

**ANTHROPOMETRIC STUDY OF ADULT MALE  
BRICK-KILN WORKERS OF MURSHIDABAD  
DISTRICT, WEST BENGAL**

**A SYNOPSIS SUBMITTED TO VIDYASAGAR  
UNIVERSITY FOR THE DEGREE OF DOCTOR OF  
PHILOSOPHY (SCIENCE) IN ANTHROPOLOGY**

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## LIST OF ABBREVIATIONS USED

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Abbreviations	Full Forms/Names
BAI	Body Adiposity Index
BMAI	Body Mass Abdominal Index
BMI	Body Mass index
BSF	Biceps Skinfold
CC	Chest Circumference
CED	Chronic Energy Deficiency
CI	Conocity Index
FFM	Fat Free Mass
FFMI	Fat Free Mass Index
FM	Fat Mass
FMI	Fat Mass Index
HC	Hip Circumference
HT	Height
MUAA	Mid-upper Arm Area
MUAC	Mid-upper Arm Circumference
MUAFA	Mid-upper Arm Fat Area
MUAMA	Mid-upper Arm Muscle Area
PBF	Percent Body Fat
SIH	Sub-ischal Height
SISF	Supra-iliac Skinfold
SSF	Sub-scapula Skinfold
STH	Sitting Height
TBW	Total Body Water
TSF	Triceps Skinfold
WC	Waist Circumference
WHA	World Health Assembly
WHR	Waist-Hip Ratio
WHTR	Waist-Height Ratio
WT	Weight

**Introduction:** Brick making is traditional industry of Bengal. Due to industrialization and urbanization the brick making industry acquired its own momentum responding to the market force of demand and supply. The Indian brick industry is the second largest in the world after China.

**Objectives of the study:**

1. To study anthropometric variation and body composition characteristics of the brick-kiln workers.
2. To understand the health scenario with the help of nutritional status and morbidity pattern among the brick-kiln workers.
3. To study the socio-economic and lifestyle patterns of the brick-kiln workers.
4. Whether nutritional status of the worker depends on their socio-economic status.
5. Comparison the nutritional status within different work groups in brick-kiln area.

**Material and methods:**

The present cross sectional study was conducted among 501 adult male Bengalee brick-kiln workers of Murshidabad, West Bengal, India. Ethical considerations were guided by the Helsinki Declaration. All the anthropometric measurements and body composition parameters were taken following the standard techniques and formulae.

**Result:**

1. The mean values of both variables anthropometric and derived, WC, HPC, sum of 4CM, SSF, SISF, sum of 4SF, BAI, WHR, CI, WHTR, BMAI, PBF, FM, and FMI were increased according to increase of age, except TBW decreased mean values with the increased of age.
2. CC, WC, HPC, sum of 4CM, SSF, SISF, sum of 4SF, FM, FMI, BAI, WHR, CI, WHTR and BMAI had significant positive correlation with age as well as age squared. TBW had significant negative correlation with both age and age square.
3. There was significant effect of age on WC, HPC, CC, SSF and SISF. Simple liner regression analysis also, indicated that, there was significant effect of age on TBW, BAI, WHR, CI, WHTR, BMAI, PBF, FM and FMI.
4. Pearson correlation coefficients of the anthropometric variables, HT, WT, SHT, SIH, MUAC, CC, WC, HPC, TSF, BSF, SSF and SISF had significant positive correlation with MUAC, WC, BMI and PBF, only negative correlation found SIH with BMI and PBF. All the derived variables BMI, TBW, PBF, FM, FFM, FMI, FFMI, BAI, MUAA, MUAMA, MUAFA, AFI, WHRCI, WHTR and BMAI had significant positively correlation with MUAC, WC, BMI and PBF.

5. The overall rates of CED was 24.60% which is a 'high' one indicating 'serious' situation (WHO 1995). The overall rate of undernutrition according to MUAC cut off value was found to be 22.80%.
6. In the present study only 2.80% was obese on the cut off value of PBF.
7. The mean values all of the anthropometric and derive variables were higher among the group who live in brick made wall houses, than the other group.
8. Smoking habits effect on anthropometric and body composition characteristics. The prevalence of CED was higher (30.20%) among the regular smoker group, than the others two groups.
9. The rates of CED was higher (53.10%) among the fireman, than the others groups.

**Conclusion:**

From the above, we can conclude that the nutritional condition of studied population, particularly brick-kiln workers was unsatisfactory. This implied that most of these were experiencing sever to critical nutrition stress. Proactive nutritional supplementation programmers are mandatory to improve the nutritional profile of these populations.