

Musculoskeletal Illness in Nigeria Drivers: A Psychosocial and Physical Factors Perspective

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Abstract

This survey was based on a hypothesis that working conditions may be responsible for ill-health amongst drivers in Nigeria, especially musculoskeletal complaints. Factors considered include design of vehicles, baggage handling, traffic, working hours, lifestyle and psychosocial stress caused by violence and domestic stress. The incidence of musculoskeletal problems was established using the Nordic Questionnaire for the analysis of musculoskeletal symptoms, complemented by a so-called Workload Questionnaire. Drivers completing the questionnaires were selected from drivers have an elevated incidence of musculoskeletal complaints compared with the general population. An important concern for many drivers is a fear of violence, actual or threatened. Analyses of these data support the contention that taxi driving may contain elements that contribute to reduced health.

Keywords: survey, drivers, musculoskeletal, psychosocial, lifestyle

1. Introduction

Drivers have been shown to be vulnerable to health problems a number of studies, in Nigeria, other African countries and elsewhere (e.g. Gustavsson, et al. 1996; Tuchsén, 1997). The aim of this questionnaire survey was to examine an aspect not previously studied, reported musculoskeletal pain among drivers in Nigeria, and relate them to different possible physical and psychosocial factors, both related to job and in connection with private lifestyle.

The number of hours spent behind the wheel has been shown to be connected to self-reported back pain for salesmen (Skov, et al, 1996), police officers (Gyi and Porter, 1998) and public transport operatives (Krause, et al 1997). The latter study also demonstrated a connection between lack of breaks, inadequate rest possibilities and back pain. In a study of Ghana drivers, lack of breaks during the shift also was shown to be connected to an increased accident risk (Dalziel and Job, 1997). Exposure to whole-body vibration and lifting was shown to be related to back pain in a study of truck drivers in USA and Sweden (Magnusson, et al. 1996).

Independent effects of a psychosocial nature have also been reported associated with musculoskeletal problems among professional drivers. In a recent study, both physical and psychosocial factors and back pain were investigated in different occupations, including drivers. Where the two factors were found to interact and jointly caused a higher effect on back pain than simple addition of the two factors (Devereux, et al. 1999).

1.1 Survey population and questionnaires

Drivers in the whole of Nigeria fall into two classes-owner-drivers and employed drivers. Nearly all the former are registered with the Nigerian Drivers Associations, (covering about 5000 issued licenses), of whom 20% were randomly selected for the survey (N=960). A cut-off of 60 years was applied to avoid any general ageing factors from confounding the data of interest. A further 197 employed drivers under 60 years are registered as members of a drivers union and were added to the total, together with an additional selected group of 331 non-union employed drivers, to give a total subject pool of 1488 drivers for the survey.

2. Questionnaires

The primary questionnaire survey used the standardized Nordic Questionnaire (NMQ) for the analysis of musculoskeletal symptoms (Kourinka, et al, 1987). This questionnaire contains nine screening questions, covering 12 months prevalence of musculoskeletal problems in different body areas (neck, shoulders, elbows, hands, upper back, lower back, hips, knees and feet), point prevalence (seven days) and pain severity of the same body areas, and 27 detailed questions about neck, shoulder and lower back pain. The NMQ has been tested for reliability and validity and was found acceptable for the purpose of examining or screening in occupational health. It is also the only practical and economic way of collecting pain data in a study such as reported here, from so many subjects spread across the whole of Norway.

In order to collect data on driver's working conditions, required for assessment of possible connections with reported pain, a separate questionnaire was specially developed for the purpose. This contained 57 questions, including items about the frequency and duration of driving, shift working, and routes driven. Some

psychosocially related questions were included, e.g waiting time and violence, as well as relevant personal details such as age, weight, height, eyesight, diet and health. Additional information about the vehicle driven was recorded, but is not discussed in this paper. The contents of this questionnaire were discussed and agreed with a reference group before being distributed. The reference group included representatives from each of the classes of driver.

3. Conduct of survey

A covering letter was prepared to explain the purpose of the survey and together with the two questionnaires, mailed to the whole group of 1488 drivers. After five weeks and one reminder, 63.4% had responded. A sample of non-responders was randomly selected and contacted by telephone to find out why the questionnaires were not completed and returned. No reasons were given which were relevant to the content of the questionnaire and this suggested that little or no personal bias was present in the answers.

4. Results

All data were analyzed using SPSS. No differences were found between full and part time drivers in the amount of pain over the last 12 months in any of the body areas, and no information was available about other physical activities apart from taxi driving for the part time group. Therefore, the analysis was restricted to full time drivers only. Because of the very large amount of data, only some highlights of the results are discussed.

Pain prevalence reported for different body parts, by gender, is shown in Table 1. For comparison purposes a Nigerian reference group has been identified with similar data, based on responses from 2726 subjects, ranging from 20-72 years, in a local community in, around 50% of whom were women (Natvig, et al. 1995).

4.1 Population variables

Pain prevalence during the last 12 months was higher among the employed drivers than the owner drivers for the neck and lower back. But owners appeared to have more daily pain than the employed drivers.

The study sample contained 14.3% women, who report having had neck and shoulder pain more than men in the last 12 months. Four ethnic groups are present in the sample, made up of 92.2% Nigerian, 0.4% other Ghanians, 1.1% other Africa, and 6.3% non-Africa (all men). Pain prevalence is higher for non-Africa in the neck and shoulders. Neither age nor driving experience was significantly related to reported pain.

4.2 Workload

Mean hours driven per week was 53.8 and per shift, 10.1 for the whole population. A relationship exists between number of hours driven per week and pain reported for lower back. This is not linear, however, as more of those driving 20-39 hours per week report pain than those driving 40-79 hours. A clear linear relationship was found between number of hours driven per shift and reported pain in the neck and shoulders. A question was included about carrying passengers luggage and accompanying them to their door and while no relationship to pain report was found for the former, those who daily follow passengers to the door report more pain in the neck than those who seldom do so.

Waiting time between passengers was assumed to be a psychological workload factor, and a range of times from 0.5mins to 240 minutes was reported (mean of 20.6 mins; mode of 10mins). A relationship was found between waiting time and reported neck pain.

4.3 Experience of violence

Violence, actual or threatened was another psychosocial factor often reported by the drivers, of whom 27.6% had experienced actual violence and no less than 52.9% threats of violence, see Table 2. Fear of violence was the factor most strongly related to pain in the whole study, with a higher prevalence of pain in the neck, shoulders and low back amongst those most fearful, with women reported more fear than men, even though experiencing less violence. An interaction effect was observed also between fear and ethnic origin.

4.4 Diet

Drivers were asked about eating habits, specifically whether they took a packed lunch (traditional in Nigeria) or eat a hot meal at home or snacked on fast food. Table 3 gives some of the results. For Nigerian men, a lower prevalence of pain for neck and lower back is reported among those eating a hot meal at home, but an opposite effect was observed for non-Africans and Nigerian women.

4.5 Smoking

Smokers in the group amounted to 54.7%. More women than men smoked, as did more employed drivers than owners. A positive relationship was found between smoking and pain in the neck and shoulders.

4.6 Exercise

No relationship was found between frequency of exercise or sport and pain prevalence, but for regular exercises, pain prevalence was lower for shoulder pain among joggers or walkers than other forms of activity.

4.7 Other results

A number of other factors were significantly related to pain, including taking a nap in the car (neck, shoulders and lower back), stature (lower back) and weight (lower back). Another 15 other factors were not significant, including number of breaks per shift, days off per week, getting in and out of the car and type of car.

5. Discussion

Few studies have been reported on pain prevalence in the general population. Two studies in Nigeria allow a comparison of the data from this with such reference data. Comparing the data from this study with the reference Natvig's data (1995), where quite high levels of pain were reported, they are far exceeded by the driver. Higher pain prevalence was reported by the employed drivers than by owners, although a greater number of owners reported daily pain. This may suggest that the two driver groups may have different reported daily pain. This may suggest that the two driver groups may have different strategies for reporting pain, possibly influenced by the different terms for sickness insurance applied to the groups.

That shift length was related to musculoskeletal pain was not surprising, although no significant effects were measured from the organization of shifts or breaks and time off, contrary to other studies (e.g. Krause et al. 1997). However, possible stress factors were examined in a bus driver study (Meijman and Kompier, 1998), who found a clear relation between the opposed factors of time demands with safety and social activities and musculoskeletal complaints.

Violence may be considered an extreme form of psychological stress, as found in research on workplace violence (Hewett and Levin, 1997), where taxi drivers were considered a typical example of what the authors called 'violence related to interaction with the public'. It was interesting to note that in the Norwegian study that fear of violence was so strongly related to musculoskeletal complaints.

That diet (or eating habits) was found to be related to musculoskeletal pain was interesting, as it seemed not to be a question of nutrition, as weight was only so related in women, suggesting it may have something to do with organization and quality of private life and satisfaction.

6. Conclusion

Several interesting questions are raised by the data from this study, especially questions of coping with daily psychosocial stress situations and examining the question of social support, an aspect being investigated further in a follow-up study. It is also possible that some influence may be related to the ergonomics aspects of the vehicle.

It is clear that some factors of both a physical and of a psychosocial nature contribute to reports of pain, and that violence is especially significant. A re-appraisal of all the data after the follow-up study will take into account all these factors when considering possible recommendations for intervention.

References

- Daiziel, J. & Job, R.F.S (1997), Motor vehicle accidents, fatigue and optimism bias in taxi drivers. *Accident analysis and prevention*, 29 (4), 489-494.
- Devereux, J.J. Buckle, P.W. and Vlachonikolis, I.G (1999). Interaction between physical and psychosocial risk factors at work increase the risk of back disorders: an epidemiological approach. *Occupational Environmental Medicine*, 56, 343-353.
- Gustavsson, P. Alfredsson, L. Brunnerberg, H. Hammar, N Jakobsson, R. Reuterwall, C, and Ostlin, P.(1996). Myocardial infarction among male bus, taxi and lorry drivers in middle Sweden. *Occupational and environmental medicine*. 53 (4), 253-40.
- Gyi, D.E. and Porter, J.M. (1998). Musculoskeletal problems and driving in police officers. *Occupational Medicine*, 48 (3), 153-160.
- Kourinka, I., Jonsson, B., Kilbom, A., Vinterberg, H., Biering-Sorensen, F., Andersson, G. and Jorgensen, K. (1987). Standardized Nordic questionnaires for analysis of musculoskeletal symptoms. *Applied Ergonomics*, 18 (3), 233-237.
- Krause, N., Ragland, D.R. Greiner, B., Syme, L and Fisher, J.M (1997). Psychosocial job factors associated

with back and neck pain in public transit operators. *Scandinavian Journal of Work Environmental Health*, 23, 179-186.

Magnusson, M.L., Pope, M.H. Wilder, D.G. and Areskoug, B. (1996). Are occupational drivers at an increased risk for developing musculoskeletal disorders. *Spine*, 21 (6), 710-717.

Natvig, B., Nessioy, I., Bruusgaard, D. and Ruttle, O. (1995). musculoskeletal symptoms in a local community. *European Journal of Gen. Practice*, 1, March.

Skov, T., Borg, V. and Orhede, E., (1996). Psychosocial and physical risk factors for musculoskeletal disorders of the neck, shoulders, and lower back in salespeople. *Occupational and Environmental Medicine*, 53, 351-356.

Tuchsen, F. (1997). Stroke morbidity in professional drivers in Denmark 1981-1990. *international journal of epidemiology*, 26 (5), 989-994.

Table 1: Reported pain last 12 months by gender

	Women		Men	
	Study data (n=120)	Reference group*	Study data (n=703)	Reference group *
Neck	70.8%	57.6%	55.6%	37.3%
Shoulders	65.8%	56.2%	50.1%	36.5%
Elbows	16.7%	13.8%	16.8%	10.9%
Hands	31.7%	26.1%	18.5%	17.0%
Upper Back	35.8%	30.6%	23.1%	14.8%
Lower Back	65.8%	54.7%	58.5%	50.7%
Hips	26.7%	26.4%	18.6%	14.7%
Knees	28.3%	27.8%	28.6%	24.5%
Feet	18.3%		18.9%	

* Reference group data from Natvig et al, (1995)

Table 2: Reported pain last 12 months by experience of violence or threats

	Experience			No experience			Main effects sign.
	N. Men	Non. Africa	Total	N. Men	Non. Africa.	Total	
Violence	(n=175)	(n=26)	(n=224)	(n=446)	(n=23)	(n=579)	
Neck	58.3%	84.6%	62.9%	52.5%	56.5%	55.3%	F (1,802) =3.90 p=0.049
Shoulders	52.0%	84.6%	56.7%	47.3%	43.5%	50.3%	F (1,802) = 3.72 P=0.054
Threats	(n=339)	(n=36)	(n=427)	(n=290)	(n=16)	(n=393)	
Neck	56.3%	80.6%	61.4%	52.1%	50.0%	54.2%	F (1,819) = 4.32 P=0.038
Shoulder	52.8%	75.0%	54.4%	44.5%	43.7%	48.1%	F (1,819) = 4.95 P=0.026

Table 3: Reported pain the last 12 months by some diet questions

	Usually (n=190)	Sometimes (n=190)	Never (n=434)	Sign.
Neck	48.4%	62.6%	59.7%	F (1,813)=5.09, P=0.024
Low back	49.5%	66.8%	61.3%	F (1,813)=5.13, p=0.024
Hot meal at home	Yes (n=684)	No (n=121)		Sign.
Neck	56.3%	67.9%		F(1,814)=6.17, p=0.013
Low back	57.5%	71.3%		F(1,814)=9.43, p=0.002
Fast food	Yes (n=146)	No (n=675)		Sign.
Neck	66.4%	56.0%		F(1,820)=5.39, P=0.021
Low back	70.5%	57.2%		F(1,820)=8.98, P=0.003

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