

Assessment of postural discomfort experienced by women working in unorganized sector

■ Cheshta*, Ritu Gupta and Jatinderjit Kaur Gill

Department of Family Resource Management, College of Home Science, Punjab Agricultural University, LUDHIANA (PUNJAB) INDIA

(Email: cheshtarocks.11@gmail.com; riaarora992@gmail.com)

ARTICLE INFO :

Received : 11.09.2017
Revised : 21.10.2017
Accepted : 05.11.2017

KEY WORDS :

Postural discomfort,
Musculoskeletal problems, Risk
management, Occupational health

HOW TO CITE THIS ARTICLE :

Cheshta, Gupta, Ritu and Gill, Jatinderjit Kaur (2017). Assessment of postural discomfort experienced by women working in unorganized sector. *Adv. Res. J. Soc. Sci.*, **8** (2) : 285-290, DOI: 10.15740/HAS/ARJSS/8.2/285-290.

*Author for correspondence

ABSTRACT

The present study entitled "Assessment of postural discomfort experienced by women working in unorganized sector" was conducted with an aim to study the working conditions of women engaged in beauty parlors and to examine the extent of postural discomfort faced by these women. The field survey was conducted on purposively selected sample of 80 female workers in the age group of 20-35 years. A self structured interview schedule was used to investigate their socio-economic characteristics, job profile and frequently performed activities in parlors. The musculoskeletal problems of respondents were identified by using Standard Nordic Musculoskeletal Questionnaire (SNMQ). Ovako Work Assessment System (OWAS) was used to analyze the postural discomfort of women workers. The most frequently performed activities were threading, waxing, manicure-pedicure, head wash, bleach etc. Results revealed that the respondents spent nearly 8 hours in the parlor everyday performing different activities mostly in standing or standing-cum-bending posture. The health hazards faced by them at the parlors were pain in different body parts due to awkward postures, repetitive nature of work and long working hours. Standard Nordic Musculoskeletal Questionnaire (SNMQ) showed that respondents had trouble like ache, pain and discomfort in neck, shoulder, feet, upper and lower back and the results were found significant. Ovako Work Assessment System (OWAS) scores indicated that postures like standing and bending forward with neck and cervical flexion were putting the respondents under high risk and corrective measures should be taken as soon as possible. So, there is a need for ergonomic intervention for prevention of postural discomfort among these women.

INTRODUCTION

The beauty industry of India is among those few sectors which have boldly fought the gale of global decline and continued to flourish paving way for an enormous shot. People especially professionals have discovered innovative ways of conquering depression by

going for an entire makeover of their looks. Beauty Parlors in India are the latest and best stress-buster hubs of the 21-century Indians. The urge to look best is not limited to home remedies.

Women and men are equally following their dreams to look gorgeous by attending mind and body rejuvenating classes and frequent spa and beauty

sessions. A high occurrence of work-related musculoskeletal disorders has been recorded among workers who are exposed to manual labour; work in awkward and constrained postures, monotonous and fixed work, vibrations, and poor psychological and social conditions (Burdorf and Sorock, 1997). With awareness and timely intervention, there are certain things that employers and workers can do to deal with back pain and other musculoskeletal disorders (MSDs) in the place of work.

Grandjean and Hunting (1977) studied various problems of standing and sitting positions. Long lasting static posture with heavy load impaired the blood supply to leg muscles and the waste products were accumulated resulting in acute pain in the statistically loaded muscles.

Yeomans *et al.* (2009) explored the possible risks of musculoskeletal and respiratory ill health for beauty therapists who deliver massage and spray tanning treatments. The delivery of these treatments was observed in three salons who also offered facials, waxing, manicures and pedicures. The workstation of the women working in the parlors is not well maintained. It is not designed according to the comfort of the users. Even the tools are not ergonomically designed. Height and depth of the work counters are not according to the workers, due to which wrong postures are adopted while doing their work. The regular use of chemicals in the products like hair sprays, rebonding, coloring etc causes irritation in nose and throat while working.

MATERIAL AND METHODS

The survey was conducted with purposively selected sample of 80 female workers in the age group of city 20-35 years engaged in beauty parlors. Out of four zones of Ludhiana city, two zones were randomly selected and from four zones, 20 parlors were selected purposively, thus making a total of 40 parlors. A random sample of 2 respondents from each parlor was purposively selected, thus making a total sample of 80 respondents. The data was collected by a self structured interview schedule.

The standardized Nordic Musculoskeletal Questionnaire focuses on general body, low back and neck/shoulder complaints. This questionnaire enabled to identify the severity, the duration, the treatment and disability. The SNMQ could be applied to a wide range of occupational groups to evaluate musculoskeletal problems, including computer and call centers workers,

car driver etc.

The OWAS (Ovako Work Assessment System) identifies the most common work postures for the back, arms and legs and the weight of the load handled. Whole body posture was described by these body parts with a four digit-code. These postures would be classified to four action categories including needs for ergonomic changes. The observation was made as “snapshots” with constant time intervals.

OBSERVATIONS AND ANALYSIS

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

Socio economic characteristics:

Majority of respondents selected for the present

Table 1 : Distribution of respondents on socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage
Age (years)		
20-25	48	60.00
25-30	13	16.25
30-35	19	23.75
Mean±S.D.		26.2±4.96
Education		
Upto Matric	19	23.75
Senior Secondary	40	50.00
Graduate	14	17.50
Post graduate	3	3.75
Training/any course of beauty parlor	31*	38.75*
Marital status		
Married	36	45.00
Unmarried	44	55.00
Family type		
Nuclear	67	83.75
Joint	13	16.25
Annual income of the respondent (Rs.)		
25,001-50,000	16	20.00
50,001-75,000	26	32.50
75,001-1,00,000	15	18.75
Above 1,00,000	23	28.75
Annual income of the family (Rs.)		
75,001-1,00,000	16	20.00
1,00,001-1,25,000	19	23.75
1,25,000 -1,50,000	21	26.25
Above 1,50,000	24	30.00

*indicates significance of value at P=0.05

study (60.00%) belonged to the age group of 20-25 years, more than half were married and lived in nuclear families. Half of the respondents (50.00%) studied upto senior secondary.

Job profile of respondents:

Table 2 reveals about the job experience (years) of the selected respondents. It indicates that nearly half of the respondents had less than five years of experience in this profession, whereas (40%) of them had 5-10 years of job experience and only (10%) have been working in this profession for more than 10 years. As there were more young girls working in the parlors so the job experience of these girls was less. Further, 80 per cent of the women spend 8 hours in a day in the parlor. Some

of the respondents (11.25 %) also spend 8-9 hours working in the parlor and only (8.75%) spent 7-8 hours in a day in the parlor. Average job hours of the women were 8.32 ± 1.20 .

It was observed that 52.5 per cent of the worker's were working continuously in the parlor for 4-7 hours and 17.5 per cent of the workers were working for only 4 hours and another 17.5 per cent of the workers were also working for 7 hours in the parlor. Average of working continuously in the parlor was 5.33 ± 1.81 .

It was further found that most busy hours in the parlor were in the afternoon as 51.25 per cent of the customers arrived at the noon time followed by 38.75 per cent of customers who visited parlor in the evening and least number of customers arrived in the morning time that is 10 per cent. As most of the women are free from their house chores during afternoon so it was the busiest time in the parlor. Therefore, most busy hours of the day were in the afternoon and least in the morning.

The table further unfolds that average number of customers per day attended by the workers in the parlor were 8. Majority of the respondents 71.25 per cent attended between 5-10 customers per day. Only 16.25 per cent attended more than 10 and 12.50 per cent of respondents attended less than 5 customers. Average number of customers attended by the workers was 8 ± 3.58 .

The respondents further revealed that after working for some hours when they were tired 87.5 per cent of them take rest break whereas 13.5 per cent of them don't take rest instead they change their duty and perform some other activity to break the monotony.

Table further reveals that 88.75 per cent of the respondents were specialized in tasks related to skin and only 11.25 per cent of the respondents were specialized in the tasks related to hair.

Frequency of activities performed by the selected respondents in beauty parlors :

Table 3 depicts the frequency of the activities performed in a day by respondents. The most regularly performed activity was threading which was performed on an average 7 times in a day and was ranked first followed by waxing and manicure/pedicure which was performed on an average 5 times in a day and was ranked 2nd and 3rd, respectively. Further comes head wash, bleach and blow dry which were performed almost 4 times in a

Table 2 : Job profile		
Working conditions	Frequency	Percentage
Job experience (years)		
Less than 5	40	50.00
5-10	32	40.00
More than 10	8	10.00
Mean±SD	5.01±3.70	
Job hours (Per day)		
6-7	7	8.75
8	64	80.00
8-9	9	11.25
Mean±SD	8.32±1.20	
Actual working hours (Per day)		
4	14	17.50
4-7	42	52.50
7	14	17.50
Mean±SD	5.33±1.81	
Busy hours (Per day)		
Morning	8	10.00
Afternoon	41	51.25
Evening	31	38.75
Customers attended (Per day)		
Less than 5	10	12.50
5-10	57	71.25
More than 10	13	16.25
Mean±SD	8±3.58	
Management of fatigue		
Work rotation	10	12.50
Rest	70	87.50
Specialized skills		
Task related to hair	9	11.25
Tasks related to skin	71	88.75

day and were ranked 4th, 5th and 6th, respectively and then comes rebonding, smoothening, cleansing, hair color and facial which were performed twice a day and were ranked 7th, 8th, 9th, 10th and 11th, respectively and then makeup, hair spa, hair cut and body spa were performed least like once in a day and were ranked 12th, 13th, 14th and 15th, respectively. The results are in line with two.

Activities	Average number of times/day	Rank
Threading	7	1
Waxing	5	2
Manicure and pedicure	5	3
Head wash	4	4
Bleach	4	5
Blow dry	4	6
Rebonding	2	7
Smoothening	2	8
Cleansing	2	9
Hair colour	2	10
Facial	2	11
Make up	1	12
Hair spa	1	13
Haircut	1	14
Body spa	1	15

Assessment of musculoskeletal problems of the respondents :

Musculoskeletal problems of the respondents were assessed using low cost tools such as Standardized Nordic Musculoskeletal Questionnaire (SNMQ) and Ovako Work Assessment System (OWAS). The results of these are presented below.

Standardized Nordic Musculoskeletal questionnaire:

The musculoskeletal problems and the body pain perceived by the respondents were determined by administering of Standardized Nordic Musculoskeletal Questionnaire. The responses from respondents were taken through standard worksheet and were analyzed by applying Z-test. The data revealed that respondents had trouble (ache, pain, discomfort) during last one year in different body parts like neck (97.5%), one or both ankle/feet (83.75%), shoulder (76.25%), lower back (70%), most of which were found significant pain in one or both knees was felt by (15%) of respondent, wrist/hand (21.25%) and upper back (30%). Along with this, table also shows that 15 per cent of respondents were prevented from doing normal work by pain in neck, upper back (8.75%), shoulder (7.5%) and one or both ankle/feet (5%). Besides this, respondents also had trouble in their neck (82.5%), shoulder (63.75%), lower back (76.25%) and one or both ankle/feet back (71.25%) during last 7 days and less trouble felt in their other parts of body. Therefore, it can be concluded that majority of the respondents were having the symptoms of pain and discomfort in different body parts, 8-15 per cent of the respondents were also prevented from doing work normally. This may be due to the reason that the women perform the working in either standing or standing cum bending posture which causes pain in ankles/feet, neck and low back. Since repetitive motions are involved in some treatments so there was pain in shoulders and wrist/hands.

Three categories, low, medium and high were formed according to maximum (70%) and minimum (27%) Nordic possible score, which are presented in Fig.

Body parts	Ache, pain discomfort since last one year (I)	Prevented from doing work normally (II)	Health problem during last 7 days (III)	Z(I)	Z(II)	Z(III)
Neck	78 (97.50)	12 (15.00)	66 (82.50)	10.51**	3.16**	8.54**
Shoulder	61 (76.25)	6 (7.50)	51 (63.75)	8.813**	1.72 ^{NS}	7.42**
wrist/H and	17 (21.25)	NIL	7 (8.75)	4.36**	2.21*	2.70*
Upper back	24 (30.00)	NIL	9 (11.25)	5.31**	2.93**	3.08**
Lower back	56 (70.00)	7 (8.75)	61 (76.25)	7.92**	0.89 ^{NS}	8.63**
One or both hips/ thighs	41 (51.25)	NIL	27 (33.75)	7.42**	2.23*	5.69**
One or both knees	12 (15.00)	NIL	NIL	3.60**	3.60**	NIL
One or both ankle/feet	67 (83.75)	4 (5.00)	57 (71.25)	10.02**	1.89 ^{NS}	8.62**

NS=Non-significant * and ** indicate significance of values at P=0.05 and 0.01, respectively

Suffering from ache, pain discomfort from last 1 year

Prevented from doing work normally

Health problem during last 7 days

1. It was found that maximum of the respondents (55.00%) were having high Nordic pain score followed by 34 per cent respondents having medium score (34.00%). Only 11.00 per cent of respondents were having low Nordic pain score. The results clearly indicate that majority of respondents were in the category of high Nordic pain score.

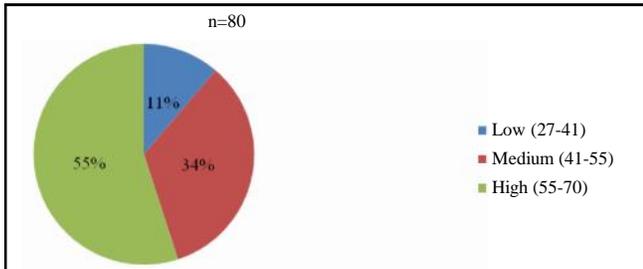


Fig. 1 : Distribution of respondents according to Nordic pain score
Maximum possible Nordic pain score = 70,
Minimum possible Nordic pain score=2

Postural analysis of respondents while performing activities by using Ovako Work Assessment System (OWAS) :



Posture I : Respondent performing waxing in standing posture



Posture II : Respondent performing pedicure by sitting



Posture III : Respondent performing threading by standing

The posture taken by the respondents in three different activities were analysed such as waxing, threading and pedicure. The results of the same are presented below:

Analysis of Posture I :

The final score 2 of OWAS category indicates corrective measure in the near future with score 2. The respondent is standing with head and upper body bent forward while performing waxing.

Table 5 : Postural analysis of respondents while performing different activities in beauty parlor by using Owako Work Assessment System (OWAS)

Posture No.	Back	Arms	Legs	Load/ Effort	Final score	Action category
I	2	1	2	1	2	Corrective measure in the near future
II	2	1	1	1	2	Corrective measure in the near future
III	2	1	4	1	3	Corrective measure as soon as possible

Analysis of Posture II :

Therefore OWAS action category suggests corrective measure in the near future with score 2. The respondents usually performed pedicure while sitting on the stool with hunched back and no support at the back.

Analysis of Posture III :

In this picture the respondent is doing threading while standing with a neck and upper body in flexion position. Though time taken in performing this activity is less but it is performed many times in a day. OWAS indicates corrective measure as soon as possible with score 3.

So, an analysis of all the three postures unfolds that the workers at beauty parlors perform different activities in awkward posture which causes strain on their neck and back muscles.

Conclusion :

According to Rated Perceived Exertion Scale of Varghese, it was observed that respondents felt more pain in calf muscles (2.95), neck(2.98), ankle/feet(2.77), lower back(2.59) and less pain in shoulder(1.75) and upper back(2.69). Standardized Nordic Musculoskeletal Questionnaire was used to calculate total Nordic pain score and it was found that more than half of respondents

(55.00%) were having high Nordic pain score followed by medium score (34.00%). Only 11.00 per cent of the respondents were having low Nordic pain score range of 55-70. Symptoms of musculoskeletal disorders as reported by respondents were pain in the neck (2.4), shoulder (2.3), upper back (2.4) and calf muscles (2.6), stiffness in palms (2.4) and fingers (1.9) and weakness in shoulders (2.2) and upper arms (2.4). OWAS (Ovako Work Assessment System) results were found by analyzing the work postures. OWAS scores indicated that postures like standing and bending forward with neck and cervical flexion were putting the respondents under high risk and corrective measures should be taken as soon as possible.

REFERENCES

- Burdorf, A. and Sorock, G. (1997). Positive and negative evidence of risk factors for back disorders. *Sc. J. Work Environ. Health*, **23**: 243-256.
- Grandjean, E. and Hunting, W. (1977). Ergonomics of posture: review of various problems of standing and sitting posture. *Appl. Ergon.*, **8** (3) : 135-140.
- Yeomans, L., Coldwell, M., Saunders, J., Farrant, J., Codling, A., Bowen, J. and Roberts, J.H. (2009). *RR721 Research Report*.

8th
Year
★★★★★ of Excellence ★★★★★