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Demographic variables and perceptions of corruption among undergraduates: Evidence from a nigerian federal university

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ABSTRACT

Previous studies suggest that beliefs, attitudes, experiences, cultural norms, personal values, and socioeconomic status shape perceptions of corruption. However, there is a lack of research exploring how undergraduates' demographic variables influence their views on corruption, creating a significant knowledge gap. To address this gap, this study examines how undergraduates' perceptions of corruption vary according to demographic variables, such as age, gender, socioeconomic status, and academic level. Following a positivist research philosophy, this quantitative study used a cross-sectional ex-post facto research design. A sample of 315 undergraduates, selected through a proportionate stratified random sampling technique, participated in a physical survey. Data were collected using the Demographic Variables and the Perception of Corruption Questionnaire (DVPCQ). Due to the absence of established instruments demonstrating strong psychometric properties in the specific context of this research, the DVPCQ was developed. Its face and content validity were confirmed by domain and psychometric experts, and its construct validity was assessed through exploratory factor analysis. The instrument was reliable, with a Cronbach's alpha of 0.87. The study's hypotheses were tested at the 0.05 alpha level using independent *t*-test and one-way analysis of variance (ANOVA). All statistical tests were performed using JASP software. The results revealed significant differences in perceptions of corruption based on age, gender, income level, academic level, and marital status of students. Specifically, younger, female, lower-income, lower academic and married students perceived corruption more favourably than older, male, higher-income, higher academic and single students. This finding implies that anticorruption campaigns should be customised to appeal to older, male, higher-income, higher academic and single students more inclined to perceive corruption unfavourably. Campaigns should focus on educating students about the negative consequences of corruption and promoting integrity and transparency. These recommendations would interest policymakers, educators, and researchers aiming to combat campus corruption.

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1. Introduction

The education students receive from the formal school setting should not only cater for the cognitive dimension of learning alone but also be all-embracing to ensure the overall development of the learners. However, while much emphasis has been placed on the development of students' cognitive abilities, the affective and psychomotor dimensions have, over the years, not received substantial attention among teachers and educational practitioners (Ekpenyong et al., 2023). Moreover, certain variables, such as corruption, can limit how much the right values can be passed from the school to the learners. Transparency International (2006) defines corruption as "the abuse of entrusted power for private gain." It is "any deliberate and malicious efforts made by a person or group of persons to go contrary to set rules within the environment that such a person or people find themselves" (Arop et al., 2018, p. 407). Corruption can take many forms, including bribery, embezzlement, nepotism, abuse of power (Zakari & Button, 2022), impersonation, cheating during examinations (Owan, Owan, & Ogabor, 2023), sex for grades (Ibrahim et al., 2020), results manipulation by untoward lecturers or examination officers, stealing, data fabrication/falsification during research engagements (Arop et al., 2018; Owan, 2023b), and ethnic bigotry (Hill et al., 2020).

Endemic corruption within the African region, particularly in Nigeria, significantly challenges the educational sector and the continent's overall development (Igiebor, 2019). Corruption is pervasive in various facets of Nigerian society and is deeply rooted in political, economic, and social structures. This pervasive issue undermines the integrity of educational institutions, distorting the values and norms essential for genuine learning and personal development (Arop et al., 2018). In Nigeria, corruption in education manifests in numerous forms, including bribery, embezzlement, nepotism, abuse of power, impersonation, examination malpractice, sex for grades, results manipulation, data fabrication, and ethnic bigotry (Arop et al., 2018; Hill et al., 2020; Ibrahim et al., 2020; Zakari & Button, 2022). These corrupt practices hinder the educational process and compromise the quality of graduates (Owan, Owan, & Ogabor, 2023).

Many undergraduate students who indulge in unacceptable practices of corruption tend to justify their actions (Arop et al., 2018; Madukwe et al., 2019). For example, some university students have attributed different acts of examination malpractice as a prerequisite for good grades and academic excellence (Owan, Chuktu, et al., 2023). These students prioritise passing their exams over the knowledge they acquire because it is a requirement for graduation and ultimately landing a white-collar job (Eneji et al., 2022). For them, the mere of passing exams, regardless of the methods used, is more important than the actual knowledge of the subject matter. This explains why the phrase *"read to know, but sought to pass"* is the watchword for most students. The perception held by students that all must pass an examination echoes the emphasis placed on paper certificates over skill acquisition and mastery (Bassey et al., 2019; Petters & Okon, 2014). Students' perception of corruption refers to an individual's subjective assessment of the level and prevalence of corrupt practices in a particular context.

Research has shown that the perception of corruption is based on an individual's beliefs, attitudes, and experiences and could be influenced by various factors, including cultural norms (Lancaster et al., 2019), personal values and socioeconomic status (Parks-Leduc et al., 2022). Furthermore, students' perceptions of corruption vary widely, depending on their experiences and exposure to corrupt practices (Arop et al., 2018). Therefore, understanding how demographic variables interact with perceptions of corruption may be important for designing anticorruption policies and strategies to combat them (Koller et al., 2020; Owan, Chuktu, et al., 2023). Despite the profound impact of corruption on education, there is a notable deficit in the literature regarding how demographic variables, such as age, gender, socioeconomic status, and academic level, influence undergraduates' perceptions and experiences of corruption. Although perceptions of corruption are shaped by individuals' beliefs, attitudes, and experiences and influenced by factors such as cultural norms and personal values (Lancaster et al., 2019; Parks-Leduc et al., 2022), there is a lack of research exploring these dimensions within the Nigerian context. Previous studies have not sufficiently addressed this nexus, creating a knowledge gap that hinders the development of targeted interventions to combat corruption in educational settings. By focusing on this gap, the present study examined how undergraduates' perceptions of corruption vary with their demographic characteristics, providing information that could inform the creation of more effective anticorruption measures in Nigeria and similar contexts across Africa.

2. Literature review and hypothesis development

2.1. Age and perception of corruption

According to developmental psychology theories, such as Erikson's stages of psychosocial development, individuals' values and ethical judgments evolve as they age (Erikson, 1963). It has also been documented by some studies that the perception of corruption in different countries is significantly influenced by age (Birdsall et al., 2018; Mangafić & Veselinović, 2020; Okpechi et al., 2018). According to Hernandez and McGee (2013), as individuals age, they tend to exhibit an increased aversion to bribery. In contrast, other studies have found no significant age differences in individuals' perceptions of corrupt practices (Pjesivac, 2016; Razafindrakoto & Roubaud, 2007).

Other empirical investigations have indicated that younger individuals exhibit a greater propensity to participate in bribery (Hernandez & McGee, 2013; Ivlevs & Hinks, 2015), and individuals between the ages of 20 and 39 are more prone to bribery than their younger or older counterparts (Mocan, 2008). Younger students may be more prone to accepting corrupt practices due to a lack of experience and a stronger focus on short-term gains (Çiçek, 2018; Gouvêa, 2021). In contrast, older students, likely to have more developed ethical standards and future-oriented perspectives, might perceive corruption more negatively (Sihombing, 2018). Hunt (2004) also suggested that older people pay fewer bribes due to their established trust networks. In another piece of evidence, respondents aged 55 and above were less likely to bribe teachers than those aged 18–24 (Mangafić & Veselinović, 2020). In contrast, there is growing evidence that older individuals are more likely to perceive corruption positively or to indulge in corrupt practices than younger individuals. For instance, it has been documented that younger people are less tolerant of corruption (Çiçek, 2018). Similarly, Torgler and Valev (2006) found that individuals under the age range of 30–65 are more prone to rationalise and justify corruption instances than those under 30. Furthermore, Okpechi et al. (2018) revealed that in-school adolescents aged 14–16 years have a more positive perception of corrupt practices than those aged 11–13 years.

Another group of studies on age and perception of corruption found no support for the younger or older age categories. For instance, a study by Tomo et al. (2019) revealed that the perception of corruption in education is negatively but insignificantly correlated with age. This suggests that older students perceive corrupt practices in educational institutions as similar to those of younger students. Other complex relationships have been found in the literature between age and corruption perception. For example, Gutmann et al. (2014) found an inverse U-shaped relationship between age and corruption perception, where individuals between 30 and 50 perceived corruption more than younger and older individuals. Similarly, Garlicki and Mider (2022) reported a complex association between age and corruption condemnation, with peak levels observed in three age cohorts: individuals over 65, 45–54, and 25–34 years. Explaining the results, the cited authors attributed the finding to the youngest group entering the labour market and the oldest leaving it, with the 45–54 age group being dominant in the labour market. However, the group that expressed the least condemnation towards corruption was the 18–24 age group, with 11% indifference

(Garlicki & Mider, 2022). The literature review underscores a dearth of research addressing variations in corruption perceptions among distinct age groups within the university student population. Consequently, a gap exists in the existing body of literature concerning disparities in corruption perceptions across different age groups of university students. The exploration of such differences is imperative, as it can facilitate the identification of age cohorts that may be more susceptible to involvement in corrupt practices or harbour a more favourable outlook towards corruption. Therefore, the first hypothesis was formulated.

Hypothesis 1. Older students will perceive corruption more favourably than younger students.

2.2. Gender and perception of corruption

Gender socialisation theories propose that males and females are socialised differently regarding ethical behaviour and perceptions of corruption (Franke et al., 1997; Yildirim, 2022). This difference in socialisation is thought to influence individuals' attitudes towards corruption, with women generally being more opposed to corrupt practices. Some scholars have shown that gender is a factor that can influence how individuals perceive corruption in their country (Birdsall et al., 2018; Saxena, 2017). Studies have consistently shown that women are less involved in corrupt transactions than men are and perceive general corruption levels as worse (Çiçek, 2018; Gutmann et al., 2014). Specifically, some studies have shown that male in-school adolescents perceive corruption more than females (Hernandez & McGee, 2013; Okpechi et al., 2018; Pjesivac, 2016). Similarly, Tu et al. (2020) found that males are more tolerant of corruption and are often unwilling to participate in actions against corruption. Similarly, Denisova-Schmidt et al. (2018) discovered that, on average, male students were more prone to participating in academic misconduct, such as using unapproved materials during exams, buying coursework from external sources, encountering bribes, downloading coursework from the internet, misleading professors about study-related problems, or asking for special treatment. According to Mocan (2008), a potential rationale for this occurrence may stem from the increased participation of males in the labour market, thereby elevating their interaction frequency with government officials and potentially influencing variations in corruption perceptions among distinct gender groups.

In contrast, some studies have established that females report a greater perception of corruption than male participants (Çiçek, 2018; Gutmann et al., 2014). In an explanation, Torgler and Valev (2006) argued that men have weaker social norms against bribery than women, making women less tolerant of corruption than men. This means that women are less likely to engage in corrupt practices because they feel that it goes against their ethical values and norms. Moreover, this difference in behaviour and perception is attributed to the distinct social roles and expectations placed on men and women, with women being socialised to prioritise empathy, care, and altruism over material gain (Odigwe & Owan, 2020). Despite findings from Liu and Peng (2015) and Ivlevs and Hinks (2015) revealing no gender-based discrepancy in bribery engagement, Hernandez and McGee (2013) reported equal justification of bribery by men and women until 2006, with a subsequent increasing tendency among males.

Nevertheless, various scholars have presented divergent conclusions, positing that gender lacks a substantial correlation with individuals' perceptions of corruption (Karimu, 2014). On the other hand, Saxena (2018) reported that gender was the only variable that grossly contributed to the corrupt perception of people but did not document the sex with more corrupt mindsets to e-government services. Debski and Jetter (2015) exemplify that uncertainties arise concerning the relationship between the two variables when accounting for country-specific unobservable differences in history or culture. The literature review shows a disagreement, with some studies suggesting that males have a greater perception of corruption, while others suggest

the opposite. This has created an evidence and knowledge gap in the literature, paving the way for further exploration. Therefore, the second hypothesis was formulated.

Hypothesis 2. Female students will perceive corruption more favourably than male students.

2.3. Income level and perception of corruption

Theories related to social capital and access to resources indicate that students from higher-income backgrounds may perceive corruption differently than those from lower-income backgrounds (Ekpenyong et al., 2023). Research has shown also that income significantly predicts micro-level corruption (Birdsall et al., 2018). Various studies, including those conducted by Mocan (2008), Ivlevs and Hinks (2015), and Pjesivac (2016), have indicated a greater propensity for individuals with elevated incomes, as well as wealthy individuals and households with greater consumption (Hunt & Laszlo, 2012), to engage in bribery. Furthermore, Gutmann et al. (2014) observed decreased corruption perception with increasing income. Consistent with this trend, Debski and Jetter (2015) found a close association between higher-income countries and lower corruption levels at the macro level. Similarly, Mangafić and Veselinović (2020) discovered widespread corruption across various industries in Bosnia-Herzegovina, and individuals living in urban areas with higher incomes demonstrate a greater likelihood of bribery. Being more vulnerable, the poorest individuals face challenges in avoiding or resisting bureaucratic corruption (Razafindrakoto & Roubaud, 2007). Moreover, higher incomes correlate with increased government interactions, rendering the affluent more prone to corruption (Mocan, 2008).

However, opposing studies have shown that poorer individuals are more likely to perceive corruption negatively than their rich counterparts. For example, it has been documented that poorer people are associated with good virtues such as honesty, self-discipline and contentment, making them more likely to possess integrity and disincline them from corruption-related perceptions (Islam & Lee, 2016). Similarly, Liu and Peng (2015) reported an increased likelihood of bribery among students from middle-income families. Another group of studies found no significant connection between income level and the perception of corruption among individuals (Denisova-Schmidt et al., 2018; Torgler & Valev, 2006). Thus, there is conflicting evidence about the relationship between income level and corruption perception. While some studies suggest that higher-income individuals are more likely to engage in bribery and perceive corruption less negatively, others indicate that poorer individuals may be less tolerant of corruption-related activities due to their values and beliefs. Therefore, there is a gap in knowledge regarding the perception of corruption across different income levels in specific contexts. Thus, the third hypothesis is formulated as follows.

Hypothesis 3. Students with lower income will perceive corruption more favourably than those with higher income levels.

2.4. Academic level and perception of corruption

Kohlberg's theory of moral development suggests that individuals' moral reasoning matures with education and exposure to ethical dilemmas (Kohlberg, 1967). According to previous studies, an individual's level of education is a significant factor in predicting their perception of corruption within their country (Birdsall et al., 2018). However, the relationship between academic level and individuals' involvement in corruption is still controversial in the literature. In a recent study, Zouaoui et al. (2022) found that education is a socioeconomic factor that promotes corruption. Furthermore, numerous studies involving the general population have consistently demonstrated that individuals with higher levels of education exhibit greater proclivity to engage in bribery (Çiçek, 2018; Mangafić & Veselinović, 2020; Mocan, 2008;

Pjesivac, 2016; Razafindrakoto & Roubaud, 2007). This trend is primarily attributed to the heightened frequency of interactions with government officials among individuals with higher educational attainment (Mocan, 2008). In addition, well-informed individuals are well-connected to society and are more likely to imagine corrupt practices that the media often reports (Razafindrakoto & Roubaud, 2007).

Conversely, other studies have failed to establish a significant link between education and engagement in corruption (Ivlevs & Hinks, 2015; Torgler & Valev, 2006). Similarly, Gutmann et al. (2014) discovered no link between education and corruption perception. Nevertheless, studies on the student population agree that higher academic levels are associated with an increased likelihood of perceiving corruption positively. For example, Yaya and Sunarya's (2019) study revealed that students justify academic cheating. As they progress through their education, they are more likely to view cheating as acceptable behaviour. Similarly, Oran et al. (2016) discovered significant differences in academic dishonesty tendencies among students in various aspects (such as cheating, homework, research reporting, and referencing) as they progressed through school. In addition, fourth-year students scored higher than second-year students in terms of the mean scores for their tendency towards cheating (Oran et al., 2016). It has also been observed that the proportion of students who reported bribing a teacher to pass an exam increased significantly as they advanced in their studies, with the highest proportion in the final year (Paredes-Solís et al., 2011).

The literature review revealed conflicting results regarding the relationship between education and corruption, with some studies focusing on the general population while others focused on students. However, most of these studies did not consider undergraduates, who are widely acknowledged to indulge in corrupt practices (Arop et al., 2018; Eneji et al., 2022; Owan, Owan, & Ogabor, 2023; Petters & Okon, 2014), creating a population gap in the literature. Moreover, most studies on the relationship between education and corruption have been conducted in regions outside of Africa, with few Nigerian studies examining how the academic level of undergraduates influences their perception of corruption. For this reason, the fourth hypothesis was developed.

Hypothesis 4. Students at higher academic levels will perceive corruption more favourably than those at lower levels.

2.5. Marital status and perception of corruption

Social role theory suggests that individuals' roles and responsibilities influence their ethical perceptions (Eagly & Wood, 2012; Eagly, 1997). According to previous studies, married individuals face a greater risk of being exposed to bribery than single individuals (Mocan, 2008; Swamy et al., 2001). Mocan (2008) argues that single individuals deal with government regulations less frequently, while Swamy et al. (2001) suggest that marriage modifies individuals' behaviour in public. A study by Garlicki and Mider (2022) also revealed a significant difference in views of corruption based on marital status, with single individuals tending to have a less negative view of corruption. However, contrasting evidence indicates that married (Torgler & Valev, 2006) or widowed (Hernandez & McGee, 2014) individuals have a lower tolerance for corruption. Married students, who may have more responsibilities and a greater focus on long-term stability, are likely to have more stringent views on corruption than their single counterparts (Odigwe & Owan, 2020). Thus, the fifth hypothesis of this study was proposed.

Hypothesis 5. Married students will have a lower tolerance for corruption than single students.

3. Methodology

3.1. Research philosophy and design

This study's research philosophy is positivism, which assumes that

reality is objective, measurable, and independent of the researcher's subjective interpretation. Following this research philosophy, a quantitative research method was adopted, specifically focusing on a cross-sectional ex-post facto research design. A cross-sectional ex post facto research design was considered suitable for this study since it involves collecting data at a single point after the events of interest have occurred. The present study investigated the associations between demographic variables (such as age, gender, income level, academic level and marital status) and perceptions of corruption among undergraduate students at the University. The researcher collected data about these variables from students at a specific point in time without manipulation.

3.2. Study participants

This study's population comprised 43,823 regular undergraduate students at the University (name masked for security reasons). The eligibility criteria were that the respondent be an undergraduate admitted through the Unified Tertiary Matriculation Examination (UTME), direct entry, or pre-degree and a 100-, 200-, 300-, or final-year student. Individuals admitted through CES, Sandwich, or other part-time programmes were excluded from the study regardless of their academic level.

A priori power analysis was conducted to determine the required sample size to achieve 95% statistical power in correctly rejecting the hypotheses if they were false or not. The results showed that a sample of 210 respondents is needed to achieve an effect size of d = 0.50 (see Fig. 1). Thus, a sample size of 210 respondents was considered the minimum requirement. However, an increase of 50% was further made for possible attrition or nonresponse, resulting in a required sample size of 315 respondents. A proportionate stratified random sampling technique was used to select the participants for this study. Stratification was based on the faculties available at the university to give each faculty an equal opportunity to be represented in the same proportion as the population.

3.3. Instrument for data collection

Given the lack of instruments with robust psychometric properties relevant to the context of this study, we developed a new questionnaire entitled the Demographic Variables and Perception of Corruption Questionnaire (DVPCQ). The DVPCQ was meticulously designed to systematically collect data on students' demographic characteristics and perceptions of corruption within the educational sector. The development of the DVPCQ involved several critical steps to ensure its validity and reliability. First, an extensive literature review was conducted to understand existing research on corruption in education, particularly within the African and Nigerian contexts. This review identified key dimensions and manifestations of corruption pertinent to our study. The DVPCQ was structured into two main sections. Section A captures the demographic characteristics of the respondents, including age, gender, year of study (academic level), annual income level, and marital status. Section B consists of 12 items designed to measure undergraduates' perceptions of corruption and is organised on a modified four-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree). The response options were based on their degree of agreement with the statements made for each item. Three sample items in section B of the DVPCQ are as follows: "*The acceptance of bribes by teachers to change students' grades is unacceptable*"; "*It is advisable for students who cheat on exams to get away with it since they are helping themselves*"; "*there is nothing wrong if indigenous students at the university locality are allocated hostel spaces first before those from other parts of the world.*"

3.4. Validity and reliability

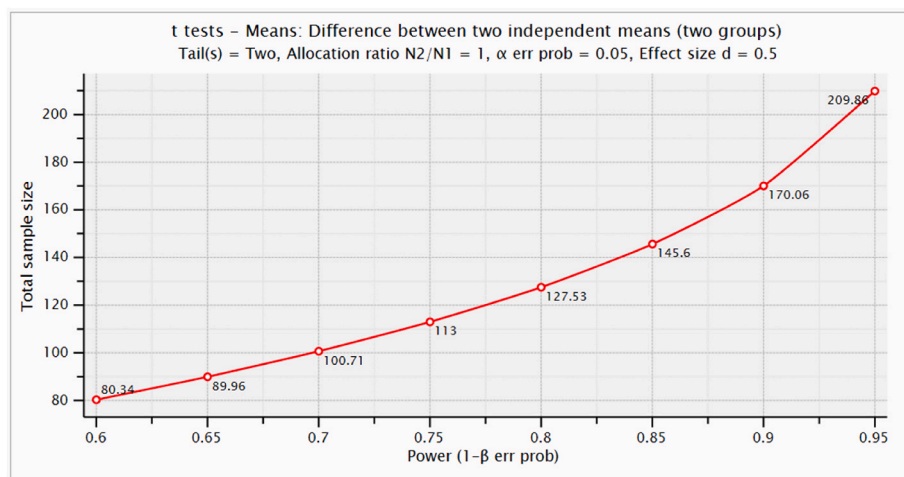The questionnaire underwent an initial review conducted by a panel

Fig. 1. Sample size determination using power analysis.

of three subject matter experts specialising in the sociology of education and educational psychology to ensure content validity. Their feedback was instrumental in refining the items, ensuring they were culturally appropriate and comprehensively covered the necessary dimensions. Subsequently, the DVPCQ was pilot-tested with a sample of 30 undergraduates to evaluate the clarity, relevance, and reliability of the items. The aim was to identify any ambiguities, misunderstandings, or difficulties with the items. The feedback received from the pilot test was used to refine and improve the questionnaire. Areas such as language clarity, item relevance, cultural appropriateness, comprehensive coverage, and item simplicity were addressed based on the feedback received. These iterative revisions ensured that the final version of the questionnaire was well-suited for the study's objectives and the target population. Subsequently, a panel of three psychometric experts scrutinised the final version of the questionnaire to evaluate its face validity.

Exploratory factor analysis (EFA) was conducted on the DVPCQ to identify the underlying factor structure of the 12 items in Section B. Using principal component analysis with varimax rotation, the EFA revealed a clear two-factor solution that accounted for 65% of the total variance. The first factor, which we labelled "Perception of Institutional Corruption," included items related to general corrupt practices within the university, such as bribery and grade manipulation. The second factor, "Attitudes Towards Personal Gain," encompassed items reflecting the justification and personal acceptance of corrupt behaviours, such as cheating and favouritism. All items loaded significantly onto their respective factors, with factor loadings ranging from 0.72 to 0.85, demonstrating strong construct validity. The EFA results support the ability of the questionnaire to distinguish between different dimensions of corruption perception among undergraduates, thus validating the DVPCQ as a reliable instrument for further research. The internal consistency of Section B was assessed using Cronbach's alpha, which yielded a value of 0.87, indicating high reliability.

3.5. Ethical considerations

According to national and institutional regulations, this study did not require ethical clearance. The Nigerian Code of Health Research Ethics exempts survey-based studies from this requirement (Federal Ministry of Health, 2007). Participants received information detailing the nature of the study, its purpose, and the potential risks and benefits before participating. They were also informed of their right to withdraw from the study at any time. Participants were not exposed to any physical or emotional harm during the study. Any risks associated with the study were minimised, and participants were not coerced or pressured to participate. All information collected from the participants was kept confidential, and any identifying information was removed to protect their privacy. The data were anonymised before analysis and presented in a way that did not reveal individual participants.

3.6. Data collection and analysis procedures

The data collection for this study involved the physical administration of printed questionnaires. The research team, accompanied by two research assistants, visited each faculty, where the specified number of questionnaire copies was distributed and subsequently collected upon completion. Responses were subjected to scoring on a scale ranging from 1 to 4, where a score of 1 denoted strong disagreement and 4 indicated strong agreement for positively framed statements; negatively worded items were reverse-scored. The scored data underwent meticulous preparation to ensure completeness, accuracy, and consistency, devoid of missing data, outliers, or attrition. Descriptive statistics were computed to summarise the data, including the mean and standard deviation. In contrast, inferential statistics such as t-tests and one-way ANOVA were utilised to discern significant differences between groups.

4. Results

4.1. Age differences in the perception of corruption

Age was measured at four levels (less than 20, 20–24, 25–29, and 30 and above), and the perception of corruption was measured continuously on a 4-point scale. According to the mean scores, participants aged less than 20 years reported the highest mean perception score (M = 41.53, SD = 6.71), followed by those aged 20–24 years (M = 33.61, SD = 5.20) and those aged 25–29 years (M = 25.18, SD = 4.88). In contrast, participants aged 30 and above reported the lowest mean perception score (M = 18.49, SD = 7.73).

One-way analysis of variance (ANOVA) was performed to examine the age differences in the perception of corruption among undergraduates. Table 1 indicates a significant age difference in the perception of corruption among undergraduates at the University, $F(3, 311) = 199.57$, p < 0.001. Thus, our hypothesis that older students will be more favourable in their perception of corruption than younger students was not supported. The effect size measures all indicate a large effect size for the influence of age on the perception of corruption among undergraduates, with approximately 66% of the variation in the perception of corruption attributable to the age of undergraduates. Post hoc analyses using Tukey's HSD test (see Table 2) revealed significant pairwise differences across all pairwise comparisons, with younger age groups having significantly greater mean values than older age groups

Table 1

ANOVA results for age differences in the perception of corruption.

Age (In years)	N	M	SD	SE	CV
Less than 20	75	41.53	6.71	0.78	0.16
20–24	77	33.61	5.20	0.59	0.16
25–29	88	25.18	4.88	0.52	0.19
30 and above	75	18.49	7.73	0.89	0.42
Cases	*Sum of Squares*	*df*	*Mean Square*	*F*	*p*
Age	22887.36	3	7629.12	199.57	<0.001
Residuals	11888.82	311	38.23		

Effect size: $\eta^2 = 0.658$; $\eta_p^2 = 0.658$; $\omega^2 = 0.654$.

N = Number of respondents within group; M = Mean; SD = Standard deviation; SE = Standard error of measurement; CV = Coefficient of variation (SD/M).

Table 2

Post hoc pairwise comparisons using Tukey's HSD test for age differences in the perception of corruption among undergraduates.

Age Categories (In years)		MD	SE	t	p
Less than 20	20–24	7.92	1.00	7.90	<0.001
	25–29	16.35	0.97	16.83	<0.001
	30 & above	23.04	1.01	22.82	<0.001
20–24	25–29	8.43	0.97	8.74	<0.001
	30 & above	15.12	1.00	15.07	<0.001
25–29	30 & above	6.69	0.97	6.88	<0.001

MD = Mean difference; SE = Standard error of measurement.

(all p < 0.001). These results suggest that as age increases, the perception of corruption among undergraduates tends to decrease.

4.2. Gender and perception of corruption among undergraduates

The perceptions of corruption among male and female undergraduates at the University, were compared using a *t*-test. Table 3 shows a significant difference in the perception of corruption between males and females among undergraduates, $t(313) = 13.39$, $p < 0.001$. The mean score for men on the perception of corruption ($M = 21.98$, $SD = 6.95$) is substantially lower than that for women ($M = 35.37$, $SD = 9.00$). The effect size (Cohen's *d*) of 1.64 is considered large, indicating a substantial difference in the perception of corruption between male and female undergraduates. Based on this result, the evidence presented in Table 3 supports the second hypothesis that female students will be more favourable in their perception of corruption than male students.

4.3. Income level and perception of corruption

There were four ordinal income groups: less than N100,00 per year, N100,000 – N500,000 per year and above N500,000 per year. The perception of corruption was measured continuously on a 4-point scale. One-way ANOVA was performed to examine the differences in the perception of corruption among undergraduates based on their income levels. Table 4 suggests a significant difference in the perception of corruption among the different income levels of undergraduates at the University, $F(3, 313) = 62.93$, $p < 0.001$. There was a large effect size, suggesting that income level explains 28.7% of the variance in the perception of corruption among undergraduates. This compelling

Table 4

One-way ANOVA results for the perception of corruption by income level among undergraduates.

Income level (Per year)	N	M	SD	SE	CV
Less than 100,000	110	35.17	11.90	1.14	0.34
100,000–500,000	114	30.77	5.76	0.54	0.19
Above 500,000	91	21.20	7.89	0.83	0.37
Cases	*SS*	*Df*	*MS*	*F*	*p*
Income level	9995.94	2	4997.97	62.93	<0.001
Residuals	24780.23	312	79.42		

Effect size: $\eta^2 = 0.287$; $\eta_p^2 = 0.287$; $\omega^2 = 0.282$.

N = Number of respondents within group; M = Mean; SD = Standard deviation; SE = Standard error of measurement; CV = Coefficient of variation (SD/M); SS = Sum of squares; MS = Mean Square.

evidence supported our hypothesis that lower-income students will perceive corruption more favourably than their lower-income counterparts. The mean perception of corruption was highest among students with incomes less than N100,000 and lowest among students with income levels above N500,000 ($M = 21.20$).

The Tukey test results in Table 5 indicate significant differences in the perception of corruption among the income levels of undergraduates. Students with incomes less than N100,000 per year perceived corruption significantly more positively than those between N 100,000 and N500,000 per year. Additionally, students with incomes less than N100,000 per year perceived corruption significantly more positively than those above N500,000 yearly. Moreover, students with incomes between N100,000 and 500,000 per year perceived corruption significantly more positively than those above 500,000. Thus, students with lower income levels tend to perceive corruption more positively than those with higher income levels.

4.4. Academic level and perception of corruption

The academic level has four ordinal categories: 100, 200, 300 and 400, whereas the perception of corruption was measured continuously. One-way ANOVA was performed to examine whether there were significant differences in the perception of corruption among undergraduate students at different academic levels. Table 6 shows that there is a significant difference in the perception of corruption among undergraduates ($F(3, 311) = 96.34$, $p < 0.001$) concerning their academic level. The medium effect size indicates that 48.2% of the variance in students' perception of corruption is associated with their academic level. Considering these findings, our hypothesis was not supported by the results obtained. Instead, the results contradict our hypothesis that

Table 5

Tukey HSD test results for perception of corruption among the income levels of undergraduates.

Income level (Per year)		MD	SE	t	p
Less than 100,000	100,000–500,000	4.401	1.191	3.695	<0.001
	Above 500,000	13.975	1.263	11.066	<0.001
100,000–500,000	Above 500,000	9.574	1.253	7.642	<0.001

MD = Mean difference; SE = Standard error of measurement.

Table 3

Results of independent samples t-tests comparing the perceptions of corruption between male and female undergraduates.

Variables	Sex	N	M	SD	SE	CV	MD	t	P
Perception of Corruption	Male	137	21.98	6.95	0.59	0.32			
							13.39	14.41	<0.001
	Female	178	35.37	9.00	0.68	0.25			

Df = 313; Effect size: Cohen's d = 1.64.

Table 6
One-way ANOVA results for undergraduate students' perceptions of corruption across academic levels.

Academic levels	N	M	SD	SE	CV
100 level	83	39.25	8.50	0.93	0.22
200 level	87	32.38	6.38	0.68	0.20
300 level	95	23.74	5.57	0.57	0.24
400 level	50	19.52	10.77	1.52	0.55

Cases	SS	df	MS	F	p
Academic level	16751.1	3	5583.7	96.34	<0.001
Residuals	18025.07	311	57.958		

Effect size: $\eta^2 = 0.482$; $\eta_p^2 = 0.482$; $\omega^2 = 0.476$.

N = Number of respondents within group; M = Mean; SD = Standard deviation; SE = Standard error of measurement; CV = Coefficient of variation (SD/M); SS = Sum of squares; MS = Mean Square.

older students will perceive corruption more favourably. The descriptive statistics showed that the mean perception of corruption decreased as the academic level increased, with the lowest mean score observed at the 400% level. The mean scores for the perception of corruption were 39.25 (SD = 8.50) for the 100 level, 32.38 (SD = 6.38) for the 200 level, 23.74 (SD = 5.57) for the 300 level, and 19.52 (SD = 10.77) for the 400 level.

A Tukey post hoc test was employed to examine variations in the perception of corruption among different academic levels. The results presented in Table 7 revealed significant differences in the perception of corruption across all pairwise comparisons. This outcome suggests that there are notable distinctions in the perception of corruption among undergraduate students at various academic levels, indicating that individuals at lower academic levels exhibit a more positive perception of corruption than their counterparts at higher levels.

4.5. Marital status and perception of corruption

To assess potential disparities in the perception of corruption between single undergraduate students and their married counterparts, an independent samples *t*-test was conducted. The results revealed a statistically significant difference, with married students (M = 41.00, SD = 9.77) exhibiting a significantly greater mean perception of corruption than single students (M = 28.34, SD = 9.87), t(313) = 6.69, p < 0.001. Cohen's d value of 1.284 suggested a large effect size, exceeding one standard deviation between the means of the two groups. Consequently, the results provided in Table 8 support our hypothesis that married students will perceive corruption more favourably than their single counterparts.

5. Discussion

The present study investigated how perception of corruption among undergraduates vary with their demographic variables. The initial finding indicates a significant age difference in the perception of corruption among undergraduates, demonstrating a discernible decrease in such perception as age increases. This outcome aligns with previous

Table 7
Tukey's post hoc test results for undergraduate students' perceptions of corruption across academic levels.

Academic levels		MD	SE	t	p
100 level	200 level	6.87	1.17	5.88	<0.001
	300 level	15.52	1.14	13.57	<0.001
	400 level	19.73	1.36	14.48	<0.001
200 level	300 level	8.64	1.13	7.65	<0.001
	400 level	12.86	1.35	9.52	<0.001
300 level	400 level	4.22	1.33	3.17	<0.01

research by Birdsall et al. (2018), Mangafić and Veselinović (2020), and Okpechi et al. (2018), all of which identified age as a significant factor influencing the perception of corruption. However, our findings contradict studies such as those of Pjesivac (2016) and Razafindrakoto and Roubaud (2007), which found no significant age differences in individuals' perceptions or corrupt practices. The discrepancies in the results could be attributed to differences in the study populations, methodologies, and cultural contexts. Nevertheless, our findings suggest that interventions to reduce corruption should target older age groups, especially those in educational institutions.

The second finding indicates a significant difference in the perception of corruption between males and females among undergraduates. Female undergraduates had significantly more favourable perceptions of corruption than their male counterparts. These results are consistent with previous studies showing that males tend to have a more negative perception of corruption than females. For example, studies (such as Çiçek, 2018; Gutmann et al., 2014; Torgler & Valev, 2006) revealed that females reported a greater perception of corruption than males. The results of our study also support the view that males are more tolerant of corruption than females are, supporting the findings of other studies that male students are more prone to participating in academic misconduct, a form of corruption (Denisova-Schmidt et al., 2018; Tu et al., 2020). In contrast, this study did not support some studies (such as Hernandez & McGee, 2013; Okpechi et al., 2018; Pjesivac, 2016), which found that male in-school adolescents reported a greater perception of corruption than females. Our findings further support some studies showing that females perceive corruption more than males (Gutmann et al., 2014, 2014içek, 2018). This finding may be because women have stronger social norms against bribery (Torgler & Valev, 2006) and perceive corruption as more harmful to society (Birdsall et al., 2018) than men. Therefore, the relationship between gender and corruption perception is complex and may be influenced by other factors (Debski & Jetter, 2015). Therefore, this study's findings should be interpreted within the context of our study population and the broader social and cultural context in which they exist. Further research is needed better to understand the relationship between gender and perceptions of corruption.

The third finding of this study was that there was a significant difference in the perception of corruption among undergraduates with different income levels. Lower-income students perceive corruption more favourably than those with higher income levels. The observed results align with prior research indicating that income level predicts micro-level corruption (e.g., Birdsall et al., 2018; Gutmann et al., 2014; Hunt & Laszlo, 2012). Furthermore, preceding studies have demonstrated a correlation wherein individuals with higher incomes exhibit an increased likelihood of involvement in bribery and tend to hold a more favourable perception of corruption (Ivlevs & Hinks, 2015; Pjesivac, 2016). Nevertheless, these results contrast with other studies proposing that lower-income individuals are more inclined to perceive corruption negatively than their wealthier counterparts (e.g., Islam & Lee, 2016; Liu & Peng, 2015). Based on the disagreement in the literature, the present study calls for further research to investigate the relationship between income and corruption.

Fourth, this study revealed a significant difference in the perception of corruption among undergraduates based on their academic level. Notably, students at lower academic levels exhibited more favourable perceptions of corruption than their higher-level counterparts. These outcomes align with prior studies suggesting that individuals with higher levels of education display an increased inclination to engage in bribery (Çiçek, 2018; Mangafić & Veselinović, 2020; Pjesivac, 2016). The main reason for this finding could be that individuals with higher education tend to interact more frequently with government officials (Mocan, 2008). However, the relationship between academic level and individuals' involvement in corruption is still controversial in the literature. Some studies have suggested that education is a socioeconomic factor that promotes corruption (Zouaoui et al., 2022), while others have found no significant association between education and

Table 8
Independent samples *t*-test results for the perception of corruption among undergraduate students based on their marital status.

Variables	Group	N	M	SD	SE	CV	MD	t	p
Perception of Corruption	Single	285	28.34	9.87	0.59	0.35	12.66	6.69	<0.001
	Married	30	41.00	9.77	1.78	0.24			

Df = 313; Effect size = Cohen's d = 1.284.

corrupt behaviour (Gutmann et al., 2014; Ivlevs & Hinks, 2015). Interestingly, studies on the student population agree that higher academic levels are associated with an increased likelihood of perceiving corruption positively (Oran et al., 2016; Yaya and Sunarya (2019). The results suggest that students at lower academic levels may require more education and training to understand the negative consequences of corruption.

Fifth, a significant difference was found in the perception of corruption among undergraduates based on their marital status. Married students tend to perceive corruption more favourably than their single counterparts. These results are consistent with those of previous studies (e.g., Garlicki & Mider, 2022; Mocan, 2008; Swamy et al., 2001). However, the study's findings contradict the evidence presented by other studies (such as Hernandez & McGee, 2014; Torgler & Valev, 2006) that married individuals have a lower tolerance for corruption and demonstrate greater disapproval towards taking bribes. These contrasting findings suggest that further research is needed to clarify the arguments in the literature.

5.1. Limitations and research prospects

Despite its notable strengths, some of the limitations of this study are explained below. First, the study was cross-sectional since the data were collected at a single time. This limits the ability to draw causal inferences about the relationship between demographic variables and perceptions of corruption. Future research should consider longitudinal designs to track perception changes over time and establish causality. Additionally, the sample size was limited to undergraduates from a single university, restricting the generalizability of the findings. To enhance generalizability, future studies should include a more diverse participant pool, encompassing students from multiple universities, including postgraduate students, and from various geographic regions.

This study primarily focused on the perceptions of corruption among undergraduates, which might not capture the full spectrum of manifestations of corruption in educational settings. Future research should address various forms of corruption, such as administrative corruption, academic fraud, and the misappropriation of resources, to provide a more comprehensive understanding. Additionally, the study did not account for the influence of cultural norms and personal values, which can significantly shape perceptions of corruption. Future studies should explore how these factors interact with demographic variables using qualitative or mixed-method approaches. Last, the reliance on self-reported data introduces the potential for response bias, as participants may have provided socially desirable responses rather than accurate reflections of their perceptions and behaviours. Future studies should incorporate objective measures, such as audits, direct observations, and administrative data triangulation, to mitigate this issue to validate self-reported data. Moreover, the study's informative findings have limited power to inform the development of effective anticorruption policies. Future research should focus on identifying actionable strategies and interventions that can be implemented within educational institutions to reduce corruption. This includes evaluating the effectiveness of existing policies and developing new frameworks based on empirical evidence.

6. Conclusion

This study revealed a strong link between demographic factors and how undergraduates perceive corruption. The results indicate that age, gender, income, academic level, and marital status are crucial in students' perceptions of corruption. Specifically, younger, female, lower-income, lower academic and married students perceived corruption more than older, male, higher-income, higher academic and single students. This finding implies that anticorruption campaigns could be customised to appeal to older, male, higher-income, higher academic and single students more inclined to perceive corruption unfavourably. While this study was conducted among undergraduate students at the University, the findings and theoretical implications are relevant to other universities in Nigeria, Africa, and globally. The demographic factors examined—age, gender, academic level, income level, and marital status—are universal attributes influencing perceptions of corruption in various educational contexts. Corruption in educational institutions is pervasive in Nigeria and other African countries. This study can be applied to understand how demographic variables correlate with greater tolerance for corruption. This can enable policymakers and educational administrators to tailor anticorruption strategies that address their students' needs. Globally, corruption in higher education is a concern affecting the integrity and quality of academic institutions. This study, therefore, contributes to the broader academic discourse on corruption by highlighting the importance of demographic factors in shaping students' attitudes towards corrupt practices. Universities worldwide can benefit from understanding these dynamics to develop more effective anticorruption measures and promote a culture of integrity among students.

CRediT authorship contribution statement

Valentine Joseph Owan: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Onyinye Chuktu:** Writing – review & editing, Resources, Project administration, Investigation, Conceptualization. **Patience Okwudiri Nwosu:** Supervision, Software, Resources, Methodology, Investigation. **Roseline Anyiopi Undie:** Writing – review & editing, Project administration, Investigation. **Henrietta Osayi Uchegbue:** Writing – review & editing, Methodology, Investigation. **Gloria Emmanuel Edoho:** Writing – review & editing, Supervision, Investigation. **Moses Musa Egaga:** Writing – review & editing, Visualization, Resources. **Blessing Bassey Anam:** Writing – review & editing, Investigation, Data curation. **Usani Joseph Ofem:** Writing – review & editing, Visualization. **Dorn C. Enamhe:** Writing – review & editing, Supervision. **Mercy Valentine Owan:** Writing – review & editing, Investigation, Conceptualization.

Declaration of competing interest

We, the authors of the research paper titled "Demographic Variables and Perceptions of Corruption among Undergraduates: Evidence from a Nigerian Federal University" wish to provide a formal Declaration of Interest Statement for our submission to Social Sciences and Humanities Open.

We affirm that our participation in this study is motivated solely by our commitment in promoting academic honesty among undergraduates

in Nigeria. As the lead researcher and co-authors of this work, we collectively declare the following.

- We have no financial interests, affiliations, or competing commitments that could compromise the impartiality and integrity of the research conducted.
- Our involvement in this project is driven by our genuine dedication to advancing knowledge in the domain of corruption among students.
- We have not received any financial or material support related to this research project from external entities or organizations that may have a vested interest in the outcomes of this study.
- We are fully committed to adhering to the ethical standards of research, ensuring the accuracy and validity of our findings, and maintaining the principles of academic integrity throughout the research process.
- We understand the importance of full transparency and the need to uphold the highest ethical standards in scholarly publications. Our dedication to these principles is unwavering, and we assure you that our involvement in this project is entirely free from any bias or external influence.
- We appreciate the opportunity to submit our work to Social Sciences and Humanities Open and thank you for considering our Declaration of Interest Statement as part of the submission process.

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