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Prevalence of non-specific low back pain among school teachers in Kerala

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Abstract

Background

Non-specific low back pain is when it isn't possible to identify a specific disease or structural reason to explain the pain. It is well recognized that the teachers make up an elite group where low back pain (LBP) appears to be highly prevalent. It causes numerous sick days, functional impairment and early retirement. It is also difficult in terms of medical expenses, personal distress and job loss.

Aim

To conduct a survey on the prevalence and severity of non-specific LBP among school teachers in Kerala.

Setting

The study was conducted among different school teachers in Kerala.

Methods

The study was conducted among school teachers below 10th grade in Kerala. It consisted of 3 parts: The first part included demographic and job-related data like name, email, age, gender, district, height, weight, level of education, marital status, no of children, mode of transport, travelling distance, level of teaching, subject teaching, type of school, frequent exerciser, years of experience in teaching and teaching hours per day. Second part included Oswestry low back pain questionnaire and the third part included Numerical pain rating scale (NPRS). Once the responses of all the participants were collected, it was analysed and all the data were expressed as frequency and percentage.

Results

Depending on the inclusion criteria, a total of 242 participants took part in the survey. Their mean age was 40.5 ± 8.7 years. Results were obtained as 200 (83%) of these school teachers are suffering from non-specific LBP with 80.7% of the males and 82.8% of the females are affected. The questionnaire reveals 49.2% of the teachers are having mild disability. NPRS shows 64% of teachers are suffering from moderate pain. Considering the various BMI categories, the most affected group were those with BMI<18.5. Depending on age, level of teaching, years of experience, working hours per day, subjects teaching, type of school, frequent exercising, mode of transport and marital status the findings were 46-60 age group, LP teachers, 22-31 years, 6-10 hours/day, arts teachers, government school teachers, frequent exerciser, two wheelers and unmarried teachers have more prevalence of LBP.

Conclusion

The study reveals there is a high prevalence of LBP among school teachers. The various demographic factors contributing to LBP were advancing age, female gender and travelling by 2-wheeler. Normal or reduced BMI and frequent exercising had no significant reduction in LBP. Years of experience and continues working hours were found to be the other major occupational risk factors. They should be advised on preventive measures to avoid further complications.

Keywords: LBP, school teachers, prevalence, continuous working hours, oswestry low back pain questionnaire, numerical pain rating scale

Introduction

Pain between the buttocks and the lower edge of the ribs is referred to as low back pain (LBP) also known as 'lumbago' [1]. LBP is usually divided into categories that are specific and non-specific. 90% of LBP patients are non-specific LBP, which lacks a known etiology [5]. LBP is one of the most widespread musculoskeletal illnesses that affects the working population, including teachers and is a primary cause of disability in both developed and developing nations [6]. Teachers are under increasing pressure due to changes in the education and school systems, which puts them at risk for stress and ergonomic hazards that might harm their physical health, including musculoskeletal problems. Teaching is a demanding profession that calls for a great deal of focus, both mental and physical, as it involves not only teaching but also planning lessons at home, grading assignments, preparing for and correcting tests, and perhaps being requested to assist with other tasks [8].

LBP development is also significantly influenced by variables related to sociodemographic traits, such as sex, age, education level, experience, and lifestyle choices, such smoking and physical activity. Furthermore, studies find that LBP is linked to psychosocial variables such as depression, anxiety at work, job dissatisfaction, and sleep disruption [8]. As a result, teachers deal with a variety of issues pertaining to their physical and mental health, some of which may be connected to their line of work or other professional circumstances [7].

Methodology

a. **Study design:** Cross sectional study

b. **Study setting:** The study was conducted among school teachers in Kerala.

c. **Sample size:** 242 subjects

d. Sampling method: Purposive sampling

e. Study duration: 3 months

f. Inclusion criteria
- Age: 25 to 60 years
- Occupation: Teachers teaching from LKG to standard 10.
- Male and female subjects willing to participate in the study.
- Teachers with minimum 2 years of experience.

g. Exclusion criteria
- Subjects with specific pathologies like fracture, inflammation, osteoporosis etc in the low back.
- Subjects having injuries/surgeries in past 6 months.
- Any other neurological or musculoskeletal conditions.

h. Outcome measures

Oswestry low back pain questionnaire and Numerical pain rating scale (NPRS).

Procedure

A total of 242 participants were selected based on the inclusion criteria for the study. Consent from the Scientific Research Council (SRC) and the head of the department was obtained before the data collection. The purpose of the study was explained to all participants. The survey was conducted in a Google form in English language. All their queries and concerns were addressed before administering the questionnaire.

The survey consists of 3 parts: The first part included demographic and job-related data like name, email, age, gender, district, height, weight, level of education, marital status, no of children, mode of transport, travelling distance, level of teaching, subject teaching, type of school, frequent exerciser, years of experience in teaching and teaching hours per day. Second part included the questionnaire and the third part included the scale. Once the responses of all the participants were collected, it was analysed and all the data were expressed as frequency and percentage.

Data Analysis and Results

A total of 242 teachers participated in this study. Teacher's age ranged from 25 to 58 years. The mean age was 40.5 ± 8.7 years. From 242 participants who take part in this survey, 200 were suffering from low back pain with a prevalence of 83%.

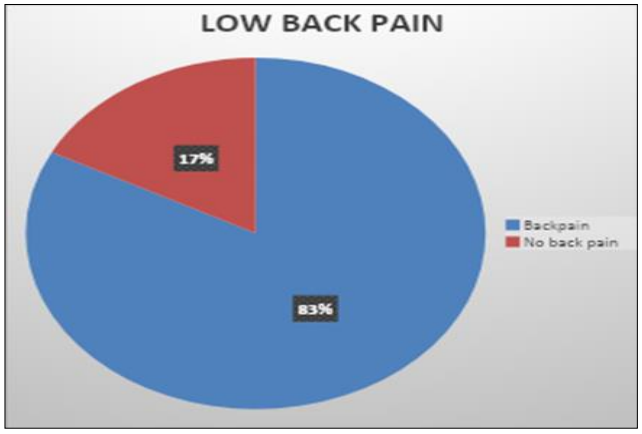

Fig 1: The graph shows 83% of the total population are suffering from low back pain while the 17% are not affected.

Table 1: Based on Oswestry low back pain questionnaire

Score	Disability level	No. of teachers	%
0-4	No disability	41	16.9
5-14	Mild disability	119	49.2
15-24	Moderate disability	67	27.7
25-34	Severe disability	12	4.9
35-50	Completely disabled	3	1.3

Table 2: Based on NPRS

Classification	No. of teachers	%
Mild	49	24.5
Moderate	128	64
Severe	23	11.5

Table 3: Based on age category

Sl. No	Age (in years)	Total no.	Lbp	%	No lbp	%
1	25-35	72	58	80.5	14	19.5
2	36-45	97	80	82.4	17	17.6
3	46-60	73	62	84.9	11	15.1

Table 4: Based on gender

Sl. No	Gender	Total no.	Lbp	%	No lbp	%
1	Males	26	21	80.7	5	19.3
2	Females	216	179	82.8	37	17.2

Table 5: Based on BMI

Sl. No	Bmi	Classification	Total	Lbp	%	No lbp	%
1	<18.5	Underweight	18	16	88.8	2	11.2
2	18.5-24.9	Normal	100	83	83	17	17
3	25-29.9	Overweight	84	70	83.3	14	16.7
4	≥30	Obese	40	31	77.5	9	22.5

Table 6: Based on years of experience

Sl. No	Years of experience	Total	Lbp	%	No lbp	%
1	2-11	116	96	82.7	20	17.3
2	12-21	89	71	79.7	18	20.3
3	22-31	37	33	89.1	4	10.9

Table 7: Based on working hours per day

Sl. No	Working hours/day	Total	Lbp	%	No lbp	%
1	2-6	190	156	82.1	34	17.6
2	6-10	52	44	84.6	8	15.4

Table 8: Based on level of teaching

Sl.no	Level of teaching	Total	Lbp	%	No lbp	%
1	Kg	28	24	85.7	4	14.3
2	Lp	42	41	97.6	1	2.4
3	Up	66	55	83.3	11	16.7
4	Hs	106	80	75.4	26	24.6

Table 9: Based on frequent exercising

Sl. No	Exerciser	Total	Lbp	%	No lbp	%
1	Yes	33	30	90.9	3	9.1
2	No	209	170	81.3	39	18.7

Table 10: Based on mode of transport

Sl.no	Mode of transport	Total	Lbp	%	No lbp	%
1	Walking	26	21	80.7	5	19.3
2	2-wheeler	96	87	90.6	9	9.4
3	Car	39	27	69.2	12	30.8
4	Bus	81	65	80.2	16	19.8

Discussion

Teachers are highly prevalent to LBP. A number of things, including bad posture and extended sitting while grading homework and planning classes, can cause low back pain in teachers. The total prevalence of LBP was 83%. Two scales were used in the study: Oswestry low back pain questionnaire and Numerical Pain Rating Scale (NPRS). The questionnaire reveals majority of the teachers (49.2%) are having mild disability. In a study conducted by Abdulelah H Almansour *et al*. on LBP prevalence and disability, 64.63% teachers reported minimal disability. In our study, NPRS scale shows 64% teachers have moderate pain which accounts for majority number.

The survey shows teachers in the age category 46-60 are having 84.9% prevalence which reveals as the age advances LBP also increases. Considering the gender, females are more prevalent than males with a prevalence rate of 82.8%. In a study conducted by Amensisa Hailu Tesfaye *et al*. on LBP and its associated factors in African school teachers they found that being older and female gender were significantly associated with LBP. Based on BMI, LBP was maximum (88.8%) in BMI<18.5 and minimum (77.5%) in BMI≥30 which shows increasing BMI has no significant effect in LBP among school teachers. A study conducted by Jerzy Rottermund *et al*. on back and neck pain among school teachers in Poland shows there is no association between the BMI and LBP. In case of frequent exercising habit, the prevalence of LBP was found to be 90.9% in frequently exercising teachers which may be due to insufficient or incorrect methods of exercises. In a study conducted by Patience N Erick *et al*. on low back pain among school teachers in Botswana they revealed female gender is positively correlated while regular physical exercise had negative correlation with LBP.

Based on level of teaching, LP school teachers were found to be more prevalent (97.6%) which may be due to increased work load of teachers to handle small children. Based on working hours/day, more prevalence ie, 84.6% was found in teachers working for 6-10 hours/day which shows prolonged working hours is directly proportional to LBP. In a study conducted by Mouna Baklouti *et al*. regarding LBP in school teachers in Southern Tunisia they found female gender, working at primary schools and working more than 4 hours/ day were the independent determinants of LBP. Based on years of experience in working field, LBP prevalence was more in teachers working for 22-31 years with a prevalence of 89.1% showing long term working experience can be a co-factor for LBP. Based on the mode of transport, 90.6% teachers who are travelling by 2-wheeler have LBP prevalence which may be due faulty ergonomic posture while driving, lack of road quality and continuous hours of driving.

Conclusion

The study reveals there is a high prevalence of LBP among school teachers. The various demographic factors contributing to LBP were advancing age, female gender and travelling by 2-wheeler. Increasing BMI and frequent exercising had no significant reduction in LBP. Factors like being married and having children also don't have much effect in LBP. The most affected teachers were found to be LP teachers and teachers teaching arts such as music, tailoring etc. Years of experience and continues working hours were found to be the other major occupational risk factors. They should be advised on preventive measures to avoid further complications. In order to preserve health and quality of life of teachers, it is crucial to develop evidence-based ergonomic recommendations—

exercise routines and interventions—that will lessen LBP and musculoskeletal discomfort during long periods of sitting and standing.

Limitations

- Unwillingness of the participants is a major problem while conducting the study.
- The study was conducted in a small population thus obtaining reduced responses.
- Majority of the participants were female gender.
- Other scales can also be used to assess LBP other than these two scales.

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