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PREVALENCE OF CERVICAL RADICULOPATHY IN PERIMENOPAUSAL TRADITIONAL TAILORS

An Observational Study

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Abstract: ***Background:*** *Cervical radiculopathy results from compression or irritation of a cervical nerve root and commonly presents as neck pain radiating to the arm. Tailoring involves prolonged static sitting, repetitive tasks and a forward-bent posture, while the perimenopausal transition brings oestrogen decline, bone loss and more musculoskeletal pain, yet data on cervical radiculopathy in perimenopausal tailors are limited.* ***Objective:*** *To determine the prevalence of cervical radiculopathy among perimenopausal tailors and to describe pain intensity and neck-related disability.* ***Methods:*** *A cross-sectional observational study was carried out over six months in tailoring units in and around Pune. Eighty-six female tailors aged 40–50 years (observed range 40–49), working at least 8 hours a day, with neck pain of at least three months, were enrolled. Radiculopathy status was taken from existing clinical diagnosis; pain was rated on the Visual Analogue Scale (VAS) and disability on the Neck Disability Index (NDI). Data were analysed with the Mann–Whitney U test, chi-square test, Spearman correlation and an exploratory multivariable logistic regression.* ***Results:*** *The mean age was 44.0 ± 2.7 years and the mean tailoring experience 15.4 ± 7.1 years. Cervical radiculopathy was present in 19 of 86 tailors (22.1%; 95% CI 13.9–32.3). The mean NDI score was 18.4 ± 7.2%; disability was mild in 79%, moderate in 12% and absent in 9%, and none was severe. Radiculopathy-positive tailors were older, had longer tailoring experience and pain duration, and had higher VAS and NDI scores (all $p < 0.001$). Prevalence rose from 0% with up to 10 years of experience to 17% at 11–20 years and 52% at 21–30 years. VAS and NDI were very strongly correlated ($\rho = 0.91$, $p < 0.001$). In the exploratory model, tailoring experience (OR 6.9 per SD, $p = 0.006$) and VAS (OR 5.0 per SD, $p = 0.006$) were independent predictors.* ***Conclusion:*** *About one in five symptomatic perimenopausal tailors (22.1%) had cervical radiculopathy. Disability was mostly mild but greater in those with radiculopathy, who also had longer tailoring experience and more intense, longer-standing pain. Because the sample was a convenience sample of symptomatic women with no comparison group, the findings indicate association, not causation. Early ergonomic education and physiotherapy are supported, particularly after about 10 years of work, and larger controlled studies with hormonal data are justified.*

Index Terms *- Cervical radiculopathy, perimenopause, tailors, Neck Disability Index, Visual Analogue Scale, prevalence, occupational health.*

I. INTRODUCTION

Cervical radiculopathy results from compression or irritation of a cervical nerve root as it passes through the neural foramen, and typically presents as neck and shoulder pain radiating into the arm [1]. Its commonest causes are intervertebral disc herniation and degenerative cervical spondylosis. With age the disc loses hydration and the annulus fibrosus weakens, so that disc material may protrude laterally, compress the exiting root and release cytokines that irritate it chemically; in spondylosis, osteophytes and loss of disc height narrow the foramen and compress the root [2]. The C6 and C7 roots are most often affected, accounting for more than 80% of cases [3]. In the most frequently cited epidemiological study, from Rochester, Minnesota, the annual incidence was 107.3 per 100,000 in men and 63.5 per 100,000 in women, and occurrence was highest in the fourth and fifth decades of life [4].

Perimenopause, or the menopausal transition, usually begins in a woman's 40s and may start 8–10 years before the final menstrual period as ovarian oestrogen production falls irregularly [5]. The World Health Organization describes it as the phase after the age of 40 marked by menstrual irregularity and hormonal change, lasting until one year after the final menstrual period [6]. Falling oestradiol uncouples bone remodelling so that resorption exceeds formation, and bone mineral density declines [7]; spinal density falls fastest around the transition, by roughly 1.8–2.5% a year and about 10% overall [8]. Declining oestrogen may also contribute to inflammation in musculoskeletal tissues [9], and the transition appears to be a period in which many women first experience musculoskeletal pain [10].

Neck pain is the second most common musculoskeletal disorder, and its burden is greater in women than in men [11]. Tailoring involves monotonous, highly repetitive tasks such as cutting, assembling, pressing and finishing, usually performed sitting with the head bent forward on non-adjustable furniture for 8–10 hours a day, 5–6 days a week, with little occupational health support [12], [13]. Among garment-factory sewing machine operators in Ethiopia, those who worked without breaks were 5.888 times more likely to have neck pain than those who took adequate breaks, and sitting in one posture for more than two hours was also associated with neck pain [14]. In sewing workers the prevalence and severity of neck pain increase with years in the trade [15].

Perimenopausal tailors may therefore carry two overlapping risks: long-standing occupational loading of the neck and the musculoskeletal effects of the menopausal transition. Despite this, data on cervical radiculopathy in this group are scarce. This study aimed to determine the prevalence of cervical radiculopathy among perimenopausal tailors in and around Pune, to describe their pain intensity (VAS) and neck-related disability (NDI), and to examine how these relate to tailoring experience and pain duration.

II. REVIEW OF LITERATURE

Neck pain is very common in tailors. A cross-sectional study in North Gujarat found neck pain in 91% of tailors and activity limitation in 67%, attributing it to prolonged sitting, forward-bent posture, repetitive sewing, poor ergonomics and lack of awareness of physiotherapy [15]. Musculoskeletal disorders were present in 79.2% of 70 self-employed female tailors in Bengaluru, assessed with the Nordic Musculoskeletal Questionnaire and the Modified Oswestry Disability Index [16]. These studies concern general neck pain or musculoskeletal disorders and did not separate a radicular component.

Cervical radiculopathy has mainly been studied in desk-based occupations. About 50% of information technology professionals with neck pain had cervical radiculopathy [17], and a prevalence of 18.6% was reported in computer professionals in urban Pakistan, associated with poor ergonomics and prolonged work [18]. High prevalence linked to prolonged sitting and poor posture was described in software engineers in Egypt [19], and prolonged occupational posture and improper ergonomics were associated with radiculopathy in teachers [20]. A population-based study in Chennai also reported a significant prevalence of cervical radiculopathy among people with neck pain [21]. In patients with cervical radiculopathy, functional disability has been reported as mild to moderate and higher in women than in men [22]. To our knowledge, none of these reports examined perimenopausal tailors, which is the gap addressed here.

III. MATERIALS AND METHODS

A. Study design and setting

An observational, cross-sectional design was used. The study ran for six months in tailoring units in and around Pune, after clearance from the Institutional Ethics Committee, permission from Tilak Maharashtra Vidyapeeth and permission from the concerned authorities. A total of 86 eligible perimenopausal female tailors took part.

B. Selection criteria

Female tailors aged 40–50 years (the perimenopausal age band; no 50-year-old was found, so participants were aged 40–49 years) working in and around Pune for at least 8 hours a day were included if they had neck pain for three months or longer. The protocol also specified a VAS score of 4 or more; however, enough women meeting this criterion could not be found, so nine women with VAS scores of 2–3 were retained, on the advice of the study guide (a protocol deviation, see Limitations). Women with neurological, musculoskeletal or psychiatric dysfunction, and women with disabilities, were excluded.

C. Outcome measures

Neck Disability Index (NDI): a 10-section self-report questionnaire that measures how neck pain interferes with daily function [23]. Each section is scored 0–5, giving a total of 50 that is converted to a percentage; 0–8% indicates no disability, 10–28% mild, 30–48% moderate, 50–68% severe and 70% or more complete disability. If one section is not applicable, as with driving in women who do not drive, the score is calculated out of 45. The minimum detectable change is 5 points or 10 percentage points. Reported internal consistency is 0.80–0.93 and test–retest reliability ICC 0.86–0.93.

Visual Analogue Scale (VAS): a unidimensional scale on which the participant marks current neck pain from 0 (no pain) to 10 (worst imaginable pain). Scores were grouped as mild (1–3), moderate (4–6) and severe (7–10).

Cervical radiculopathy status: no special test or assessment was performed by the investigators to diagnose radiculopathy. Participants who already had a clinical diagnosis of cervical radiculopathy were classed as positive, and those with neck pain only were classed as negative. The NDI quantified disability and was not used to diagnose radiculopathy.

D. Procedure

The women were approached at their workplaces and informed about cervical radiculopathy and the VAS, and written informed consent was obtained. Participants with a previously diagnosed cervical radiculopathy were identified from their existing clinical diagnosis; the remaining participants had neck pain only. The VAS was recorded and the NDI administered, and each participant's comments were reviewed to check the accuracy and validity of the responses. Age, years of tailoring, duration of pain, hand dominance, and aggravating and relieving factors were recorded on a data collection sheet, and the data were then analysed.

E. Statistical analysis

The collected data were entered and analysed statistically. Continuous variables are presented as mean ± standard deviation, median (interquartile range) and range, and categorical variables as counts and percentages. Prevalence is reported with an exact (Clopper–Pearson) 95% confidence interval. Radiculopathy-positive and -negative tailors were compared with the Mann–Whitney U test for continuous variables and the chi-square test for categorical variables; because several cells had small expected counts, the chi-square p-values are approximate. Relationships between variables were examined with Spearman's rank correlation and simple linear regression. An exploratory multivariable logistic regression, with age, tailoring experience, duration of pain and VAS entered per one standard deviation, was used to identify independent predictors, and discrimination was summarised by the area under the ROC curve (AUC). A p-value below 0.05 was considered significant. Internal consistency of the NDI was assessed with Cronbach's alpha.

IV. RESULTS

The mean age of the 86 participants was 44.0 ± 2.7 years (range 40–49) and the mean tailoring experience 15.4 ± 7.1 years (range 1–28), with 41.9% having 11–20 years of experience. The median duration of pain was 7 months; 91.9% had pain for up to 12 months and 8.1% for longer. Nearly all participants (98.8%) were right-hand dominant. Pain intensity was moderate (VAS 4–6) in 77.9%, mild in 10.5% and severe (VAS 7–10) in 11.6% (Tables 1 and 2). The commonest aggravating factor was neck bending or a forward-bent posture (72.1%), followed by prolonged work without breaks (20%), prolonged sitting (12%) and overhead or reaching activities (8%); rest (34%), lying on the back (26%) and a hot pack (20%) were the commonest relieving measures, and 17% obtained relief from a supportive chair or back support.

Table 1: descriptive statistics of the study variables (n = 86)

Variable	Mean ± SD	Median (IQR)	Range
Age (years)	44.0 ± 2.7	44.0 (41.0–46.0)	40–49
Tailoring experience (years)	15.4 ± 7.1	15.5 (10.0–22.0)	1–28
Duration of pain (months)	8.7 ± 7.8	7.0 (4.0–12.0)	3–60
VAS (0–10)	4.8 ± 1.4	4.5 (4.0–6.0)	2–8
NDI raw score (/50)	8.7 ± 3.3	9.0 (6.0–11.0)	2–15
NDI score (%)	18.4 ± 7.2	18.0 (13.3–24.3)	4–33

Table 2: distribution of participants by demographic and clinical characteristics (n = 86)

Variable	Category	n (%)
Age group (years)	40–42	30 (34.9)
	43–45	26 (30.2)
	46–49	30 (34.9)
Tailoring experience	≤10 years	25 (29.1)
	11–20 years	36 (41.9)
	21–30 years	25 (29.1)
Duration of pain	3–6 months	38 (44.2)
	7–12 months	41 (47.7)
	>12 months	7 (8.1)
Hand dominance	Right	85 (98.8)
	Left	1 (1.2)
VAS category	Mild (1–3)	9 (10.5)
	Moderate (4–6)	67 (77.9)
	Severe (7–10)	10 (11.6)

A. Prevalence of cervical radiculopathy

Of the 86 tailors, 19 were positive for cervical radiculopathy, a prevalence of 22.1% (95% CI 13.9–32.3%); the remaining 67 (77.9%) had non-radicular, dull aching neck pain (Table 3, Fig. 1). All 19 positive participants reported pain radiating from the neck to the right upper limb.

Table 3: Prevalence of Cervical Radiculopathy in Perimenopausal Tailors

Cervical Radiculopathy	n	Prevalence % (95% CI)
Positive	19	22.1 (13.9-32.3)
Negative	67	77.9 (67.7-86.1)
Total	86	100

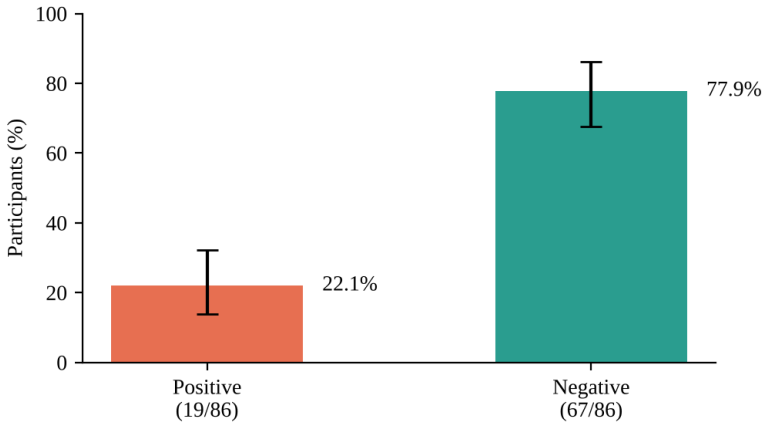

Fig. 1: prevalence of cervical radiculopathy with exact 95% confidence intervals

B. Neck disability

The mean NDI score was 18.4 ± 7.2% (median 18%; range 4–33%), equivalent to a raw score of 8.7 ± 3.3 out of 50. Disability was mild in 79.1%, absent in 9.3% and moderate in 11.6%; none had severe or complete disability (Table 4). Pain intensity (mean 1.50), work (1.15) and reading (1.08) were the most affected sections, and headaches (0.45) and sleeping (0.48) the least (Table 5). All participants reported at least some neck pain and half rated it as moderate. Internal consistency of the nine completely answered sections was good (Cronbach's α = 0.83).

Table 4: grading of disability on the Neck Disability Index (n = 86)

Disability category	n	%
No disability (0–8%)	8	9.3
Mild (10–28%)	68	79.1
Moderate (30–48%)	10	11.6
Severe (50–68%)	0	0.0
Complete (≥70%)	0	0.0

Table 5: section-wise NDI scores (n = 86)

NDI section	n	Mean ± SD	Median	Score ≥1 (%)	Score ≥2 (%)
Pain intensity	86	1.50 ± 0.50	1.5	100.0	50.0
Personal care	86	0.86 ± 0.56	1.0	76.7	9.3
Lifting	86	0.92 ± 0.60	1.0	77.9	14.0
Reading	86	1.08 ± 0.31	1.0	98.8	9.3
Headaches	86	0.45 ± 0.50	0.0	45.3	0.0
Concentration	86	0.95 ± 0.59	1.0	82.6	10.5
Work	86	1.15 ± 0.73	1.0	84.9	25.6
Driving*	43	0.63 ± 0.58	1.0	58.1	4.7
Sleeping	86	0.48 ± 0.65	0.0	39.5	8.1
Recreation	86	0.95 ± 0.40	1.0	89.5	5.8

*Left blank by participants who do not drive. No participant scored above 3 in any section.

C. Radiculopathy-positive versus radiculopathy-negative tailors

Radiculopathy-positive tailors were significantly older (46.3 vs 43.4 years), had tailored for longer (22.7 vs 13.3 years), had had pain for longer (15.3 vs 6.9 months), and had higher VAS (5.9 vs 4.5) and NDI scores (25.8% vs 16.3%) (all $p < 0.001$; Table 6). Among NDI sections, the groups differed significantly in pain intensity, lifting, reading, concentration, work, sleeping and recreation; the difference was largest for sleeping (1.37 vs 0.22, $p < 0.001$). Personal care, headaches and driving did not differ significantly.

Table 6: comparison of study variables between radiculopathy-positive and -negative tailors (Mann–Whitney U test)

Variable	CR positive (n = 19) Mean ± SD	CR negative (n = 67) Mean ± SD	U	p
Age (years)	46.26 ± 1.28	43.37 ± 2.61	1039.5	<0.001
Tailoring experience (years)	22.68 ± 3.67	13.30 ± 6.49	1128.0	<0.001
Duration of pain (months)	15.26 ± 11.59	6.85 ± 5.01	1117.0	<0.001
VAS (0–10)	5.89 ± 0.81	4.46 ± 1.33	1044.5	<0.001
NDI raw score (/50)	11.79 ± 1.58	7.78 ± 3.15	1098.5	<0.001

Variable	CR positive (n = 19) Mean ± SD	CR negative (n = 67) Mean ± SD	U	p
NDI (%)	25.79 ± 3.66	16.26 ± 6.60	1146.0	<0.001
Pain intensity	2.00 ± 0.00	1.36 ± 0.48	1045.0	<0.001
Personal care	1.05 ± 0.23	0.81 ± 0.61	783.5	0.064
Lifting	1.32 ± 0.48	0.81 ± 0.58	904.0	0.001
Reading	1.26 ± 0.45	1.03 ± 0.24	782.5	0.004
Headaches	0.53 ± 0.51	0.43 ± 0.50	696.0	0.476
Concentration	1.26 ± 0.56	0.87 ± 0.57	836.0	0.008
Work	1.68 ± 0.67	1.00 ± 0.67	952.5	<0.001
Driving	1.00 ± 0.00	0.60 ± 0.59	84.0	0.203
Sleeping	1.37 ± 0.50	0.22 ± 0.42	1183.0	<0.001
Recreation	1.16 ± 0.37	0.90 ± 0.39	790.0	0.013

CR = cervical radiculopathy. Section scores are on a 0–5 scale. $p < 0.05$ is significant.

The proportion of radiculopathy-positive tailors rose steadily with tailoring experience (0% with up to 10 years, 17% with 11–20 years and 52% with 21–30 years; $p < 0.001$; Table 7, Fig. 2) and with duration of pain (0% at 3–6 months, 34% at 7–12 months and 71% beyond 12 months; $p < 0.001$). No tailor aged 40–42 years was positive, compared with 19% of those aged 43–45 and 47% of those aged 46–49 years. All 19 positive participants had moderate or severe pain (VAS ≥ 4) and NDI scores of 20% or more, and 6 of the 10 participants with moderate disability were radiculopathy-positive (Fig. 3).

Table 7: occurrence of cervical radiculopathy across subgroups

Variable	Category	CR +ve (n)	CR −ve (n)	% positive in category	p
Age group (years)	40–42	0	30	0	<0.001
	43–45	5	21	19	
	46–49	14	16	47	
Tailoring experience	≤10 years	0	25	0	<0.001
	11–20 years	6	30	17	
	21–30 years	13	12	52	
Duration of pain	3–6 months	0	38	0	<0.001
	7–12 months	14	27	34	
	>12 months	5	2	71	
VAS category	Mild (1–3)	0	9	0	0.028
	Moderate (4–6)	14	53	21	
	Severe (7–10)	5	5	50	
NDI category	No disability	0	8	0	0.004
	Mild	13	55	19	
	Moderate	6	4	60	

Chi-square test; several cells have small expected counts, so p-values are approximate.

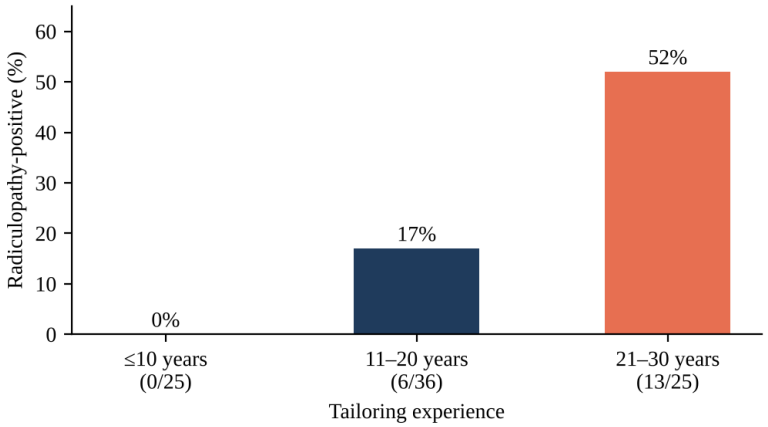

Fig. 2: prevalence of cervical radiculopathy by tailoring experience

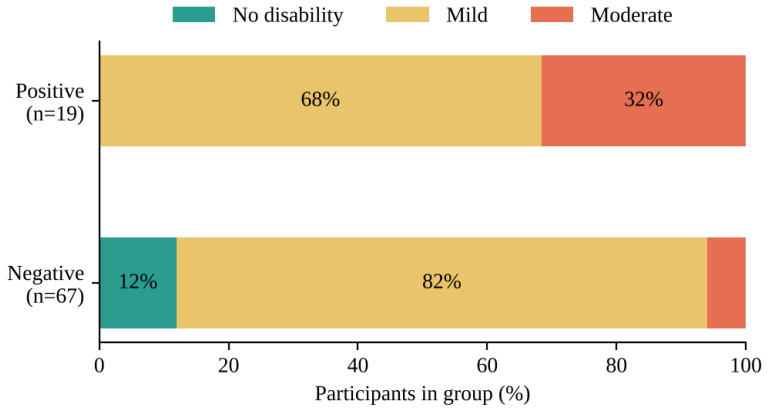

Fig. 3: NDI disability grade among radiculopathy-negative and -positive tailors

D. Correlation and predictors

VAS showed a very strong positive correlation with the NDI score ($\rho = 0.91$, $p < 0.001$); on linear regression each one-point rise in VAS was associated with a 4.8-point rise in NDI percentage ($R^2 = 0.81$). Duration of pain correlated moderately with NDI ($\rho = 0.54$) and VAS ($\rho = 0.51$), and tailoring experience correlated moderately with age ($\rho = 0.55$) and pain duration ($\rho = 0.53$) and weakly with NDI ($\rho = 0.36$) (Table 8). In the multivariable logistic regression, longer tailoring experience (OR 6.9 per SD, $p = 0.006$) and higher VAS (OR 5.0 per SD, $p = 0.006$) remained independent predictors, whereas age and duration of pain did not (Table 9). The model rests on only 19 positive cases, so its estimates are imprecise and exploratory. Tailoring experience, duration of pain and NDI each separated positive from negative participants well on ROC analysis (AUC 0.89, 0.88 and 0.90 respectively).

Table 8: Spearman correlation coefficients between study variables

	Age	Tailoring (years)	Pain duration	VAS	NDI %
Age	—	0.55**	0.42**	0.21*	0.30*
Tailoring (years)	0.55**	—	0.53**	0.25*	0.36**
Pain duration	0.42**	0.53**	—	0.51**	0.54**
VAS	0.21*	0.25*	0.51**	—	0.91**
NDI %	0.30*	0.36**	0.54**	0.91**	—

p < 0.05; * p < 0.001.

Table 9: multivariable logistic regression for cervical radiculopathy

Predictor (per 1 SD increase)	Odds ratio	95% CI	p
Age (SD 2.7 years)	1.74	0.57–5.32	0.333
Tailoring experience (SD 7.1 years)	6.86	1.71–27.45	0.006
Duration of pain (SD 7.8 months)	1.87	0.62–5.67	0.266
VAS (SD 1.4)	5.02	1.57–16.02	0.006

Exploratory model: 19 events and 4 predictors, so confidence intervals are wide.

V. DISCUSSION

This study estimated the prevalence of cervical radiculopathy in 86 symptomatic perimenopausal tailors aged 40–49 years in and around Pune and described their pain and neck-related disability. Cervical radiculopathy was present in 19 (22.1%; 95% CI 13.9–32.3%). Disability was mostly mild but significantly greater in radiculopathy-positive tailors, who were also older, had worked longer and had longer-standing and more intense pain. Years of tailoring and VAS were independent predictors in the multivariable model.

The prevalence of about one in five is close to the 18.6% reported in computer professionals [18], and our confidence interval includes that value, but it is well below the roughly 50% reported in information technology professionals with neck pain [17]. High prevalence has also been described in software engineers [19] and in a population-based study in Chennai [21]. Differences may arise from occupation, sex, age, the method of diagnosing radiculopathy and whether only people with neck pain were included; tailors also work with the arm supported at table height, unlike desk-based computer workers. Because radiculopathy status was taken from existing diagnoses in a convenience sample, 22.1% describes the share of diagnosed cases in this sample and cannot be generalised to all tailors.

Neck and musculoskeletal pain are very common in tailors: neck pain affected 91% in North Gujarat, with activity limitation in 67% [15], and musculoskeletal disorders affected 79.2% of female tailors in Bengaluru [16]. All our participants had neck pain of three months or longer and about one in five had a radicular component, so most pain was mechanical and a smaller share involved the nerve root. Earlier tailor studies did not report this radicular fraction, but the number of tailors screened was not recorded, so the overall prevalence of neck pain cannot be estimated.

Radiculopathy rose with years of tailoring (0% with up to 10 years, 17% with 11–20 years and 52% with 21–30 years), and experience remained an independent predictor. This agrees with the link between long working years, forward-bent posture and repetitive sewing in tailors [15] and with the association of prolonged working posture and poor ergonomics with radiculopathy in teachers [20]. Cervical disc herniation and spondylosis are the commonest causes of radiculopathy [24], and loss of cervical lordosis has been associated with greater disc degeneration in people with neck pain [25], which could provide a route from sustained forward-bent posture to nerve-root compression, although disc degeneration was not assessed here. Age and experience were correlated ($\rho = 0.55$), the model had only 19 cases, the design cannot show that exposure preceded disease, and a healthy-worker effect may have lowered the apparent prevalence in the longest-serving group.

All 19 radiculopathy-positive tailors had pain for 7 months or longer, and 71% of those with pain beyond 12 months were positive. Radicular symptoms may appear as mechanical neck pain persists and nerve-root irritation develops, but duration was self-reported and was not an independent predictor once experience and VAS were considered.

Disability was mostly mild (mean NDI 18.4%) and higher in radiculopathy-positive tailors (25.8% vs 16.3%), in keeping with mild-to-moderate disability reported in cervical radiculopathy [22] and with activity limitation in tailors [15]. Pain intensity, work and reading were most affected, which fits the forward head posture of close-up sewing, and tailors probably keep working through pain because it is their livelihood. The between-group NDI difference of about 9.5 points is close to the minimum detectable change of 10 percentage points, so its clinical meaning needs care. Sleeping showed the largest between-group difference (1.37 vs 0.22), followed by work (1.68 vs 1.00). Radicular arm pain is often aggravated by lying positions, which may disturb sleep, and arm and hand symptoms interfere directly with sewing; these explanations rest on clinical reasoning, since sleep was not separately assessed and no correction was made for multiple testing.

All participants were aged 40–49 years and were treated as perimenopausal. Oestrogen decline has musculoskeletal effects [9], [10] and perimenopausal bone loss [7] could add to occupational loading, and disability has been reported to be higher in women with radiculopathy [22]. This study cannot test that hypothesis: there was no comparison group, no hormonal or menstrual data, and perimenopausal status rests on age alone, so hormonal change is offered only as a possible contributor for future research.

Neck bending or a forward-bent neck was the most common aggravating factor (72.1%), and rest, lying on the back and back-supported sitting relieved pain. This is consistent with reports of poor ergonomics and musculoskeletal risk in tailors and sewing machine operators [15], [12], [13]. Unloading the cervical spine plausibly reduces nerve-root compression, which supports ergonomic advice, scheduled breaks and posture education. These factors were self-reported and grouped by the investigator, and hours worked, breaks and workstation design were not measured. VAS and NDI were very strongly correlated ($\rho = 0.91$), but the correlation is inflated because pain intensity is itself one NDI section; the NDI measures severity, not the presence of radiculopathy. Radiating pain was right-sided in all positive cases, matching the dominant sewing hand.

A. Clinical implications

Tailors with more than 10 years of experience and persistent neck pain may benefit from regular musculoskeletal evaluation. Ergonomic education on neck posture, workstation set-up and scheduled breaks, together with physiotherapy focused on postural correction, therapeutic exercise and activity modification, may help reduce occupational strain. The VAS and NDI can be used to monitor pain and disability, and attention should be given to work limitation and sleep disturbance in tailors with cervical radiculopathy.

B. Limitations

(1) The cross-sectional design cannot establish a temporal relationship between tailoring and radiculopathy. (2) The sample was a convenience sample from one region, restricted to women aged 40–49 years with neck pain, with no control group and no sample-size calculation. (3) Radiculopathy status was taken from existing clinical diagnosis and no diagnostic assessment was performed by the investigators, so undiagnosed radiculopathy among the neck-pain-only group cannot be excluded and the prevalence may be underestimated. (4) The small number of cases (n = 19) limits the multivariable analysis. (5) The protocol VAS criterion (≥4) was not met by nine participants (VAS 2–3), who were retained because eligible women could not be found; all nine were radiculopathy-negative, so between-group pain comparisons may be partly affected. (6) No hormonal, menstrual, ergonomic (hours, breaks, workstation) or comorbidity data were collected, so confounding by age, bone health and work conditions cannot be excluded.

C. Future scope

Later studies should use larger samples from different regions, compare premenopausal, perimenopausal and postmenopausal women, measure occupational factors such as working hours, neck flexion, workstation ergonomics and breaks, follow tailors longitudinally, and test the effect of physiotherapy, ergonomic education and postural correction on neck pain and disability.

VI. CONCLUSION

About one in five symptomatic perimenopausal tailors in this sample (22.1%) had cervical radiculopathy. Disability was mostly mild but significantly greater in those with radiculopathy, who also had longer tailoring experience and longer-standing, more intense pain; years of tailoring and pain intensity were independent predictors in an exploratory model. These findings support early ergonomic and physiotherapy intervention in tailors, particularly after about 10 years of work, and justify larger studies with a comparison group and hormonal data.

VIII. ACKNOWLEDGMENT

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REFERENCES

[1] Caridi JM, Pumberger M, Hughes AP. Cervical radiculopathy: a review. HSS Journal®. 2011 Oct;7(3):265-72.

[2] Kim KT, Kim YB. Cervical radiculopathy due to cervical degenerative diseases: anatomy, diagnosis and treatment. Journal of Korean Neurosurgical Society. 2010 Dec 31;48(6):473.

[3] Trăistaru RM, Kamal KC, Kamal D, Tache-Codreanu DL, Kamal AM. Assessment and Rehabilitation in Cervical Radiculopathy—Efficacy of Structured Program with or Without Neurotrophic Agents. Life. 2025 Oct 30;15(11):1690.

[4] Iyer S, Kim HJ. Cervical radiculopathy. Current reviews in musculoskeletal medicine. 2016 Sep;9(3):272-80.

[5] Nicula R, Costin N. Management of endometrial modifications in perimenopausal women. Clujul medical. 2015 Apr 15;88(2):101.

[6] Du Y. Perimenopause and menopause-Symptoms and treatments. TNS. 2023 Dec 4;17(1):151-6.

[7] Feng X, Xiao W, Zhang R. A threshold of β-CTX (0.3 ng/mL) with low estradiol identifies high-risk perimenopausal women for bone loss: a cross-sectional study. Frontiers in endocrinology. 2025 Nov 20;16:1709858.

[8] Jugulytė N, Bartkevičienė D. The role of follicle-stimulating hormone in bone loss during menopause transition: a narrative review. Endocrines. 2025 Nov 5;6(4):54.

[9] Yang JL, Hodara E, Sriprasert I, Shoupe D, Stanczyk FZ. Estrogen deficiency in the menopause and the role of hormone therapy: integrating the findings of basic science research with clinical trials. Menopause (New York, NY). 2024 Jul 30;31(10):926.

[10] Kruse C, McKechnie T, Dworsky-Fried J, Sardar A, Hacker G, Rattansi S, Fang E, Sprague S, Shea AK, Bhandari M. Musculoskeletal manifestations of perimenopause: a systematic review and meta-analysis of 93,021 women. JBJS Open Access. 2026 Jan 13;11(1):e25-00254.

[11] Kazeminasab S, Nejadghaderi SA, Amiri P, Pourfathi H, Araj-Khodaei M, Sullman MJ, Kolahi AA, Safiri S. Neck pain: global epidemiology, trends and risk factors. BMC musculoskeletal disorders. 2022 Jan 3;23(1):26.

[12] Shah SM, Joshi RK. Risk Assessment Of Work-Related Musculoskeletal Disorders Among Tailors In Vadodara City. Indian Journal of Physiotherapy and Occupational Therapy. 2024 Jan 1;18(1):91.

[13] Dattani MN. Prevalence of work-related musculoskeletal discomfort among sewing machine operators. a300-a304.

[14] Biadgo GH, Tsegay GS, Mohammednur SA, Gebremeskel BF. Burden of neck pain and associated factors among sewing machine operators of garment factories in Mekelle City, northern part of Ethiopia, 2018, a cross-sectional study. Safety and Health at Work. 2021 Mar 1;12(1):51-6.

[15] Patel NV, Patel RA. Prevalence Of Neck Pain Among Tailors In North Gujarat-A Cross Sectional Study. International Journal of Scientific Research. 2021 Apr 1:49-51.

[16] Smrithi A, Pruthviraj R. Prevalence of Musculoskeletal Disorders among Self-Employed Female Tailors in Selected Places of Bengaluru. Indian Journal of Physiotherapy & Occupational Therapy. 2023 Apr 1;17(2).

[17] Joseph R, Roy F. Prevalence of cervical radiculopathy among information technology professionals with neck pain. Indian Journal of Pain. 2023 Sep 1;37(3):169-72.

[18] Akhlaq R, Khan FW. Prevalence and Clinical Characteristics of Cervical Radiculopathy among Computer Professionals in Urban Pakistan: A Cross-Sectional Study: Cervical Radiculopathy in Computer Professionals. Allied Medical Research Journal. 2025 Jan 30;3(01):100-8.

[19] Rehab NI, Nour LS, Fahmy E, Heneidy S, Zakaria HM, Marzouk MH. Prevalence and risk factors associated with cervical radiculopathy among software engineers in Egypt: a cross-sectional study. The Egyptian Journal of Neurology, Psychiatry and Neurosurgery. 2026 Feb 13;62(1):31.

[20] Atif MM, Tahir A, Mazhar T, Bakht K, Dilshad M, Akhtar T. Prevalence of Cervical Radiculopathy Among Teachers: Cervical Radiculopathy Among Teachers. The Healer Journal of Physiotherapy and Rehabilitation Sciences. 2023 Feb 28;3(2):390-7.

[21] Miap m. Investigating cervical radiculopathy in Chennai, India: a population- based research study. South Eastern

European Journal of Public Health.2024:1453-61.

[22] Singh S, Sathe PK, Sathe A, Kumar DV. Evaluation of functional disability in cervical radiculopathy patients. Indian Journal of Health Sciences and Biomedical Research kleu. 2023 Jan 1;16(1):103-10.

[23] Vernon H, Mior S. The Neck Disability Index: a study of reliability and validity. Journal of manipulative and physiological therapeutics. 1991 Sep 1;14(7):409-15.

[24] Kang KC, Lee HS, Lee JH. Cervical radiculopathy focus on characteristics and differential diagnosis. Asian spine journal. 2020 Dec 22;14(6):921.

[25] Lee HJ, Jeon DG, Park JH. Correlation between kinematic sagittal parameters of the cervical lordosis or head posture and disc degeneration in patients with posterior neck pain. Open Medicine. 2021 Jan 22;16(1):161-8.

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