS, and the impairment of oral function, which contributes to inadequate nutrition. Poor oral health is a state characterized by the presence of protein. The reduction in food consumption leads to a deficiency of calcium, vitamins, and other essential components required for locomotor activity.⁽¹⁵⁾ Recent research has demonstrated a correlation between locomotive syndrome and low back distress, as well as physical attributes such as knee and spinal components, including back muscle strength.⁽¹⁶⁾ Research has demonstrated a correlation between locomotive syndrome and low back distress, in addition to physical characteristics such as knee and spinal components, including back muscle strength.⁽¹⁷⁾ A number of experts have suggested a correlation between the likelihood of locomotive syndrome in elderly women and central adiposity. Waist circumference measurement is considered a potentially valuable method for assessing the risk of locomotive syndrome.⁽¹⁸⁾ LS stage 1 was diagnosed in 69.8% of the population, as indicated by previous

research. The proportion of males with LS stage 1 was 68.4%, while the proportion of females with LS stage 1 was 70.5%. LS stage 2 was detected in 25.1% of the population, with 22.7% of the individuals being male and 26.3% being female. According to study 14, the prevalence of LS stages 1 and 2 increases with age, with 50% of individuals in their 70s being afflicted. The Geriatric Locomotive Function Scale, a screening test consisting of 25 questions, was developed by the Japanese Orthopedic Association (JOA) in 2012. The GLFS-25 is comprised of 25 unique components. The participants utilized a 5-point scale to respond to these 25 items, with 0 denoting the minimum and 4 the maximum for each question. The questionnaire was divided into four sections: (i) 4 questions regarding pain experienced in the previous month; (ii) 16 questions regarding pain during everyday activities in the previous month; (iii) 3 questions regarding social functions; and (iv) 2 questions regarding the subject's mental health in the previous month. The maximum possible score for GLFS-25 is 100 points, calculated by multiplying 25 by 4. The participants are categorized based on the distribution of their total scores. According to the LS criteria 2020, individuals can be classified into four categories: non-LS, grade 1 LS, grade 2 LS, and grade 3 LS. The classification is based on the total GLFS-25 score. Non LS refers to individuals with a score of ≤ 6 points, LS-1 refers to those with a score of 7-15 points, LS-2 refers to those with a score of 16-23 points, and LS-3 refers to those with a score of ≥ 24 points. (19) Reinforcing muscle strength, developing balancing capacity, and

avoiding heavy weights on the knees and lumbar spine are all important factors in keeping elderly people from having difficulty walking.^(7, 20) In order to avert the progression of locomotive syndrome, there are numerous programs that demonstrate the significance of dynamic training with balance in LS stage 2 and muscle strengthening in LS stage 1. (21) However, there is no study found to be conducted in Pakistan that determine the frequency of locomotive syndrome among geriatric population especially in females. Consequently, a frequency study is necessary to identify the population at risk and to provide guidance to the future generation in order to increase awareness of locomotive syndrome in Pakistan.

METHODS:

Cross-sectional study design. The population sample was obtained from private institutions. A total of 171 senior females participated in the study after removing those who did not meet the inclusion criteria. The sample was chosen using a non-probability convenience sampling method. The study employed convenient sampling to gather the data. Inclusion criteria were Women aged 65 or above who have musculoskeletal issues and can walk without assistance or with the aid of a cane while Exclusion criteria were History of dementia, who could not answer the questionnaire by themselves, history of fall, fracture, myocardial infarction 6 months ago.

RESULTS:

The sample consisted of a total of 171 elderly women. The baseline characteristics of the participants were their age and marital status. 69.6% of the females were between the ages of 65 and 75, 24.6% were between the ages of 76 and 86, and 5.8% were between the ages of 87 and 97, according to the results. Result regarding marital status of participants showed that 1.8% participants were single, 57.3% participants were married 36.8% participants were widow and 4.1% participants were divorced.

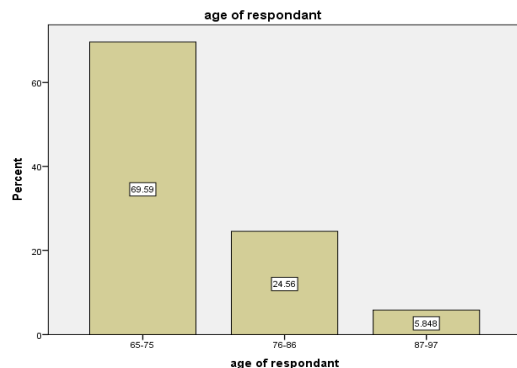


Figure 1: Bar diagram demonstrating frequencies of different age group

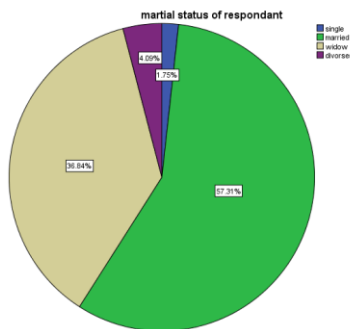


Figure 2: Green area shows the frequency of married and blue area shows the frequency of single, purple shows divorced and skin shows frequency of widow

Table 1: Summary of Demographic Variables

variable	categories	Frequency (n)	Percentage (%)
Age	65-75	119	69.6%
	76-86	42	24.6%
	87-97	10	5.8%
Marital status	Single	3	1.8%
	Married	98	57.3%
	Widow	63	36.8%
	Divorced	7	4.1%

Table 2: Frequency distribution of individuals with LS as defined by GLFS-25

Serial No.	Stage of LS	Criteria	Frequency	Percentage
1.	NON-LS	(≤ 6)	2	1.17%
2.	LS 1	(7-15)	13	7.61%
3.	LS2	(16-23)	21	12.28%
4.	LS3	(≥ 24)	135	78.94%

Total scoring of GLFS-25 shows that 1.17% (n=2) had no locomotive syndrome, 7.61% (n=13) had grade 1 LS, 12.28% (n=21) had grade 2 LS whereas 78.94(n=135) had grade 3 LS.

DISCUSSION:

Our study revealed that the prevalence of locomotive syndrome among senior women was 98.83% (n=169), indicating that a remarkably high proportion of elderly women, 98.83%, were at risk. Only a small percentage, 1.17% (n=2), showed no signs of locomotive syndrome. With regard to the literature 747 participants with musculoskeletal problems were included to find out its impact on the locomotive syndrome. The results of study show that osteoporosis, low back pain and ageing increases the risk of LS. In our study participants with musculoskeletal issues were excluded. Our study only targets elderly females.⁽²²⁾ A separate study was carried out utilizing the Geriatric Locomotive Functional Scale (GLFS-25) to evaluate the locomotive syndrome in a sample of 500 senior persons. In contrast, my study only focused on 171 elderly women. The questionnaire comprises 25 inquiries that pertain to 6 distinct domains, including bodily discomfort, mobility challenges, routine self-care, social engagement, cognitive functioning, and daily activities. activities.¹⁹ The results showed 69.3% of them were women with the 72.6 percent (7.4) years old on average. 32 (26.4%) and 262 (52.4%) of the study patients would be categorized as LS stage 1 and stage 2, respectively, given the current criteria, whereas my study analyze the frequency of locomotive syndrome and the results show that 7.61% (n=13) had grade 1 LS, 12.28% (n=21) had grade 2 LS whereas 78.94(n=135) had grade 3 LS.⁽²³⁾ In considerations to the previous studies spinal issues and locomotive syndrome have been found to have an association showing that spinal issues is on of main causative factor of locomotive syndrome.⁽²⁴⁾ Also in comparison to literature studies different diagnostic tools were used to diagnose the locomotive syndrome like loco-check⁽²⁵⁾. But in our study GLFS-25 is used for determining the frequency of LS.

CONCLUSION:

The investigation revealed a significantly elevated prevalence of locomotive syndrome among elderly women. which is an autonomous risk factor for impairments and disabilities. Therefore, it is essential to implement awareness programs that focus on early disease identification, promoting a healthy lifestyle, and encouraging behavioral changes. These programs aim to decrease the future risk of locomotive syndrome, particularly among the elderly population.

Author Contributions:

Conception and design: Soha Malik

Collection and assembly of data: Soha Malik

Analysis and interpretation of the data: Soha Malik

Drafting of the article: Soha Malik

Critical revision of article for intellectual content: Soha Malik

Statistical expertise: Soha Malik

Final approval and guarantor of the article: Soha Malik

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