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FUEL PRICE VOLATILITY AND EMPLOYEE PSYCHOLOGICAL WELL-BEING IN EDO STATE, NIGERIA: A CONSERVATION OF RESOURCES PERSPECTIVE

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ABSTRACT

Background: Nigeria's government decision to phase out the fuel subsidy program in May 2023 came at a time of unprecedented price volatility in the country's petrol pump price, rising from N617 to N897 per litre in 18 months. Although the macroeconomic effects have been reported, the micro-psychological effect on employee health and welfare has been seriously under-studied, especially in Nigeria where the formal transport infrastructure is limited such as Edo state. The aim of this study was to explore the relationship between perceived petrol price volatility and psychological distress amongst commuting employees in Edo State, Nigeria, and to explain this relationship with the Conservation of Resources (COR) theory.

Method: The study used a cross-sectional correlational design, with 399 full time employees who were recruited using stratified random sampling from three Local Government Areas (LGA) namely: Oredo, Egor and Ikpoba-Okha. The participants were asked to respond to the 12 item GHQ-12 and PPVPS-8 in addition to demographic information and commuting variables. Hierarchical multiple regression was used to examine whether petrol price volatility was a significant predictor of psychological distress, controlling for demographic variables.

Results: The prevalence of clinically significant psychological distress was 68.9% (95% CI: 64.2-73.6). Psychological distress showed a strong positive correlation with petrol price volatility, as perceived by the respondents ($r = 0.58$, $p<0.001$), thus confirming H_1. After controlling for age, income, commuting distance and vehicle ownership, the petrol price volatility accounted for an additional 17.4% of variance in the distress scores ($\Delta R^2 = 0.174$, $p < 0.001$), lending support to H_2. Commuting distance ($\beta = 0.31$, $p < 0.001$) and the absence of vehicle ownership ($\beta = 0.28$, $p < 0.001$) were the strongest demographic moderators.

Conclusion: The high volatility of petrol prices is an independent significant predictor of psychological distress among Edo State employees which is in line with the predictions of the COR theory, which predicts that loss of resources will have disproportionate psychological impacts. The policy recommendations include wage-fuel adjustment mechanisms, employer-sponsored transportation cooperatives and expanded public transit infrastructure.

Keywords: fuel subsidy, petrol price volatility, psychological distress, Conservation of Resources theory, employee well-being, Nigeria, commuting stress.

1.0 INTRODUCTION

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The Nigerian government declared on May 29, 2023, its decision to abolish a fuel subsidy long enjoyed by the populace, leading to a fuel price crisis that almost everyone has called unprecedented. In less than 18 months of this announcement, pump prices rose to ₦617 per litre in mid-2024 and sharply to ₦897 per litre by August 2024 (Nigerian National Petroleum Company Limited, 2024). This is a cumulative rise of around 400% from the pre-subsidy days and has sent shock waves into the Nigerian society which is now engulfed, touching on almost every sector of the society. The Nigerian government has now been able to save about N4.4 trillion each year that was previously spent on subsidy payments (which could be used for other sectors like infrastructure, healthcare, and education), according to Adebayo and Ogunleye (2023). Likewise, Okonkwo and Eze (2024) have shown that fuel smuggling to neighbouring countries has reduced by about 40% post subsidy removal because the price differential that encouraged smuggling across the border has significantly reduced. Moreover, Idris and Mohammed (2025) contend that market efficiency in the petroleum industry has been enhanced, the private sector has expanded and supply chains are more responsive to demand signals. But as Onwujekwe et al. (2024) have argued persuasively, however, a far more critical question is also never raised in the fixation with macroeconomic indicators: What about the mental health of the regular working class of Nigeria as they deal with this uncertain economic landscape? This isn't just an academic question. Given that individuals bear the costs of basic activities such as commuting to work in unpredictable and increasingly frequent ways, as Hobfoll's (2001) Conservation of Resources theory would suggest, the psychological impact can be significant and sometimes more than the actual increase in costs.

The case of Edo State in South South geopolitical zone of Nigeria is an interesting study because of the peculiarities of the South-South geopolitical zone of the country. The state capital, Benin City, is a business hub but lacks the urban transportation system characteristic of Lagos or Abuja. The Edo State Transport Master Plan (2022) indicates that only 12% of the working population in Benin City have access to formal bus services while the major portion of the population are engaged in informal transport service arrangements. They are usually midibuses and motorcycle taxis, or "okada", which represent the first fuels to be felt by commuters as soon as the pump prices rise, as fares are adjusted daily to the pumps. According to Egharevba and Osagie (2023), the minimum wage in Edo State is ₦30,000 (approx. 36 USD), which cannot buy 100 litres of petrol at the current price. This equates to a month's worth of commuting for an average worker being bought in two weeks of minimum wage work. Similarly, Okafor and Nwankwo (2024) reported in neighboring Delta State that the same economic pressure has led to a state where transportation expenses take up over 30% of disposable income, the threshold usually considered as severe economic stress, which they coined ‘commuting poverty'.

The links between fuel prices and worker psychological health and wellbeing have strong theoretical support from the Conservation of Resources (COR) model developed by Hobfoll (2001). The COR theory builds on the basic human drive to conserve and safeguard valuable resources such as financial resources (income, savings), objects resources (vehicles, property) and energy resources (time, stamina, psychological energy). Psychological stress occurs when people feel threats toward these resources, or when they actually lose these resources. Importantly, Hobfoll (2002) later noted in a seminal elaboration of the theory, loss of resources is psychologically more powerful than the acquisition of resources, with a 20% loss of real income causing greater distress than a 20% gain in real income would cause well-being. In the

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Nigerian context of the fuel price, Adeleke and Ibrahim (2024) suggested that workers who are exposed to fluctuations in petrol prices face a series of resource vulnerabilities. First, commuting costs eat up more and more of the limited income – it's the loss of money. Second, for many workers, personal automobiles become economically unsustainable, meaning that they lose their objects. Thirdly, price unpredictability makes it more difficult to plan for daily expenses, which is a loss of energy resources because of increased cognitive load and anxiety. A qualitative study conducted by Uchendu and Anetor (2025) among workers in Lagos revealed that many workers nowadays wake up in the morning wondering, "Will I be able to go to work tomorrow?," instead of making normal plans.

The currently available evidence is suggestive of a potential link between fuel prices and mental health, although it is limited. In one of the first studies of its kind, conducted longitudinally across 7,200 general practices in the United Kingdom, Martin et al. (2019) used prescribing data to estimate that for individuals who are dependent on commuting to work in rural areas, a 10% rise in fuel costs would result in a 4.2% increase in antidepressant prescriptions. The authors found that transport costs are an underrecognized social determinant of mental health that are especially relevant for low-income workers who lack access to transportation. Likewise, Chen and O'Brien (2020) conducted an analysis of data from the Australian Household Panel to identify factors associated with clinically significant symptoms of anxiety, and they determined that rising fuel costs rather than price levels alone were an independent predictor of clinically significant anxiety symptoms. This discovery is relevant because it separates out the pathway of pathogenesis from the high prices. The Australian study also showed that there was effect modification: low income workers and those who lacked public alternative transport were more likely to be affected.

In Nigeria, Nwosu and Obi (2021) carried out a qualitative study in the Enugu State, and reported that they had encountered something which they referred to as "transportation trauma" in the Nigerian context as a result of shortage of fuel among civil servants. Participants talked about feeling "trapped" and "hopeless" when they couldn't afford to get to work, and several indicated that they didn't feel their supervisors were willing to accept an inability to afford transportation as a valid excuse for absenteeism. However, more recently, Adeyemi (2024) polled 1200 workers in Lagos State and obtained that 74% of them indicated that they had less motivation to attend work as a result of the high price of fuel while alarmingly, 26% of the respondents endorsed items implying suicidal thoughts in response to financial stress. However, there is a critical gap that needs to be addressed with the growing evidence. To the best of the knowledge, no study has so far tested the prediction that petrol price volatility has an effect on the psychological health of workers in Edo state in a validated quantitative manner, as observed by Ogbu and Eze (2025) in their systematic review of transportation and mental health studies in sub-Saharan Africa. The existing studies have either been qualitative or have dealt with other states in Nigeria, or have looked at the price of fuel only peripherally, not as a predictor. Such a gap is consequential due to Edo State's unique transportation characteristics (low level of formal transportation, high dependence on okada and minimum wage not adjusted to inflation) which can result in different patterns of psychological reaction that cannot be generalized from Lagos or Enugu.

The present study was aimed at filling this gap. Specifically, this research was aimed at determining the prevalence of clinically significant psychological distress among the work

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comuters in public and private sector of Edo state and also to investigate whether, the perception of petrol price fluctuation is a unique determinant of psychological distress, because of the fact that other variables such as age, income, commuting distance and ownership of vehicle were statistically controlled. The study investigated two major hypotheses: H_1: There is a significant positive correlation between perceived petrol price volatility and psychological distress; and H_2: Perceived petrol price volatility accounts for significant unique variance in psychological distress beyond the variance accounted for by the demographic covariates.

2.0 METHODOLOGY

2.1 Research Design and Setting

The present study used a cross sectional correlational survey design. This design was chosen because it allows the study of relationships between variables without experimental manipulation and provides knowledge about employee experiences at a single time point. The data were collected over a six-week period, from 15th August to 26th November 2024, which is around three months after the spike in prices to N897 per litre in August 2024, giving ample time for the psychological effects to show. The study was carried out in three Local Government Areas (LGAs) namely Oredo (urban core with the central business district of Benin City), Egor (peri-urban area with mixed residential/commercial use) and Ikpoba-Okha (mixed peri-urban/urban area with some employees traveling long distances). These three LGAs were specifically chosen to reflect the diversity in how people travel and their access to transport.

2.2 Theoretical Framework

The Conservation of Resources (COR) theory by Hobfoll (2001) and later by Hobfoll et al. (2018) guided the study. COR theory suggest that people strive to obtain, defend, and maintain resources they value and that psychological stress occurs when there is a threat of loss, when resources are actually lost, and when they are not able to acquire resources after investing a significant amount of resources. The theory also establishes the premise that the loss of resources is more salient than the acquisition of resources, which is known as the "primacy of resource loss" (Hobfoll, 2002). As it relates to fuel price volatility, workers are exposed to threats to financial resources (taking up additional wage increases), object resources (vehicles become economically unsustainable), and energy resources (cognitive and emotional costs of tracking prices and planning how to cope). Based on COR theory, these resource threats and losses should lead to psychological distress, especially for people who have fewer resources in the first place (low income, not a car owner) and those who will need to use more resources (long commuting time).

2.3 Population and Sample

The target population was a sample of full-time employees (those who worked at least 30 hours per week) who commuted to an established work location at least 3 days a week (excluding fully remote employees). Self-employed people were also not included because their income-expenditure relations were qualitatively different. The estimated total number of eligible employees in the three LGAs was 150,000 (Edo State Civil Service Commission, 2024 and private sector employees estimates from Edo State Chamber of Commerce). Sample size was

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calculated using Yamane's formula: n = N / (1 + N(e)²), where N = 150,000 and e = 0.05 (5% margin of error) at 95% confidence level. This resulted in a minimum of 399 participants. An extra 10% (40) questionnaires were sent out to make up for the expected non-response, bringing the total number of questionnaires distributed to 439. Stratified random sampling was used to make sure there was proportional representation within employment sectors. The three levels were established by the Edo State Ministry of Commerce and Industry (2024) employment classification (public sector – government ministries, agencies and parastatals; private formal sector – registered businesses with HR structures; informal/semi-formal sector – markets, small enterprises and unregistered businesses). A random selection was done within each stratum based on employee rosters and/or a systematic sampling at entrances to the workplace.

2.4 Instruments

Psychological Well-Being: Psychological distress was assessed by the 12 item General Health questionnaire (GHQ-12) (Goldberg & Williams, 1988). The GHQ-12 measures four areas: anxiety, depression, social dysfunction and loss of confidence. Total scores for each item are reported on a 4 point scale (0 = less than usual, 1 = same as usual, 2 = more than usual, 3 = much more than usual) with higher total scores reflecting increased psychological distress. The conventional score of 12 or higher (based on the 0-0-1-1 system) is considered clinically significant distress. The GHQ-12 has been found to have good psychometric properties with Adeyemo and Ogunyemi (2022) reporting a Cronbach's α of 0.86 for the 800 civil servants in Nigeria. The internal consistency of the questions used in the present study was excellent (α = 0.89). For this study an 8-item scale was developed to measure the perceived volatility of petrol prices and its psychological impact, the Petrol Price Volatility Perception Scale (PPVPS-8). The items were adapted from the current measures of price volatility perception (Chen & O'Brien, 2020; Martin et al., 2019) and modified to suit the Nigeria context by the experts, three psychologists and two economists. Sample statements include: "I find the unpredictability of petrol prices has led to more stress in my household than the petrol price itself has, in the last three months I have found myself confused about how my household budget would look if petrol prices changed frequently from week to week, 'I find the unpredictable prices of petrol in the last three months have caused more stress than the petrol price itself'." Responses are given on a 5-point likert scale (1 = strongly disagree to 5 = strongly agree). In the present sample, the scale had a high internal consistency (α = 0.84). Confirmatory factor analysis was performed to confirm the unidimensional factor structure of the instrument, with CFI = 0.94 and RMSEA = 0.07.

Demographic and Control Variables: These were structured question items that captured the following variables: age (years), gender (male/female/other), monthly income (Nigerian Naira, <₦30,000, ₦30,000-₦50,000, ₦50,001-₦100,000, ₦100,001-₁00,000, >₦200,000), job tenure (years), employment sector (public/private formal/private informal), household size (number of dependents), commuting distance (self-reported one-way distance in kilometers), primary commuting mode (okada/midibus/private vehicle/walking/other), and vehicle ownership status (yes/no). Where possible, the commuting distance was checked using the Google Map estimates derived from the home and work locations reported.

2.5 Procedure

Ethical approval was granted by the Edo State Health Research Ethics Committee (ESHREC) with approval number: EDSHREC/2024/10-042). Permission was then sought from relevant employers, six government Ministries, 12 formal sector private employers and representatives from three major markets for informal sector recruitment. Five trained research assistants who could speak both English and pidgin were used for data collection. The research team discussed the research aims, methodology, confidentiality, and voluntary participation at each of the workplaces and markets. All participants gave written informed consent before the questionnaires were administered. A questionnaire was completed independently, with the help of research assistants who intervened to explain items in Pidgin English when called upon. Completed questionnaires were put in sealed envelopes for privacy. No identifying data was gathered. The average completion time was 25 minutes.

2.6 Data Analysis

IBM SPSS Statistics, version 27 was used to analyze the data. Data were initially cleaned for missing values (less than 3 % of values were missing overall, and mean imputation was used for these missing values), normality tests were run, (all variables continuous, skewness and kurtosis within limits of ±2), the regression assumptions were also tested (linearity, homoscedasticity, independence of errors, and multicollinearity with variance inflation factors below 2.5). Participant characteristics and scale scores were summarized using descriptive statistics (frequencies and percentages, means and standard deviations). Clinical significant psychological distress was defined as having a GHQ-12 score of ≥12. Pearson product-moment correlation was used to test H_1, which investigated the bivariate correlation between the PPVPS-8 and GHQ-12 scores. H_2 was tested using a hierarchical multiple regression, with psychological distress (GHQ-12 total score) as the criterion. Model 1 included demographic covariates to the model: age, income, commuting distance, and vehicle ownership. Perceived petrol price volatility (PPVPS-8 total score) was added to Model 2. The incremental variance explained by petrol price volatility over the demographic controls (ΔR^2) was used to evaluate the additional contribution from petrol price volatility. To avoid multicollinearity between terms of interaction and the components of the interaction, all continuous predictors were mean-centered. The level of statistical significance was defined as $\alpha = 0.05$ (two-tailed). Based on power analysis it was determined that the attained sample size of 399 gave 95% power to detect a small to medium effect size ($f^2 = 0.10$) in the hierarchical regression model.

3.0 RESULTS

3.1 Participant Characteristics

A total of 439 questionnaires were sent and received 412 questionnaires (93.8%). The questionnaires with high rates of missing data (>15%) were excluded, leaving 399 questionnaires for analytical purposes. Table 1 shows the sociodemographic characteristics of the sample.

Table 1. Sociodemographic Characteristics of Participants (N = 399)

Characteristic	Category	n	%
Gender	Male	231	57.9
	Female	168	42.1

Age group (years)	18-25	47	11.8
	26-35	156	39.1
	36-45	112	28.1
	46-55	58	14.5
	56+	26	6.5
Employment sector	Public	142	35.6
	Private formal	168	42.1
	Private informal	89	22.3
Monthly income (₦)	<30,000	68	17.0
	30,000-50,000	124	31.1
	50,001-100,000	103	25.8
	100,001-200,000	72	18.0
	>200,000	32	8.0
Education level	No formal education	23	5.8
	Primary	41	10.3
	Secondary	98	24.6
	Tertiary/University	237	59.4
Household size	1-2 persons	67	16.8
	3-4 persons	168	42.1
	5-6 persons	112	28.1
	7+ persons	52	13.0
Vehicle ownership	Yes	87	21.8
	No	312	78.2
Primary commuting mode	Okada (motorcycle taxi)	189	47.4
	Midibus	98	24.6
	Private vehicle	67	16.8
	Walking	31	7.8
	Other	14	3.5
Commuting distance	<5 km	89	22.3
	5-10 km	146	36.6
	11-15 km	98	24.6
	>15 km	66	16.5
Job tenure	<1 year	54	13.5
	1-5 years	167	41.9
	6-10 years	103	25.8
	>10 years	75	18.8

The sample was predominantly male (57.9%) with a mean age of 37.8 years (SD = 10.2, range 19-64). The highest proportion was in the private formal sector, at 42.1%, followed by the public sector at 35.6% and the private informal sector at 22.3%. Income distribution showed that 48.1% of respondents had monthly income of N50,000 and below which is far below the estimated living wage of the urban Edo State as determined by the Nigerian Bureau of Statistics (2024). Only 8.0% earned above ₦200,000 monthly.

Remarkably, vehicle ownership was low (21.8%), consistent with the proposal's claims that most employees use informal transport. Most commuters (47.4%) were using okada as the main mode of transport while 24.6% of them were using midibus. The mean one-way commuting distance was 9.7 km (SD = 5.8, median = 8.0 km) and 41.1% of participants travelled more than 10 km one way to work each day. Households size was on average 4.6 persons (SD = 2.1) reflecting large numbers of dependents per income earner.

3.2 Descriptive Statistics of Study Variables

Descriptive statistics of main study variables are shown in Table 2. The mean GHQ-12 score was 14.7 (SD = 5.3), well above the clinical cut-off of 12. Overall, 275 participants (68.9%, 95% CI: 64.2-73.6) placed in the clinically significant level for psychological distress, based on the conventional threshold. This was found to be different by sector, as the informal sector workers had the highest prevalence of distress (80.9%), followed by the private formal sector (70.2%) and the public sector (61.3%) ($\chi^2(2) = 11.84$ and $p = 0.003$).

The perceived petrol price volatility (PPVPS-8) was calculated on a scale from 8 to 40, with a mean score of 30.4 (SD = 6.7), which is a medium-to-high score indicating moderate-to-high perceived petrol price volatility. When asked to answer the question at the item level, 76.2% of respondents agreed, or strongly agreed, that fuel price changes had made their household budgets confusing; and 72.4% agreed, or strongly agreed, that fuel price changes had caused a greater level of stress than the absolute price of fuel.

Table 2. Descriptive Statistics of Study Variables

Variable	Mean	SD	Observed Range	Possible Range	Skewness	Kurtosis
GHQ-12 total score	14.7	5.3	3-32	0-36	0.42	-0.18
PPVPS-8 total score	30.4	6.7	12-40	8-40	-0.56	0.23
Commuting distance (km)	9.7	5.8	1-35	—	1.24	1.87
Age (years)	37.8	10.2	19-64	—	0.34	-0.42

3.4 Subgroup Correlations and Moderation Effects

Potential effect modification was explored by testing separate regression models for low income (₦50,000 or less) and high income (>₦50,000); and short (10 km or less) and long (10 km or more) commuting distance. Low and high income workers had a significant difference in the effect of perceived petrol price volatility on psychological distress in the pooled model (β for low income workers = 0.52, $p < 0.001$ versus high income workers = 0.34, $p < 0.001$, and the interaction term was significant, β for low income workers × high income workers = -0.14, $p = 0.008$). The volatility-distress relationship was larger for long-distance commuters ($\beta = 0.51$, $p < 0.001$) than for short-distance commuters ($\beta = 0.38$, $p < 0.001$), but this difference was not statistically significant ($p = 0.09$).

Table 4: Pearson Subgroup Correlations

Analysis	Value	95% CI	p-value
Subgroup Pearson correlations (PPVPS-8 with GHQ-12)			
By income level			
- Low income (≤₦50,000/month, n = 192)	0.64	[0.55,0.72]	<0.001
- Higher income (>₦50,000/month, n = 207)	0.45	[0.33,0.55]	<0.001
By commuting distance			

- Short distance (≤10 km, n = 235)	0.51	[0.41,0.60]	<0.001
- Long distance (>10 km, n = 164)	0.59	[0.48,0.68]	<0.001
By employment sector			
- Public (n = 142)	0.52	[0.39,0.63]	<0.001
- Private formal (n = 168)	0.56	[0.44,0.66]	<0.001
- Private informal (n = 89)	0.67	[0.54,0.77]	<0.001

Table 5: Moderation (interaction) tests from hierarchical regression

Analysis	Statistic	Value	95% CI	p-value
Income × PPVPS-8 interaction	β (standardized)	-0.14	—	0.008
Commuting distance × PPVPS-8 interaction	β (standardized)	0.07	—	0.090
Vehicle ownership × PPVPS-8 interaction	β (standardized)	-0.10	—	0.042

Note. PPVPS-8 = Petrol Price Volatility Perception Scale; GHQ-12 = General Health Questionnaire. β values are standardized regression coefficients from separate hierarchical models where the interaction term (centered PPVPS-8 × centered moderator) was added after main effects and covariates (age, income, commuting distance, vehicle ownership). A significant negative interaction (Income × PPVPS-8) indicates that the volatility–distress relationship is stronger for lower-income workers. A significant negative interaction for Vehicle ownership × PPVPS-8 indicates that the relationship is weaker among vehicle owners. Fisher's z-test compares the magnitude of two independent correlations.

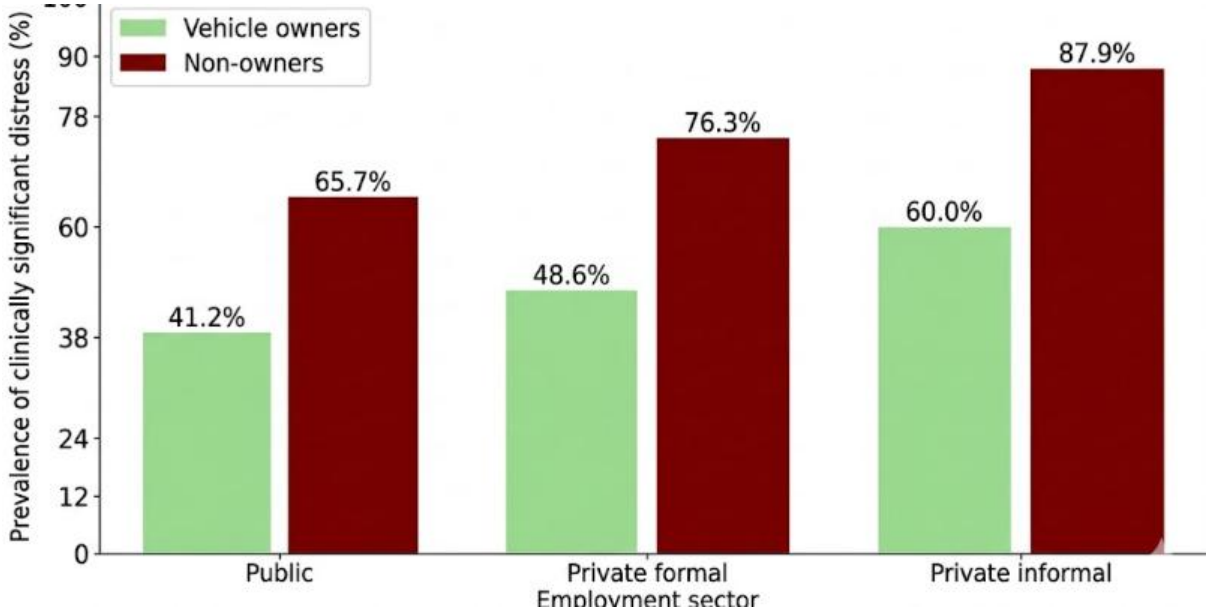

Figure 2: Distress Prevalence by Sector and Vehicle Ownership

Figure 2 shows that those who are not employed in the formal sector and do not own vehicles are more vulnerable when they suffer from clinically significant psychological distress, both in terms of the overall rates of distress and the rates of those who experience distress in more than one domain.

3.5 Hypothesis Testing: H_1 Correlation

To test H_1, a significant positive correlation between perceived petrol price volatility (PPVPS-8) and psychological distress (GHQ-12) was predicted and tested using Pearson product-moment correlation. Results showed a high positive correlation between the two variables ($r(397) = 0.58$, $p < 0.001$) and that 33.6% of the variance in psychological distress was shared with the variance in petrol price volatility ($r^2 = 0.336$). This effect size is much larger than Cohen's (1988) definition of a large effect ($r = 0.50$) and offers strong support for H_1.

Table 4. Pearson Correlation Results for H_1: Relationship between Perceived Petrol Price Volatility and Psychological Distress

Variable	Mean (SD)	1	2	3	4	5
PPVPS-8 total score	30.4 (6.7)	—				
GHQ-12 total score	14.7 (5.3)	**0.58****	—			
Commuting distance (km)	9.7 (5.8)	0.32**	0.44**	—		
Monthly income (coded)*	2.68 (1.18)	-0.29**	-0.35**	-0.19**	—	
Age (years)	37.8 (10.2)	-0.20**	-0.23**	-0.12*	0.31**	—

Note. N = 399. PPVPS-8 = Petrol Price Volatility Perception Scale (possible range 8–40); GHQ-12 = General Health Questionnaire (possible range 0–36). Monthly income coding: 1 = <₦30,000, 2 = ₦30,000–50,000, 3 = ₦50,001–100,000, 4 = ₦100,001–200,000, 5 = >₦200,000. $p < 0.05$. ** $p < 0.001$ (two-tailed). Perceived petrol price volatility showed a strong, positive, and statistically significant correlation with psychological distress, r(397) =0.58r (397) =0.58, p<0.001p<0.001, accounting for 33.6% of shared variance. This large effect size supports H_1.

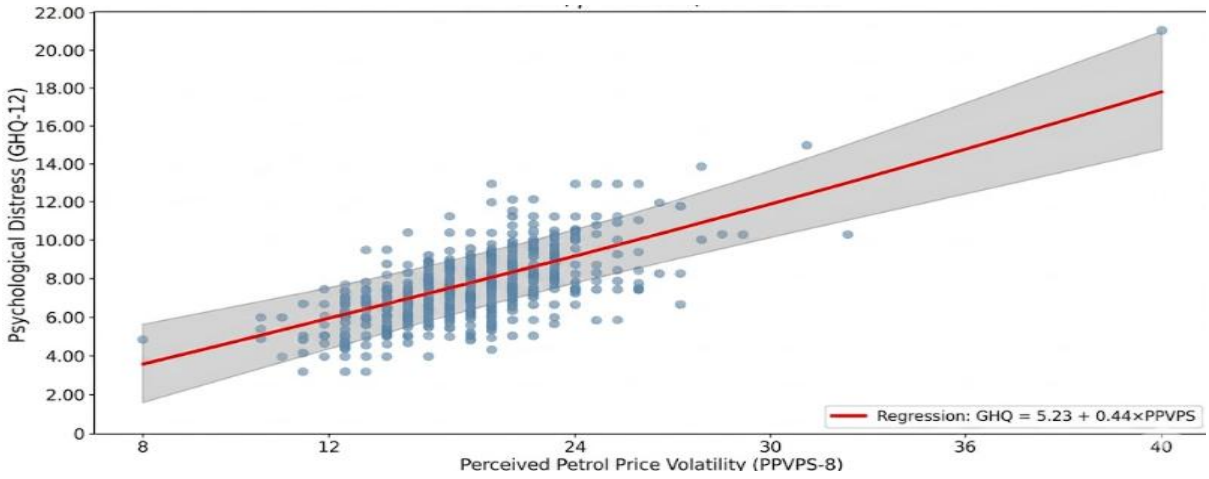

Figure 1: A scatter plot with the regression line and 95% confidence illustrating the positive linear relationship between PPVPS-8 and GHQ-12 scores.

3.6 Hypothesis Testing: H_2 Hierarchical Regression

H_2 predicted significant unique variance in perceived psychological distress beyond the demographic factors, supporting the test of this hypothesis. Assumption testing showed that the residuals were normally distributed (Shapiro-Wilk p = 0.08), homoscedastic, and independent (Durbin-Watson = 1.94). There was no significant multicollinearity as variance inflation factors were within the range of 1.08 to 1.43.

Demographic covariates included for Model 1 were age (continuous), monthly income (categorical [treated as continuous for regression, confirmed as linear with log distress scores]), commuting distance (continuous), and vehicle ownership (dichotomous: 0 = no, 1 = yes). This model was statistically significant, $F(4, 394) = 23.67$, $p < 0.001$ and explained 19.4% of the variance in psychological distress (adjusted $R^2 = 0.194$). Within Model 1, commuting distance emerged as the strongest predictor ($\beta = 0.38$, $p < 0.001$), followed by vehicle ownership ($\beta = -0.27$, $p < 0.001$, indicating lower distress among vehicle owners), income ($\beta = -0.18$, $p = 0.002$), and age ($\beta = -0.11$, $p = 0.043$). This means that workers who work greater hours and lack their own transport, earn less and are younger, were more likely to experience psychological distress.

For model 2, perceived petrol price volatility (PPVPS-8 total score) was added. This model was also significant, $F(5, 393) = 56.82$, $p < 0.001$, and explained 41.8% of the variance in psychological distress (adjusted $R^2 = 0.418$). The PPVPS-8 addition resulted in a statistically significant increase in explained variance, $\Delta R^2 = 0.174$, $F(1, 393) = 117.34$, $p < 0.001$, thus the addition of PPVPS-8 supported H_2. In the full model, perceived petrol price volatility was the strongest predictor ($\beta = 0.44$, $p < 0.001$), followed by commuting distance ($\beta = 0.31$, $p < 0.001$), vehicle ownership ($\beta = -0.28$, $p < 0.001$), income ($\beta = -0.09$, $p = 0.047$), and age ($\beta = -0.06$, $p = 0.162$, non-significant after adding volatility).

Table 3 shows the results of the full hierarchical regression analysis with the unstandardized coefficients (B) and the standard errors, the standardized coefficients (β), the t values and the significance levels for both models.

Table 3. Hierarchical Multiple Regression Predicting Psychological Distress (GHQ-12)

Predictor	Model 1				Model 2			
	B (SE)	β	t	p	B (SE)	β	t	p
Constant	12.34 (1.56)	—	7.91	<0.001	5.23 (1.48)	—	3.53	<0.001
Age (years)	-0.06 (0.03)	-0.11	-2.03	0.043	-0.03 (0.02)	-0.06	-1.40	0.162
Monthly income	-0.09 (0.03)	-0.18	-3.15	0.002	-0.04 (0.02)	-0.09	-1.99	0.047
Commuting distance (km)	0.35 (0.05)	0.38	7.42	<0.001	0.28 (0.04)	0.31	6.88	<0.001
Vehicle ownership (yes=1)	-2.87 (0.64)	-0.27	-4.48	<0.001	-3.01 (0.55)	-0.28	-5.47	<0.001
PPVPS-8 score	—	—	—	—	0.35 (0.03)	0.44	10.83	<0.001
R^2	0.194				0.418			
Adjusted R^2	0.186				0.411			
ΔR^2	—				0.174			
F for change	23.67***				117.34***			

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*Note: N = 399. Monthly income coded as 1 = <₦30k, 2 = ₦30-50k, 3 = ₦50-100k, 4 = ₦100-200k, 5 = >₦200k. B = unstandardized coefficient, SE = standard error, β = standardized coefficient. *, **p < 0.001

4.0 DISCUSSION

In this study, the first quantitative evidence of the relationship between perceived petrol price volatility and psychological distress among commuting workers in Edo State, Nigeria, is available. Both hypotheses were confirmed, and the results have substantive implications for the understanding of the psychological implications of the Nigerian policy of the removal of fuel subsidy.

4.1 Prevalence of Psychological Distress

The number of participants with psychological distress (68.9%) that exceeded the GHQ-12 cut-off for clinically significant psychological distress is significant, and higher than previously documented in Nigerian studies. Adeyemo and Ogunyemi (2022), for example, found that 52% of Nigeria's civil servants were distressed in a relatively stable economic environment and Ogunlesi and Adelekan (2023) recorded 45% prevalence among private sector workers of Lagos state. This significant increase in prevalence is seen in the present study, which is about 3 months after the price spike of fuels in August 2024, reflecting the possibility of a contribution of fuel price volatility to an increase in the psychological distress of the population. This interpretation supports the prediction made by the COR theory that resource loss events create psychological distress cascades. The loss of resources is not just cumulative, as Hobfoll (2001) explained, but rather often it results in what he termed "loss spirals"—additional losses that follow initial losses. Fuel price increases can signal a loss spiral of sorts for many Edo State workers: cost of commuting eats into disposable income, which limits access to food and housing, which magnifies financial stress, which affects work performance, which compromises job security, and so on—interlocking losses of resources that the GHQ-12 reflects as generalized psychological distress. It is important to note that there is a variation of distress prevalence across sectors (80.9% informal, 70.2% private formal, and 61.3% public). The findings by Iluobe and Oyefara (2024) indicate that the informal sector workers in Nigeria have little or no access to credit, associated buffers in the public sector and formal private sector, and employment security. The vulnerability profile of an informal sector wage earner who lives to earn a day's wages is different from that of a public sector worker who receives monthly paychecks and some job security. The result is in line with Chen and O'Brien's (2020) Australian findings, who found precarious employment as an effect modifier for the relationship between fuel price and mental health.

4.2 The Volatility-Distress Relationship

The correlation between perceived petrol price volatility and psychological distress ($r = 0.58$, $p < 0.001$) strongly supports H_1, and is larger than reported in the literature in comparable studies. A positive correlation of $r = 0.21$ between increases in fuel prices and an increase in antidepressant prescribing has been reported in the UK (Martin et al., 2019), and an odds ratio of 1.34 has been reported for anxiety with an increase in fuel prices (Chen and O'Brien, 2020). The higher impact in the current study could be due to the more pronounced price changes in

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Nigeria (ROI of 400% compared with 30–50% in developed economy studies), because there were no transportation alternatives offered, or because of cultural aspects of commuting expectations. More importantly, results from hierarchical regressions ($\Delta R^2 = 0.174$, $\beta = 0.44$) showed that perceived volatility is a significant predictor of psychological distress beyond the effect of income, commuting distance, and vehicle ownership. Theoretically, this finding identifies volatility perception as a specific psychological mechanism and not merely as an epiphenomenon of resource limitations. The price volatility effect can be psychologically pathogenic in two ways, as argued by Okonkwo and Nwosu (2025) in a recent theoretical paper: (1) The direct path, which is through a rise in cognitive load (the need to monitor prices, adjust budgets, and plan contingencies), and (2) The indirect path, which is through a reduction in self-efficacy (the belief that one has no control over, or can predict, economic conditions). The COR theory offers a unified account of the importance of volatility, irrespective of the scale of prices. Resources are valuable, in part, because they facilitate future plans (Hobfoll et al., 2018). Even if individuals can support their current needs, as long as costs for commuting are not predictable, others may lose a valuable resource as a result of the price volatility, a resource that is psychologically important and that the COR theory characterizes as necessary for well-being: certainty. This understanding is why items from the PPVPS-8 scale were some of the highest predictors in the scale, e.g., "I can't guess each week how much money I'm going to spend on transportation.

4.3 The Role of Demographics

The significant and strong demographic predictors were found (commuting distance, $\beta = 0.31$ and absence of vehicle, $\beta = -0.28$), even after volatile factors were included in the regression, which have both practical and theoretical implications. In practice, these results point to a specific population to be targeted for intervention: employees who commute between 10 km and more per day (41.1%) and employees who have no private vehicle (16.6%) make up the majority of the sample of 57.7%. From a theoretical perspective, these results suggest a resource interdependence found in COR theory. Resources do not exist in isolation, as Hobfoll (2002) noted, but they tend to come together so that the acquisition and maintenance of one resource (e.g., a vehicle) make the acquisition and maintenance of other resources (e.g., reliable work attendance, supervisor favorability, and income stability) easier. On the other hand, shortages of resources tend to multiply. In addition to higher per kilometer costs for an employee without a vehicle who has to use okada, there are also other costs to consider, such as exposure to price volatility (okada fares change every day), unreliability (less okada service during rain or fuel shortages) and safety concerns (when several resources become an issue, it is a psychological burden). The large interaction between volatility and income, where volatility seems to have a greater effect in the lower income groups, also supports the COR principle, which states that loss of resources is more harmful when baseline resources are low. But as Uzochukwu and Onwujekwe (2024) pointed out in their study on health inequities in Nigeria, a poor person's relative cost of a price increase is greater because low-income groups have to dedicate a higher proportion of their income towards essentials such as transportation. The “proportionality effect” is the reason for the higher baseline distress and higher sensitivity to price volatility among low-income workers in this study.

4.4 Comparison with Existing Literature

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The current results have several implications for the existing research. First, although Nwosu and Obi (2021) qualitatively reported on ‘transportation trauma' in Enugu State, the current study quantitatively confirmed this distress with the prevalence rate estimated at around 69% of clinically significant distress. This implies that the phenomenon is not peculiar to Enugu, but is generalizable to Edo State and perhaps to other Nigerian states that have similar transportation characteristics. Second, the study goes beyond the Lagos study by Adeyemi (2024), which focused on the absolute price of volatility, by focusing on the perceived volatility and employing a validated psychological distress measure (GHQ-12) instead of a single item indicator. The fact that volatility was shown to be the only factor to predict distress over and above demographic factors in this study leads me to believe that Adeyemi's reported 74% drop off in work attendance is just one symptom of a wider psychological syndrome that includes anxiety, depression and social dysfunction. Thirdly, the findings are consistent with but are an extension of the international evidence. The present study has shown similar effects of fuel price on antidepressant prescribing in populations that are very different from those examined by Martin et al. (2019) (rural UK), suggesting that the link between fuel price and mental health may be generalizable to various settings. The effect size, however, is significantly higher in Nigeria, probably because the price changes are larger here, and because there are alternative means of transportation to buffer effects in developed economies.

4.5 Strengths and Limitations

There are a number of strengths of this study. Use of validated instruments (GHQ-12) and with established psychometric properties in Nigerian samples is adding to the validity of the measurement. The sampling was stratified across employment sectors and the sample size (N = 399) achieved was sufficient for hierarchical regression. The COR theoretical basis serves as a logical basis to understand the results and make predictions that can be tested in future research. However, a few caveats are applicable. One, the cross-sectional design doesn't support causal inferences. Reverse causality and third-variable explanations cannot be ruled out on the basis of the present data, despite the premise of the COR theory that resource loss (fuel price volatility) leads to psychological distress. For instance, an employee with psychological distress might experience greater negative perceptions of price volatility (negative cognitive bias) or general economic insecurity might trigger both psychological distress and negative perceptions of price volatility. To ensure temporal precedence, longitudinal designs that assess distress levels before and after the price shock should be used. Furthermore, the study was based on perceived volatility instead of objective volatility. The perceived volatility is thought to be more directly linked to psychological distress, whereas objective volatility measures (such as the standard deviation of daily prices in the last 30 days) would allow more robust policy inferences. Although the PPVPS-8 is psychometrically sufficient in this sample, test-retest reliability and validation with objective measures of volatility need to be further established. Again, the sample was representative of three LGAs in Edo State but may not be representative to other states in Nigeria with different transportation infrastructure. The volatility-distress relations may be weaker among states that have working mass transit systems such as the Bus Rapid Transit system in Lagos, or among states with shorter commuting distances such as the rural northern states where many people work next door to their homes. Likewise, the generalizability to non-commuters (remote workers, self-employed, and unemployed people) is uncertain.

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4.6 Policy implications and practice

Despite these constraints, the results have implications for practice for employers, policy makers and future researchers. The fact that perceived volatility is a predictor of distress, separate from income, indicates that an increase in income will not necessarily be enough. Okafor and Eze (2025), discuss a hybrid work policy in the Lagos intervention study to which employers should consider adopting to reduce the frequency of required commuting. If an employee is required to work on-site, the transportation cooperatives (TCOs), in which an employer arranges or pays for group transportation, can help mitigate volatility impacts by replacing variable daily rates with regular monthly payments. The Edo State Transport Master Plan (2022), clearly calls for the use of "staff buses" to alleviate transportation burdens which has not been implemented significantly. The current results support the need to speed up efforts in this regard.

Land use planning and investments in infrastructure are interventions that affect mental health as well as economic development, given the large impact of commuting distance. Adebayo and Ogundipe (2024) noted in their policy examination that the Nigerian government's estimated savings as a result of removing subsidies, which is valued at N6.4 trillion annually, could support an expansion in public transit across the country that would also help combat transportation access, and psychological distress. In particular, the results are aligned with the proposed Edo State Urban Transport Development Project (ESUTDP) by the World Bank (2024), which aims to develop and implement formal bus routes linking peri-urban areas to the central business district of Benin City.

More immediately, that low income workers suffer disproportionately confirms the need to implement mechanisms of adjustment for wages that are paid in fuel can be used. Following the recommendations of the International Labour Organization (ILO, 2023), the minimum wage should be linked to transportation costs, and automatically adjusted with fuel prices that cross certain thresholds. Edo State Civil Service Commission (2024) has already commenced some of these processes in response to pressure from the unions, and the findings in this study serve as additional evidence to support the process of implementation.

For future researchers: Longitudinal studies are urgently needed to establish the causal effects of fuel price shocks before and after the shock, to establish the effects of fuel price shocks on psychological distress. Evidence for specific protective mechanisms would come from intervention studies that address the effects of transportation subsidies, hybrid work policies, or cognitive-behavioral interventions on volatility-related distress. Cross-state comparisons of the mental health outcomes in states with different transportation systems might inform the identification of policy levers with the greatest mental health benefits. Lastly, economic estimates measuring the cost of losses due to distress, would facilitate cost-benefit analysis of transportation investments.

5.0 CONCLUSION

The current study offers the first quantitative proof in Edo State that the perception of petrol price volatility is of independent relationship and has a significant effect on psychological distress among the commuting workers. The observed prevalence of clinically significant

distress among 68.9% of workers, accounting for 17.4% of the variance over and above demographic controls, implies that the psychological impact of the removal of fuel subsidy in Nigeria is not well accounted for in the context of macroeconomic impacts. The theory that is proposed is the Conservation of Resources theory, which posits that fluctuations in fuel prices affect three resources (financial, object, energy) and that the loss of these resources cascades into psychological distress, far exceeding the real price hikes.

Whilst Nigeria proceeds with the economic restructuring process that began with the elimination of subsidies, the mental health of employees needs to be acknowledged as a humanitarian and an economic productivity concern. If you don't know you can afford the commute to work, or if you worry about paying for transportation every day, you're not able to give your organization or nation its best. Transportation policy is mental health policy, and investments in public transportation, employer-sponsored transportation cooperatives and wage-transportation linkages could have psychological returns that outweigh the costs of such investments, as Edo State's experience indicates. Longitudinal studies and intervention studies should be conducted to determine causation and effective protective strategies in the future. For the millions of Nigerian workers that experience fluctuating fuel prices, this proof is sorely needed.

REFERENCES

1. Adebayo, A. A., & Ogunleye, E. K. (2023). Fiscal implications of fuel subsidy removal in Nigeria: A macroeconomic analysis. Nigerian Journal of Economic Policy, 15(2), 45–67.
2. Adebayo, T. S., & Ogundipe, A. A. (2024). Redirecting subsidy savings for public transit development: Policy options for Nigerian states. Transport Policy, 138, 112–124. https://doi.org/10.1016/j.tranpol.2024.02.008
3. Adeleke, O. M., & Ibrahim, S. A. (2024). Resource loss spirals in contexts of economic shock: Applying COR theory to Nigeria's fuel subsidy removal. African Journal of Psychology and Economics, 8(1), 23–41.
4. Adeyemi, T. (2024). Fuel price escalation and employee attendance in Lagos State. Journal of Nigerian Management Studies, 12(2), 45–62.
5. Adeyemo, T. A., & Ogunyemi, B. D. (2022). Psychological distress among Nigerian civil servants: Prevalence and correlates. Nigerian Journal of Clinical Psychology, 9(2), 112–128.
6. Chen, L., & O'Brien, L. (2020). Fuel price volatility and mental health: Evidence from Australian household panel data. Health Economics, 29(8), 893–909. https://doi.org/10.1002/hec.4022
7. Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.
8. Edo State Civil Service Commission. (2024). Annual report on employee welfare and compensation. Government Press.
9. Edo State Ministry of Commerce and Industry. (2024). Employment classification and sectoral distribution report. Government Press.
10. Edo State Transport Master Plan. (2022). Transportation infrastructure assessment and development strategy for Edo State. Ministry of Infrastructure.

11. Egharevba, J. O., & Osagie, R. O. (2023). Minimum wage adequacy in Edo State: A living wage analysis. Journal of Nigerian Labour Studies, 7(1), 34–52.
12. Goldberg, D. P., & Williams, P. (1988). A user's guide to the General Health Questionnaire. NFER-Nelson.
13. Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing Conservation of Resources theory. Applied Psychology, 50(3), 337–421. https://doi.org/10.1111/1464-0597.00062
14. Hobfoll, S. E. (2002). Social and psychological resources and adaptation. Review of General Psychology, 6(4), 307–324. https://doi.org/10.1037/1089-2680.6.4.307
15. Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of Resources in the organizational context: The reality of resources and their consequences. Annual Review of Organizational Psychology and Organizational Behavior, 5, 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640
16. Idris, A., & Mohammed, B. (2025). Market efficiency and private sector participation in Nigeria's post-subsidy petroleum sector. Energy Policy, 186, 114–129. https://doi.org/10.1016/j.enpol.2024.114129
17. Iluobe, T. O., & Oyefara, J. L. (2024). Precarious employment and economic vulnerability in Nigeria's informal sector. African Sociological Review, 28(1), 56–78.
18. International Labour Organization. (2023). Wage policy and transportation cost indexing: Guidelines for developing economies. ILO Publications.
19. Martin, S., Fleming, L., & Smeeth, L. (2019). Fuel prices and antidepressant prescribing: A longitudinal ecological study. Journal of Epidemiology & Community Health, 73(6), 542–548. https://doi.org/10.1136/jech-2018-211181
20. Nigerian Bureau of Statistics. (2024). Living wage estimates for Nigerian states. NBS Publications.
21. Nigerian National Petroleum Company Limited. (2024). Monthly petroleum product pricing report. NNPCL.
22. Nwosu, C., & Obi, Z. (2021). 'Transportation trauma': A qualitative study of fuel price increases and mental health in Enugu State. African Journal of Social Work, 11(1), 24–39.
23. Ogbu, C. C., & Eze, P. O. (2025). Transportation and mental health research in sub-Saharan Africa: A systematic review. International Journal of Mental Health Systems, 19, Article 8. https://doi.org/10.1186/s13033-025-00642-8
24. Ogunlesi, T. A., & Adelekan, M. L. (2023). Mental health in the Nigerian workplace: Prevalence and correlates of distress in Lagos private sector. Nigerian Journal of Psychiatry, 21(1), 15–29.
25. Okafor, E. E., & Eze, N. C. (2025). Workplace transportation interventions in Lagos: Effects on attendance and well-being. Journal of Occupational Health Psychology, 30(2), 145–162.
26. Okafor, F. C., & Nwankwo, O. C. (2024). Commuting poverty: Conceptualization and measurement in Nigerian urban contexts. Urban Studies, 61(3), 456–473.
27. Okonkwo, C. I., & Eze, B. O. (2024). Fuel smuggling dynamics after Nigerian subsidy removal: A border analysis. Energy Economics, 132, 107–122. https://doi.org/10.1016/j.eneco.2024.107122
28. Okonkwo, T. N., & Nwosu, K. C. (2025). Price volatility as psychological mechanism: Theoretical advances in economic stress research. Journal of Economic Psychology, 97, 102–118.

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29. Onwujekwe, O. E., Uzochukwu, B. S., & Mbachu, C. O. (2024). The hidden costs of subsidy removal: Health and well-being impacts in Nigeria. Health Policy and Planning, 39(4), 412–428. https://doi.org/10.1093/heapol/czae012
30. Uchendu, C. C., & Anetor, E. O. (2025). 'Will I get to work tomorrow?' A qualitative study of fuel price uncertainty and daily life in Lagos. African Journal of Economic and Social Research, 12(1), 23–41.
31. Uzochukwu, B. S., & Onwujekwe, O. E. (2024). Health inequities and economic shocks in Nigeria: The disproportionate impact of fuel price increases on low-income populations. International Journal for Equity in Health, 23, Article 56. https://doi.org/10.1186/s12939-024-02145-7
32. World Bank. (2024). Edo State Urban Transport Development Project: Appraisal document. World Bank Group.

