

Print ISSN : 0972-8813
e-ISSN : 2582-2780

[Vol. 18(3), Sept-Dec, 2020]

Pantnagar Journal of Research

(Formerly International Journal of Basic and
Applied Agricultural Research ISSN : 2349-8765)



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Work -related musculoskeletal disorders among chikankari workers in Lucknow (U.P.)

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ABSTRACT: The city of Lucknow is considered the hub of chikankari in Uttar Pradesh. Families are involved in this craft since generation and inherit a skill ancestrally. Awkward posture during work makes the task more physically demanding and increases the risk of injury. The present study was planned to assess the work-related musculoskeletal disorder faced by chikankari workers. Twenty home based and twenty centre based chikankari workers were selected from purposively selected chicken prominent area i.e., kakori, Banarsi Tola, Sikrauri, Daliganj and centre i.e., A.K. Chikan Industry Chowk, Sewa NGO Sitapur Road, nath Chikan Sitapur Road, Shyam Chikan industry Cantt. Data was collected by using NORDIC musculoskeletal questionnaire developed by Kuorinka *et al.* (1987) and validated by Dickinon *et al.* (1992) and Chaffin and Anderson(1991). Analysis of data reveals that 50.00 per cent respondents were not known to any kind of musculoskeletal pain/discomfort but prevent them self or stay away from normal activities due to such kind of pain/discomfort. Self Reported prevalence of musculoskeletal pain /discomfort was reported by highest percentage of centre based workers as compare to home based workers. During last twelve month pain lasting for 12 hour was reported highest for lower back (67.50 per cent), followed by wrist/hand (57.50 per cent), both elbow (55.00 per cent), both shoulder (52.50 per cent) and knees (52.50 per cent). During last one month pain lasting for 12 hour was reported highest for upper back (62.00 per cent) followed by lower back (57.50 per cent), both shoulder (55.00 per cent) and both wrist/hand (50.00 per cent). During last seven days pain lasting for 12 hours was reported highest for lower back (65.00 per cent) followed by both shoulder(62.50 per cent), upper back(60.00 per cent) and both elbow (50.00 per cent). About half of the respondent first notice the problem while work. Majority of them were taking treatment for forearm pain (100.00 per cent), palm pain (62.50 per cent), headache (62.50 per cent), shoulder pain (55.00 per cent) and body ache (50.00 per cent).

Key words: Chikankari, disorder, musculoskeletal, NORDIC, posture

The era of globalization, urbanization is increasing day by day leading to increase in the work force in several unorganized sectors. A large number of people are associated with different types of jobs in the informal or unorganized sectors in developing countries. As per the latest estimation of a sub-committee of the National Commission for Enterprises in the Unorganised Sector (NCEUS), the contribution of unorganised sector to GDP is about 50 per cent (NCEUS 2008). The work force engaged in this sector work very hard but still has to face several problems related to their work leading to detrimental impact on their physical and mental health. WMSD's are group of disorder affecting the bones, muscles, ligaments and tendons of human body. It can be acute or chronic. Musculoskeletal pain can be localized in one area, or widespread. Many physical, organizational and individual factors contribute to musculoskeletal disorders are using force, repetitive movement, awkward and static posture, contact pressure, vibration, cold working environment, high work demand, high pace of work and time pressure etc. Manual workers either skilled or unskilled are most vulnerable group at risk of developing musculoskeletal disorder. Chikan embroidery is the largest artisans' cluster of U.P. It is estimated that 6

lakh workers and artisans are engaged in this craft. The pivotal work of chikan craft is embroidery. Technology development gradually commercialized craft and in turn created time pressure that placed a priority on productivity levels rather than creativity. This leads to long working hour in constrained posture and repetitive activities without adequate rest. It should also be acknowledged that craft workers in this situation are unlikely to have provision for formal work station. In ideal scenario the elbow, arm and hand should be maintained at 90 degree angle while working. As the ladies have to sit in one posture and that to they have to bend forward in order to do their work. It leads spine adopting a forward C shape. When it is held forward the neck, upper back, shoulder and, mid and lower back endure an exponentially greater load. The effect is more because of no change in their posture and they have to crane their neck to do justice to the intricacies in embroidery involved. Poor neck posture leads to a forward head position which is one of the most common causes of neck, head and shoulder sprain and pain. More the joint depart from the natural position greater the likelihood of injury. This ultimately manifested in work-related musculoskeletal disorder. However, MSD's are attributed to not only ergonomically poor posture but also to other

risk factors like gender, age (Ilmarinen, 2002), BMI (Viester *et al.*, 2013), sleep (Onen *et al.* 2001), rest and exercise. The world health organization declared the decade 2000-2010 as a bone and joint decade with the aim of increasing the understanding of the burden posed by MSDs and improving health related quality of life (Lidgren, 2003). Hence, present study was planned to assess the work-related musculoskeletal disorder among home based and centre based chikankari workers.

MATERIALS AND METHODS

The present investigation was carried out on 120 chikankari workers from Lucknow (U.P.). Study was planned with descriptive research design. Total sample comprises purposively selected physically fit 60 home based and 60 centre based chikankari workers from chicken prominent areas of Lucknow i.e. kakori, Banarsi Tola, Sikrauri, Daliganj and chikankari centres i.e., A.K.

Chikan Industry Chowk, Sewa NGO Sitapur Road, Nath Chikan Sitapur Road, Shyam Chikan industry, Cantt in Lucknow. Data on background information was collected personally by using pre- coded interview schedule and prevalence of self reported musculoskeletal pain/ discomfort was assessed by administering NORDIC musculoskeletal questionnaire developed by Kuorinka *et al.* (1987) and validated by Dickinon *et al.* (1992) and Chaffin and Anderson(1991).The data was analyzed with simple frequency and per centage tool in Ms Excel.

RESULTS AND DISCUSSION

Analysis of data in Table 1 envisage that majority of home based workers i.e. 48.40 per cent were belonging to age group 26-35 years whereas, 46.70 per cent centre based workers were from age group 36-45 years age group. Age of majority of home based workers was in concurrence with the finding of Sinha (2005). About 55.84 per cent

Table 1: Background information of the respondents

S.No.	Particulars	Home based workers(n=60)	Centre based workers(n=60)	Total(n=120)
a.	Age group (years)			
1	Less than 26	6 (10.00)	2(3.34)	8(6.67)
2	26-35	29(48.40)	18 (30.00)	47 (39.20)
3	36-45	22 (36.70)	28 (46.70)	50(41.70)
4	46-55	3(5.00)	12(20.00)	15(12.50)
	Total	60(100.00)	60(100.00)	60(100.00)
b.	Education level			
1	Illiterate	14 (23.34)	22(36.67)	36(30.00)
2	Can read and write	12(20.00)	19(31.67)	31(25.84)
3	Primary	6(10.00)	10(16.67)	16(13.34)
4	Junior to High school	13(21.67)	3(5.55)	16(13.34)
5	Intermediate	8(13.34)	4(6.70)	12(10.00)
6	Graduate	7(11.67)	2(3.34)	9(7.50)
	Total	60(100.00)	60(100.00)	60(100.00)
c	Occupation			
1	Self employed e.g. Shop, rehdiies or business with income>5000	-	-	-
2	Self employed with income e.i. labourer <5000	23(38.34)	11(18.34)	34(28.34)
3	None of the family member is employed	37(61.67)	49(81.67)	86(71.67)
	Total	60(100.00)	60(100.00)	60(100.00)
d	Gross Monthly income(Rs.)			
1	5000-10,000	32(53.34)	41(68.34)	73(60.83)
2	2500-4999	20(33.34)	10(16.67)	30(25.00)
3	1000-2499	8(13.33)	9(15.00)	17(14.17)
4	<1000	-	-	-
	Total	60(100.00)	60(100.00)	60(100.00)
e	Religion			
1	Hindu	15(25.00)	4(6.67)	19(15.83)
2	Muslim	45(75.00)	56(93.34)	101(84.16)
3	Sikh	-	-	-
4	Christian	-	-	-
	Total	60(100.00)	60(100.00)	60(100.00)

chikankari workers under study were either illiterate or can only read or write being deprived of any formal schooling. None of the family member of 71.67 per cent respondents was employed and gross monthly income of 60.83 per cent was in between Rs. 5,000 to 10,000. Majority 84.16 per cent chikankari workers were muslim by religion. Jafri (2011) in his study also reported that major involvement of muslim women in chikankari.

Analysis of data in Table 2 reveals that only 50 per cent of the respondents were found having knowledge about musculoskeletal pain/discomfort. Nearly 40.00 per cent prevented themselves and 35.00 per cent stay away from normal activities because of pain/discomfort. On asking about activities that cause pain/discomfort, 50.00 per cent reported pain due to tuff stitches. It may be due to that

they need more concentration while doing this activity, 37.50 per cent workers reported pain or difficulty while inserting thread in needle and 12.50 per cent said that setting fabric on adda or frame causes pain. The major reason behind this pain/discomfort might be that all major chikankari activities need fine muscle coordination for maintaining quality of work which put more strain on muscles of the different body parts.

Analysis of data in Table 3 reveals that during last twelve month pain lasting for 12 hour was reported highest for lower back (67.50), followed by wrist/hand(57.50), both elbow(55.00), both shoulder(52.50) and knees(52.50). Majority of centre based workers reported pain/discomfort in both elbow (75.00) whereas home based workers in lower back (60.00). If we compare the self reported pain/discomfort between home based and centre based workers

Table 2: Self reported prevalence of musculoskeletal pain /discomfort

S.No.	Statement	Home Based worker (n=60)	Centre Based worker (n=60)	Total (n=120)
1	Know about musculoskeletal pain/discomfort	24(40.00)	36 (60.00)	60 (50.00)
2	Prevented from normal work activities because of musculoskeletal pain/discomfort	27 (45.00)	21 (35.00)	48 (40.00)
3	Stay away from normal work activities because of musculoskeletal pain/discomfort	24 (40.00)	18 (30.00)	42 (35.00)
4	Activities cause pain/discomfort			
a.	Inserting thread into needle	21(35.00)	24 (40.00)	45 (37.50)
b.	Setting fabric on adda or frame	9 (15.00)	6 (10.00)	15 (12.50)
c.	Tuffstitches	27(45.00)	33 (55.00)	60 (50.00)

Table 3: Musculoskeletal pain/discomfort during last 12 month lasting for at least 12hours

S. No.	Body part	Home Based worker (n=60)	Centre Based worker (n=60)	Total (n=120)
1	Neck	21 (35.00)	24 (40.00)	45 (37.50)
2	Shoulder			
	Right	-	-	-
	Left	-	-	-
	Both	30(50.00)	33 (55.00)	63 (52.50)
3	Elbow			
	Right	-	-	-
	Left	-	-	-
	Both	21 (35.00)	45 (75.00)	66 (55.00)
4	Wrist/Hands			
	Right	-	-	-
	Left	-	-	-
	Both	27 (45.00)	42 (70.00)	69 (57.50)
5	Upper Back	24 (40.00)	27 (45.00)	51 (42.50)
6	Lower Back	36 (60.00)	45 (75.00)	81 (67.50)
7	Hips/Thighs	15 (25.00)	21 (35.00)	36 (30.00)
8	Knees	27 (45.00)	36 (60.00)	63 (52.50)
9	Ankle/Feet	21 (35.00)	27 (45.00)	48 (40.00)

Table 4: Musculoskeletal pain/discomfort during last 1 month lasting for at least 12hours

S. No.	Body part	Home Based worker (n=60)	Centre Based worker (n=60)	Total (n=120)
1	Neck	21 (35.00)	27 (45.00)	48 (40.00)
2	Shoulder			
	Right	-	-	-
	Left	-	-	-
	Both	30 (50.00)	36 (60.00)	66 (55.00)
3	Elbow			
	Right	-	-	-
	Left	-	-	-
	Both	24 (40.00)	27 (45.00)	51 (42.00)
4	Wrist/Hands			
	Right	-	-	-
	Left	-	-	-
	Both	30 (50.00)	30(50.00)	60 (50.00)
5	Upper Back	36 (60.00)	39(65.00)	75 (62.00)
6	Lower Back	33 (55.00)	36 (60.00)	69 (57.50)
7	Hips/Thighs	12 (20.00)	18 (30.00)	30 (25.00)
8	Knees	9 (15.00)	12(20.00)	21 (17.50)
9	Ankle/Feet	6 (10.00)	9 (15.00)	15(12.50)

Table 5: Musculoskeletal pain/discomfort during last 7 days lasting for at least 12hour

S. No.	Body part	Home Based worker (n=60)	Centre Based worker (n=60)	Total (n=120)
1	Neck	18 (30.00)	21 (35.00)	39 (32.50)
2	Shoulder			
	Right	-	-	-
	Left	-	-	-
	Both	36 (60.00)	39 (63.00)	75 (62.50)
3	Elbow			
	Right	-	-	-
	Left	-	-	-
	Both	30 (50.00)	30 (50.00)	60 (50.00)
4	Wrist/Hands			
	Right	-	-	-
	Left	-	-	-
	Both	24 (40.00)	27 (45.00)	51 (42.00)
5	Upper back	30 (50.00)	42 (70.00)	72 (60.00)
6	Lower Back	33 (55.00)	45 (75.00)	78 (65.00)
7	Hips/thighs	12 (20.00)	18 (30.00)	30 (25.00)
8	Knees	6 (10.00)	9 (15.00)	15 (12.50)
9	Ankle/feet	6 (10.00)	6 (10.00)	12 (10.00)

during last 12 month lasting for 12 hours it was observed that percentage of centre based worker reporting pain/discomfort in all the body parts was higher as compare to home based workers. This might be due to workspace at

centre may not be as per their body requirements.

Analysis of data in Table 4 reveals that during last one moth pain lasting for 12 hour was reported highest for upper back (62.00) followed by lower back (57.50), both shoulder (55.00) and both wrist/hand (50.00). Majority of centre based (65.00 per cent) and home based (60.00 per cent) workers reported pain/discomfort in upper back. Self reported pain/discomfort during last 1 month lasting for 12 hours was reported highest for all the body parts by centre based workers as compare to home based workers. This might be due to home based workers have freedom to adjust their workspace as their need in their own resources.

Analysis of data in Table 5 reveals that during last seven days pain lasting for 12 hours was reported highest for lower back (65.00) followed by both shoulder (62.50), upper back (60.00) and both elbow (50.00). Majority of centre based workers reported pain/discomfort in lower back (75.00 per cent) whereas home based workers in both shoulder (60.00 per cent). If we compare the self reported pain/discomfort between home based and centre based workers during last 7 days lasting for 12 hours it was observed that percentage of centre based worker reporting pain/discomfort in all the body parts was higher as compare

Table 6: Distribution of respondents on the basis of Health surveillance

S.No.	Statements	Home Based worker (n=60)	Centre Based worker (n=60)	Total(n=120)
1.	First noticed the problem			
	Before working in field	-	-	-
	While working in field	30 (50.00)	30 (50.00)	60 (50.00)
2.	Take medical treatment	30 (50.00)	30 (50.00)	60 (50.00)
3.	Take treatment from			
	Personal doctor	-	-	-
	Self	30 (50.00)	30 (50.00)	60 (50.00)
	Others	-	-	-
4.	Take treatment for			
	Headache	15(25.00)	60 (100.00)	75 (62.50)
	Body ache	30 (50.00)	30 (50.00)	60 (50.00)
	Irritation in eyes	30 (50.00)	-	30 (25.00)
	Stiffness in hand/joint	-	15 (25.00)	15 (12.50)
	Burning sensation in fingers	-	-	-
	Pain in palm	15 (25.00)	60 (100.00)	75 (62.50)
	Fore arm pain	60 (100.00)	60 (100.00)	120 (100.00)
	Pain in cuff muscles	-	-	-
	Numbness in fingers	-	45 (75.00)	45 (37.50)
	Cut and wounds	30 (50.00)	15 (25.00)	45 (37.50)
	Fractures	-	-	-
	Cough/cold	6 (10.00)	12 (20.00)	18 (15.00)
	Pain in trunk	21 (35.00)	-	21 (17.50)
	Backache	-	-	-
	Shoulder pain	30 (50.00)	24 (60.00)	66(55.00)
5.	Did the Treatment Help?	24 (40.00)	27 (45.00)	51 (42.50)

to home based workers. This might be due to crimpy workspace at chikankari centre. Findings of the study is in disagreement with the findings of Devi and Kiran (2016) who reported chikankari workers have to work almost sitting posture and they experience major pain in buttock and thighs, moderate pain in lower back and mild pain in shoulders.

Data presented in table 6 reveals that half of the home based and centre based workers first noticed problem while working in field (chikankari). With regard to medical treatment, cent per cent workers reported that they were taking self prescribed medical treatment but not from personal doctor or any other. Responses regarding the problems for which they took treatment showed that cent per cent respondents took treatment for fore arm pain followed pain in palm and headache (62.50 per cent), shoulder pain (55.00 per cent), body ache (50.00 per cent), numbness in figure and cut and wound (37.50 per cent), irritation in eyes (25.00 per cent), pain in trunk (17.50 per cent), cough and cold (15.00 per cent), stiffness in hand and joint (12.50 per cent). About half of the home based (40.00 per cent) and centre based (45.00 per cent) workers responded positively for relief from treatment. Results of the health surveillance also supported the findings of the Devi and Kiran (2016) who mentioned chikankari workers reported problem of irritation in eyes.

CONCLUSION

It can be concluded from the above study that chikankari workers work long hours in static sitting posture and perform fine art work which cause major pain and discomfort in their eyes, elbow, wrist, shoulder, neck, lower back, upper back and knees. About fifty per cent workers first noticed this problem while work and taking self treatment for it but treatment is not of any help to them. Musculo-skeletal disorders form over course of time when a worker's musculoskeletal fatigue outruns their bodies' recovery system due to exposure to a number of risk factors. Musculo-skeletal disorders hamper workers health as well the performance. Hence provision of better work station design is required which will reduce ergonomic risk factors like sustained awkward posture and mismatch the work to the capabilities and limitations of the workers. Well designed work station specifically for chikankari workers using their anthropometry and reaches may help them to work in most efficient and productive way and

improve their working posture which in turn can enhance their comfort, efficiency and quality of life during work.

REFERENCES

- Chaffin D.B. and Anderson G. B. J. (1991). Occupational Biomechanics (2nd edition). John Wiley & Sons Inc., New York, 518p.
- Dickinson C.E., Campion K., Foster A. F. and Newman S.J. (1992). Questionnaire development: an examination of the Nordic Musculoskeletal questionnaire. *Applied Ergonomics*, 23: 197-201
- Ilmarinen J. (2002). Physical requirements associated with the work of aging workers in the European Union. *Exp Aging Res.*, 28:7-23.
- kalpna Devi and Kiran U.V. (2016). Prevalence of musculoskeletal disorders (MSDs) among unorganised workers with reference to Lucknow city Uttar Pradesh. *International Journal of Current Research*, 8(03):27933-27938
- Kuorinka I., Jonsson B. and Kilbom A. (1987). Standardised Nordic Questionnaires for the analysis of musculoskeletal symptoms. *Applied Ergonomics*, 18: 233-237
- Lidgren L. (2003). The Bone and joint decade 2000-2010. *Bull World Health Organ.*, 81:629
- NCEUS (2008). Report on condition of work and promotion of livelihoods in unorganised sector. Academic Foundation, 1774
- Onen S.H., Alloui A. and Gross A. (2001). The effects of total sleep deprivation, selective sleep interruption and sleep recovery on pain tolerance thresholds in healthy subjects. *J. Sleep Res.*, 10: 35-42.
- Sinha, S. (2005). A study on marketing of chikankari work in Lucknow city (U.P.0 Unpublished M.Sc. Thesis C.S.A.U.A. &T. Kanpur, Pp. 86-90
- Jafri, S.S.A. (2011). Chikan craft as a subsistence occupation among the muslims of Lucknow. *Islam and Muslim societies-A Social Science Journal*, 4(2): 29-31
- Viestar L., Verhagen E.A. and Oude Hengel K.M. (2013). The relation between body mass index and musculoskeletal symptoms in the working population. *BMC Musculoskelet Disord.*, 14:238.

Received: August 23, 2020

Accepted: December 24, 2020