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ORIGINAL ARTICLE

Wheels of Strain? Lifestyle Habits, Stress Perception and Quality of Life among Long Distance Bus Drivers in Nigeria

Roues De Souche? Habitudes de Vie, Perception du Stress et Qualité de Vie des Chauffeurs de Bus Longue Distance au Nigéria

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ABSTRACT

BACKGROUND: The transport sector is a male-dominated, sedentary, accident-prone occupation with limited opportunities for healthy meals and exercise breaks. Since stress is a recognized risk factor in the development of addiction and addiction relapse susceptibility, we explored relationship between stress perception and self-reported lifestyles with Health-related Quality of Life (HRQOL) among long distance Bus Drivers in Lagos State.

METHODS: 200 randomly enlisted commercial drivers from bus terminals in Lagos State were interviewed face-to-face using a validated structured questionnaire. Perceived stress was assessed using the perceived stress scale while health-related quality of life was assessed with the Short Form Health Survey (SF-12). Combined scores from the 10-item Perceived Stress Scale (PSS) and some lifestyle indicators (tobacco smoking, cannabis use, alcohol consumption, low fruit and vegetable consumption, sleep pattern and prolonged sitting) on HRQOL (SF-12) was assessed by multivariable regression analysis controlling for covariates including age, marital status, education status, income level and chronic illness.

RESULTS: Prevalence of high perceived stress was 62%; 36% were moderate or heavy drinkers (2–4 drinks daily) while 30% were heavy smokers (>11 cigarettes per day); 49% used cannabis of which 20% of them had daily use. The mean scores for physical and mental components for SF-12 were 45.2 ±7.5 and 49.8 ±8.2 respectively. In the bivariate association between socio-demographic characteristics, perceived stress and HRQOL, educational status was significantly associated with perceived stress and the physical component of SF-12. In contrast, income was significantly associated with the mental component of SF-12. In the bivariate analysis and also in the multivariable regression analysis, perceived stress was significantly higher among those with harmful lifestyles: poor diet (OR: 1.42), alcohol consumption (OR: 1.86), heavy smoking (OR: 1.66), daily cannabis use (OR: 1.49) and sedentary lifestyle (OR: 1.45). After controlling for socio-demographic and clinical variables, perceived stress and harmful lifestyles were statistically significant predictor for poor quality of life ($p < 0.001$).

CONCLUSION: A high prevalence of perceived stress and a high rate of addiction, with negative impacts on quality of life were observed among our study cohort. Since 75% of Nigerians depend on the public buses driven by these hassled drivers, it is imperative that organized strategies are instituted to encourage lifestyle modification and ameliorate the effect of stress on the HRQOL of bus drivers in Nigeria. **WAJM 2022; 39(4): 399–406.**

Keywords: Alcohol; Cigarettes; Health-Related Quality of Life; Perceived Stress; Tobacco.

RÉSUMÉ

CONTEXTE: Le secteur des transports est dominé par les hommes,une profession sédentaire et sujette aux accidents avec des possibilités limitées dedes repas sains et des pauses d'exercice. Puisque le stress est un risque reconnufacteur dans le développement de la dépendance et la rechute de la dépendancesusceptibilité, nous avons exploré la relation entre la perception du stresset les modes de vie autodéclarés avec une qualité de vie liée à la santé(HRQOL) parmi les chauffeurs de bus longue distance dans l'État de Lagos.

MÉTHODES: 200 chauffeurs commerciaux enrôlés au hasard dans un busles terminaux de l'État de Lagos ont été interrogés en face à face à l'aide d'unquestionnaire structuré. Le stress perçu a été évalué à l'aide de l'échelle de stress perçu pendant que la qualité de vie liée à la santé a été évaluée avec l'Enquête abrégée sur la santé (SF-12). Scores combinés de l'échelle de stress perçu (SPS) à 10 éléments et certains indicateurs de style de vie(tabagisme, consommation de cannabis, consommation d'alcool, faible teneur en fruits etconsommation de légumes, rythme de sommeil et position assise prolongée) surHrQOL (SF-12) a été évalué par une analyse de régression multivariablecontrôle des covariables, y compris l'âge, l'état matrimonial, le niveau de scolaritéle statut, le niveau de revenu et la maladie chronique.

RÉSULTATS: La prévalence du stress perçu élevé était de 62 %; 36 % étaient buveurs modérés ou excessifs (2 à 4 verres par jour) tandis que 30 % étaient grosfumeurs (>11 cigarettes par jour); 49 % consommaient du cannabis dont 20 % d'entre eux avaient une utilisation quotidienne. Les scores moyens pour le physique et le mentalles composantes du SF-12 étaient respectivement de 45.2 ±7.5 et 49.8 ±8.2. Dans l'association bivariée entre les caractéristiques sociodémographiques, le stress perçu et la QVLS, le statut scolaire était significativement associé au stress perçu et à la composante physique de la SF-12. En revanche, le revenu était significativement associé à la composant de SF-12. Dans l'analyse bivariée et aussi dans l'analyse de régression multivariable, le stress perçu était significativement plus élevé chez les personnes ayant des modes de vie nocifs: mauvaise alimentation (OR: 1.42),consommation d'alcool (RC : 1.86), tabagisme excessif (RC : 1.66), tous les jours la consommation de cannabis (RC : 1.49) et le mode de vie sédentaire (RC : 1.45). Après contrôle des variables socio démographiques et cliniques perçues le stress et les modes de vie nocifs étaient des prédicteurs statistiquement significatifs pour mauvaise qualité de vie ($p < 0.001$).

CONCLUSION: Une forte prévalence du stress perçu et un taux élevé de la toxicomanie, avec des impacts négatifs sur la qualité de vie ont été observésparmi notre cohorte d'étude. Depuis 75% des Nigérians dépendent du public bus conduits par ces chauffeurs harcelés, il est impératif que organize des stratégies sont mises en place pour encourager la modification du mode de vie et améliorer l'effet du stress sur la QVLS des chauffeurs de bus au Nigeria. **WAJM 2022; 39(4): 399–406.**

Mots-clés: Alcool; Cigarettes; Qualité de vie liée à la santé; Stress perçu; Tabac.

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Abbreviations: HRQOL, Health-related Quality of Life; **PSS,** Perceived Stress Scale.

INTRODUCTION

Stress is the pattern of explicit and broad-based responses an organism makes to unpleasant events that disturb its equilibrium and tax or exceed its ability to cope. Although the effects of stress on an individual are not always harmful, daily hassles and major life events can significantly impede a person's optimal functioning.[1] Consequently, stress is perceived mainly as a negative reaction to stimuli whether internal or external. It is a significant risk factor for the development and progression of many physiological and psychological problems.[2] Stress can predispose to sleep difficulties, psychiatric disorders, substance abuse, and high-risk behaviors. It has also been linked to all the major leading physical causes of death.[3] Perceived stress is a heritable tendency[4] to appraise negative events and resultant stress in one's life as frequent, unpredictable and uncontrollable along with a lack of resources to cope with negative events. The work environment has been frequently associated with perceived stress.

Psychosocial stress at work, characterized by an imbalance between efforts spent in terms of psychological and physical load and reward, is a risk factor for drug and alcohol use disorder.[5] People who work in demanding occupations are prone to work fatigue and addictive behavior, especially if their work schedule is arduous. Similarly, people living and working in stressful environments smoke more heavily and experience higher mortality from lung cancer and chronic obstructive pulmonary disorder. Thus, work related stress is an important determinant of health problems caused by drug and alcohol use.[6]

Substance use and abuse is among the leading preventable causes of premature death globally, and this burden is mainly driven by three substances: alcohol, tobacco and cannabis.[7] Previous studies have consistently linked high perceived stress with an increased risk of substance abuse.[4,8,9] Psychosocial factors such as perceived stress are associated with smoking[10] and tobacco-associated medical illnesses.[11] Robust associations exist between current tobacco smoking and perceived stress, such that smokers report greater stress compared to nonsmokers.[12] Furthermore, alcohol and marijuana are the most commonly abused substances globally while their chronic use is associated with a wide variety of health risks. The individual use of marijuana, alcohol, or tobacco significantly increased the odds of using a second substance. The use of a second substance generally produced additive effects in increasing the likelihood of using a third, especially in vulnerable individuals.[13]

Perceived stress is often measured with the Perceived Stress Scale (PSS), a validated tool originally developed as a 14-item scale (PSS-14) that assesses how respondents found their lives unpredictable, uncontrollable, and overloaded, designed for use in communities. Since the PSS items focus on the general nature of feelings and thoughts about stress rather than speciûc events or experiences, this scale is suggested to measure the global level of stress in any population.[14] Health-related quality of life (HRQOL) is also often impacted by perceived stress. HRQOL is a subjective and multidimensional measure of physical functioning and well-being related to health, incorporating satisfaction with physical, vitality and psychological state of mind, as well as social and occupational functioning.

The transport sector is a male-dominated, sedentary, accident-prone occupation with limited opportunities for healthy meals and exercise breaks.[15,16] Since stress is a recognized risk factor in the development of addiction and addiction relapse susceptibility, we explored the relationship between stress perception and self-reported lifestyles with HRQOL among long distance bus drivers in Lagos State.

MATERIALS AND METHODS

Ethical Consideration

Approval for the study was granted by the Health Research and Ethics Committee of the Lagos State University Teaching Hospital (LASUTH), Ikeja, Lagos, Nigeria. (Protocol Number: LREC/06/10/1177). The study participants were also informed about the objectives and protocol of the study, emphasizing that their participation was voluntary, and that their confidentiality was assured. Signed or thumb-printed consent was then obtained from the participants.

Study Setting and Population

This was a motor park based descriptive cross-sectional study done among bus drivers at the Ojota and Berger bus terminals in Lagos State, Nigeria. Lagos state has over 17 million residents living in 20 local government areas (LGAs), and 37 local council development areas consisting of about 2000 communities.[17] Moreover, the selected motor parks were major hubs in the Lagos metropolis which serve as a connecting nucleus to major cities in Lagos State and other Southwestern Nigerian states. The participants were bus drivers who operate the public intra and inter-city transport services in the metropolis. A multistage cluster sampling method was utilized to recruit drivers among those registered with the National Union of Road Transport Workers (NURTW) and Road Transport Employers Association of Nigeria (RTEAN). The first stage involved the selection of 2 clusters from the list of major registered motor parks that were hubs with a sizeable number of drivers in Lagos state. The second stage involved the random selection of drivers on the list of registered transporters in the two bus stations, using the list of registered drivers in the two garages as the sampling frame. Bus drivers employed for at least 3 years prior to the study, above 18 years old who gave informed consent were enlisted.

Sample Size Calculation

We calculated the sample size from the equation: $n = Z^2p(1-p)/d^2$ where, n = required sample size, z = confidence level at 95% (standard value of 1.96), p = expected prevalence or proportion of drivers with perceived stress in the reference study, and d = precision or margin of error at 5% (standard value of 0.05). Using a prevalence of 91% for prevalence of stress among truck drivers from a reference study,[18] a sample size of 126 was determined. We however surveyed 200 respondents.

Data Collection

An interviewer-administered

questionnaire was utilized for data collection. The questionnaire included sections on socio-demographic, HRQOL, health-related behavior such as cigarette smoking, alcohol consumption and cannabis use. Participants were asked whether they had ever used each product and, if so, the number of days they used each product in the past 30 days. Participants who reported having "never tried" a specific product were classified as "never users." Participants who had used a product but not in the last 30 days were classified as "former users." Participants who had used a product during the past 30 days were classified as "current (past 30-day) users" of that product. Ever-smokers (current and former users) were classified as those who had previously smoked cigarettes (who had smoked at least 100 cigarettes in their lifetime or who had smoked at least one cigarette per day for one year), while never smokers were those who had never smoked a cigarette previously. Cigarette smokers were categorized into light (1–5 cigarettes/day), moderate (6–10 cigarettes/day), or heavy smokers (≥11 cigarettes/day). Cannabis users were classified as daily users (heavy use), Occasional users (<twice weekly use), former users and never users. Moderate alcohol consumption was defined as taking up to 14 units of alcohol weekly while heavy drinking was defined as taking 2–4 drinks daily or more than 15 units weekly. Daily use of sedatives was defined as using sedative medication before sleeping daily while rare use of sedatives was defined as use ≤ once weekly. Drivers who had at least 150 minutes of moderate exercise weekly were classified as having regular exercise while those with less than 150 minutes of exercise weekly were classified as rarely exercising; Those who had more than 12 hours of uninterrupted sitting daily with little or no form of physical exercise were classified as sedentary. Good dietary habits were defined as 2–3 daily balanced meals containing fruits, vegetables, and whole grains, with little or no processed food or sweetened beverages; a fair dietary habit was classified as 1–2 daily balanced meals containing fruits, vegetables, and whole grains, with some processed food or sweetened beverages while poor diet was classified as ≤1 daily balanced meal containing fruits, vegetables, and whole grains with the rest of the diet mainly containing processed food or sweetened beverages.

HRQOL was evaluated using the Short Form Health Survey (SF-12), which is a shorter version of the established SF-36 Survey. The items in this assessment tool are based on eight sub-domains: bodily pain, general health, vitality, and social functioning; and physical functioning, mental health, role physical, and role emotional domains. The tool generates two summary scores correlating to the Physical Component Summary (PCS) and the Mental Component Summary (MCS) scores. SF-12 PCS includes general health, physical function, physical role limitation and bodily pain, while SF-12 MCS includes mental role limitation, vitality, social functioning and mental health. The total score for SF-12 PCS/MCS range from 0 to 100 respectively, with a higher number indicating a higher HRQOL.[19]

The Perceived Stress Scale-10 item developed by Cohen, *et al* (1983)[20] to measure the individual's appraisals of stressful life events was also utilized. Items were designed to reveal the degree to which respondents found their lives unpredictable, uncontrollable, and overwhelming in the last month. The Perceived Stress Scale is a five-point Likert scale ranging from 0 = never to 4 = very often. There were four reverse items that were written positively (items 4, 5, 7 and 8). Total scores range from 0 to 40 with higher scores indicating higher perceived stress. Scores above the sample mean PSS (19.07±5.46) were classified as high while those below were classified as low.

Data Analysis

The Statistical Package for Social Sciences IBM SPSS version 24.0 (IBM, Armonk, New York, USA) was used for data analysis. Descriptive statistics utilising mean and standard deviation; frequencies and percentages were computed to summarise the socio-demographics, physical activity and quality of life score for the participants. One-way ANOVA (for continuous data) and Chi square statistics (for categorical data) were used to compare socio-demographic variables with perceived stress and quality of life scores. Multivariable logistic regression analyses was conducted to calculate the adjusted odd ratios (ORs) and 95% conûdence intervals (CI), controlling for covariates including age, marital status, education status, income level and chronic illness. Statistical significance was at an alpha level of $p < 0.05$.

RESULTS

The mean scores for physical and mental components for SF-12 were 45.2 ±7.5 and 49.8 ±8.2. The mean PSS score was (19.07±5.46) while the prevalence of high perceived stress was 62%. In the bivariate association between socio-demographic characteristics, perceived stress and HRQOL, educational status was significantly associated with perceived stress and the physical component of SF-12 while income was significantly associated with the mental component of SF-12 (Table 1).

Current alcohol consumption (light and heavy) was 78% while 22% of the participants had never consumed alcohol; Current smoking status (light and heavy) was 63% while former use was 6% among the participants; Likewise, current cannabis use (light and heavy) was 44% while former use was 5% among the participants. In the bivariate analysis, perceived stress was significantly higher among those with harmful lifestyles: poor diet (OR: 1.42), alcohol consumption (OR: 1.86), heavy smoking (OR: 1.66), daily cannabis use (OR: 1.49) and sedentary lifestyle (OR: 1.45). Perceived stress and Harmful lifestyles were significant predictors for poor quality of life after controlling for socio-demographic and clinical variables ($p < 0.001$) (Table 2).

In Table 3, the multivariable regression analysis demonstrates the variables significantly associated with physical and mental summary components of SF-12. Primary education (OR: 1.78), poor diet (OR: 1.42), heavy alcohol consumption (OR: 1.86) , heavy smoking (OR:1.66) , daily cannabis use (OR:1,49), sedentary lifestyle (OR:1.45), high Perceived stress (OR:2.65) were significantly associated with the PCS of HRQOL; while primary education

Table 1: Bivariate association between Socio-demographic Characteristics, Perceived Stress and HRQOL

Variable	Frequency (n=200)	Percentage (%)	PSS Score Mean: 19.07±5.46 (High PSS: n=124; 66%)	SF-12 (PCS) Mean: 45.20±7.50 (High PCS: n=94; 47%)	SF-12 (MCS) Mean: 49.80±8.20 (High MCS: n=72; 36%)
Age Group (Years)					
≤30	22	11.0	20.40±4.34	48.18±3.94	46.23±8.11
31–40	57	28.5	19.65±4.13	45.75±5.31	50.02±10.70
41–50	93	46.5	18.29±5.93	45.41±12.32	49.53±8.81
51–60	17	8.5	17.94±6.16	43.64±3.56	53.31±14.19
>61	11	5.5	21.72±6.45	43.00±10.12	44.18±7.24
Mean±SD	42.70±10.5	11.0	F=1.803; p=138	F=0.774; p=0.543	F=1.803; p=0.130
Gender					
Male	193	96.5	19.06±5.49	45.54±9.52	49.28±9.72
Female	7	3.5	20.71±3.90	47.71±5.71	45.00±10.95
			F=1.296; p=0.256	F=0.359; p=0.550	F=0.622; p=0.431
Education					
Primary	15	7.5	15.47±7.16	42.76±3.76	56.75±14.04
Junior secondary	26	13.0	15.54±5.59	44.04±5.16	49.73±10.29
Senior secondary	102	51.0	20.39±4.41	45.19±8.37	48.74±9.64
Polytechnic	43	21.5	20.32±5.15	45.42±6.92	48.21±7.27
University	14	7.0	18.28±5.35	53.92±8.62	46.71±10.96
			F=7.368; p=0.000*	F=3.372; p=0.011*	F=2.220; p=0.069
Health Funding					
Insurance	14	7.0	21.07±2.73	47.93±4.65	48.42±9.83
Out of pocket	186	93.0	18.88±5.60	45.50±9.76	49.10±9.65
			F=2.097; p=0.149	F=0.844; p=0.360	F=0.064; p=0.801
Monthly family income (Naira)					
<10,000	2	1.0	20.50±6.36	50.50±2.12	42.00±0.00
10,000–19,999	8	4.0	20.37±2.56	50.87±2.23	44.25±6.16
20,000–49,999	29	14.5	19.48±5.56	42.79±4.69	45.31±9.15
50,000–99,999	78	39.0	20.33±4.09	46.67±9.21	49.50±8.67
100,000–149,999	34	17.0	16.91±6.76	44.81±15.30	52.26±11.51
>150,000	5	2.5	17.00±6.96	42.25±6.65	57.75±7.09
Don't know	12	6.0	20.09±6.63	43.81±6.31	45.90±10.95
Chose not to answer	32	16.0	17.30±6.54	44.83±5.26	51.37±11.20
			F=1.993; p=0.058	F=1.092; p=0.370	F=2.384; p=0.024*

*In 2019, 361 Naira ~ 1$US F- ANOVA *Significant*

(OR:2.13), low income: <10,000 naira (OR:1.23) , poor diet (OR:1.38) , heavy alcohol consumption (OR:2.11) , heavy smoking (OR:1.85) , daily cannabis use (OR:1.67) , sedentary lifestyle (1.43), high perceived stress (OR:2.91) were significantly associated with the MCS of HRQOL (Table 3).

DISCUSSION

Stress is the physical and emotional adaptive response to an external situation that results in physical, psychological and behavioral deviations. Stress is a risk factor in the initiation, maintenance, relapse, and thus treatment failure for addictive behaviour. Personnel in the transportation sector often experience inadequate rest and sleep deprivation due to long working hours, in addition to being deprived of home and other support systems. The prevalence of high perceived stress in this study was 62% while 36% of the drivers were moderate or heavy drinkers and 30% were heavy smokers. Furthermore, 49% of them used cannabis of which 20% of them had daily use. Workers in transportation industries have higher rates of mental disorders, depression and physical health effects than workers in other occupations.[21]

Vehicle operators in the transport sector are an occupational group with the highest prevalence of work-related stress and predisposition to addictive substance use[22] and many environmental factors have been adduced to this.[23,24] This tendency has also been documented by some observational studies.[25–27] Rowden, *et al*[25] and Useche, *et al*[26] found a positive association between work-related stress and risky behaviors at the wheel in professional drivers. This association was stronger among drivers with a relatively lower experience.[27] Similarly, professional driving is connected with stress-related to psychosocial factors, such as job strain,

Table 2: Bivariate association between Lifestyle Indicators, Perceived Stress and HRQOL

Variable		Frequency (n=200)	Percentage (%)	PSS Score **Mean:** 19.07±5.46	SF-12 (PCS) **Mean:** 45.2 ±7.5	SF-12 (MCS) **Mean**: 49.8 ±8.2
Alcohol Consumption						
	Never	44	22.0	15.74±6.71	48.62±4.07	52.72±10.90
Current	Light	84	42.0	20.07±5.49	45.39±9.75	46.12±4.79
	Heavy	72	36.0	22.50±4.43	46.83±5.42	42.75±3.77
				F=7.747; p=0.000*	F=0.659; p=0.655	F=2.693; p=0.023*
Smoking Status						
	Never	62	31.0	15.00±11.31	41.20±3.36	42.81±11.47
	Former	12	6.0	18.38±6.03	40.00±6.36	49.87±11.79
Current	Light	66	33.0	20.42±3.32	46.84±5.30	49.03±6.73
	Heavy	60	30.0	21.53±3.90	47.33±15.68	54.00±8.75
				F=4.286; p=0.001*	F=2.156; p=0.047*	F=1.407; p=0.013*
Cannabis Use						
	Never	102	51.0	15.22±5.37	40.26±3.48	41.62±8.26
	Former	10	5.0	18.25±5.75	42.07±4.67	46.45±6.45
Current	Occasional	48	24.0	19.52±5.31	44.61±6.13	47.93±5.67
	Heavy	40	20.0	24.56±2.77	47.33±15.68	52.23±6.36
				F=1.296; p=0.010*	F=0.798; p=0.005*	F=2.222; p=0.043*
Dietary Habits						
	Good	26	13.0	16.34±6.19	51.19±16.31	51.42±10.31
	Fair	97	48.5	17.00±2.91	45.60±9.41	49.98±10.10
	Poor	77	38.5	20.12±3.89	43.10±5.13	47.88±11.24
				F=2.434; p=0.036*	F=3.386; p=0.006*	F=1.576; p=0.169
Exercise						
	Regular	58	29.0	15.54±5.59	50.05±11.67	50.44±11.39
	Occasional	90	45.0	19.83±3.01	47.00±5.91	48.80±4.94
	Sedentary	52	26.0	21.50±5.19	42.77±9.52	46.80±4.93
				F=7.264; p=0.000*	F=4.122; p=0.001*	F=0.523; p=0.759
Sedatives use						
	Never	66	33.0	16.50±6.07	46.24±4.72	51.00±5.19
	Rarely	98	49.0	18.00±2.83	45.56±9.67	49.82±9.52
	Daily	36	18.0	21.56±5.75	49.82±13.46	46.75±7.99
				F=6.468; p=0.000*	F=2.955; p=0.022*	F=1.431; p=0.226

*F- ANOVA *Significant*

effort-imbalance, and social support at work. Useche, *et al*[28] found that fatigue influences the stress related to working conditions with risky driving in bus rapid transport drivers. A strong relationship between perceived stress and work-life conflict has also been found among drivers and other populations, especially in terms of mental health outcomes such as depression, anxiety, and substance addiction.[29–31] Personnel in the transportation sector often experience inadequate rest and have sleep deprivation due to long working hours, in addition to being deprived of home and other support systems. Stressful conditions due to irregular working schedules, night shifts, being distant from families for long periods, the need for constant mental alertness, and high productivity demands[32] increase risky behaviors such as smoking, drinking, using psychoactive substances, and having casual sexual contacts.[33]

Furthermore, in the bivariate analysis, perceived stress was significantly higher among those with harmful lifestyles: These findings are consistent with those of other studies suggesting a possible correlation between the increase of smoking and alcohol use, and work-related stress.[10–12] Alcohol and cigarettes could also be used as anti-anxiety or antidepressant agents to relieve the impact of job stress, and to self-medicate physiological effects induced by stress to achieve internal homeostasis. Psychosocial factors such as perceived stress are associated with smoking and tobacco-associated medical illnesses. The costs associated with alcohol amount to more than 1% of the gross national product in high-income and middle-income countries, with the costs of social harm constituting a major proportion in addition to health costs.[34] The social costs of smoking are usually estimated to be even higher than those of alcohol use, and the social costs of illicit drugs could be around billions of Euros in European countries.[35]

Increased odds of 1.86 for alcohol consumption was observed among study participants with high perceived stress.

Table 3: Multivariable Regression Analysis Demonstrating Variables Significantly Associated with Physical and Mental Summary Components of SF-12

Predictor Variables (Ref)	Outcome: SF-12 PCS		
	aOR	95% Confidence Interval	*p*-value
Constant		6.40–69.11	0.019*
Primary Education	1.78	0.866–5.021	0.006*
Low Income (<10,000 naira)	1.05	0.26–1.36	0.324
Poor diet	1.42	0.89–2.02	0.000*
Heavy alcohol consumption	1.86	1.29–5.61	0.000*
Heavy smoking	1.66	1.06–4.02	0.000*
Daily cannabis use	1.49	0.84–2.16	0.000*
Sedentary lifestyle	1.45	0.63–3.57	0.000*
High Perceived stress	2.65	0.86–5.02	0.000*
Predictor Variables (Ref)	**Outcome: SF-12 MCS**		
	aOR	95% Confidence Interval	*p*-value
Constant		54.92–104.70	0.000*
Primary Education	2.13	0.97–2.78	0.001*
Low Income (<10,000 naira)	1.23	0.84–1.89	0.014*
Poor diet	1.38	1.14–2.26	0.019*
Heavy alcohol consumption	2.11	1.53–4.57	0.000*
Heavy smoking	1.85	0.41–3.07	0.000*
Daily cannabis use	1.67	1.33–3.06	0.000*
Sedentary lifestyle	1.43	0.68–3.01	0.004*
High Perceived stress	2.91	2.41–4.88	0.001*

**Significant*

Physical and mental fatigue at work, was associated with a higher risk of an alcohol use disorder, consistent with previous studies.[36,37] Psychosocial stress at work, characterized by an imbalance between efforts spent in terms of psychological and physical load and reward, is a risk factor for alcohol use disorder.[36,37] Heavy workload or demanding jobs make workers with little personal and social resources prone to work fatigue and addictive behavior. At the neuro-biological level, work fatigue and alcohol use disorder are associated because of the link between stress and alcohol consumption.[36,37] Alcohol appears to be a stress reliever when craving for stress alleviation; this process involves both intracellular and dopaminergic extracellular mechanisms.

Increased odds of 1.66 for heavy smoking was also observed among respondents with high perceived stress. Consistent with this notion, those with higher levels of perceived stress and poorer quality of life are more likely to cite the need to reduce stress as a motive for smoking.[38] People who live and work in stressful environments are more likely to smoke heavily and experience higher mortality from lung cancer and chronic obstructive pulmonary disorders.[39] Stressful working conditions and conflicts in work–family balance has been associated with increased levels of smoking.[40,41] Stress in general and work-related stress in particular, are important determinants of smoking and over-indulgence in unhealthy foods, drugs and alcohol.[40,41]

Furthermore, increased odds of 1.49 was observed between daily cannabis use and high perceived stress. A recent meta-analysis reported that heavy marijuana use was linked with poorer HRQoL, with varying degrees of association observed across studies.[42] In addition, cannabis, the second most commonly used impairing drug in the world after alcohol,[43] is another common cause of impaired driving. According to a systematic review and meta-analysis performed by Asbridge, *et al,* acute cannabis consumption among drivers doubles the risk of crashes compared to non-user.[44] Driving related accidents cost about 518 billion dollars globally.[43]

Perceived stress and harmful life-styles were significant predictors for poor quality of life after controlling for socio-demographic and clinical variables ($p<0.001$). We found that alcohol, tobacco and cannabis use were individually associated with poor HRQOL and perceived stress, showing dose-dependent relationships. Poor mental quality of life was also associated with heavy smoking and alcohol consumption. Recent literatures have shown that current smokers have a worse SF-12 mental component summary score, indicating poor mental quality of life.[45,46] Similarly, epidemiological studies on global populations revealed that tobacco smokers reported a poorer quality of life: Schmitz and colleagues found that over half of almost 1200 smokers had at least one mental illness.[47] Smokers are also at risk for cognitive impairment, indicating that their mental quality of life may be severely compromised as a result of habitual smoking.[48] Consequently, perceived stress could determine a broad array of etiological sources and mental health problems relevant to smoking.

Truck drivers are a highly vulnerable and underserved working population with few personal and environmental resources to improve their health and well-being.[17] Brief preventive psycho-social interventions can effectively reduce perceived stress,[48] which may be a useful indicator of protracted risk for smoking and drug use and hence a screening tool for tobacco and drug use cessation services. These interventions should incorporate specific stress reduction components, such as teaching stress management techniques and educating drivers about health behavioral responses to stress. They should also be provided with mental health resources and counselors while promoting a healthier work environment and support systems for them.[49,50] This knowledge is critical to inform decision-makers in public health and occupational health.

Limitations of the Study

The study has certain limitations. Firstly, the descriptive cross sectional design of the study limits the causal inferences that can be deduced from the findings. Secondly, the responses of the respondents were subject to recall bias.

CONCLUSION

- A high prevalence of stress with negative impacts on quality of life was observed among our study cohort. Since 75% of Nigerians depend on the public buses driven by these hassled drivers, it is imperative that organized strategies are instituted to encourage lifestyle modification and ameliorate the effect of stress on the HRQoL of bus drivers in Nigeria. Health and wellness programs should be designed for bus drivers to reduce the impact of stress on their HRQOL.

What is known about this topic

- The transport sector is a male-dominated, sedentary, accident-prone occupation with limited opportunities for healthy meals and exercise breaks;
- Psychosocial stress at work, characterized by an imbalance between efforts spent in terms of psychological and physical load and reward, is a risk factor for drug and alcohol use disorder.

What this study adds

- To our knowledge, our study is the first among bus drivers in Nigeria that explored the relationship between stress perception and self-reported lifestyles with HRQoL among long distance bus drivers in Lagos State. An increased odds of tobacco, cannabis and alcohol consumption was observed among bus drivers with high perceived stress;
- Alcohol, tobacco and cannabis use were individually associated with poor HRQOL and perceived stress, showing dose-dependent relationships. We propose that health and wellness programs should be designed for bus drivers to reduce the impact of stress on their HRQOL.

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Competing Interests

The authors declare no competing interests.

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REFERENCES

1. Cohen S, Janicki-Deverts D, Miller GE. Psychological stress and disease. *JAMA.* 2007; **298:**1685–1687.
2. Muscatell KA, Eisenberger NI. A Social Neuroscience Perspective on Stress and Health. Soc Personal Psychol Compass. 2012; **6:** 890–904.
3. Kaufman JA. An adlerian perspective on guided visual imagery for stress and coping. *J Indiv Psych.* 2007: 63.
4. Federenko IS, Schlotz W, Kirshbaum C, Bartels M, Hellhammer DH, Wüst S. The heritability of perceived stress. *Psychol Med.* 2006; **36:** 375–385.
5. Siegrist J. Effort-reward imbalance at work and health. In: Historical and current perspectives on stress and health: Emerald Group Publishing Limited. 2002: 261–291.
6. Jeżewska M, Iversen R. Stress and fatigue at sea versus quality of life. *Int Marit Health.* 2012; **63:** 106–115.
7. WHO Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks: World Health Organisation, Geneva, Switzerland 2009. Accessed 07 May, 2021.
8. Fields S, Leraas K, Collins C, Reynolds B. Delay discounting as a mediator of the relationship between perceived stress and cigarette smoking status in adolescents. *Behav Pharmacol.* 2009; **20:** 455–460.
9. Kim K, Park H. Gender differences in the association between self-reported stress and cigarette smoking in Korean adolescents. *Tob Induc Dis.* 2016; **14:** 1.
10. Berg CJ, Wen H, Cummings JR, Ahluwalia JS, Druss BG. Depression and substance abuse and dependency in relation to current smoking status and frequency of smoking among nondaily and daily smokers. *Am J Addict.* 2013; **22:** 581–589.
11. Bhattacharya R, Shen C, Sambamoorthi U. Excess risk of chronic physical conditions associated with depression and anxiety. *BMC Psychiatry.* 2014;**14:** 10.
12. Slopen N, Dutra LM, Williams DR, Mujahid MS, Lewis TT, Bennett GG, *et al*. Psychosocial stressors and cigarette smoking among African American adults in midlife. *Nicot Tob Res.* 2012; **14:** 1161–1169.
13. Rochea JO, SBujarski S, Greenb R, Hartwellcd EE, Leventhal AM, Ray LA. Alcohol, tobacco, and marijuana consumption is associated with increased odds of same-day substance co- and tri-use. *Drug Alcohol Depend.* 2019; **200:** 40–49.
14. Cohen S, Williamson G. Perceived stress in a probability sample of the United States. In S. Spacapam & S. Oskamp (Eds.), The social psychology of health: Claremont Symposium on applied social psychology. Newbury Park, CA: Sage. 1988
15. Oyapero A, Oyapero O, Akinleye AI. Burden of tobacco, kola nut and alcohol consumption and its association with periodontal disease, potentially malignant lesions and quality of life among bus drivers, Lagos State, Nigeria. *Population Medicine.* 2020; **2:** 1–9.
16. Oyapero A, Akinleye AI, Owoturo EO. Knowledge and awareness about oral cancer: A descriptive study in Lagos state. *Edorium J Epidemiol.* 2016; **2:** 1–12.
17. Lagos State Ministry of Science and Technology, Lagos State Government. About Lagos. 2018. https://lagosstate.gov.ng/ about-lagos/. Accessed October 8, 2019.
18. Apostolopoulos Y, Sönmez S, Shattell MM, *et al*. Worksite-induced morbidities among truck drivers in the United States. *AAOHN J.* 2010; **58:** 285–296.
19. Ware JE, Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: Construction of scales and preliminary tests of reliability and validity. *Med Care.* 1996; **34:** 220–233.
20. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983; **24:** 385–396.
21. Ostan I, Poljsak B, Axelsson EP. Occupational stress perception and healthy lifestyle in railroad workers. *Promet-Traffic-Traffico.* 2011; **23:** 195–203.
22. Biggs H, Dingsdag D, Stenson N. Fatigue factors affecting metropolitan bus drivers: A qualitative investigation. *Work.* 2009; **32:** 5–10.
23. Santos, J, Lu J. Occupational Safety Conditions of Bus Drivers in Metro Manila. *Int J Occup Saf Ergon.* 2016; **22:** 508–513.
24. Gómez V, Cendales B, Useche S, Bocarejo JP. Relationships of working conditions, health problems and vehicle

accidents in bus rapid transit (BRT) drivers. *Am J Ind Med.* 2018; **61:** 336–343.
25. Rowden P, Matthews G, Watson B, Biggs H. The relative impact of work-related stress, life stress and driving environment stress on driving outcomes. *Accident Analysis & Prevention.* 2011; **43:** 1332–1340.
26. Useche S, Cendales B, Gómez V. Work stress, fatigue and risk behaviors at the wheel: data to assess the association between psychosocial work factors and risky driving on bus rapid transit drivers. *Data in Brief.* 2017; **15:** 335–339.
27. Useche S, Serge A, Alonso F. Risky behaviors and stress indicators between novice and experienced drivers. *Am J Applied Psych.* 2015; **3:** 11–14.
28. Useche SA, Ortiz VG, Cendales BE. Stress-related psychosocial factors at work, fatigue, and risky driving behavior in bus rapid transport (BRT) drivers. *Accid Anal Prev.* 2017; **104:** 106.
29. Apostolopoulos Y. Sonmez S. Lemke M. Mapping U.S. long-haul truck drivers' multiplex networks and risk topography in inner-city neighbourhoods. *Health Place.* 2015; **34:** 9–18.
30. Apostolopoulos, Y, Sönmez S, Hege A, Lemke MK. Work strain, social isolation and mental health of long-haul truckers. *Occup Ther Ment Health.* 2016; **32:** 50–69.
31. Damaske S, Zawadzki MJ, Smyth JM. Stress at work: Differential experiences of high versus low SES workers. *Soc Sci Med.* 2016, **156:** 125–133.
32. Wagstaff AS, Sigstad Lie JA. Shift and night work and long working hours - a systematic review of safety implications. *Scand J Work Environ Health.* 2011; **37:** 173–185.
33. Zhang X, Chow EP, Wilson DP, Sun X, Zhao R, Zhang J, *et al.* Prevalence of HIV and syphilis infections among long-distance truck drivers in China: a data synthesis and meta-analysis. *Int J Infect Dis.* 2013; **17:** e2–e7.
34. Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J. Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet.* 2009; **373:** 2223–2233.
35. Rehm J, Shield KD, Gmel G, Rehm MX, Frick U. Modeling the impact of alcohol dependence on mortality burden and the effect of available treatment interventions in the European Union. *Eur Neuropsychopharmacol.* 2013; **23:** 89–97.
36. Cunradi CB, Greiner BA, Ragland DR, Fisher JM. Burnout and alcohol problems among urban transit operators in San Francisco. *Addict Behav.* 2003; **28:** 91–109.
37. Gorter RC, Eijkman MA, Hoogstraten J. Burnout and health among Dutch dentists. *Eur J Oral Sci.* 2000; **108:** 261–267.
38. Tian J, Venn AJ, Blizzard L, Patton GC, Dwyer T, Gall SL. Smoking status and health-related quality of life: a longitudinal study in young adults. Quality of Life Research 2015. Available at: https://doi.org10. 1007/s11136-015-1112-6.
39. Schneiderman N, Ironson G, Siegel SD. Stress and health: psychological, behavioral, and biological determinants. *Annu Rev Clin Psychol*. 2005; **1:** 607–628.
40. Scuri S, Tesauro M, Petrelli F, Peroni A, Kracmarova L, Grappasonni I. Implications of modified food choices and food-related lifestyles following the economic crisis in the Marche Region of Italy. *Ann Ig.* 2018; **30:** 173–179.
41. Petrelli F, Grappasonni I, Peroni A, Kracmarova L, Scuri S. Survey about the potential effects of economic downturn on alcohol consumption, smoking and quality of life in a sample of Central Italy population. *Acta Biomed.* 2018; **89:** 93–98.
42. Goldenberg M, IsHak WW, Danovitch I. Quality of life and recreational cannabis use. *Am J Addict.* 2017; **26:** 8–25.
43. Jacobs G, Aeron-Thomas A, Astrop A. Estimating global road fatalities; 2000.
44. Asbridge M, Hayden JA, Cartwright JL. Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *BMJ.* 2012; **344:** e536.
45. Bazargan M., Cobb S, Castro Sandoval J, Assari S. Smoking Status and Well-Being of Underserved African American Older Adults. *Behav Sci.* 2020; **10:** 78. https://doi.org/10.3390/bs10040078
46. Bekele T, Rueda S, Gardner S, Raboud J, Smieja M, Kennedy R, *et al.* Trends and Correlates of Cigarette Smoking and Its Impacts on Health-Related Quality of Life Among People Living with HIV: Findings from the Ontario HIV Treatment Network Cohort Study, 2008–2014. *AIDS Patient Care STDS.* 2017; **31:** 49–59.
47. Schmitz, N.; Kruse, J.; Kugler, J. Disabilities, quality of life, and mental disorders associated with smoking and nicotine dependence. *Am J Psychiatry.* 2003; **160:** 1670–1676.
48. Deckro GR, Ballinger KM, Hoyt M, Wilcher M, Dusek J, Myers P, *et al.* The evaluation of a mind/body intervention to reduce psychological distress and perceived stress in college students. *J Am Coll Health.* 2002; **50:** 281–287.
49. Lemke, M.; Apostolopoulos, Y. Health and wellness programs for commercial motor-vehicle drivers: Organisational assessment and new research directions. *Workplace Health Saf.* 2015; **63:** 71–80.
50. Prochaska JJ, Das S, Young-Wolff KC. Smoking, Mental Illness, and Public Health. *Annu Rev Public Health.* 2017; **38:** 165–185.