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Severity of Disability in Elderly Patients with Low Back Pain in Amritsar, Punjab

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ABSTRACT The present study deals with the severity of disability in 300 randomly selected patients with low back pain (149 males and 151 females) from Amritsar, Punjab, India, aged 40- 65 years. The modified Oswestry Pain Questionnaire was used for this purpose. The findings of the present study indicate a gradual increase of pain scores with the increase of age in both the sexes.

INTRODUCTION

Low back pain is a major public health problem all over the world. Most people suffer incapacitating back pain at some stages in their lives. On any given day, an estimated 6.5 million people in the United States are bed-ridden because of back pain and approximately 1.5 million new cases of back pain are seen by physicians in each month. There has been growing concern about the low back disability in western society (Nachemson, 1976). In India, occurrence of low back pain is also alarming; nearly 60 per cent of the people in India have significant back pain at some time or the other in lives (Suryapani, 1996).

Epidemiological studies provide important information regarding various risk factors, viz. age and sex (Cunnigham and Kelsey, 1984; Leino et al., 1994; Hurwitz and Morgensterm,1997), occupation (Kelsey, 1982; Bongers et al., 1988; Battie et al., 1990; Piazzi et al., 1991; Piccinni et al., 1992; Limburska et al., 1996; Rothenbacher et al., 1997 and Nubling et al., 1997), life style and socio-economic status (Hurwitz and Morgenstern, 1997; Leino et al., 1994 and Kendall et al.,1983), smoking habit (Frymoyer et al., 1983; Beiring-Sorensen and Hilden,1984; Heliovaara, 1988 and Deyo and Bass, 1989). In the present study an attempt has been made to investigate the severity of disability in elderly patients with low back pain in Amritsar, Punjab, India, using the modified Oswestry Pain Questionnaire.

MATERIALS AND METHODS

A total of 300 randomly selected low back pain patients (149 males and 151 females) aged 40 - 65 years were considered as sample from K.V.M.D.A.V. Physiotherapy Centre, Amritsar Sewa Samiti, Appllo Physiotherapy Centre and Harvinder Hospital, all from Amritsar, Punjab, India. The study was conducted during August, 2006 to November, 2006. All the patients were ambulatory and were judged to be significantly intelligent to understand the instructions of the experiment. The patients were further divided into five age groups, viz. 40-45 years, 46-50 years, 51-55 years, 56-60 years and 61-65 years.

The Oswestry low back pain Disability Questionnaire (ODQ) was developed as a self administered questionnaire (Fairbank and Davies, 1980) to measure the disability. In this modified ODQ, ten sections, viz. pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, traveling and changing degree of pain, were applied for the evaluation of the severity of disability. There were six questions in each section. Question number 1-6 was scored as 0, 1,2,3,4, and 5 with the increasing order of pain intensity. Standard statistical calculations were also made for analyses.

RESULTS AND DISCUSSION

Table 1 shows the severity of low back pain in males and females applying modifying ODQ. Both in males and females, the maximum

Table 1: Severity of disability in elderly patients with low back pain.

Sex	N	Minimal (0%-20% disability)		Moderate (21%-40% disability)		Severe (41%-60% disability)		Crippled (61%-80% disability)		Bed-ridden (81%-100% disability)	
		Abs. no.	%	Abs. no.	%	Abs. no.	%	Abs. no.	%	Abs. no.	%
Males	149	4	2.68	68	45.63	72	48.32	5	3.35	0	-
Females	151	4	2.64	51	33.77	81	53.64	13	8.68	2	1.32

Table 2: Distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 40 – 45 years.

Variables	Males (n=30)		Females (n=30)		t value
	Mean	S.D.	Mean	S.D.	
Pain intensity	2.70	0.70	2.90	0.92	0.94
Personal care	2.37	0.61	2.70	0.99	1.57
Lifting	3.00	0.45	3.27	0.78	1.61
Walking	1.73	0.78	2.17	0.83	2.07*
Sitting	1.70	0.65	2.13	0.86	2.20*
Standing	1.03	0.64	2.27	0.87	1.69
Sleeping	1.53	0.73	2.00	0.95	2.14*
Social life	1.50	0.57	1.97	1.07	2.11*
Traveling	2.03	0.32	2.40	0.81	2.30*
Changing degree of pain	1.90	0.61	2.10	0.76	1.13

*indicates $P < 0.05$

Table 3: Distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 46 – 50 years

Variables	Males (n=28)		Females (n=31)		t value
	Mean	S.D.	Mean	S.D.	
Pain intensity	2.89	0.87	2.64	0.71	1.20
Personal care	2.43	0.88	2.35	0.71	0.36
Lifting	2.93	0.66	3.10	0.65	0.98
Walking	1.82	0.72	1.77	0.62	0.27
Sitting	2.18	0.77	2.26	0.68	0.42
Standing	2.07	0.60	2.06	0.63	0.04
Sleeping	1.89	0.79	1.71	0.64	0.98
Social life	1.57	0.83	1.77	0.76	0.97
Traveling	1.96	0.33	2.03	0.31	0.81
Changing degree of pain	2.07	0.66	2.03	0.66	0.23

Table 4: Distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 51 – 55 years

Variables	Males (n=29)		Females (n=29)		t value
	Mean	S.D.	Mean	S.D.	
Pain intensity	2.96	0.78	2.65	0.81	1.48
Personal care	2.52	0.87	2.38	0.73	0.65
Lifting	2.90	0.67	2.79	0.73	0.56
Walking	1.93	0.53	1.83	0.60	0.69
Sitting	1.93	0.65	2.07	0.75	0.75
Standing	2.14	0.64	2.03	0.73	0.57
Sleeping	1.72	0.70	1.69	0.76	0.18
Social life	1.79	0.67	1.62	0.77	0.90
Traveling	2.21	0.49	2.00	0.53	1.53
Changing degree of pain	1.90	0.62	2.00	0.53	0.68

percentage of disability were found in the category of severe (48.32% and 53.64 % respectively), followed by moderate (45.63 % and 33.77% respectively), crippled (3.35 % and 8.68 % respectively) and in the category minimal (2.68 % and 2.64 % respectively). The least (1.32%) females were reported to be in the category of bed-ridden.

The distribution of mean values and standard deviation of ten pain measuring variables in patients with low back pain aged 40-45 years is given in Table 2. Female patients have the higher mean values in all the ten variables, showing statistically significant differences ($P< 0.05$) in walking ($t = 2.07$), sitting ($t = 2.20$), sleeping ($t = 2.14$), social life ($t = 2.11$) and in traveling ($t = 2.30$). The male patients have lesser pain score than their female counterparts; the reason may be their more physical activities in workplaces and greater muscular strength.

Table 3 and 4 show the distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 46-50 years and 51–55 years respectively. Though in both the age groups, males have slightly higher mean values of pain scores in almost all the variables, statistically no significant differences ($P> 0.05$) were noted between males and females of these age groups in any case.

The distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 56-60 years is exhibited in Table 5. Once again, females have the higher mean values in all the variables (except changing degree of pain) than males, highlighting statistically significant differences ($P< 0.05$) in sleeping ($t = 2.60$), social life ($t = 2.65$) and in traveling ($t = 3.02$) between them. Weak abdominal muscles and degenerations in lumbar region may cause these differences.

Table 6 gives the distribution of mean values and standard deviation of ten pain measuring variables in patients with low back pain aged 61-65 years. Though females have higher mean

values of pain scores in half of the ten variables than males, statistically no significant differences (P> 0.05) were noted in the two sexes.

When inter-group comparisons were made, statistically significant differences (p< 0.05) were noted in three sets in males and six sets in females between the age group 40-45 years and other four age groups, in six sets in males and two sets in females between age group 46-50 years and other three age groups, in four sets in males and in three sets in females in age group 51-55 years and other two age groups and in four sets in males between age group 56-60 years and 61-65 years (Table 7).

The findings of the present study show a gradual increase of pain score with the increase

Table 5: Distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 56 - 60 years

Variables	*Males (n=29)*		*Females (n=30)*		*t value*
	Mean	*S.D.*	*Mean*	*S.D.*	
Pain intensity	2.41	0.82	2.80	0.80	1.82
Personal care	2.31	0.66	2.50	0.82	0.98
Lifting	2.59	0.68	2.97	0.93	1.79
Walking	1.72	0.45	2.00	1.02	1.34
Sitting	1.69	0.71	2.03	0.85	1.68
Standing	1.79	0.56	2.00	1.02	0.96
Sleeping	1.28	0.59	1.87	1.07	2.60*
Social life	1.55	0.57	2.10	0.96	2.65*
Traveling	1.90	0.41	2.30	0.60	3.02*
Changing degree of pain	2.10	0.62	1.97	0.81	0.73

* indicates P< 0.05

Table 6: Distribution of mean values and standard deviations of ten pain measuring variables in patients with low back pain aged 61 -65 years

Variables	*Males (n=30)*		*Females (n=30)*		*t value*
	Mean	*S.D.*	*Mean*	*S.D.*	
Pain intensity	2.90	0.66	2.93	0.74	0.18
Personal care	2.70	0.79	2.87	0.82	0.80
Lifting	2.97	0.61	3.13	0.73	0.96
Walking	1.83	0.83	1.60	0.77	1.13
Sitting	2.07	0.74	2.13	0.63	0.38
Standing	1.87	0.73	1.77	0.86	0.49
Sleeping	1.37	0.72	1.60	0.85	1.14
Social life	1.70	0.70	2.00	0.91	1.43
Traveling	2.27	0.58	2.23	0.57	1.22
Changing degree of pain	2.13	0.57	2.10	0.61	1.22

Table 7: Inter -group comparisons of t values for the ten pain intensity variables

Variables	*40-45 vs 46-50 years*		*40-45 vs 51-55 years*		*40-45 vs 56-60 years*		*40-45 vs 61-65 years*		*46-50 vs 51-55 years*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
Pain intensity	0.93	1.21	1.38	1.08	1.44	0.45	1.13	0.15	0.33	0.05
Personal care	0.31	1.57	0.77	1.42	0.34	0.85	1.82	0.71	0.38	0.13
Lifting	0.48	0.92	0.69	2.40*	2.75*	1.35	0.24	0.68	0.18	1.71
Walking	0.44	2.09*	1.13	1.79	0.05	0.69	0.48	2.73*	0.65	0.34
Sitting	2.56*	0.63	1.36	0.30	0.06	0.45	2.04*	0.00	1.31	1.02
Standing	0.84	1.04	1.23	1.11	0.89	1.09	0.38	2.24*	0.40	0.17
Sleeping	1.81	1.40	1.02	1.38	1.48	0.51	0.89	1.72	0.85	0.11
Social life	0.38	0.81	1.80	1.42	0.35	0.51	1.21	0.13	1.10	0.77
Traveling	0.81	2.34*	1.61	2.22*	1.43	0.54	1.92	0.92	2.18*	0.29
Changing degree of pain	1.03	0.37	1.02	0.58	1.27	0.66	1.53	0.00	1.03	0.21

Variables	*46-50 vs 56-60 years*		*46-50 vs 61-65 years*		*51-55 vs 56-60 years*		*51-55 vs 61-65 years*		*56-60 vs 61-65 years*	
	Males	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*
Pain intensity	2.13*	0.80	0.03	1.55	2.62*	0.69	0.35	1.37	2.50*	0.67
Personal care	0.57	0.74	1.23	2.61*	1.02	0.60	0.84	2.41*	2.04*	1.73
Lifting	1.92	0.64	0.23	0.21	1.74	0.80	0.42	1.79	2.25*	0.77
Walking	1.61	1.05	0.06	0.98	1.59	0.79	0.53	1.26	0.62	1.71
Sitting	2.49*	1.14	0.56	0.74	1.35	0.17	0.75	0.36	1.99	0.52
Standing	1.81	0.30	1.16	1.55	2.19*	0.15	1.52	1.29	0.43	0.96
Sleeping	3.36*	0.69	2.66*	.57	2.63*	0.73	1.93	1.42	0.53	1.06
Social life	0.10	1.47	0.64	1.05	1.47	2.10*	0.52	1.72	0.89	0.41
Traveling	0.68	2.20*	2.40*	1.72	2.61*	2.03*	0.42	1.62	2.81*	0.44
Changing degree of pain	0.19	0.35	0.38	0.42	1.27	0.19	1.53	0.67	0.19	0.72

* Indicates P< 0.05

of age in both the sexes. The increment of the pain score is more in females. In fact, low back pain occurs in elderly people due to lack of adequate physical activity, muscle weakness, some degenerative factors, viz. osteoarthritis, senile osteoporosis, and degenerative disc diseases etc. Apart from other medical problems, pregnancy and child bearing aggravate the complications in females. Special care is needed for the spine with increasing ages. It appears that manual handling and improper style of lifting objects equally harm the spine due to abnormal stress and strain imposed on spine during the activities. Low back pain affects people from all the strata of the society. Most of the low income group people in our country are engaged in physically demanding jobs. Sharma (1999) reported the maximum frequency (50.00%) of low back pain in people involved in jobs requiring handling of heavy loads, followed by people with sitting jobs (19.09%), with standing jobs (16.36%) and with prolonged squatting (14.54%) from this northern parts of India. During lifting, spine bends only approximately 45 degree of forward flexion, the remainder of the range occurs at the pelvis. So, while straightening up the spine during lifting up the objects, the pelvis must de-rotate first with the spine remaining flexed (Battie et al. (1990). In upper income group also, lack of physical activity leads to obesity and association of obesity with low back pain is apparently reported by Leino et al. (1994) and Hurwitz and Morgenstern (1997). Accumulation of more weight around abdomen results hyperlordosis of lumbar spine in order to maintain the erect posture and weight line shifts posteriorly and pass through the facet joints. Again, there is stretching of anterior longitudinal ligament, approaching of pedicles, facet joints near to each other, compression of nerve roots and ultimately occurrence of pain at low back.

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