On Determination of Behavioural Characteristics Responsible for Psychopathic Personality Traits

Abstract

Abnormal and irrational behaviour called psychopathic traits has eroded our society; it increases daily, thus leading to increased crime. This study focuses on determining behavioural characteristics (BCs) that may be responsible for psychopathic traits in human beings. A survey was conducted in five selected towns in Osun State, Nigeria, based on seventeen identified behavioural characteristics to achieve the focus of this study. The considered BCs are Family upbringing, confidence in government, society values, industrialization, civilization, unemployment rate, technology advancement, socio-political class, impunity, environmental impact, embracing foreign culture based on materialism, religion believes, peer group influence, academic attainment, high wealth procession, the family believes, and power intoxication.

Principal component analysis was used to screen the seventeen identified BCs to determine the significant BCs that are responsible for psychopathic traits in humans. Results from the principal component analysis reduced the seventeen characteristics to family upbringing, confidence in government, society values, industrialization, and civilization. Afterwards, the reduced BCs were subjected to binary logistic regression analysis using goal setting and aggressiveness as dependent variables. Furthermore, because of the inconsistency of the results from the principal component analysis, the binary logistic regression model was fitted using all seventeen BCs as independent variables on goal setting and aggressiveness to validate the BCs that significantly influence the psychopathy personality traits in humans. For goal setting as a personality trait, the result shows that technological advancement, foreign culture, religious beliefs, high wealth possession, and power intoxication have a significant effect. However, for aggressiveness as a personality trait, the following BCs were discovered to have significant influence: confidence in government, environmental impact, impunity, and power intoxication.

Keywords: Behavioural characteristics, Logistic regression, Principal component analysis, Psychopathic, Personality traits

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1.0 Introduction

Human conduct is part of a person's self-concept, which is how they see themselves as physical, social, spiritual, or moral. Aggressive, pessimistic, trusting, optimistic, and jealous behaviour are the most ubiquitous and perplexing among common aberrant human behaviours today. Physical or verbal aggression between spouses, siblings, or parents who use it as punishment for their children begins at home. Because of some misunderstanding, neighbours frequently demonstrate hostility, pessimism, trusting, optimistic, and envious behaviours among themselves. Different gathering sites, including village meetings, are not immune to the display of these characteristics. Robbery, kidnapping, rape, and murder are among our society's aggressive, pessimistic, and

envious acts of hoodlums. Churches are sometimes subjected to verbal abuse as well. These actions are linked to personal psychological characteristics (Shekarey, Ladani, and Rostami, 2013).

Psychological traits refer to the full range of physical and emotional behaviours that humans engage in, such as intellectual, social, and biological, to mention a few (Hetrick, 2016). The psychological traits associated with the mental (antisocial) disorder, which manifests as a display of lack of love or hate, are associated with the antisocial disorder (Neumann, 2017). It has been shown that psychopathy is principally deficient in fear reactivity and is commonly associated with a reduced empathy response (Gwen, 2014). Furthermore, Allen (2018) concluded that children with psychopathic tendencies always show less concern for the negative emotions of others. Other studies in the literature have established that there are genetic influences (i.e., clinical factors) that account for all the psychopathy dimensions. The study by Sanz-Garcia et al. (2021) categorized human behaviours as acceptable and non-acceptable based on social norms. A person's traits depict a person's characteristics in making a response and reaction to a particular situation in a specific way. Inge and Lawrence (2021) opine that people with psychopathic personalities hardly adjust to society's standards, exhibit extreme selfish behaviours, and live their lives not minding the consequences of their actions. Much scientific literature has associated psychopathic personality traits in humans with clinical factors such as mental disorders and drug abuse (Asrat et al., 2021; Junaid et al., 2020; Schell et al., 2019). Asrat et al. (2021) asserted that psychopathic personality traits co-occur with toxic behaviours, aggressiveness, violence, criminal activities, and drug abuse, to mention but a few. Findings have shown that psychopathic personality traits are astonishingly common as mental disorders (Charles and Moses, 2020). Damilare et al. (2019) attributed psychopathic personality traits to neuroticism which is associated with emotional instability, irritability, and anxiety, to mention but a few.

In Nigeria, many people behave according to their environmental status, religion, family issues, short-temper, frustration, weather, climate conditions, poverty, and culture, to mention but a few. Yonas (2020) asserted that 14.7% of the newly admitted prisoners in the Nigerian correctional institutions were psychopaths and that the risk of psychopathic personality traits accounted for (37–93)% of the effects of childhood maltreatment. Furthermore, the study claims that (58–97)%

of Nigerians that committed sexual murder were also discovered to be psychopaths based on the set criteria. The study further revealed that psychopathy was a vigorous predictor of general, violent, and sexual recidivism. Kagan, Marc, and Richard (2020) associated psychopathic personality traits with social norms. Govertt et al. (2019) associated psychopathic personality traits with human creativity, religion, and spirituality. A study by Rath (2018) linked psychopathic personality traits to weather, climate, and human attitudes. More studies on psychopathy hypotheses based on personality and behaviour can be found in Lilienfeld (1998), Pilkonis and Klein (1997), and Blackburn (1998). It

In Nigeria, psychopathy dimensions do not appear to be more predominant in one racial or ethnic group than others (Schell et al., 2019). However, Dawson (2019) suggested that in Nigeria, the psychopathy pattern is more predominant in men than women. The very nature of psychopathy involves antisocial behaviours, which strain the criminal justice system. Therefore, in this paper, psychopathic personality traits in a state in Nigeria were studied using principal component analysis on social factors outside that of clinical factors such as environmental factors, religion, family factors, interpersonal relationships, regional factors, and so on which are believed to be behavioural characteristics that may influence psychopathy.

2.0 Materials and Methods

Two statistical approaches were used in this study to determine the behavioural characteristics that have significant effect on personality traits of humans. The details of the methods are presented below

2.1 *The Principal Component Analysis (PCA)*

The Principal Component Analysis (PCA) method helps to reduce the dimension of a dataset in such a way to maximize interpretability and minimize information loss. The PCA uses the eigenvalue to determine the variables to be retained for further analyses.

Mathematically, if A is an *n by n* matrix representing the dataset matrix, then the characteristic equation of the matrix A is

$$\boldsymbol{det(A - \lambda I) = 0} \quad (1)$$

where I_{nxn} is an identity matrix, and λ is eigenvalue of $\boldsymbol{A}$. The root of the characteristic equation in (1) is the eigenvalues of $\boldsymbol{A}$.

Suppose there exist a vector X which is the eigenvector $\boldsymbol{A}$, then

$$\boldsymbol{A}\, X = \lambda X \quad (2)$$

It should be noted that there is no unique solution for X. Therefore, there is a need for transformation. Transforming the samples into new subspace, we have

$$M = A'X \quad (3)$$

where A is eigenvectors corresponding to p maximum eigenvalues. Hence, the desired Principal Component. The mathematics of PCA is further highlighted as follows:

A covariance in the principal component analysis is a measure of how two variables change together. To determine the correlation and covariance Matrix of any two variables, the following equations will be employed:

$$\sum_{XY} = \frac{1}{2}\sum_{i=1}^{n}(X_i - \mu_X)(Y_i - \mu_Y)^T \quad (4)$$

$$\sum_{XY} = E[(X - E[X])(Y - E[Y])] \quad (5)$$

The covariance matrix is given as:

$$\sum = \begin{pmatrix} \sigma_{X_1}^2 & \Sigma_{X_1X_2} & \Sigma_{X_1X_d} \\ \Sigma_{X_1X_2} & \sigma_{X_2}^2 & \Sigma_{X_2X_d} \\ \Sigma_{X_1X_d} & \Sigma_{X_2X_d} & \sigma_{X_d}^2 \end{pmatrix}$$

The correlation is a normalized measure of how two variables change together which is computed using equation (6)

$$\rho_{XY} = \frac{\Sigma_{XY}}{\sigma_X \sigma_Y} \quad (6)$$

PCA loadings are the coefficients of the linear combination of the original variables from which the principal components (PCs) are constructed. The linear combination of the original variables $X_1, X_2, X_3, \ldots, X_p$ are

$$PC_1 = w_{11}X_1 + w_{12}X_2 + w_{13}X_3 + \cdots + w_{1p}X_p \quad (7)$$

The first principal component PC_1 represents the component that retains the maximum variance of the data, and W_i corresponds to an eigenvector of the covariance matrix. Thus, the component loadings are determined with the expression:

$$\sum = \frac{1}{N-1} X^T X \quad (8)$$

It should be noted that the elements of the eigenvector of the covariance is known as the loadings.

2.2 Logistic Regression Analysis

The two basic types of logistic regression are the Binary and multinomial logistic regression. The Binary logistic regression is used when the dependent variable is dichotomous. To apply logistic regression, consider a linear probability model:

$$P(X) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_i X_i \quad (9)$$

The logistic regression uses the logistic function given as

$$P(X) = \frac{e^{\beta_0+\beta_1 X_1+\beta_2 X_2+\cdots+\beta_i X_i}}{1 + e^{\beta_0+\beta_1 X_1+\beta_2 X_2+\cdots+\beta_i X_i}} \quad (10)$$

From (10) the odd ratio is obtained to be

$$\frac{P(X)}{1-P(X)} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+\cdots+\beta_i X_i} \quad (11)$$

Taking the logarithm of equation (9), we have the logit regression equation given by

$$log\left(\frac{P(X)}{1-P(X)}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_i X_i \quad (12)$$

To test for the significance of the logistic regression coefficient, the Wald test is used in this paper. The Wald statistics is:

$$Z_j = \frac{b_j}{s_{bj}} \quad (13)$$

where s_{bj} is the square root of the corresponding diagonal element of the covariance matrix, $V(\beta)$. It should be noted that when the sample size is large, $z_j \sim N(0,1)$.

2.3 *Study Setting and Analytical method*

The target population for the study is all human beings who possess the characteristics or know the phenomenon being studied in Osun state, Nigeria. The study took place in the last quarter of the year 2021. The five towns where the study was carried out are Osogbo, Ikirun, Ilesa, Ada-Ile, and Iree. The five towns were selected based on proximity factors and the funds available for the study. Five hundred and fifty questionnaires were distributed across the five towns according to the proportion of the size of each town under study. The study covered three months to administer the questionnaires across the five towns selected. In each town, simple random sample approach was used to distribute the questionnaire. At the end of the three months, five hundred and eight (508) respondents completed and returned the questionnaires, which amounted to 92.4% response rate. The questionnaire instrument captured seventeen behavioural characteristics of human beings. The seventeen factors are: family upbringing - X_1, confidence in government –X_2, society value –X_3, industrialization –X_4, civilization –X_5, unemployment rate –X_6, environmental impact -X_7, technology advancement -X_8, socio-political class –X_9, impunity –X_{10}, embracing foreign culture – X_{11}, religion believes – X_{12}, peer group – X_{13}, academic attainment – X_{14}, wealth possession – X_{15}, family believes – X_{16}, and power intoxication –X_{17}. The Data analysis was done with AMOS SPSS version 23.

2.4 *Measures and Procedures*

A questionnaire was designed and used as an instrument for data collection. The questionnaire was deployed directly using face-to-face interviews with the respondents; closed-ended questions were used to collect data. The questionnaire was structured and designed so that the respondent would be able to answer the research-based questions appropriately and with every sense of responsibility. The questionnaire was divided into three sections, namely: questions on

the biodata of each respondent, questions that have to do with goal settings and signs of psychopathy, and questions on the factors responsible for behavioural characteristics. The questionnaire was structured on a five Likert scale which are: strongly agree, agree, neutral, disagree, and strongly disagree. Data were collected to data were collected to detect the major factors responsible for behavioural characteristics in human beings. The data retrieved from the related questions on goal setting, aggressiveness, and questions about human actions were all obtained from the survey.

The reliability and internal consistency of the instrument used for data collection were carried out using the Cronbach's Alpha and the standardized Cronbach's Alpha. The computed Cronbach's Alpha statistics was 0.805, while the standardized Cronbach's Alpha value equals 0.815. Thus, the instrument used is reliable and consistent for the study.

3.0 Results

3.1 *Test of Sphericity*

One of the assumptions related to PCA is the sphericity test which must be satisfied before the PCA can be carried out on a data set. Bartlett's Sphericity Test has a Chi-Square approximation of 4642 with 136 degrees of freedom and a p-value of 0.000. Therefore, there is an indication of a relationship among the seventeen variables considered to be responsible for behavioural characteristics and that the correlation matrix is not an identity matrix.

3.2 *Sampling Adequacy*

To test for the factors to be retained among the seventeen variables (X_1 to X_{17}), Kaizer-Meyer-Olkin (KMO) was used to check for the sampling adequacy and to determine the most significant factors that will account for about 70% of the behavioural personality traits under study. The obtained KMO results for the seventeen variables are presented in Table 1 in the Appendix.

From Table 1, the KMO overall value of 0.768 implies “moderate” according to the definition and condition of KMO. Since the computed KMO values from Table 1 are greater than 0.60, then, all the seventeen factors under consideration were retained for the computation of the principal components.

3.3 *Computation of Initial Eigenvalue*

The eigenvalues for the seventeen variables are computed to determine the most important factors that can be used to explain the differences in the personality trait of human beings. Using equation (2) on the data set loaded in order to as appears in section 2.5, the eigenvalue, percentage of the total variance, and cumulative percentage of total variance are computed for each. behavioural characteristics considered in this study. The obtained results are presented in Table 2 in the Appendix

The most important factors that we considered to be strong enough to explain the variability in personality traits are the variables with an eigenvalue that is greater or equal to 1.

Based on the results in Table 2, the following BCs whose eigenvalues are greater than one, were, selected to be the determinant factors: family upbringing, confidence in government, society values, industrialization, and civilization. The five BCs represent 70.7% of the total explained variability in the dataset. Hence, based on the available data used in this study, the factors mentioned above contributed approximately 71% to the behavioural characteristics of human beings.

3.4 *Component Loading*

Using equations (7) and (8), the computed correlation component loadings, which show the value of each factor considered to be responsible for the behavioural characteristics in human beings, are presented in Table 3 in the Appendix.

Table 3 shows how each factor loads on the five components extracted by the PCA. For instance, for Component 1, confidence in government, society values, socio-political class, and impunity

are relatively highly positively correlated with the values bolded in Table 3. Likewise, for Component 2, the following factors load with positive values: Technology advancement, foreign culture embracement, peer group, wealth possession, and power intoxication. Component 3 is loaded with a high positive correlation with industrialization, civilization, religious belief, academic attainment, and family beliefs. Component 4 loadings are with industrialization, unemployment rate, and environmental impact. The fifth component loaded with a high positive correlation with family upbringing.

It should be noted that positive loadings indicate that a behavioural characteristic and a principal component are positively correlated. This implies that an increase in one leads to increase in the other. However, a negative loading indicates a negative correlation, while large (either positive or negative) loadings suggest that a variable strongly affects the principal component.

3.5 *Correlation and Covariance of PCA Components*

To determine the correlation and covariance matrix for the five components specified from the PCA, equations (4) to (6) were used. The obtained results are presented in Table 4 in the Appendix. Table 4 implies a non-zero variance-covariance matrix of the five important variables determined earlier to contribute significantly to psychopathy personality traits.

To test the validity, reliability, and reproducibility of the results above, we reordered the seventeen variables in the order X_3, X_{14}, X_{12}, X_{13}, X_9, X_{10}, X_{11}, X_8, X_{16}, X_5, X_7, X_6 X_{17}, X_{15}, X_{14}, X_1, and X_2 and we re-ran the PCA on the reorder data. Based on the computed initial eigenvalue, the first six components have eigenvalues greater than 1. Therefore, the variable Society values($\boldsymbol{X_3}$), Academic attainments ($\boldsymbol{X_{14}}$), Religion believes ($\boldsymbol{X_{12}}$), Peer group influence ($\boldsymbol{X_{13}}$), Socio-political class ($\boldsymbol{X_9}$), and Impunity ($\boldsymbol{X_{10}}$) were captured to have significant contribution to the behavioural characteristics of human being. The component loading of the reordered data set are presented in Table 5 in the Appendix.

Based on the results in Table 5, the following components were extracted to be important:
Society values, academic attainment, religion believes, peer group influence, socio-political class, and impunity. These factors are invariant with the factors extracted in Table 3 to be necessary. Thus, the results from the principal component analysis are not consistent in the

determination of significant variables. To resolve the identified weakness of the PCA, we employed the binary logistic regression to determine the significant factor out of the seventeen variables under study and compared the result with the two PCA-based datasets

3.6 *Binary Logistics Regression*

In this paper, the binary logistic regression was used to:

(i) determine the relationship between the major factors responsible for behavioural characteristics in human beings and goal setting; and

(ii) determine the relationship between these factors and aggressiveness as signs of psychopathic personality traits in human beings.

Following the description in section 2.2, equation (10) was used to fit the regression model, while the computation of the Wald statistics was based on equation (13). Sub-section 3.4.1 considered the goal settings with the five variables determined to be highly significant to the psychopath behaviours, while sub-section 3.4.2 is on the aggressiveness factor.

3.6.1 *Binary Logistic Regression: Goal settings versus Family upbringing, Citizen confidence on government, Society value, Industrialization, and Civilization.*

Based on the data summary on goal setting and the five significant variables from Table (2), the binary logistic regression coefficients and the Wald test of significance are presented in Table 6 in the Appendix.

From the results in Table 6, only the component civilization significantly explains goal setting. Thus, for every unit increase in the number of civilized persons, there will be a decrease of 0.683 (68.3%) in the log-odds of goal setting.

3.6.2 *Binary Logistic Regression: Aggressiveness versus Family upbringing, Citizen confidence on government, Society value, Industrialization, and Civilization*

Based on the data summary on aggressiveness and the five significant variables from Table (2), the binary logistic regression coefficients and the Wald test of significance are presented in Table 7 in the Appendix.

Table 7 imply that the overall model significantly fits the aggressive data. However, at a 5% significance level, only citizen confidence in the government significantly explains aggressiveness. Thus, for every unit increase in the number of persons that has confidence in the government, there is a decrease in the log-odds of aggressiveness. This implies that there will be a decrease in the citizens' aggressiveness.

3.6.3 *Binary Logistic Regression For ALL The BCs*

Based on the inconsistent results from the PCA on the varying selected components, we decided to carry out a complete binary logistic regression for the goal setting and aggressiveness using the seventeen behavioural characteristics considered in this study. Tables 8 and 9 in the Appendix contained the information about the fitted binary logistic regression for the full model for the goal setting and aggressiveness, respectively.

With the full model in Table 8, the following components: technological advancement, foreign culture, religion believes, high wealth possession, and power intoxication significantly influences goal setting at 5% level of significance. We specified aggressiveness as the independent variable and the entire seventeen variables as dependent variables. The result of the binary logistic regression is presented in Table 9. The results in Table 9 reveal that citizens' confidence in government, environmental impact, impunity, and power intoxication are the significant components that affect aggressiveness at 5% level of significance.

4.0 Discussion

This study used the principal component analysis to model psychopathic personality traits. On applying the PCA, the seventeen factors were reduced to five based on the first ordering, and six factors were extracted when re-ordered. The factors are considered strong enough to explain all other factors. The five factors based on the initial order were subjected to binary logistic regression to determine the factor that leads to goal setting and aggressiveness. In the first model, goal setting was used as a dependent variable, while the five factors retained were used as independent variables. In the second model, aggressiveness was used as the dependent variable, while the five variables retained were used as independent variables. In the first model, only 'civilization' significantly explains goal setting, while in the second model, only

'confidence in government' significantly explains aggressiveness. The results obtained in this study empirically support the study by Mahmood (2016) and Xiao et al. (2020). We can conclude that confidence or lack of confidence in government determines how citizens perceive or handle corruption. If the citizens are not satisfied due to a lack of confidence in government, it may lead to aggressiveness. The results agree with Benish-Weisman et al. (2017), who showed that value system impacts aggression among youths.

In this work, we have used principal component analyses and logistic regression to identify the major factors responsible for behavioural characteristics in human beings. The binary logistics regression showed a relationship between factors responsible for behavioural traits and goal setting. The result also revealed a relationship between the major factors responsible for behavioural characteristics and psychopathy personality traits in human beings. Based on the obtained results and conclusion, we recommend that government and health caregivers create more social awareness of the possible causes of abnormal behaviour, as mentioned in this study. Furthermore, citizens exhibiting abnormal behaviour should be encouraged and assisted in seeking expert's help. In future research, stepwise regression could be used to investigate the variables to include in the logistic regression analysis. The results compare with that of factors extracted using Principal Component Analysis.

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Appendix

Table 1: KMO Measure of Sampling Adequacy

	Behavioural Characteristics	Sampling Adequacy
	Overall	**0.768**
X_1	Family upbringing	0.635
X_2	Confidence in government	0.746
X_3	Society Values	0.824

X_4	Industrialization	0.777
X_5	Civilization	0.810
X_6	Unemployment rate	0.806
X_7	Environmental Impact	0.666
X_8	Technology advancements	0.772
X_9	Socio-politically	0.762
X_{10}	Impunity	0.874
X_{11}	Embracing foreign culture	0.745
X_{12}	Religion believes	0.779
X_{13}	Peer group influence	0.667
X_{14}	Academic attainments	0.814
X_{15}	High wealth possession	0.784
X_{16}	Family believes	0.784
X_{17}	Power Intoxication	0.705

Table 2: Initial Eigenvalues For Behavioural Characteristics

Behavioural Characteristics	Eigenvalue	% of Total Variance	Cumulative % of Total Variance
X_1	**5.983**	35.293	35.293
X_2	**2.126**	12.508	47.801
X_3	**1.523**	8.960	56.761
X_4	**1.371**	8.065	64.826
X_5	**1.010**	5.939	**70.765**
X_6	0.962	5.661	76.426
X_7	0.707	4.158	80.584
X_8	0.637	3.745	84.329
X_9	0.529	3.111	87.44
X_{10}	0.425	2.499	89.939
X_{11}	0.368	2.165	92.104
X_{12}	0.323	1.899	94.003
X_{13}	0.283	1.667	95.67
X_{14}	0.249	1.464	97.134
X_{15}	0.230	1.355	98.489
X_{16}	0.150	0.880	99.369
X_{17}	0.124	0.732	100.101

Table 3: Component Loading

Behavioural Characteristics	Principal Components Selected				
	1	2	3	4	5
Family upbringing	0.2843	0.2599	0.0458	-0.0335	**0.7696**
Confidence in government.	**0.7652**	-0.1014	0.0460	0.2096	0.1389
Society values	**0.7236**	0.2022	0.1163	0.2528	0.1862

Industrialization	0.3435	0.0149	**0.5210**	**0.6428**	0.0040
Civilization	-0.0155	0.3181	**0.7033**	0.2297	0.1076
Unemployment Rate	0.1606	0.2233	0.1036	**0.8185**	-0.0113
Environmental impact	0.1482	0.0999	0.0531	**0.8610**	-0.0175
Technology advancement	0.0927	**0.7261**	0.3516	0.0087	0.0224
Socio-political class	**0.8568**	0.1428	0.1813	-0.0324	0.0283
Impunity	**0.7177**	0.3985	-0.0164	0.1706	-0.1300
Embracing foreign culture	0.1473	**0.5839**	0.1731	0.0353	0.1004
Religion believes	-0.2108	0.3401	**0.5123**	0.3997	0.4320
Peer group	0.0427	**0.7255**	-0.1204	0.2088	0.2676
Academic attainments	0.4293	0.0238	**0.7088**	-0.0258	0.0803
High wealth possession	0.4130	**0.6715**	0.1832	0.3003	0.1765
Family believes	0.1190	0.3685	**0.6566**	0.1197	-0.4094
Power intoxication	0.0148	**0.6259**	0.4018	0.1693	-0.3455

Table 4: Correlation and Covariance of Principal Components

Variables	X_1	X_2	X_3	X_4	X_5
X_1	1.000	-0.001	0.362	0.081	0.069
X_2	-0.001	1.000	0.088	0.068	0.42
X_3	0.362	0.088	1.000	0.078	-0.011
X_4	0.081	0.068	0.078	1.000	0.162
X_5	0.069	0.042	-0.011	0.162	1.000

Table 5: Computed Eigen Value for Reordered Behavioural Characteristics

Behavioural Characteristics	Eigen value	% of Variance	Cumulative % of Variance
Society values	**3.157**	18.571	18.571
Academic attainments	**1.654**	9.728	28.299
Religion believes	**1.378**	8.107	36.405
Peer group influence	**1.271**	7.474	43.879
Socio-political class	**1.142**	6.715	50.594
Impunity	**1.042**	6.128	56.723
Foreign culture	0.968	5.694	62.417
Technological advancement	0.939	5.524	67.941
Family believes	0.816	4.798	72.738
Civilization	0.794	4.670	77.408
Environmental impact	0.757	4.450	81.858
Unemployment rate	0.633	3.726	85.584
Power intoxication	0.582	3.422	89.006
High wealth possession	0.547	3.220	92.226

Industrialization	0.522	3.071	95.297
Family upbringing	0.469	2.760	98.056
Confidence in government	0.330	1.944	100.000

Table 6: Result of logistics regression for Goal Setting Based on the first ordering

Component	B	S.E.	Wald	df	p-value	Exp(B)
Family	-0.238	0.283	0.708	1	0.400	0.788
Confidence in government	18.389	3916.105	0.000	1	0.996	$9.7*10^7$
Society	-0.135	0.253	0.285	1	0.593	0.874
Industry	-0.067	0.236	0.080	1	0.777	0.935
Civilization	-0.683	0.180	14.409	1	**0.000**	0.505
Constant	-15.254	3916.105	0.000	1	0.997	0.000

Table 7: Result of logistics regression for Aggressiveness Based on the first ordering

Component	B	S.E.	Wald	Df	p-value	Exp(B)
Family	-0.174	0.256	0.464	1	0.496	0.840
Confidence in government	-1.005	0.364	7.617	1	**0.006**	0.366
Society	0.045	0.207	0.048	1	0.827	1.046
Industry	-0.124	0.203	0.374	1	0.541	0.883
Civilization	0.111	0.168	0.436	1	0.509	1.117
Constant	0.201	0.559	0.129	1	0.720	1.222

Table 8: Binary Logistics regression Model for Goal setting based on the full model

Behavioural Characteristics	B	S.E	Wald	df	p-value	Exp (B)
Family upbringing	-0.546	0.495	1.214	1	0.270	0.579
Confidence in government	18.502	3266.168	0.000	1	0.995	108440189.1
Society values	-0.235	0.373	0.395	1	0.530	0.791
Industrialization	0.093	0.350	0.071	1	0.791	1.097
Civilization	-0.351	0.281	1.562	1	0.211	0.704
Unemployment rate	0.005	0.301	0.000	1	0.987	1.005

Environmental impact	-0.213	0.274	0.604	1	0.437	0.808
Technological advancement	-0.805	0.265	9.266	1	**0.002**	0.447
Socio-political class	-0.194	0.246	0.617	1	0.432	0.824
Impunity	00.240	0.268	0.805	1	0.370	1.272
Foreign culture	-0.869	0.243	12.848	1	**0.000**	0.419
Religion believes	-1.227	0.215	32.678	1	**0.000**	0.293
Peer group influence	0.232	00.295	0.619	1	0.431	1.261
Academic attainments	-0.098	0.223	0.194	1	0.659	0.906
High wealth possession	3.184	0.565	31.775	1	**0.000**	24.140
Family believes	-0.423	0.253	2.787	1	0.095	0.655
Power intoxication	-0.800	0.256	9.743	1	**0.002**	0.449
Constant	-12.969	3266.168	0.000	1	0.997	0.000

Table 9: Binary Logistics Regression Model for Aggressiveness based on full model

Behavioural Characteristics	B	S.E.	Wald	df	p-value	Exp(B)
Family upbringing	0.184	0.314	0.342	1	0.559	1.202
Confidence in government.	-0.924	0.398	5.399	1	**0.020**	0.397
Society values	0.108	0.234	0.212	1	0.645	1.114
Industrialization	-0.312	0.225	1.932	1	0.165	0.732
Civilization	0.091	0.190	0.227	1	0.634	1.095
Unemployment rate	0.135	0.168	0.647	1	0.421	1.145
Environmental impact	0.342	0.151	5.133	1	**0.023**	1.408
Technological advancement	-0.349	0.187	3.461	1	0.063	0.706
Socio-political class	-0.214	0.158	1.837	1	0.175	0.807
Impunity	-0.375	0.176	4.551	1	**0.033**	0.687
Foreign culture	-0.105	0.182	0.333	1	0.564	0.901
Religion believes	0.180	0.151	1.422	1	0.233	1.197
Peer group influence	-0.326	0.178	3.348	1	0.067	0.722
Academic attainments	-0.101	0.144	0.490	1	0.484	0.904
High wealth possession	-0.199	0.191	1.084	1	0.298	0.820
Family believes	0.128	0.168	0.580	1	0.446	1.136
Power intoxication	0.388	0.158	5.994	1	**0.014**	1.474
Constant	0.537	0.673	0.636	1	0.425	1.711