



## RESEARCH PAPER

# Ergonomic assessment of male street hawker

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**Abstract :** Working culture and ergonomics of any individual plays an important role in the physical and mental health of the person. The study about male street hawkers and the ergonomics assessment which carries hawkers' musculoskeletal condition along with physical condition are combined and their impact is widespread. They are the most common cause of severe long-term pain and physical disability affecting the psychosocial status of affected people as well as their families and caretakers. In all occupations, incorrect body posture is the most important cause of musculoskeletal disorders. The study was aimed to examine 40 random street hawkers and their working posture using the Rapid Entire Body Assessment (REBA) method. It was analyzed that around 70 % of hawkers had a medium to high risk of developing work related musculoskeletal disorder. Trunk, upper arm and lower arm postures were mainly contributing to the REBA score, putting street hawkers at high risk of developing a musculoskeletal disorder. Ergonomic intervention to reduce musculoskeletal disorders includes engineering improvements which include rearranging, modifying, redesigning equipments which eliminates and reduces the hazard due to improper body posture and long working hour cycles. Mechanization of the stalls to reduce the musculoskeletal strain is possible. In areas, where mechanization is not possible, ergonomically correct measures to avoid musculoskeletal disorders are to be taken.

**Key Words :** Rapid entire body assessment, Ergonomic, Work related musculoskeletal disorders, Body posture

**View Point Article :** Preeti and Mehta, Manju (2022). Ergonomic assessment of male street hawker. *Internat. J. agric. Sci.*, **18** (2) : 636-639, DOI:10.15740/HAS/IJAS/18.2/636-639. Copyright@ 2022: Hind Agri-Horticultural Society.

**Article History :** Received : 18.02.2022; Revised : 10.04.2022; Accepted : 12.05.2022

## INTRODUCTION

India is a large country with millions of people who finds hundreds of different methods of earning their bread and butter. One of the major earning chunks in India is street hawking which has been an integral part of rural and urban India. Today hawking is an imperative origin of employment for an expansive number of urban poor as it requires low ap-titudes and small financial contribution. Comprehensively characterized, a road merchant is an individual who offers merchandise or facilities available to be purchased to the general population without having an unalterable developed

structure however with a portable mobile stall or with an impermanent static structure. Due to lack of employment opportunities especially in rural parts of the country, people are forced to extract any livable conditions and street hawking is one of the major resource of income can be found behind it. In every Indian city one can find large numbers of street hawkers selling household goods, fruits and vegetables, pickles and even clothes. Street hawkers work includes twisting, bending, pushing heavy loads over the mobile cart, long-standing and long working hours along with the continuous outdoor exposure which leads to musculoskeletal disorders

(MSD), disability and financial loss. In order to understand the working efficiency of these hawkers in their working environment in other words ergonomics assessment, a cumulative effort needs to be made for evaluation of their entire physical structural conditions and the development of work related musculoskeletal disorders that should be addressed and assessed.

A street hawker (Meneses-Reyes and Caballero-Juárez (2013) is broadly defined as a person who offers goods for sale to the public at large without having a permanent built up structure from which to sell. The Street hawkers may be stationary in the sense that they occupy space on the pavements or other public/private spaces or, they may be mobile in the sense that move from place to place by carrying their wares on push carts or in baskets on their heads.

**Objective:**

To evaluate the working posture of male street hawkers using the Rapid Entire Body Assessment (REBA) in Hisar city.

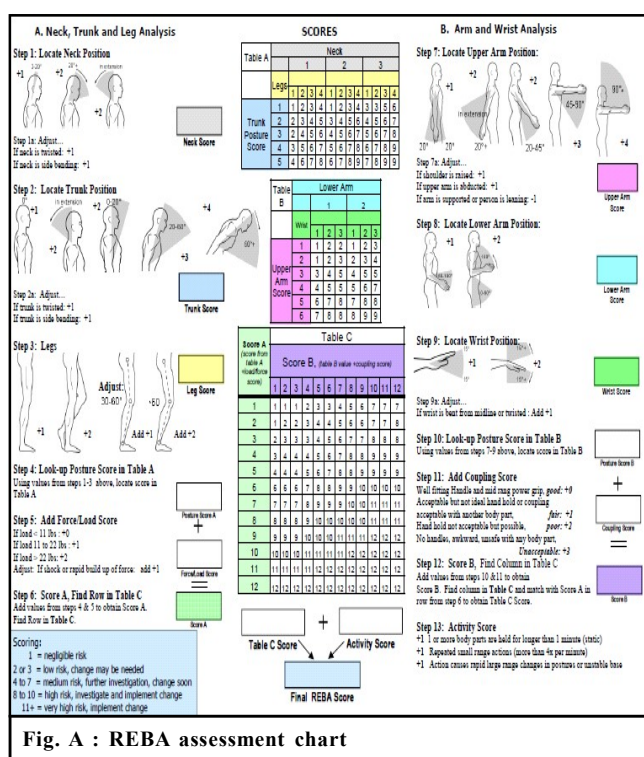
**MATERIAL AND METHODS**

This survey was carried out in Hisar, Haryana by a random sampling method which consists of a total of 40 male street hawkers’ whose ergonomics assessment was examined using variable data and factors. Inclusion criteria include participant’s age ranging in 20-60 years. Street hawkers were having at least 1 year of work experience. The assessment was not including any recent injury/trauma or accident or any history of severe injury. The detailed informed consent was obtained by the participants. Demographic data such as age gender, educational status and working experience, working hours each day were also recorded. Postures were analyzed by the REBA method. Each hawker’s body posture at different movements was carefully observed (at least for 10 minutes). The worst and most frequent body postures were selected and assessed.

REBA is a method developed for ergonomic analysis of working people where entire body activities are examined. To perform a REBA assessment, observations are made of the limbs and body postures most frequently used, paying close attention to extreme joint angles, duration and forces. Various body posture and parts were taken into consideration of the hawkers in order to examine and understand their deviation from neutral position which includes trunk, neck and legs. The

postures are then given a numerical value using REBA numeric score allocation from figure 1 for determining the level of MSD risks associated, then after the recommendations were assigned to them with the help of Fig. A.

Score	Level of MSD RISK
1	Negligible risk, no action required
2-3	Low risk, change may be needed
4-7	Medium risk, further investigation, change soon
8-10	high risk, investigate and implement change
11	Very high risk, implement change



**Fig. A : REBA assessment chart**

**RESULTS AND DISCUSSION**

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

**Background profile:**

The observational evaluation was based on the assessments of the male street hawkers which includes good working posture with minimal risks of physical hazard. The study was carried out among 40 male street

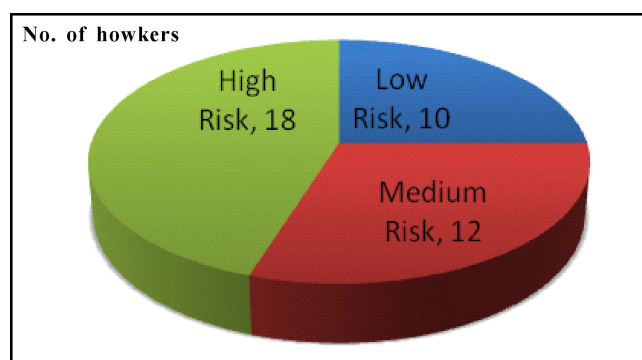
hawkers. Most of the hawkers were in age category of 31 to 40 (about 35%), 65% of the hawkers were married, most of the hawkers were having education level up to middle (37.5%), majority of the randomly selected hawkers in hawking profession were between 1 to 5 years (50%) and hawkers' started their own business of hawking were 60%. The average daily walk was less than 5 kilometers a day, most of the hawkers around 60% were earning more than Rs. 7500 and almost 72.5% were having savings out of their income.

**Table 1 : Univariate analysis of respondents according to the selected variables (n=40)**

Characteristics	No. of respondents	Percentage of respondents
<b>Age</b>		
20-30	10	25.0
31-40	14	35.0
41-50	9	22.5
51 above	7	17.5
<b>Education level</b>		
No schooling	12	30.0
Primary	10	25.0
Middle	15	37.5
High school	3	7.5
<b>Marital status</b>		
Married	26	65.0
Unmarried	6	15.0
Widowed / Divorced	8	20.0
<b>Time of hawker profession</b>		
Less than one year	5	12.5
Between 1- 5 year	20	50.0
More than 5 year	15	37.5
<b>Entry of hawking profession</b>		
Entrepreneur	24	60.0
Ancestor	16	40.0
<b>How many kilometers do you walk daily?</b>		
Less than 5 kms	18	45.0
Between 5-8 kms	12	30.0
More than 8 kms	10	25.0
<b>Monthly Income</b>		
Less than Rs. 7500	15	37.5
More than Rs. 7500	25	62.5
<b>Having savings ability</b>		
Yes	29	72.5
No	11	27.5

### Musculoskeletal condition:

The ergonomics assessment indicates that years of work experience does not impact the risk level or REBA score. It was observed that extreme joint angles, duration of cart pulling and forces applied along with various body posture were chief indicators of musculoskeletal **disorder** which unveiled most common health problems suffered by the male street hawkers. Hawkers' finds loading and forwarding bend postures to mobilize the stall difficult and has been shown to put the back, upper arm and lower arm in critical postures. This explained that if trunk, upper arm and lower arm posture is improved then the level of risk of musculoskeletal disorder will be reduced.



**Fig. 1 : No. of hawkers with MSD risk**

From the Fig. 1, it could be evaluated that among 40 street hawkers, it was observed based on the level of MSD risk assessment score that 10 hawkers were on the modest risk while around 30% or 12 hawkers were having mild symptoms and 18 hawkers which constitutes about 45% of the total hawkers, were at high risk of generating musculoskeletal disorders which implements sudden action.

### Body posture:

Maximum type of hawkers use this body posture



then the suffer from MSD. Their more force are on backbone and legs.

**Health problems:**

From the Fig. 2, it was observed that several different health problems were suffered by the hawkers. It was seen that generalized weakness, blood pressure and musculoskeletal disorder which constitutes 30, 29 and 28 hawkers respectively, were the major health obstacles. Skin diseases, asthma and injuries at work place were also affected by the majority of hawkers, as per the data collected with randomly selected hawkers as stated above.

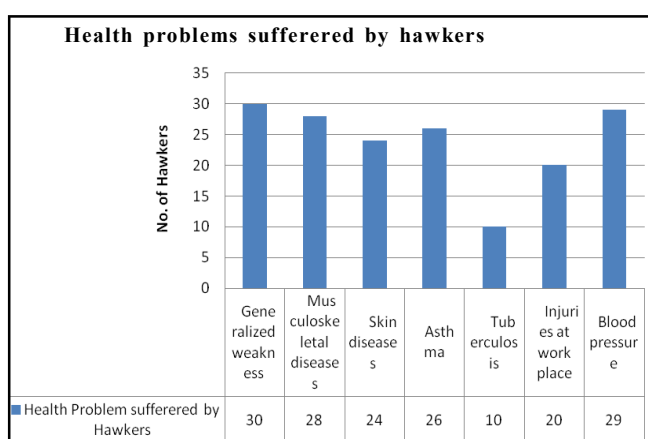


Fig. 2 : Major health problems suffered by male street hawkers

**Conclusion:**

According to a study done by ILO (International Labor Organization), it is found that about 85% of these street hawkers have to face health hazards. Most street hawkers provide the main source of income for their households which include bringing food to their families and other financial needs. Most of them are migrant workers or laid-off workers, work for an average 10–12 hours a day, and remain impoverished which may cause serious health issues which needs to be effectively figured out. Musculoskeletal Disorders are a common health problem which includes problems like migraine,

acidity, increased depression, high blood pressure, increased blood sugar and alike responsible for the major cause of disability which comprehended with economic loss affecting at the individual level and family sufferings at societal level. Bad posture, repeat-ed physical effort or psychological stresses are contributing factor for occupational diseases. Poor working condition and the absence of strategies for work in-jury prevention are responsible for Musculoskeletal Disorders which further needs to be evaluated and with the help of REBA the problems and challenges faced out by the street hawkers should be taken into consideration and weight age should be given on behavioral and personal changes function by attempting to reduce the harmful effect of the risk factor by training in pre-cise practice or improving the capability of worker with the help of fitness programmes.

**REFERENCES**

Azuela, A. and Meneses, R. (2013). The right to work on the street: Public space and constitutional rights, *Sage J.*, 13 (4): 2013.

Kumar, Ravinder (2014). Policy guidelines for street vendors/ hawkers -2014, Urban local bodies, Department, Haryana, Chandigarh Retrieved from.

Panwar, Manoj (2015). Issues and challenges faced by vendors on urban streets: a case of sonapat city, india *Internat. J. Engg. Technol. Mgmt. & Appl. Sci.*, 3(2): 71-84.

Sathe, Samiksha, Bax, Mrunal, Chaudhary, Neha, Pawar, Varsha and Bhirange, Swapnil (2021). Ergonomic evaluation of street vendors as determined by rapid entire body assessment method, *Internat. J. Curr. Res. & Rev.*, 13 (8) : 62-66.

Senthilkumar, Saradhamani (2019). Challenges faced by women street vendors in Karur. *Think India J.*, 22 (14) :

**WEBLIOGRAPHY**

WHO-ILO. (2000). Occupational health for workers in the informal sector. Report of a meeting of WHO-ILO on Occupational Health for Workers in the Informal Sector. Retrieved from [http://www.who.int/occupational\\_health/publications/en/oehafropretoria.pdf?ua=1](http://www.who.int/occupational_health/publications/en/oehafropretoria.pdf?ua=1).

