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ORIGINAL ARTICLE

Characteristics of neck and shoulder pain (called *katakori* in Japanese) among members of the nursing staff

Yoichi Iizuka · Tetsuya Shinozaki · Tsutomu Kobayashi · Satoshi Tsutsumi · Toshihisa Osawa · Tsuyoshi Ara · Haku Iizuka · Kenji Takagishi

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Abstract
Background The characteristics of neck and shoulder pain (NSP), called *katakori* in Japanese, have not been well documented to date. The aim of this study was to clarify the characteristics of NSP through a questionnaire survey of members of the nursing staff.
Methods The study population consisted of 484 nursing staff members of Gunma University Hospital in Japan. The questionnaire involved information on age, body mass index (BMI), gender, psychological stress at work, musculoskeletal pain at other anatomic sites (elbow/wrist, lumbar and knee), smoking history, and hypertension. If subjects had NSP, they were asked about any coexisting symptoms, the utilization of health services, and the precise location of NSP.
Results The total study population included 393 persons after 91 persons were excluded for various reasons. The point prevalence of NSP was 68.1% (268 of 393). Age, BMI, smoking history, and hypertension showed no significant trend for the prevalence of NSP in the univariate analyses. The occurrence of NSP was significantly higher in subjects with psychological stress, elbow/wrist pain, lumbar pain, and knee pain, respectively. A multivariate logistic regression analysis showed that gender, psychological stress, elbow/wrist pain, and lumbar pain were significantly associated with the occurrence of NSP. One hundred fifty-eight of those with NSP (58.9%) reported coexisting symptoms, and the most common was headache. Fifty-seven (21.2%) of the subjects with NSP had consulted medical or health practitioners, and bone setting was the most common service provider. The most common area of NSP was the superior part of the trapezius.
Conclusions This study confirmed that NSP, *katakori* in Japanese, is a prevalent problem in a nursing staff, and several factors associated with NSP were identified.

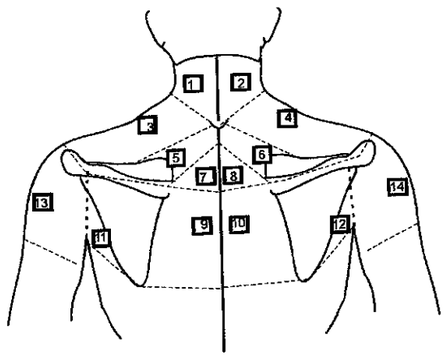

Fig. 1 Anatomic regions of NSP were defined as follows: *1, 2* site of neck, *3, 4* superior part of trapezius, *5, 6* superomedial part of scapula, *7, 8* midmedial part of scapula, *9, 10* inferomedial part of scapula, *11, 12* lateral part of scapula, *13, 14* posterior part of deltoid. This figure was modified with permission from Shinozaki et al. [21]

Table 1 First statistical analysis

	NSP	No NSP	*P*
Age (years)	33.7 ± 9.8[a]	33.8 ± 11.0[a]	0.91*
Gender (female/male)	258/10	112/13	0.01**
BMI (kg/m^2)	20.6 ± 2.4[a]	20.3 ± 2.2[a]	0.30*
Psychological stress	252	105	0.001**
Elbow/wrist pain	44	8	0.01**
Lumbar pain	161	51	0.0004**
Knee pain	51	12	0.01**
Hypertension	6	1	0.43***
Smoking history	29	13	0.89**

NSP neck and shoulder pain, *BMI* body mass index
[a] Mean ± SD
* *P* by Student's *t* test, ** chi-squared test, *** Fisher's exact probability test

Table 2 Second statistical analysis

Multivariate logistic regression ($R^2 = 0.074$, $n = 393$)			
	P	Odds ratio	95% CI
Age	0.41	0.99	0.96–1.01
Gender	0.01	3.04	1.24–7.46
Psychological stress	0.004	2.83	1.37–5.83
Elbow/wrist pain	0.02	2.56	1.11–5.87
Lumbar pain	0.006	1.89	1.19–2.99
Knee pain	0.13	1.71	0.84–3.49

CI confidence interval

Table 3 Coexisting symptoms somewhere other than the neck and shoulder in subjects with NSP

Symptom	*n* (%)
Headache	138 (51.4)
Lumbar pain	33 (12.3)
Nausea	30 (11.1)
Vertigo/dizziness	20 (7.4)
Tinnitus	15 (5.5)
Feeling of fatigue	4 (1.4)
Ocular pain	4 (1.4)
Dorsal pain	2 (0.7)
Arm pain	1 (0.3)

NSP neck and shoulder pain

Table 4 Utilization of health services by subjects with NSP

Type of health service	*n* (%)
Bone setting	26 (9.7)
Medical clinic	15 (5.5)
Acupuncture	12 (4.4)
Manipulation	9 (3.3)
Massage	7 (2.6)
Esthetic clinic	2 (0.7)
Chiropractic	2 (0.7)

NSP neck and shoulder pain

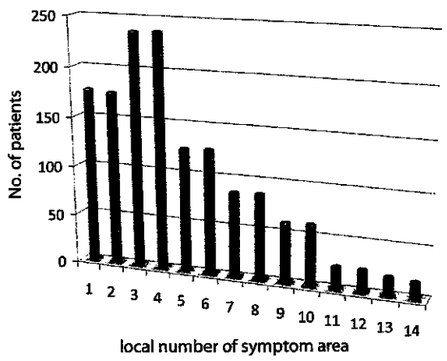

Fig. 2 The distribution of the areas of NSP. Respondents with NSP could select the pain site from among the predefined anatomic regions of NSP (show Fig. 1). The most common area was the upper part of the trapezius muscles