

# **SOME PERSONAL AND PSYCHOLOGICAL FACTORS IN ROAD ACCIDENT**

**By**

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## **ABSTRACT**

*This study investigated some personal and psychological factors that relate to road accidents involving drivers of luxury buses (heavy vehicles). Eighty drivers, 40 from accident group (AG) and 40 from non-accident group (NAG) were randomly selected. They were compared on 16PF and MPI factors. The effects of some personal variables like age, education, marital status, experience, pay earned and time of duty were also determined. Significant differences between AG and NAG were obtained in some of the personality variables. Some personal variables like age, experience, and pay were also found to have significant relationship with accidents.*

## **INTRODUCTION**

Road accidents have become a major social, economic and psychological problem all over the world. In Nigeria the magnitude is becoming very serious, especially in big cities where the accidents have taken the greatest toll. The incessant bus accidents in Lagos metropolis, Benin Lagos express way attest to

this assertion. In other words, the danger ahead is alarming and the chances of accidents involving death and injuries are on the increase. Given the poverty situation in the country today, it is becoming increasingly difficult for the average Nigerian to buy new vehicles for transport purposes. Road safety department in Cross River State, statistics have shown that the rate of road accidents in the country has doubled in less than one decade. In 1999, road accidents took a toll of 800 lives. Even though it is on traffic police department record that Nigeria has one of the highest rate of accidents in the world; the study of the causes of road accidents in Nigeria continues to be one of the neglected areas of research and very little attention has been paid to it. Alarmed by this, the government has set up "A road safety commission to try to minimize the rate of accidents on our roads. However, the "Commission" on its own cannot stop these accidents.

Accident is a phenomenon which may be viewed from various angles. Attitude, personality, perception, psychomotor coordination, and biographical factors may contribute directly or indirectly to vehicular accidents. Some people are particularly susceptible to accident or are "accident-prone". There is reason to believe that when an accident occurs the drivers having certain personality characteristics are involved in it more often than others and the element of chance becomes less important. Thus the personality of drivers and personal factors are of considerable importance in accident causation.

Ahmad and Joseph (1980) found no significant difference between the accident group and the non-accident group of drivers on personality factors. However, Singh (1978); Balkin (1963); Husband and Hinton (1972) found that accident group of workers were more neurotic and extroverted as compared to non accident group. As regards the effect of personal variables on accident Gupta and Gulati (1968), Chandra, Verma, and Sharma (1966 - 67), and Chatterjee (1979) found that the age of the drivers was related to accident rate. On the personality characteristics of the drivers, Lawrence (1952), Davids and Mahoney (1957) studied personality make up of the drivers and found that the non accident group drivers were more outgoing as compared with the accident group drivers.

The present study is an attempt to investigate biographic and personality factors of accident group (AG) and non accident group (NAG) of Nigeria luxury drivers plying between Benin and Lagos areas of the country. These fleet of luxury buses plying this route are owned by individuals or companies e.g. the Young Shall Grow Ltd., etc. They have a fleet of vehicles and drivers plying all over the country.

It is hypothesized that the AG and NAG differ with respect to personality and other personal variables like age, experience, and level of education of the drivers.

## METHOD

### SUBJECT

Eighty drivers, 40 belonging to accident group and 40 to the non-accident group constitute the sample. The accident group consisted of drivers who were involved in some accidents, major or minor, in the past 24 months as at the period between 1998 – 2000. There were 80 such drivers and 40 randomly selected from this group. The non-accident drivers were selected randomly from the accident free group of drivers.

**Accident Group:** Out of the 40 drivers in this group, 6 had been involved in fatal accidents and 34 in minor accidents. The age of the drivers varied from 23 - 48 years with the mean of 32.5 years. Their experience ranged from 3 to 22 years with the mean of 9.7 years. As for their education 10 completed primary six, 12 secondary class 3 and 18 obtained WASC. Out of the 40 drivers, 36 were married, 4 unmarried, their gross emoluments ranged from ₦1,000 to ₦2,500 per month with a mean of ₦1,750.

**Non-accident Group:** This sample comprised those drivers who were accident free. Their ages varied from 27 to 48 with the mean of 27.5. Their driving experience ranged from 5 – 25 years with a mean of 12.4. Educational level of the group varied from primary six to higher school, 14 were primary six, 14 WASC attempted and 11 higher school attempted. In this group, 34 drivers were married, 6 were unmarried. Their monthly income varied from ₦1,600 – ₦3,000 with a mean of ₦2,300.

**Tools of Measurement:** The present study employed three measurement instruments. One for measuring personal data which covered such variables as age, education, experience, marital status and monthly income, etc.; Maudsley Personality Inventory adapted by Jalota and Kapoor (1971). This inventory was modified by the investigator to meet the Nigerian situation.

The inventory measures neuroticism-stability and extroversion-introversion; and the third was Cattell's 16 Personality Factor Questionnaire Form

Cattell (1956) constructed personality inventories of which the best known is the (16PF): Form E of the 16 PF contain the shortened form of the scales, which makes it easy for use; in the measurement of personality traits of individuals through content analysis. Cattell (1956) defined personality as "that which permits a prediction of what a person will do in a given situation." Traits are Cattells' basic elements of personality. He explicitly recognises that traits are concepts used to explain observed consistencies of behaviour. He also agrees that there are many levels of generality of traits, some applying only to particular individuals or circumstances, and others applying to a very groups. He has been concerned mainly however, with intra individual organisation of traits and that is what Form E is concerned.

### **PROCEDURE:**

Each driver was interviewed individually in the bus depots both in Benin depot and Lagos depot during working hours. The first few minutes were spent talking with the drivers after permission was obtained from their supervisors so that they could get over their initial nervousness and hesitation. They were told that their responses to the questionnaires would be kept confidential and that the results would be used to improve their service conditions. Personal data were collected first, followed by the administration of the M.P.I. and 16 PF. The interview and testing of each driver took 20 to 40 minutes.

### **RESULTS**

The accident group AG (factors A – Q) and non-accident group NAG (factors A – Q) did not differ significantly on neuroticism-stability dimension and extroversion-introversion dimension factors. Table 1 summarizes the results of 16 personality Factor Questionnaire.

**TABLE 1**

MEAN SCORES AND *t* VALUES OF AG AND NAG GROUPS OF DRIVERS ON 16PF QUESTIONNAIRE (N = 80)

Factor	Mean (AG)	NAG	t-value
A	5.1	6.6	3.5**
B	5.4	6.5	3.06**
C	4.6	5.6	2.55*
E	5.4	7.1	4.46**
F	5.0	6.1	4.33**
G	3.3	4.8	3.72**
H	5.0	5.6	1.40
I	4.1	4.4	0.86
L	5.4	6.8	3.12**
M	5.2	6.7	3.34**
N	3.2	4.6	3.25**
O	2.9	3.5	1.79
Q1	6.6	7.7	2.18*
Q2	5.5	6.0	1.31
Q3	4.0	4.8	1.70
Q4	4.8	4.9	0.36

\*\*Significant .01    \*Significant .05.

Table 1 indicates that AG & NAG groups of drivers differ significantly on most of the 16 personality factors. However, no significant difference was observed between AG and NAG on the following factors: Shy vs Venturesome, tough-minded vs tender-minded, placid vs apprehensive, group-adherence vs self efficiency, low integration vs highself-concept, and relaxed vs tense.

**TABLE 2****THE INFLUENCE OF AGE ON FREQUENCY OF ACCIDENTS INVOLVING AG AND NAG DRIVERS**

Group	Age in years			Total
	22 - 30	31 - 40	41 and above	
AG	21	11	8	40
NAG	10	17	13	40
Total	31	28	21	80

$$x^2(df = 3) = 6.38; p < .05$$

Table 2 shows the influence of age on frequency of road accidents involving AG and NAG drivers. The  $x^2$  value was found to be significant ( $p < .05$ ). Twenty-one drivers of AG were in the age bracket of 22 - 30 years and eleven in 31 - 40 years, whereas only eight drivers were in the age bracket of 41 and above. One may conclude from the findings on Table 2 that younger drivers were more accident prone than the older ones.



**TABLE 3**

**THE INFLUENCE OF EXPERIENCE ON FREQUENCY OF ACCIDENTS INVOLVING AG AND NAG DRIVERS**

Group	Experience in years			Total
	1 – 10	11 – 40	21 and above	
AG	21	15	4	40
NAG	7	25	8	40
Total	28	40	12	80

$\chi^2(df = 2) = 10.48; p < .01$

The influence of experience and frequency of accidents involving AG and NAG drivers is shown on Table 3. The  $\chi^2$  value was found to be significant ( $p < .01$ ), it was observed that as experience increases there was a corresponding decline in the number of road accidents.

**TABLE 4**

**RELATIONSHIP BETWEEN PAY EARNED PER MONTH  
AND THE NUMBER OF ACCIDENTS INVOLVING AG AND  
NAG DRIVERS**

Group	Pay in Naira			
	1000-1500	1600-2500	3000 and above	Total
AG	31	22	5	40
NAG	7	19	14	40
Total	20	41	19	80

$$\chi^2(df = 2) = 6.26; p < .05$$

Table 4 summarizes the results showing relation between pay earned and the frequency of road accidents involving AG and NAG group of drivers. Table 4 indicates that there is significant relationship between the monthly pay of the drivers and the number of accidents involving AG and NAG drivers ( $p < .05$ ). It was observed that the higher the pay, the less was the number of accidents.



**TABLE 5**

**THE INFLUENCE OF EDUCATION ON FREQUENCY OF ACCIDENTS INVOLVING AG AND NAG DRIVERS**

Group	Level of Education			
	F.L.S.C.	WASC Attempted	HSC & Above	Total
AG	10	22	5 14	40
NAG	14	19	19	40
Total	24	41		80

$\chi^2(df = 2) = 6.26; p < .05$

Table 5 show that there is no significant relationship between level of education attained by the individual drivers in both AG and NAG groups respectively.

**TABLE 6**

**THE INFLUENCE OF MARITAL STATUS ON THE NUMBER OF ACCIDENTS INVOLVING AG AND NAG DRIVERS**

Group	Married	Unmarried	Total
AG	36	4	40
NAG	34	6	40
Total	70	10	80

$\chi^2(df = 2) = 2.95; p \neq NS$

Similarly, Table 6 indicated that there is no significant influence of marital status on the number of accident committed by the drivers in the two groups.

## DISCUSSION:

The results of this study showed that AG and NAG group of drivers do not differ significantly on neuroticism-stability and extroversion-introversion dimensions of personality. It seems more plausible to talk of extroversion-introversion, as a trait describing habitual forms of behaviour rather than definite types with necessary connections between responses. Significant differences on these personality dimensions are not expected between AG and NAG. Similarly the other dimension neuroticism-stability which operates in conjunction with extroversion-introversion is equally non-discriminating in the present context. Contrary to our findings, Singh (1978), Balkan (1963), and Husband and Hinton (1972) found that accident group of workers were more neurotic and extrovert as compared to non-accident group. This could be explainable in the context of the sample utilized. It is possible that cross-cultural differences may have been responsible for this contradiction in our findings e.g. degree of disposition to neurotic tendencies and temperament.

Significant differences were obtained between AG and NAG on some of the personally factors on 16PF, like reserved vs. outgoing ( $P < .01$ ) intelligence ( $P < .01$ ), lower ego strength vs. higher ego strength ( $P < .01$ ). Submissiveness vs. dominance ( $P < .01$ ), sober vs. happy-go-lucky ( $P < .01$ ), expedient vs. conscientious ( $P < .01$ ), trusting vs. suspicious ( $P < .01$ ), and conservatism vs. radicalism ( $P < .05$ ).

The results of the 16PF indicated that NAG were more outgoing as compared to AG drivers who were reserved type. The outgoing groups are expected to have a better environmental control than the reserved type and thus were less involved in accidents. Our finding was supported by those of Lawrence (1952), Davids and Mahoney (1957).

The NAG was found to be more intelligent and bright as compared to AG, who were less intelligent. Intelligence is global capacity and has a direct bearing on many processes including perception, attention, vigilance, and interpretation of the environmental situations. It may be thus argued that the more intelligent group was better cognitively equipped to deal effectively with various situations which were likely to cause accidents. Bose (1952), Chatterjee and Mukerjee (1968), Barnejee and Ghosh (1969) found similar results in their studies, whereas Barnerjee (1956) found no relationship between accident and intelligence.

The NAG group of drivers were found to be emotionally stable and had higher ego strength as compared to AG group who had lower ego strength as

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compared to less stable. Emotional stability and higher ego strength heighten and colour the entire range of human experience, from high pleasure through normal everyday reactions to our behavioural manifestation.

It may follow that effective functioning requires these traits. The AG of drivers who were deficient in these traits were likely to be involved in accidents. The finding of the present investigation was supported by those of Adams (1973) and Tabachnick (1976). The result too showed that the NAG was dominating and assertive as compared to AG who were submissive. Dominance and assertiveness here is an index of effective control of one's environment. It is possible that it was this effective control that prevented the NAG from involvement in accidents. Burner (1973) supported this line of explanation.

The accident group of drivers was found to be more sober type whereas non accident group was found to be happy-go-lucky type, gay and enthusiastic. Soberness connotes an extreme mood of depression. Mild emotions may be constructive in their overall effect by reinforcing our actions toward worthwhile goals. But as we get into intermediate range of intensity, emotions are typically detrimental to problem solving and task performance. It is possible that the intense depression may have been responsible for the AG being involved in a number of accidents. The non accident group NAG of drivers was less likely to be involved in accidents because they were happy and gay and not the depressed type.

A significant difference was found between AG and NAG on expedient and conscientious variable. The accident group was casual, lacking in effort for group undertaking whereas non-accident group was dominated by a sense of duty and a sense of responsibility. A casual and less careful AG was more likely to be involved in a number of road accidents as compared to their NAG counterpart who exhibited a high sense of duty and responsibility. Adams (1970) supported our results.

The AG and NAG differ significantly in trusting vs. suspicious personality variable. The NAG of drivers was more suspicious and self opinioned whereas AG was more trusting. The suspicious and self opinioned are likely to be cautious, alert and move only when they are sure of the outcome, whereas the trusting type are likely to take things for granted. And as a result they (AG) were more involved in a number of road accidents. Davids and Mahoney (1957) also obtained similar results.

On practical vs imaginative trait, the AG and NAG differ significantly. The AG which was more practical was concerned over minor details and was

anxious to do right things. Anxiousness is a form of anxiety. An ~~anxious~~ is more likely to behave compulsively without recourse to caution and ~~some~~ reasoning. Little wonder therefore, the AG was involved in high frequency of road accidents. The NAG was found to be more conventional and self motivated, which led to their effective performance.

A significant difference was found between AG and NAG on forthrightness vs. shrewdness variable, the AG was found to be more sentimental whereas NAG was more shrewd and the calculating type. A sentimental person, lives in a fool's paradise, such a person is not objective in his interpersonal relationship. Such a person does not have a firm purpose of what he does. This may be responsible for the AG involvement in a high number of accidents as compared with NAG counterparts who were calculative reasonable and objective in their driving behaviour.

A significant difference was obtained in accident and non accident group of drivers on conservatism vs. radicalism. The AG was the conservative type whereas NAG was free thinking and liberal type. A conservative is a person who likes to play safe. He feels at home with the traditional ways of life which involve hardly any social risk nor make a call on his ingenuity. This therefore makes them more vulnerable to a high frequency of road accidents. A liberal on the other hand is a daring person whose flexibility stands him in good stead in welcoming and negotiating changes. Their capacity to adapt to new situation may have led to their better performance as compared to the conservatives.

No significant relationship was obtained between AG and NAG on shy vs venturesome, tough-minded vs. tenderminded, placid vs. apprehensive, group adherence vs. self-efficiency, low integration vs. high self concept control, and relaxed vs. tense. The results for the above traits showed that both the AG and NAG exhibited about the same behaviour regarding them.

As regards the effect of personal variables on accident, the present study indicated that age of the drivers was related to accident. The  $\chi^2$  - value was significant ( $p < .05$ ). As the age increases there was less likelihood of accidents. In the age group of 20 - 30 years the drivers were involved in greatest number of accidents. It was assumed that younger drivers, by and large, were unsafe; they tended to be reckless and more adventure seeking, our finding was supported by those of Kalla (1953) Gupta and Gulati (1968), Chandra, Verma and Sharma (1966 - 67), Chatterjee (1979) and Ahmad and Joseph (1980).

Experience was related to road accident  $\chi^2$  - value ( $P < .01$ ). The experience provided better skill to the drivers and also inculcated a sense of



responsibility. Therefore, there should be decrease in the number of accidents with increase in experience. Ganguly and Kasbekar (1968), Chatterjee (1979), Ahmad and Joseph (1980) supported our findings, whereas Tripathi (1967) and Prasad and Jha (1968) reported non-significant relation between number of accidents and experience.

Pay of the drivers was also found to be related to accident ( $P < .05$ ) in the present study. There was marked increase in the accident when pay was less and decreases when the pay reaches the maximum. We may explain the phenomenon on the basis of job satisfaction of drivers, which in turn tended to determine the number of accidents. Prasad and Jha (1968), Nagia (1979) and Chatterjee (1979) supported our findings.

No relationship was observed between education, marital status, and the time of duty of the drivers and the accidents. Accident may occur any time, day or night but usually it gets committed at peak hours in the cities and at night in Nigerian roads as was revealed through tin inspection of the accident records.

### **IMPLICATIONS:**

The findings of this study have added an additional assignment on policy makers and implementers of traffic industry. The first assignment is that in addition to their setting up an organization like Road Safety Commission to combat the high number of road accidents in the country; driver licensing officers should also be charged with additional responsibility of identifying the personality characteristics of the AG and NAG drivers on our roads. Transporters and vehicle owners associations are encouraged to provide the required funds for in-depth and thorough research into the causes and prevention of road accidents in the country. Government should also provide the road law enforcement officers with the modern gadgets to detect drivers who drink alcohol on duty.

### **CONCLUSION**

It may be concluded that the present study, like others have clearly indicated that mental, physical, emotional and psychological state of the drivers besides the vehicle condition have a great bearing on vehicular accidents. Also, that in reality, non-personality variables may count more significantly than the intended "personality" factors.

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