

# Postural analysis of lumbo-sacral region of rural women performing dish washing activity in Deoria district (U.P.)

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## ABSTRACT

The study was carried out in villages Babhnauli and Kataura of Deoria district of U.P. state for postural analysis of lumbo-sacral region of rural women while dish washing. Multistage random sampling procedure was adopted to select the sample for the study. Descriptive cum experimental research design was used in the present study. Data were analyzed with the suitable statistical tools. The result of the study indicated that majority (45%) of the respondents belonged to the age group less than 30 years and were illiterate, while assessing body mass index for physical fitness maximum (75%) respondents belonged to the category 22.88 were found to be normal. Maximum angle of deviation of rural women was found 70° for dishwashing and were suffering from body pain.

**Key words :** BMI, Body angle of deviation, Body pain

Dish washing is most important household activity and comes under the category of moderate work. Approximately 30% of work force in developed countries and between 50% to 70% in developing countries is generally exposed to a heavy physical workload or ergonomically poor working conditions involving lifting and moving of heavy items and static muscular loads are common among many household and can lead to injurious to musculo-skeletal disorders. Such disorders are the main cause of both short term and permanent work disability. Hence, comfortable posture at work is always important because bad posture increases load on lumbar spine and body joints. Corlett *et al.* (1983) showed how the need to adopt poor working posture in order to perform task could lead to postural stress, fatigue and pain which may in turn force the operator to stop work until the muscle recovers. Typical example of such were situations found where operations have to find our work surface which are too low or where they have to crouch to see a work piece through a small window in a machine. Kroemer (1994) described the relationship between health complaints and musculoskeletal injury as a mountain with a wide base of common occurrences of tiredness, fatigue,

and discomfort. As the mountain rises, the complaints turn into the occasional aches, pains, and postural problems, followed by persistent pain and soreness. The present study was conducted to analyze the lumbar sacral region of rural women during dish washing.

## METHODOLOGY

The present study was conducted in Babhnauli and Kataura Villages of Deoria district of Uttar Pradesh. The descriptive data were gathered personally by using the interview method and for experimental data collection, various parameters were used. Angle of deviation and body posture were recorded by flexicurve. Multistage random sampling procedure was used for the study. Statistical analysis of the data were employed through frequency, percentage, mean, standard deviation, 5<sup>th</sup> and 95<sup>th</sup> percentile while inferential statistics employed were co-efficient of correlations.

## RESULTS AND DISCUSSION

It was observed from Table 1 that majority of the respondents belonged to age group less than 30 years. The highest mean height of the respondents were found

**Table 1: Distribution of the respondents according to physical characteristics**

N = 40

Sr. No.	Age	No. of respondents	Mean height (cm)	Mean weight (kg)	Body mass index	Remark
1.	> 31year	18 (45)	154.86	49.13	20.56	Normal
2.	31-40 year	12 (30)	152.5	53.33	22.88	Normal
3.	< 40 year	10 (25)	155.7	54.50	22.52	Normal

(Figures in parenthesis indicate percentage)

Sr. No.	Activity	Maximum deviation	Minimum deviation	Mean	S.D.	C.V.	Percentile		
							5 <sup>th</sup>	50 <sup>th</sup>	95 <sup>th</sup>
1.	Bringing utensils from kitchen to washing area	17	5	5.72	3.30	58	1.00	6.00	11.05
2.	Taking water from water source	36	4	15.32	9.21	60	5.00	14.50	31.25
3.	Scrubbing the utensils	52	5	27.50	14.61	53	5.00	29.00	50.10
4.	Rinsing utensils	43	5	25.07	12.18	48	5.95	28.00	42.00
5.	Put the utensils in their proper place	17	5	5.075	2.97	58	1.00	4.00	9.05

to be 155.70 cm who belonged to the age group of more than 40 years and the highest mean weight of the respondents was found to be 54.50 kg who also came under the age group of more than 40 years, while assessing body mass index for physical fitness maximum (75%) respondents belonged to the category 31-40 were found to be normal.

Table 2 indicates that maximum deviation in body angle 52° was found to be in scrubbing the utensils activity followed by 43° in rinsing utensils, 36° in taking water from water source and 17° in bringing utensils from kitchen to washing area and put the utensils in its proper place. Minimum body angle, 4° was calculated and found to be in taking water from water source activity.

Maximum standards deviation (14.61) was found for scrubbing the utensils that showed maximum deviation in that activity and 12.18 was found in their rinsing utensils. Minimum S.D. (2.97) was found to put the utensils in its proper place that showed minimum deviation in that activity. As regard the co-efficient of variance maximum (60) was found in taking water from water source whereas 58 was calculated in bringing utensils from kitchen to washing area and put the utensils in their proper place.

Table 3 reveals that the correlation value of feeling of discomfort was found 0.9019\* with age and 0.6675\* with weight at 5 per cent level of significance and 't' value was found 12.871\* with age and 5.526\* with weight at 5 per cent level of significance. It means the perceived joint discomfort increase in with increases the age and weight and correlation of perceived joint discomfort is non-significant with height, it means there is no effect of height on the perceived joint discomfort.

The correlation value of handgrip was found 0.8677\* with age and 0.4906\* with weight and 't' value was found to be 10.760\* and 3.471\* with age and weight, respectively at 5 per cent level of significance. It means that percentage decreases in hand grip with increases in the age and weight. Hagberg (2000) has also made some observations on shoulder muscular strain.

Dependent variables	Independent variables	Correlation co-efficient (r)	't' Value
Perceived joint discomfort	Age	0.9019*	12.871*
	Weight	0.6675*	5.526*
Hand grip	Height	0.2740	7.756
	Age	0.8677*	10.760*
	Weight	0.4906*	3.471*
	Height	0.0851	0.526

\* indicates significance of value at P=0.05

### Conclusions:

It can be concluded that the respondents were found to adopt inadequate postures while performing dish washing activity. The respondents had to bend above 90° which increases stress on low back of the user and perceived joint discomfort were found significant with age and weight. Increase in the age and the weight, decreases the grip strength of hands while performing dish washing activity.

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