

EFFECT OF INCESSANT FUEL SCARCITY ON COMMUTERS' WELL-BEING IN NIGERIA

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Abstract

*The occurrence of fuel scarcity in Nigeria has become worrisome, nearly every year, Nigerians experience fuel scarcity. However, the effect of this incessant fuel scarcity on commuters' is becoming a concern. Therefore, this study examined the effect of fuel scarcity on commuters in Nigeria. The study was carried out in Ogbomoso, Oyo State Nigeria. 250 prospective commuters were selected randomly from 5 different bus-stop across the study area during the month of February, when the country experience the last fuel scarcity. The study was analyzed using descriptive statistics, Principal Component Analysis (PCA) and Pearson Product Moment Correlation (PPMC). The findings revealed that fuel scarcity (-.166**) has a negative and significant effect on commuters' longer waiting time at 0.001 level of significant. Also, fuel scarcity (-.187**) has a negative and significant effect on commuters getting stressed while commuting at 0.001 level of significant. The study concluded that during the incessant fuel scarcity in Nigeria, the commuters experience longer waiting time and stress while commuting. Thus, fuel scarcity has a significant and negative effect on longer-waiting and stress. This study recommended that the arm of government that deals with fuel such as Nigerian National Petroleum Corporation (NNPC) should monitor all decor of fuel retail in order to control all the causes of fuel scarcity in the nearest future.*

Keywords: Fuel scarcity, subjective well-being, commuter, commuters' well-being, Principal Component Analysis

1.0 INTRODUCTION

Nigeria is oil producing country and an active member of the Organization of Petroleum Exporting Countries (OPEC). The problem of fuel scarcity in Nigeria has been on for more than two decades and there has not been any drastic action to tackle it head-on (Agiri & Morka, 2018).

Fuel scarcity causes a significant energy crisis in the country, affecting all aspects of the economy and crippling economic activity. Nigerians are dissatisfied with the challenges that have resulted from the lack of petroleum. Many motorists remained vigilant at filling stations in order to obtain fuel, and those who could not afford to wait the long time were forced to resort to the illicit market at exorbitant prices. Some filling stations stop selling the fuel during the day except in the night (Udema, 2016). All these have an advent effect on the wellbeing of the masses.

Wellbeing is a multifaceted term that may be measured objectively as well as subjectively. The focus of this study is on Subjective Well-Being (SWB). SWB aims to capture people's perceptions of happiness, based on the belief that "people are the best judges of how their lives are doing" (OECD, 2011). This isn't to say that objective measures of happiness aren't important (such

as income and health). The OECD defines SWB as "good mental states, which include all of the numerous evaluations, both positive and negative, that people make of their lives, as well as people's affective reactions to their experiences" (OECD, 2013). SWB can be quantified in terms of evaluative wellbeing (how pleased people are with different aspects of their lives and with life in general) and experiential wellbeing (Tinkler & Hicks, 2011). Both of these concepts are related to the presence of pleasure and the absence of suffering, and they are examples of hedonic wellness. SWB can also be expressed in terms of eudemonic wellbeing, which refers to achieving a greater purpose or meaning in life.

Public policies entail improvement of the masses well-being. Thus, in transportation, commuters' well-being has traditionally been examined through objective impacts of the transport system such as travel times and costs, crashes, and environmental degradation. However, the subjective experience of commuters which involves their happiness is of growing interest (Mokhtarian, 2019).

However, one of the threats to commuters' well-being is the incessant fuel scarcity in Nigeria, it is a menace that spread across all transportation sectors in the country. Whenever, it occurs, massive lines of vehicles will be seen at practically all of the country's petrol outlets, further depressing the Nigerian economy. The lineups spilled out onto major roads, resulting in huge jams across the country, with Nigerians stuck in traffic for hours. Due to this stressed faced by the transport operators, the transport fare is raised, and some transporter that could not afford the stress stops operations while the commuters suffer.

In affirmation of regular occurrence of fuel scarcity in Nigeria, in the earlier 2022, the Nigerian National Petroleum Corporation (NNPC) had blamed the scarcity and the long queues at petrol stations on the importation of 'dirty fuel' put at 100 million litres. This resulted in increases price of fuel, whether as a consequence of government policy or due to scarcity of the product, it is usually a story of losses, screams, and pains, especially for commuters.

However, many researchers have reviewed the relationships between transportation and wellbeing (Mokhtarian, 2019; Chatterjee, et. al., 2019; Smith, 2017; Nordbakke & Schwanen, 2014; Reardon & Abdallah, 2013; De Vos, Schwanen, Van Acker, & Witlox, 2013; Delbosc, 2012; Ettema, Gärling, Olsson, & Friman, 2010) but few or none of the study have examined the nexus between the incessant of fuel scarcity and commuter well-being. Thus, this is a gap that this study tends to fill. Therefore, the study examined the effect of fuel scarcity on commuters' well-being in Nigeria.

2.0 REVIEW OF EMPIRICAL LITERATURE AND THEORETICAL FRAMEWORK

Apart from commuting affection, which is concerned with the emotional state of the traveler, commute satisfaction has a broader definition. It is assumed, in particular, that travel satisfaction can be regarded as a sub-domain of overall SWB (as per family life, working life, and so on), and that commuting is a sub-domain in its own right given that it consumes a significant amount of time for many workers (Ettema et al., 2010). Ettema et al. (2011) proposed a travel satisfaction measurement scale (which has been widely used in studies of commuting travel) that includes both cognitive and affective components. Some authors such as Susilo & Cats, (2014) and St.Louis, Manaugh, van Lierop, & El-Geneidy, (2014) measured travel satisfaction using only a cognitive measurement scale or as a composite of evaluations of specific aspects of the trip. Mao, Ettema, & Dijst, (2016) measured satisfaction with a specific commute trip i.e. current or a day before commute. Olsson et al., (2013) measured satisfaction with a typical commute trip. Given that commute satisfaction reflects commuters' evaluations beyond their affective experiences, it follows that commute satisfaction is influenced by a broader set of factors. To begin with, travel

mode has been found to be strongly related to commute satisfaction. Commuters who use active transportation have the highest levels of commute satisfaction, while those who use public transportation have the lowest (St-Louis et al., 2014, Friman, Gärling, Ettema, & Olsson, 2017 and Ye & Titheridge, 2017).

Trip characteristics such trip duration is also used by some study as a measure of satisfaction. This implies that different forms of transportation have distinct characteristics that make them more or less pleasurable. It has been found that the physical activity involved in active travel is linked to a more pleasant mood, which leads to greater enjoyment (Ekkekakis, Backhouse, Gray, & Lind, 2008). It is proposed that factors such as independence, mastery, delight, and status contribute to the comparatively high happiness with car use (Bergstad et al., 2011). In terms of public transportation commuting, two North American studies found that rail commuters are happier than bus commuters (Handy & Thigpen, 2019; St-Louis et al., 2014), but a Swedish study found that bus commuters are happier than rail commuters (Ettema, Friman, Gärling, Olsson, & Fujii, 2012).

Studies such as: Mao et al., (2016); St-Louis et al., (2014);; Ettema, et al., (2013); Manaugh & El-Geneidy, (2013); Ettema et al., (2012) have linked longer commutes to lower satisfaction with all modes of transportation. Congestion and a sense of safety have been found to be negatively associated with commute pleasure for automobile commuters in the Netherlands (Ettema et al., 2013). According to Ettema et al. (2012), commute happiness is adversely associated with traveling during rush hours, using ICTs, and engaging in relaxation and entertainment activities. Having company, on the other hand, is linked to increased commute happiness. According to the authors, using ICTs and engaging in leisure and entertainment activities during the commute can be viewed as coping techniques for dealing with negative de-activation. This emphasizes the need for caution when evaluating cross-sectional study results.

Commuters in Beijing with more flexibility in mode choice had higher commute satisfaction, according to Mao et al. (2016), probably because they can choose their preferred method of transportation.

Surprisingly, those with no flexibility in mode choice had a higher level of commute pleasure, which was linked to a lack of experience with competing modes and rationalization processes. In Davis, California, Handy and Thigpen (2019) discovered that those with mode limits were more satisfied. Commute satisfaction has been connected to travel-related attitudes in several research. A good attitude toward a certain travel mode, according to De Vos, Mokhtarian, Schwanen, Van Acker, and Witlox (2016) and St-Louis et al. (2014) has positive consequences for travel satisfaction when that mode is used. For example, preferring one's typical means of transportation is linked to increased commute pleasure (Handy & Thigpen, 2019).

Lower-income commuters exhibited lower levels of commuting satisfaction, according to Ye and Titheridge (2019), which they attribute to a mismatch between commuting mode choice and travel attitudes. Other sorts of attitudes, in addition to travel-related attitudes, may have an impact on travel satisfaction. According to Manaugh and El-Geneidy (2013), those who value exercise and are ecologically conscious are more likely to like walking trips. It has also been demonstrated that those who have a positive attitude toward travel in general are more satisfied with their trips than those who despise it (De Vos & Witlox, 2016; Ye & Titheridge, 2017). Moreso, it's possible that travel satisfaction influences travel-related attitudes; a pleasant journey using a certain form of transportation could lead to a more positive attitude toward that mode. De Vos et. al., (2019) proposes in a conceptual article that travel satisfaction may influence attitudes (and thus travel mode choice) more than vice versa. The impact of commute pleasure on attitudes, on the other hand, has yet to be studied empirically.

2.1 Commuting and Wellbeing

Commuting and wellbeing were investigated by Chatterjee et al. (2019). The study was a critical review of the literature with policy and research implications. The research gives a critical assessment of what has been discovered concerning the impact of commuting on subjective well-being (SWB). It is built around a conceptual model that believes commuting has an impact on SWB on three time scales: during the journey, immediately after the journey, and in the long run. They discovered that persons who walk or ride their bikes to work are often happier with their commute than those who drive or take public transportation. More specifically, pleasure decreases with commute length, regardless of method of transportation, and increases while traveling with company. Evidence suggests that the commuting experience "spills over" into how people feel and perform at work and at home once they arrive. They claimed that there is no consistent link between commuting and overall life happiness.

Smith (2016) investigates commute well-being, a multi-item assessment of how one feels about their commute to work, as well as the factors that influence it. The Satisfaction with Travel Scale, developed by Ettema et al., was adapted for this study (2010). The data came from a web-based survey of workers (828) in Portland, Oregon, USA, who were divided into four modal groups: walkers, cyclists, transit riders, and auto drivers. This study indicates that the commute well-being scale reliably measures commute satisfaction, with some modifications from earlier research. A multiple linear regression model reveals that, in addition to transport mode, traffic congestion, journey time, income, general health, attitudes toward travel, work satisfaction, and home contentment, individual factors influence commute well-being. The study adds further evidence that people who bike and walk to work are happier with their commutes and are relatively unaffected by traffic congestion compared to bus and car commuters.

2.2 Fuel Scarcity

In Akwa Ibom State, Akpan and Nnamseh (2014) conducted a study to determine the usefulness of a strategic management strategy in the management of petrol scarcity in Nigeria. There were 7,792 members of the Independent Petroleum Marketers Association of Nigeria (IPMAN) and the National Union of Petroleum and Natural Gas Workers (NUPENG) in the survey, as well as 150 petroleum consumers in the area. The sample size was 396 people, and the data was collected through surveys and secondary sources. Excessive corruption/mismanagement, oil pipeline vandalism, insufficient/malfunctioning refineries, diversion/smuggling, hoarding, administrative bottlenecks/legal limitations, inadequate funding, manpower shortages, and fuel subsidy were revealed to be the causes of fuel scarcity in Nigeria, according to the findings. It also stated that the main risks connected with shortage were a slowing of economic growth and an increase in transportation fares.

Mai, Mayai, and Tiitmamer (2016) have published a study on the causes, effects, and remedies to South Sudan's occasional fuel problem. The analysis relied on data from the Nile Petroleum Corporation (NilePet), the Customs Directorate, fuel stations, and interviews with representatives from the oil business, the Petroleum Ministry, and the National Security Agency. Fuel scarcity was found to be caused by a lack of hard cash, excessive taxes and levies, a lack of refineries and depots, rising demand for oil by the electricity producing and consuming sectors, and inefficiencies in energy use. It also discovered that a lack of fair market restrictions and corruption has resulted in fuel hoarding, increased transportation costs, lower productivity, increased social stratification, and rising basic commodity prices.

Furthermore, Abeng, Okokon, and Ushie (2012) conducted study to determine the reasons of gasoline scarcity and its impact on Calabar Municipality people. The population of the study was 1,800 people, and the sample size was 120. The data was interpreted using a descriptive survey approach and simple percentages. Chi-Square (X^2) inferential statistics were used to assess the study hypotheses. Fuel scarcity was found to be caused by fuel hoarding, price hikes, and corruption, according to the findings. The findings also revealed that gasoline scarcity causes people of Calabar Metropolis a great deal of stress and hardship, particularly when it comes to coming to work late, missing important appointments, and so on.

Fuel scarcity and its economic impact were investigated by Ahmed and Halima (2013). A total of 86 small enterprises in the Bauchi Metropolis were included in the study. Secondary sources were the most common method of data collecting. The data were evaluated descriptively using an ex-post facto research design. Regression analysis was used to test the study hypotheses. Fuel scarcity is a recurring threat that has a negative impact on practically every area of the Nigerian economy, according to the findings of the study. It also indicated that when there is a gasoline shortage, the country's revenue generating plummets.

However, all these authors considered measurement of commute satisfaction in different perspective but none of them consider commuter satisfaction level during economic menace like fuel scarcity. This study adopted the commuting wellbeing measurement from Chatterjee *et al.*, (2019) and added some variables i.e. longer waiting time and overloading. Figure 1 depicted the theoretical frame work for the study.

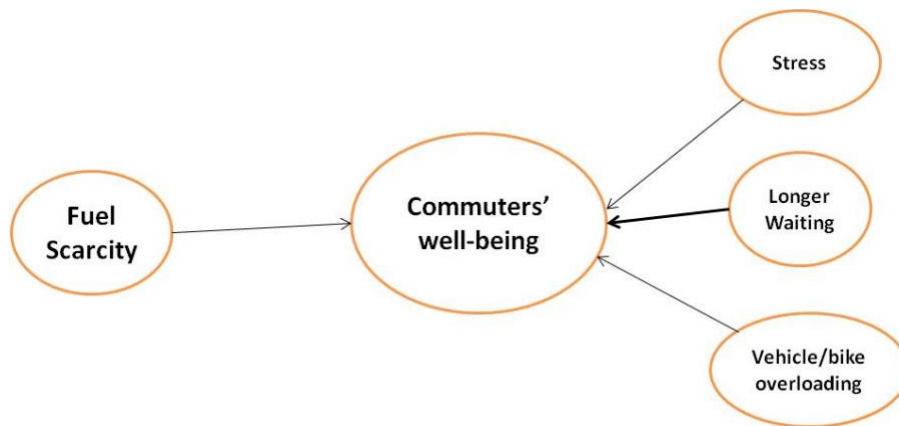


Figure 1: Theoretical Framework
Source: Author's compilation (2022)

3.0 METHODOLOGY

This study was carried out in Ogbomoso, Oyo State, Nigeria. Ogbomoso city has a population of 527,194 and a growth rate of 4.64% (World Population Review, 2022). It is a fast growing city in the state. The city is a border town to North central, Nigeria, thus, the need for hike-free transportation is very important. The study was conducted in the month of February, 2022 when there was fuel scarcity in Nigeria. A quantitative approach was employed in the study. 5 majority bust-stops (Aroje, General, Star-light, Takie and High School) were selected for the study. 50 commuters from each bus-stop were randomly selected and interview within the peak period (8am and 6 pm) throughout the month of February, 2022. Thus, a total of 250 commuters were engaged

for the study. Fuel scarcity was measured with the change in price of Petroleum Motor Spirit (PMS) and Dual Purpose Kerosene (DPK) at different filling stations in the study area within the month of February, 2022. The commuter well-being was measured with the level of commuters' satisfaction and happiness during the fuel scarcity period. The study was analyzed using both descriptive and inferential statistics. The socio-economic characteristics of the commuters were analyzed using bar and pie charts. The study was further analyzed using Principal Component Analysis (PCA) and Pearson Product Moment Correlation (PPMC).

4.0 RESULT AND DISCUSSION

The study found out about the socio-economic characteristics of the commuters that participated in this study. Also, the hypothesis of the study was analyzed accordingly.

4.1 Socio-economic Characteristics of the Commuters

1. Gender of the Commuters

From figure 2, it was revealed that 147 commuters were male while 103 commuters were female. This implies that majority of the commuters were male. During the fuel scarcity majority of the female commuters may not have the strength to wait for vehicle at the bus-stop due to it's shortage and will prefer alternative or adjourn the journey.

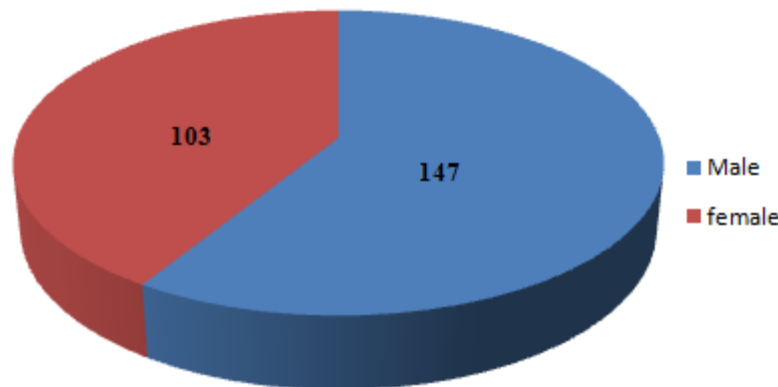


Figure 2: Gender of the Commuters.

2. Age of the Commuters

Figure 3 revealed that 35 commuters are between the age of 1-18 years while 40 commuters are between the age of 19-29 years and 90 commuters are between the age of 30-39 years. The result also indicated that 39 commuters are between the age of 40-49 years while 46 commuters are 50 years and above.

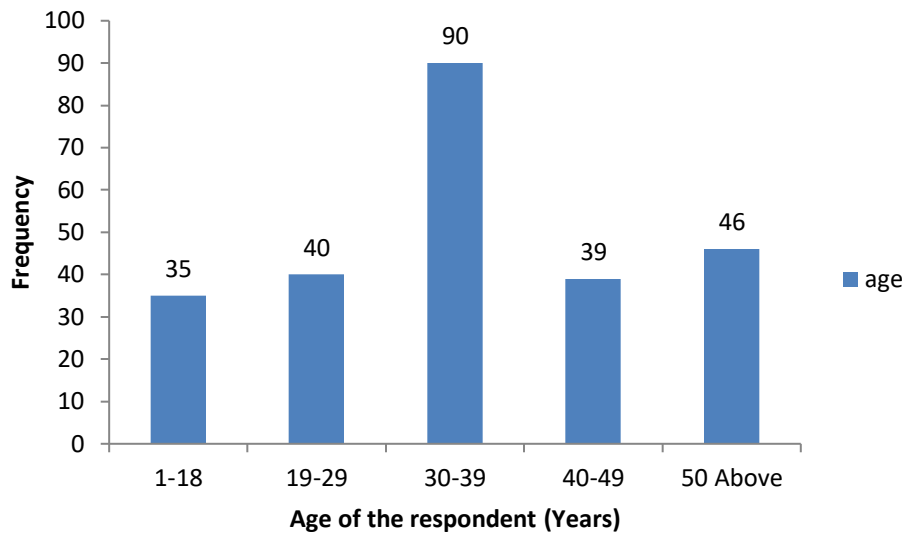


Figure 3: Gender of the Commuters.

Source: Author’s compilation (2022)

3. Purpose of Commuter’s Transit

The findings on figure 4 revealed the purpose of transit by the commuters during the fuel scarcity. It was revealed that 123 commuters are going to work or to their business place. 50 commuters are going to school for the day while 43 commuters are commuting for leisure and finally only 34 commuters are going to greet their friends and family. This finding revealed that majority of the commuters as at the time of the study are community to their work place.

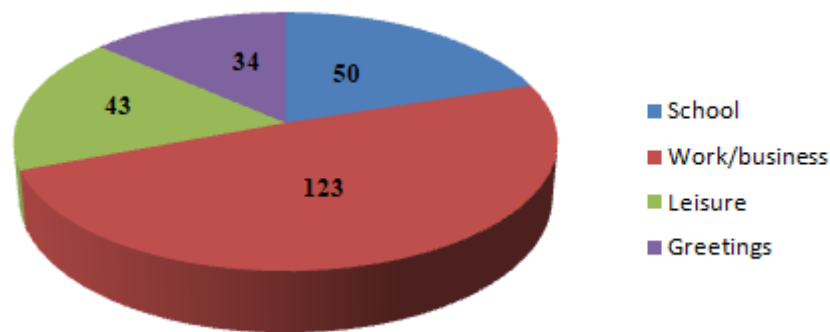


Figure 4: Purpose of Commuter’s Transit

Source: Author’s compilation (2022)

4.2 Commuters’ waiting time

The findings on figure 5 revealed the passenger waiting time at the bus-stop during the fuel scarcity. It was revealed that 118 commuters wait more than 20 minutes at the bus-stop before getting a vehicle/bike to board. It was also revealed that 52 commuters wait for about 16-20 minutes at the bus-stop while 34 commuters agreed that they wait for about 11-15 minutes at the

bus- stop. Furthermore, 25 commuters agreed that they spent about 6-10 minutes at the bus-stop waiting for the on-coming vehicle to board. It was also revealed that 15 commuters spent between 1-5 minutes waiting for vehicle at the bus-stop and lastly only 6 commuters spent an average time of less than 1 minutes at the bus-stop waiting before being convey by commercial transport.

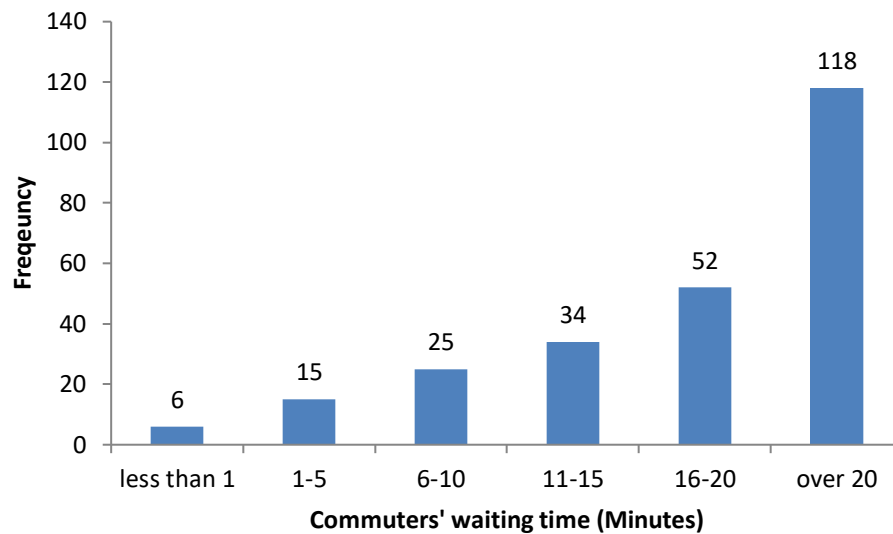


Figure 5: Commuters' waiting time

Source: Author's compilation (2022)

4.3 Factors of Commuters' Well-being

In order to determine the most significant Subjective Well-Being (SWB) factors, Principal Component Analysis was used. Thus, among the three adopted factors of SWB for this study i.e. long waiting, stress and overloading, only two factors were extracted by PCA as presented in table 1. Thus, the correlates between fuel scarcity and commuters' Well-being was subjected to only two variables.

Table 1. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.368	45.606	45.606	1.368	45.606	45.606	1.226	40.874	40.874
2	1.039	34.625	80.232	1.039	34.625	80.232	1.181	39.358	80.232
3	.593	19.768	100.000						

Extraction Method: Principal Component Analysis.

Source: Author's compilation (2022)

KMO and Bartlett's test was also carried out, and Table 2 showed that the sampling measurement of adequacy (.443) was poor but significant at 0.05 level of significant while the approximately chi-square was 42.257. Thus, the sampling is fit for the study.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.443
Bartlett's Test of Sphericity	Approx. Chi-Square	42.257
	Df	3
	Sig.	.000

Source: Author's compilation (2022)

Furthermore, rotated component matrix was used to discover how strong the component extracted are. From Table 3, the result shows that Longer waiting has the highest value of .920 while stress has the lowest value of .904. Thus, during fuel scarcity, there are much more longer waiting time at the bus-stop.

Table 3: Rotated Component Matrix^a

	Component	
	1	2
Longer waiting	.920	
Stress		.904

Source: Author's compilation (2022)

4.4 Correlates Between Fuel Scarcity and Commuters' well-being

In order to examine the effect of fuel scarcity on commuter's well-being, Pearson Product Moment Correlation (PPMC) analysis was employed. The result is presented in table 4. At 0.01 level of significant, it was revealed that fuel scarcity has a negative and significant effect on commuters' long-waiting (0.000) with Pearson correlation value of $-.166^{**}$. This implies that whenever there is fuel scarcity the commuter suffers longer waiting to commute. Furthermore, it was also discovered that fuel scarcity has a negative and significant effect on commuters' going through stress (0.000) with Pearson correlation value of $-.187^{*}$. This implies that whenever there is fuel scarcity the commuter suffers stress while commuting.

Table 4. Correlations between Fuel Scarcity and Commuters' Well-being

		Fuel Scarcity	Longer waiting	Stress
Fuel Scarcity	Pearson Correlation	1	$-.166^{**}$	$-.187^{**}$
	Sig. (2-tailed)		.000	.000
	N	250	250	250
Longer waiting	Pearson Correlation	$-.166^{**}$	1	$-.263^{**}$
	Sig. (2-tailed)	.000		.000
	N	250	250	250
Stress	Pearson Correlation	$-.187^{**}$	$-.263^{**}$	1
	Sig. (2-tailed)	.000	.000	
	N	250	250	250

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Author's compilation (2022)

4.5 DISCUSSION OF FINDINGS

The study examined the effect of fuel scarcity on commuters in Nigeria. Principal Component Analysis was used to extract the most significant factors of commuters' well-being which are: longer waiting, stress and overloading. Thus, only two factors were extracted through PCA and the study was subjective to only two variables of commuters' well-being. KMO and Bartlett's test was also carried out for the measure of sampling adequacy. The sampling adequacy value was .443 which was poor but significant at 0.05 level of significant while the approximately chi-square was 42.257. Thus, the sampling is fit for the study. Moreso, rotated component matrix revealed that Longer waiting has the highest value of .920 while stress has the lowest value of .904. Furthermore, the effect of fuel scarcity on commuter's well-being was examined using Pearson Product Moment Correlation (PPMC) analysis. It was revealed that fuel scarcity has a negative and significant effect on commuters' long-waiting (0.000) with Pearson correlation value of $-.166^{**}$ and also that fuel

scarcity has a positive and significant effect on commuters' going through stress (0.000) with Pearson correlation value of $-.187^*$ All at 0.01 level of significant.

5.0 CONCLUSION AND RECOMMENDATION

The study found out that during the incessant fuel scarcity in Nigeria, the commuters experience longer waiting time and stress while commuting. Thus, fuel scarcity has a significant and positive effect on longer-waiting and stress. Whenever there is change in fuel scarcity, there will be a change in commuters' longer waiting and stress while commuting. This finding corroborated the findings of: Ahmed and Halima (2013); Akwa Ibom State, Akpan and Nnamseh (2014); Smith (2016) and Chatterjee et al. (2019) on Fuel scarcity and subjective well-being. However, from previous studies, it was discovered that fuel scarcity is caused by fuel hoarding, fuel price hikes, corruption, importation of adulterated fuel. Thus, this study recommends that the arm of government that deals with fuel such as Nigerian National Petroleum Corporation (NNPC) should monitor all decor of fuel retail in order to control all the causes of fuel scarcity in the nearest future.

REFERENCES

- Agiri, E. & Morka, B. C. (2018). Combating Incessant Fuel Scarcity in Nigeria with Artisanal Refineries. *International Journal of Innovative Finance and Economics Research*, 6(2):78-83.
- Bergstad, C. J., Gamble, A., Hagman, O., Polk, M., Gärling, T., & Olsson, L. E. (2011). Affective–symbolic and instrumental–independence psychological motives mediating effects of socio-demographic variables on daily car use. *Journal of Transport Geography*, 19(1), 33–38.
- Chatterjee, K., Chng, S., Clark, B., Davis, A., De Vos, J., Ettema, D., ... Reardon, L. (2019). Commuting and wellbeing: a critical overview of the literature with implications for policy and future research. *Transport Reviews*, 1–30.
- De Vos, J., Ettema, D., & Witlox, F. (2019). Effects of changing travel patterns on travel satisfaction: A focus on recently relocated residents. *Travel Behaviour and Society*, 16, 42–49.
- De Vos, J., Mokhtarian, P. L., Schwanen, T., Van Acker, V., & Witlox, F. (2016). Travel mode choice and travel satisfaction: Bridging the gap between decision utility and experienced utility. *Transportation*, 43(5), 771–796.
- De Vos, J., Schwanen, T., Van Acker, V., & Witlox, F. (2013). Travel and subjective well-being: A focus on findings, methods and future research needs. *Transport Reviews*, 33(4), 421–442.
- Ekkekakis, P., Backhouse, S. H., Gray, C., & Lind, E. (2008). Walking is popular among adults but is it pleasant? A framework for clarifying the link between walking and affect as illustrated in two studies. *Psychology of Sport and Exercise*, 9(3), 246–264.
- Ettema, D., Friman, M., Gärling, T., Olsson, L. E., & Fujii, S. (2012). How in-vehicle activities affect work commuters' satisfaction with public transport. *Journal of Transport Geography*, 24, 215–222.

- Ettema, D., Gärling, T., Eriksson, L., Friman, M., Olsson, L. E., & Fujii, S. (2011). Satisfaction with travel and subjective well-being: Development and test of a measurement tool. *Transportation Research Part F: Traffic Psychology and Behaviour*, 14(3), 167–175.
- Ettema, D., Gärling, T., Olsson, L. E., & Friman, M. (2010). Out-of-home activities, daily travel, and subjective well-being. *Transportation Research Part A: Policy and Practice*, 44(9), 723–732.
- Ettema, D., Gärling, T., Olsson, L. E., & Friman, M. (2010). Out-of-home activities, daily travel, and subjective well-being. *Transportation Research Part A: Policy and Practice*, 44(9), 723–732.
- Ettema, D., Gärling, T., Olsson, L. E., Friman, M., & Moerdijk, S. (2013). The road to happiness: Measuring Dutch car drivers' satisfaction with travel. *Transport Policy*, 27, 171–178.
- Friman, M., Olsson, L. E., Ståhl, M., Ettema, D., & Gärling, T. (2017). Travel and residual emotional wellbeing. *Transportation Research Part F: Traffic Psychology and Behaviour*, 49, 159–176.
- Handy, S., & Thigpen, C. (2019). Commute quality and its implications for commute satisfaction: Exploring the role of mode, location, and other factors. *Travel Behaviour and Society*, 16, 241–248.
- Managh, K., & El-Geneidy, A. M. (2013). Does distance matter? Exploring the links among values, motivations, home location, and satisfaction in walking trips. *Transportation Research Part A: Policy and Practice*, 50, 198–208.
- Mao, Z., Ettema, D., & Dijst, M. (2016). Commuting trip satisfaction in Beijing: Exploring the influence of multimodal behavior and modal flexibility. *Transportation Research Part A: Policy and Practice*, 94, 592–603.
- Mokhtarian, P. L. (2019). Subjective well-being and travel: Retrospect and prospect. *Transportation*, 46 (2), 493–513.
- Nordbakke, S., & Schwanen, T. (2014). Well-being and mobility: A theoretical framework and literature review focusing on older people. *Mobilities*, 9(1), 104–129.
- OECD. (2011). *How's life? Measuring well-being*. Paris: OECD Publishing. doi:10.1787/9789264121164-en.
- OECD. (2013). *OECD guidelines on measuring subjective well-being*. Paris: OECD Publishing. doi:10.1787/9789264191655-en.
- Olsson, L. E., Gärling, T., Ettema, D., Friman, M., & Fujii, S. (2013). Happiness and satisfaction with work commute. *Social Indicators Research*, 111(1), 255–263
- Reardon, L., & Abdallah, S. (2013). Well-being and transport: Taking stock and looking forward. *Transport Reviews*, 33(6), 634–657.
- Smith, O. (2017). Commute well-being differences by mode: Evidence from Portland, Oregon, USA. *Journal of Transport & Health*, 4, 246–254.
- St-Louis, E., Managh, K., van Lierop, D., & El-Geneidy, A. (2014). The happy commuter: A comparison of commuter satisfaction across modes. *Transportation Research Part F: Traffic Psychology and Behaviour*, 26, 160–170.
- Susilo, Y. O., & Cats, O. (2014). Exploring key determinants of travel satisfaction for multi-modal trips by different traveler groups. *Transportation Research Part A: Policy and Practice*, 67, 366–380.
- Tinkler, L., & Hicks, S. (2011). *Measuring subjective well-being*. Newport: Office for National Statistics. Retrieved from <http://webarchive.nationalarchives.gov.uk/20160105231554/http://www.ons.gov>.

uk/ons/guide-method/user-guidance/well-being/publications/previous-publications/index.html.

Udema, C. (2016). "Black market thrives, Petrol goes for N280", Vanguard, April 3, 2016:28.

World Population Review, (2022). Population of Ogbomoso. Retrieved from <https://worldpopulationreview.com/world-cities/ogbomosho-population>.

Ye, R., & Titheridge, H. (2017). Satisfaction with the commute: The role of travel mode choice, built environment and attitudes. *Transportation Research Part D: Transport and Environment*, 52, 535–547.