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Socio-Demographic and Work Related Variables as Predictor of Persistence of Back Pain and Disabilityamong Civil Servants Receiving Physiotherapy in Tertiary Health Institutions in Kano State, Nigeria

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Abstract

The development and persistence of low back pain may be influenced by several factors which include lifestyle factors, previous pain symptoms, psychological factors, work place factors as well as socio-demographic variables. The focus of this study was to determine the socio-demographic and work-related variables as predictor of persistence of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria. One hundred and twenty-nine newly referred low back pain patients for physiotherapy participated in the study. This study was a cross sectional study involving patients that were newly diagnosed of back pain, referred and receiving physiotherapy. The convenience sampling technique was used to select the patients based on the inclusion criteria. The data obtained was analysed using simple percentage and multiple

regression for stated hypothesis at 0.05 level of significance. The findings reveal that all the variables are not significant predictor of persistence of back pain and disability. The study recommended that determinants of low back pain recovery by clinician should include other clinical factors not only reduction in pain intensity.

Introduction

Soft tissues pain of the back is highly rampart among working adults. It is observed that the fast increase in back pain in many countries around the world is connected with substantial financial cost and loss of quality of life. It was reported by the National Arthritis Data Movement in the United States during a national survey that 15% of adults experienced frequent pain lasting more than two weeks or back pain annually [1]. American Health Organization has identified low back painas one of the leading industrial health problems among all the symptoms involving in the regions of the back and it should be under the watch of the World Health Organization (WHO) within Africa setting [2-4] also reported that low back pain is the most common cause of work-related disability among office workers in Ibadan Oyo State, Nigeria with one-year prevalence ranging from 23% to 38%. Also, in many places of work low back pain is attribute to the number of work load and it is differed between the range of 11% and 58% [5]. External standard cannot be use to confirm the low back pain illness or problems. Low back pain is an illness with numerous definitions and many possible causes, happening in different group of people.

In the last twenty years efforts have been made in using bio-psychosocial models to explain how minor pain can change to major injury. Vlaeyen and Linton 2000 [6], explained that these improvements made use of new idea of understanding of some things that related to pain which can change major pain among many people. The cause of low back pain is not really known, but it is believed to be cause as a result of many factors which means individual psychological and physical factors can cause development of low back pain [7]. Research has proved it that there is a cordial relationship between low back pain and physical factors like handling of materials manually, lifting heavy loads, bending and turning around frequently at the place of work, sitting down on a chair for long hours, changing of positions forcefully [5,8]. previous study also identified several factors associated with low back pain [3]. Others also cited level of education, smoking [9] and sleep deprivation [10]. Described prolonged driving as a risk factor while work related risk factor such as accumulated computer usage has been linked to more risk of low back pain [11-13], found that different psychological and social problems like inadequate job satisfaction, insufficient social support and stress also cause an increasing in low back pain. The bio-psychological models of pain transition utilized novel concept utilizations of cognitive-behaviour factors such as pain related fear avoidance, which appear to influence the development of chronic pain in many individuals. The idea of using psychological factors to change the increase of high back pain by changing individual behavior and increase the effect of less important sensation in bio-psychological models is well documented [6]. It was commented by Schmidt and Kohlmann, 2005 [14] that development and persistence increase of low back pain is associated with many risk factors as stress factors, history of pain, carrying heavy loads and manually handling of work place materials and variation in social and economic. Among these, two sets of risk factors have demonstrated a particular importance in predicting the course of low back pain. Previous pain episodes [15-17] as stated by Cochrane Back Review Group [18] explaining that determining the cause of sub-acute back pain is a major problem in order to have

better treatment. Moreover, it is generally accepted that feature of job biomechanical and conditions of biomedical, some factors like social and psychology had been reported by Van Tudler, Becker and Bekkering 2006 [19], to be the cause of low back pain. This study was conducted to assess how selected physical, clinical, socio-demographic and lifestyle factors influence persistence of back pain and disability in a cross-section of civil servants receiving physiotherapy in tertiary health facilities in Kano.

Research Question

1. Can work related variables and socio-demographic factors predict persistent of back pain and disability among civil servants receiving treatment at physiotherapy Department in tertiary health institutions in Kano, Nigeria?

Hypothesis

1. Socio-demographic and work-related variables as a significant predictor of persistence of back pain among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria

Significance of the Study

The outcome of this study has provided information on how physical, clinical, socio-demographic and lifestyle factors have affected the recovery of back pain patients in a Nigerian setting. This report will help in providing better counselling and rehabilitation for the back pain patients. The outcome of this study has also provided clinical evidence on the average duration of recovery in back pain patients newly referred for physiotherapy. This evidence will help in setting treatment goals for Nigerian patients with back pain.

Methodology

This research study used cross sectional design. It consists of newly diagnosed out-patients with low back pain attending physiotherapy Department in the selected tertiary health institutions in Kano, Nigeria. This study used a sample 120 participants. The convenience sampling technique was use to choose the respondents who met the inclusion criteria. The instrument for the collective of data was socio demographic data and the Oswestry Low Back Pain and Disability Questionnaire [6]. The completed questionnaire forms were thereafter sorted, coded, and analyzed with the use of percentage and multiple regressions to test the stated hypotheses at 0.05 level of significance.

Data Analysis and Presentation of Results

Table 1: Influence of demographic variables onknowledge of chronic back pain in patient attending Federal Medical Center, Gusau, Zamfara State, Nigeria

Independent variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig	Remarks
	β	S.E				
Gender	0.445	0.824	0.475	0.629	0.001	NS
Most assumed posture	-.347	2.180	-.047	-.059	.874	NS
Nature of occupation	1.138	1.143	0.397	7.996	0.072	NS
Type of marriage	1.138	1.143	.397	6.996	.082	NS
Marital status	-.871	2.155	-.111	5.404	.071	NS
Occupational status	-.671	1.005	-.111	5.404	.004	NS
Education	-.577	1.390	-.0576	-.003	.874	NS
Break period	1.40	1.679	0.83	0.98	0.211	NS
Years of work	0.47	1.089	0.019	1.60	0.327	NS
Hours of work	0.08	0.97	0.311	0.51	0.060	NS

Table 1 observes that, most assumed posture, nature of occupation, type of marriage, marital status, occupational status, education, break period, years of work and hours of work is not a significant predictor while gender is a significant predictor of persistence of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria. All the computed is not significant, that is ($p > 0.05$) expect for gender.

Table 2: Indicating Summary of Multiple Regression Result showing the composite effect of independent variables on persistence of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria

Source of variance	df	Ss	Ms	F-ratio	Sig	Remark
	8	131.473	181.110	21.638	0.001	NS
	120	217.530	0.307			
	128					

Note: S represents Significant; NS represents Not Significant

Multiple R = 0.301,
Multiple R²= 0.304,
R² ADJUSTED=0.10,
F - VALUE= 0.638

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The result of regression analysis of persistence of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria, recorded a coefficient of determination which is the adjusted R^2 value of 0.30 implies that the variables included in the model explain 30% variation on the persistence of back pain and disability among civil servants receiving physiotherapy were explained by the independent variables included in the model which include gender, most assumed posture, nature of occupation, type of marriage, marital status, occupational status, education, break period, years of work and hours of work. The remaining 70% can be attributed to error in specification and the exclusion of other factors from the model. All the variables such as gender, most assumed posture, nature of occupation, type of marriage, marital status, occupational status, education, break period, years of work and hours of work were statistically insignificant except for gender which is significant predictor. Data collected was analyzed at 0.05 level of significance. In conclusion, this showed that all the six (10) variables put together accounted for 10% of the variation in development of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria.

The F-Statistic is 21.638; this is very low and statistically significant at 0.05 levels. This is greater than its theoretical values. The F-statistic confirms that persistence of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria is statistically related to the independent variables of gender, most assumed posture, nature of occupation, type of marriage, marital status, occupational status, education, break period, years of work and hours of work.

Discussion on Findings

The result of this study shows that socio-demographic factors had no significant association with persistence of low back pain and disability in low back pain patients receiving physiotherapy. This might be due to the fact that we investigated an educated population sample that is in paid employment. The attributable proportion of males persisting with disability at three months of receiving physiotherapy was found to be higher than their female counterparts, this is a possible reflection of the frequency distribution of participants in this study though this supports the conclusion drawn by [15], that low back pain did not directly produce premature mortality but cause substantial disability and has a potentially severe societal consequence which estimates about 50% higher for men than women. Linton and Boersma, 2003 [20], have recognised the risk of develop back pain as poor work and efficiency output of the patients, intensify pain, avoidance of fear among others, but cannot determine the cause of continuous low back pain, while others have demonstrated that stress, felling of unhappy have positive relation with persistence low back pain [21]. Leeuw, Goossens, Linton, Crombez, Boersma and Vlaeyen, 2007; Fritz, George and Delitto, 2001 [22,23], stated that during the minor cases in the development of low back pain, findings have demonstrated that psychological factors are influence by avoidance or fear and this is in-line with the result of this work. This also supports the conclusion drawn by [22] in their study that there is positive correlation between FAB and concurrent disabling low back pain. Changes in FAB scores have been shown to correlate with changes in disability following treatment [24], indicating a relationship between the two. Also, this is supported by the result of this work. The scores of body mass index at 12th week shows a positive correlation with persistence of pain in this study; this might have resulted from cumulative period of inactivity and sedentary nature of the job of the participants. This is consistent with the study of [25], that a higher body mass index at three months correlates with persistence of pain [26,27].

Conclusion

According to the result of the data analysed, it was very clear that socio-demographic and work -related variables cannot predicts persistence of back pain and disability among civil servants receiving physiotherapy in tertiary health institutions in Kano, Nigeria.

Recommendation

Based on the findings of this study, the following recommendations are made:

1) Patients' education to observe break periods at regular intervals during the working hours should be emphasized by clinicians.

2) Determinants of low back pain recovery by clinician should include other clinical factors not only reduction in pain intensity.

3) Patients should be encouraged to observe active rest and light physical activities during the process of rehabilitation.

Bibliography

1. Lawrence, R. C., Helmick, C. G., Arnett, F. C., Deyo, R. A., Felson, D. T., Giannini, E. H., Heyse, S. P., *et al.* (1998). Estimates of the Prevalence of Arthritis and Selected Musculoskeletal Disorders in the United States. *Arthritis Rheumatology, 41*(5), 778-799.

2. Choi, B. C. K., Tennassee, L. M. & Eijkemans, G. J. M. (2001). Developing regional workplace health and hazard surveillance in the Americas. *Pan American Journal of Public Health, 10*(6), 376-381.

3. Juul -Kristensen, B., Sogaard, K., Stroyer, J. & Jensen, C. (2004). Computer users risk factors for developing shoulder, elbow, and back symptoms. *Scandinavian Journal of Work Environment Health, 30,* 390-398.

4. Omokhodion, F. O. & Sanya, A. O. (2003). Risk factors for low back pain among office workers in Ibadan, South West Nigeria. *Occupational Medicine, 53,* 287-289.

5. Burdof, A., Rosignol, M., Fataallah, F. & Robert, F. (1997). Challenges in Assessing Risk Factors in Epidemiological studies on back Disorders. *American Journal Of Industrial Medicine, 32*(2), 145-152.

6. Vlaeyen, W. S. & Linton, S. J. (2000). Fear avoidance and its consequences in chronic musculoskeletal pain: A state of the art. *Pain, 65,* 123-167.

7. Manchikanti, L. (2000). Epidemiology of Low Back Pain. *Pain Physician, 3*(2), 167-192.

8. Hoogendorn, W. E., Van Poppel, M. N. M., Bongers, P. M., Koes, B. W. & Bouter, L. M. (1999). Physical load during work and leisure time as risk factors for back pain. *Scandinavia Journal Work Environmental Health, 25*(5), 387-403.

9. Shiri, R., Karppinen, J., Leino-Arjas, P., Solovieva, E. & Viikari-Juntura (2010). The Association Between Smoking and Low Back Pain: A Meta-Analysis. *American Journal of Medical Science, 123*(1), 87. E7-87. e35

10. Muto, S., Muto, T., Seo, A., Yoshida, T., Taoda, K. & Watanabe, M. (2006). Prevalence of and risk factors for low back pain among staffs in schools for physically and mentally handicapped children. *Industrial Health, 44,* 123-127.

11. Ortiz-Hermandez, L., Tamez-Gonzalez, S., Martinez-Alcantara, S. & Mendez-Ramirez, I. (2003). Computer use increases the risk of musculoskeletal disorders among newspaper office workers. *Archives of Medical Research, 34*(4), 331-342.

12. Rugulies, R. & Krause, N. (2008). Effort-reward imbalance and incidence of low back and neck injuries in San Francisco transit operators. *Occupation and Environmental Medicine, 65*(8), 525-533.

13. Yip, Y. B., Ho, S. C. & Chan, S. G. (2001). Socio-Psychological Stressors as Risk Factors for Low Back Pain in Chinese Middle-Aged Women. *Journal of Advance Nursing, 36,* 409-416.

14. Schmidt, C. P. & Kohlmann, T. (2005). What do we know about the symptoms of back pain? Epidemiological results on prevalence, incidence, progression and risk factors. *Spine, 32*(18), 2005-2011.

15. George, C. (2002). The Six-Month Incidence of Clinically Significant Low Back Pain in the Saskatchewan Adult Population. *Spine, 27*(16), 1778-1882.

16. Picavet, H. S. & Schuit, A. J. (2003). Physical inactivity: a risk factor for low back pain in the general population? *Journal of Epidemiological Community Health, 57*(7), 517-518.

17. Jones, G. T., Johnson, R. E., Wiles, N. J., Chaddock, C., Potter, R. G., Roberts, C., *et al.* (2006). Predicting persistent disabling low back pain in general practice: a prospective cohort study. *British Journal of General Practice, 56*(526), 334-341.

18. Boufer, L. M., Pennick, V. & Bombardier, C. (2003). Cochrane Back Review Group. *Spine, 28*(12), 1215-1218.

19. Van Tudler, M., Becker, A. & Bekkering, T. (2006). European guidelines for the management of acute non specific low back pain in primary care. *European Spine Journal, 15*(suppl 2)S, 169-191.

20. Linton, S. J. & Boersma, K. (2003). Early identification of patients at risk of developing a persistent back problem: the predictive validity of the Orebro Musculoskeletal Pain Questionnaire. *Clinical Journal of Pain., 19*(2), 80-86.

21. Pincus, T., Burton, A. K., Vogel, S. & Field, A. P. (2002). A systematic review of psychological factors as predictors of chronicity /disability in prospective cohorts of low back pain. *Spine, 27*(5), 109-120.

22. Fritz, J. M., George, S. Z. & Delitto, A. (2001). The role of fear-avoidance beliefs in acute low back pain: relationships with current and future disability and work status. *Pain, 94*(1), 7-15.

23. Leeuw, M., Goossens, M. E., Linton, S. J., Crombez, G., Boersma, K. & Vlaeyen, J. W. (2007). The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. *Journal of Behavioural Medicine, 30*(1), 77-94.

24. Woby, S. R., Watson, P. J., Roach, N. K. & Urmston, M. (2004). Adjustment to chronic low back pain - the relative influence of fear-avoidance beliefs, catastrophizing, and appraisals of control. *Behavioural Research Therapy, 42,* 761-774.

25. Fransen, M., Woodward, M. & Norton, R. (2002). Risk factors associated with the transition from acute to chronic occupational backpain. *Spine, 27*(1), 92-98.

26. Button, A. (1998). Psychological Problems in Primary Care. *Sydney, Croom Helm Company,* 64-84.

27. Chen, J. C., Chang, W. R., Chang, W. & Christaini, D. (2000). Occupational Factors associated with Low Back Pain in Urban Taxi Drivers. *Occupational Medicine London, 55*(7), 535-540.