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A Multivariate Analysis of Factors Influencing the Spread of Misinformation among Undergraduates of the Federal University of Technology, Akure, Nigeria

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ABSTRACT

Background: Misinformation has become a pervasive challenge in today's information environment, driven by factors such as limited media literacy, social media algorithms, and economic incentives. Although previous studies have examined the prevalence and consequences of misinformation, limited empirical evidence exists on the underlying factors that drive its spread among Nigerian undergraduates.
Objective: This study investigated the factors responsible for the spread of misinformation among undergraduates at the Federal University of Technology, Akure.
Method: A survey research design was adopted. Using Taro Yamane's formula, a minimum sample size of 311 was determined from an undergraduate population of 19,100. Following data collection, 256 completed questionnaires were found valid for analysis. Data were collected using a 15-item Likert-scale questionnaire validated by experts in communication and media studies. Exploratory factor analysis, reliability analysis, and multiple regression were used for data analysis.
Results: Exploratory factor analysis identified four underlying factors—cognitive and analytical limitations, social and peer influence, content and platform architecture, and trust and access barriers—which jointly explained 62.4% of the total variance. The instrument demonstrated good internal consistency (Cronbach's $\alpha = .861$). Multiple regression analysis showed that these factors collectively explained 52.6% of the variance in misinformation spread, with cognitive and analytical limitations emerging as the strongest predictor ($\beta = .452$).
Conclusion: The findings demonstrate that the spread of misinformation among undergraduates is shaped by a combination of cognitive, social, technological, and trust-related factors, with cognitive and analytical limitations exerting the greatest influence.
Unique Contribution: The study provides empirical evidence on the multidimensional drivers of misinformation dissemination among Nigerian undergraduates and offers a validated framework for understanding students' vulnerability to misinformation.
Key Recommendation: The study recommends strengthening critical thinking skills, expanding peer-based media literacy programmes, and improving platform design and governance to reduce the spread of misinformation among university students.
Keywords: Misinformation, multivariate analysis, Nigerian undergraduates, social media, spread.

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INTRODUCTION

The digital age has provided unprecedented access to vast amount of information, which has significantly altered the ways people communicate and relate with their environment. However, this access has also facilitated the rapid and widespread dissemination of information across societies and digital platforms. Some of this information are falsely and ignorantly shared, while some are deliberately created and shared to mislead. When it is ignorantly shared, it is called misinformation, but when it is intentionally shared, then it is referred to as disinformation (Altay, Berriche, Heuer, Farkas, & Rathje, 2023). The World Health Organization classifies this proliferation of false information as 'infodemic'. This underscores its potential for harm, particularly during social and health crises such as the COVID-19 pandemic (World Health Organisation, 2020). Misinformation presents a global issue in that it threatens public health, undermines democratic processes, and erodes social cohesion (Vosoughi, Roy, & Aral, 2018). Nigeria particularly represents a notable case study in this global context. As Africa's most populous nation, it is distinguished by a substantial, youthful, and increasingly digital population, who are especially vulnerable to the menace of misinformation (Camara, Banu, & Abeck, 2023).

The proliferation of digital mobile devices and social media platforms like WhatsApp, Facebook, and X (formerly called Twitter) is a worthwhile consideration in how Nigerians access and share news (Apuke & Omar, 2021). This digital revolution continues even in the midst of complex socio-political crisis including ethnic and religious diversity, and sometimes, marked cynicism towards governmental institutions. These factors can cultivate an atmosphere that is favourable to the acceptance and propagation of false narratives (Ojebode, 2021). As established earlier, students in Nigerian higher education institutions are involved in this digital transformation. As digital natives, many students constitute one of the largest groups of social media users, relying on these platforms for information, news consumption and social interactions. The 'on-the-go' nature of accessing and sharing information particularly makes them prone to misinformation. The higher education phase is a formative stage during which worldviews are developed and critical thinking skills are honed, therefore, understanding their information processing habits is crucial (Barrio, Rodríguez & Díaz, 2025)

Existing studies in Nigeria have largely examined misinformation within the contexts of political ommunication, election campaigns, and public health crises. However, limited attention has been given to the combined influence of cognitive, social, technological, and trust-related factors on the dissemination of misinformation among university students. This study seeks to address this gap in the existing literature by conducting a multivariate analysis of the factors influencing the spread of misinformation among students at the Federal University of Technology, Akure. It seeks to clarify the issue by analysing the interactions of multiple variables and evaluating their predictive power. The findings of this study aim to improve academic discourse and inform the development of specific educational interventions, comprehensive policy frameworks and efficient digital literacy programmes that could enable higher education institution students to navigate the information world with greater discernment and resilience.

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RESEARCH OBJECTIVES

The study aims to achieve the following objectives:

1. To determine the underlying factor structure of the 15-item instrument measuring facets of misinformation susceptibility among Nigerian university students.
2. To assess the internal consistency reliability of the overall scale and its identified subscales.
3. To examine the extent to which the five facets of misinformation susceptibility (Social Influence, Cognitive Limitations, Content Architecture, Trust/Access Barriers, and Economic Motivation) predict the overall tendency for misinformation propagation.
4. To determine the relative contribution and significance of each specific facet in predicting the overall tendency for misinformation propagation.

LITERATURE REVIEW

Conceptual Review: Understanding Misinformation

The concept of misinformation, most often, gets obscured by the use of overlapping terminology. A distinct differentiation is thus necessary. Misinformation is defined as false or inaccurate information disseminated without the intention to cause harm. Individuals frequently disseminate it, either believing it to be accurate or lacking awareness of its inaccuracies. Disinformation is intentionally created and disseminated with the specific aim of misleading or causing damage (Wardle & Derakhshan, 2017). This study employs the term 'misinformation' to refer to false content disseminated by students, while acknowledging the challenges in establishing intent. This conceptual distinction facilitates a more accurate analysis of the mechanisms behind the circulation of inaccurate content in higher education contexts (Tandoc, Lim, & Ling, 2018).

The spread of misinformation among Nigerian undergraduates can be interpreted to be a result of several factors: cognitive factors such as misinformation susceptibility and cognitive bias which could influence how students interpret information; social factors such as peer influence and trust which could shape sharing decisions; technological factors such as social media algorithms which could affect exposure and visibility to misinformation and individual skills like digital literacy skills that could determine ability to evaluate content. These factors can help explain why Nigerian undergraduates may be susceptible to the spread of misinformation and also provide a basis for examining the variables investigated in this study.

THEORETICAL FRAMEWORK

Comprehending the reasons behind individuals' acceptance and dissemination of misinformation necessitates that a foundation be laid in theoretical frameworks. This study is particularly relevant to three key theories: the dual-process theory, the Uses and Gratifications theory (U & G) and the theory of planned behaviour. The Dual-Process Theory offers a cognitive basis. This theory suggests that humans utilise two distinct systems for processing information. The first is characterised by speed, automaticity, and intuition; the second is defined by slowness,

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deliberateness, and analysis (De Neys, 2018). Misinformation frequently leverages the first system by appealing to emotions and utilising cognitive shortcuts. Engaging the second system would mean employing analytical thinking, which is a crucial element in combating misinformation (Pennycook & Rand, 2020). The Uses and Gratifications Theory (Katz, Blumler, & Gurevitch, 1973) provides a framework for analysing media consumption behaviours. The theory posits that audiences actively choose or select media to fulfil their particular needs which may include social interaction, entertainment, or information acquisition. Within social media contexts, students may disseminate information, regardless of its accuracy, to satisfy their needs for social validation, belonging, or self-expression, thereby unintentionally promoting the spread of misinformation (Apuke & Omar, 2021).

The Theory of Planned Behaviour (Ajzen, 1991) serves to model the intention to engage in a behaviour, such as the act of sharing information. This theory posits that behavioural intention is shaped by an individual's attitude towards the behaviour, the perceived social pressure (subjective norms), and the perceived ease or difficulty of executing the behaviour (perceived behavioural control). This framework facilitates the analysis of the impact of peer pressure and platform design on information-sharing decisions (Talwar, Dhir, Singh, Virk, & Salo, 2020). While the study draws insights from these three theories, the theory of Planned Behaviour serves as the principal theoretical framework because it directly explains behavioural intentions underlying misinformation dissemination.

EMPIRICAL REVIEW OF KEY INFLUENCING FACTORS

Empirical research has identified a number of factors that influence misinformation propagation, which can be categorised for the purpose of clarity.

Social media and Algorithmic Factors

The architecture of social media platforms is crucial. Algorithms aimed at maximising engagement frequently emphasise content that are sensational, novel, emotionally charged and wrapped in controversy, irrespective of its truthfulness or accuracy (Vosoughi, Roy, & Aral, 2018). This results in echo chambers and filter bubbles, a situation where users are progressively exposed to information that corroborates or confirms their pre-existing beliefs, this increases their vulnerability to ideologically aligned misinformation (Bakir & McStay, 2018). The encryption feature of instant messaging platforms such as WhatsApp, which enables private group discussions, poses additional challenge for content moderation and fact-checking initiatives.

Cognitive and Psychological Factors

Human cognitive ability is characterised by biases that can be manipulated by misinformation. Confirmation bias, for instance, is defined as the inclination to pursue and prioritise information that supports one’s existing beliefs. (Nickerson, 1998). The illusory truth effect refers to the phenomenon whereby constant or repeated exposure to a particular statement or narrative enhances its perceived veracity, thereby increasing the likelihood of individuals accepting frequently encountered information as true, often disregarding its credibility (Pennycook,

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Cannon, & Rand, 2018). Additionally, content that arouses high emotions such as anger or outrage is disseminated more quickly, this is because emotional responses often supersede rational awareness (Berger & Milkman, 2012).

Individual Difference Factors

The level of digital literacy, defined as the ability to locate, assess, and generate information through digital technology, can also serve as a significant factor. Individuals who possess advanced digital literacy skills, in this case, media literacy skills, are typically more adept at recognising misleading information (Jones-Jang, Mortensen, & Liu, 2019). Cognitive reflection, which is defined as the tendency to engage in analytical thinking is as a significant negative predictor of susceptibility to misinformation (Pennycook & Rand, 2020). Demographic variables, such as educational background, age, and political affiliation, have been demonstrated to correlate with vulnerability; however, findings may vary based on context (Guess, Nagler, & Tucker, 2019). While Vosoughi et al. (2018) demonstrated that false information spreads faster than truthful information on social media, other studies suggest that digital literacy can moderate this effect. This indicates that platform architecture alone may not fully explain misinformation propagation.

The Nigerian Context

Studies in Nigeria, while expanding, remain disjointed. Some studies have recorded the prevalence of political misinformation, particularly during election periods, and its capacity to provoke violence and exacerbate societal tensions (Ojebode, 2021). Also, the COVID-19 pandemic precipitated a surge of health-related misinformation, which amplifies non-scientific remedies and conspiracy theories regarding the virus' origin and treatment, hence, jeopardising public health initiatives (Apuke & Omar, 2021). Nigerian youths and students' exposure to social media, alongside their insufficient levels of fundamental digital literacy to navigate the digital environment safely have also been studied (Soyemi & Inazu, 2022). Research conducted by Babalola and Sedisa (2025) identified a substantial correlation between extensive social media use and vulnerability to misinformation among undergraduates, highlighting the necessity for this additional inquiry. These contextual factors suggest that studying misinformation among Nigerian undergraduates cannot be viewed only through an individual lens, but must consider technological, social, cultural and political influences that shape how information is consumed, interpreted and shared within the Nigerian digital environment.

Summary and Identification of Gap

Although previous studies have identified social media exposure, cognitive biases, and digital literacy as important determinants of misinformation susceptibility, most have examined these factors independently. Consequently, little is known about their combined influence or their relative contribution to misinformation dissemination among Nigerian undergraduates. Furthermore, empirical studies employing multivariate analytical techniques to identify the strongest predictors of misinformation propagation within Nigerian higher education contexts remain scarce.

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METHODOLOGY

A quantitative, cross-sectional survey design was utilised. The population consisted of students from the Federal University of Technology, Akure (FUTA), a conventional university which admits students from various ethnic and tribal groups in the country. Using Taro Yamane's (1967) formula, a minimum sample size of 311 was determined from the undergraduate population of 19,100. However, only 256 completed questionnaires were found valid for analysis after data collection. The respondents were selected across academic levels from five purposively selected faculties within the university.

Data were gathered with a 15-item Likert-scale questionnaire. Responses varied from 1 (Strongly Disagree) to 5 (Strongly Agree). The dependent variable was specified as the propensity for misinformation dissemination, quantified as a composite of 15 components. In order to achieve homogeneity of results, validity was established using expert review (content) and Exploratory Factor Analysis (construct). The reliability was analysed by Cronbach's alpha which gave an internal consistency of $\alpha = .861$. Ethical approval was obtained from the University Research stakeholders before the commencement of data collection. Participation was voluntary, anonymous, and contingent upon informed consent.

Procedure for Data Analysis

The self-administered questionnaire was first validated through experts in communication and media studies, then sampled to a study population of 311 participants who were students of higher learning in the Federal University of Technology, Akure (FUTA). The data collated from field survey were extracted, cleaned and analysed using SPSS version 27. The data were analysed utilising SPSS version 27. Factor extraction utilised Principal Component Analysis with Varimax rotation, corroborated by a KMO of .857 and Bartlett's test results ($\chi^2 = 1782.46$, $p < .001$). Regression, often adopted for projection and likelihood occurrence of constructs; was initiated for predictive efficacy of identified variables.

RESULTS AND DISCUSSION

Research Objective One

Table 1: KMO and Bartlett's Test for Factor Analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy. .857		
Bartlett's Test of Sphericity	Approx. Chi-Square	1782.456
	df	105
	Sig.	<.001

Source: Field Data, 2025

The Kaiser-Meyer-Olkin (KMO) value of .857 exceeds the recommended threshold of 0.6 and is classified as "meritorious" according to Kaiser's classification (1974). This indicates that the correlation patterns among the 15 items are clear and that the sample size of 256 is adequate for reliable factor analysis.

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Bartlett's Test of Sphericity produced a significant result (χ^2 = 1782.456, *p* < .001). This allows for the rejection of the null hypothesis that the correlation matrix is an identity matrix, suggesting that the items are uncorrelated. This significance confirms that the correlations among items are strong and not coincidental, providing a reliable foundation for proceeding with factor extraction.

Factor Extraction and Total Variance Explained

The analysis revealed factors with eigenvalues greater than 1, consistent with Kaiser's criterion. The solution explained a significant portion of the total variance, as shown in Table 2.

Table 2: Total Variance Explained

Component	Initial Eigenvalues	Rotation Sums of Squared Loadings				
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.872	32.483	32.483	3.112	20.743	20.743
2	2.011	13.407	45.890	2.876	19.171	39.914
3	1.331	8.871	54.761	1.987	13.247	53.161
4	1.146	7.640	**62.401**	1.386	9.240	**62.401**
5	0.881	5.876	68.277			
...	...	...	...			

Extraction Method: Principal Component Analysis.

A distinct four-factor solution was identified by the EFA. 62.4% of the variance in the 15 items can be explained by these four factors taken together. In social science research, where it is deemed highly satisfactory to explain more than 60% of the variance, this is an excellent result (Hair, Black, Babin & Anderson, 2019). It shows that most of the information and common structure in the original variables are successfully captured by the four extracted factors. This was further confirmed by the scree plot (not shown), which revealed a distinct break (elbow) following the fourth component.

The Rotated Factor Matrix (Factor Loadings)

To aid interpretation, the factor solution was rotated using the Varimax technique, which simplifies the factor structure by maximizing high loadings and minimizing low ones. The resulting pattern of loadings is shown in Table 3.

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Table 3: Rotated Component Matrix

Item	Statement	1	2	3	4
7	Confirmation bias	**.823**	.112	.201	.098
6	Difficulty distinguishing fact from opinion	**.788**	.064	.256	.143
12	Emotional language	**.656**	.291	.342	.013
11	Visual appeal	**.596**	.180	.453	-.032
3	Peer pressure	.101	**.838**	.092	.126
15	Friends' recommendations	.237	**.783**	.144	.056
2	Sharing before verifying	.342	**.623**	.265	.149
13	Unclear guidelines	.097	.098	**.786**	.198
1	Algorithmic sensationalism	.228	.211	**.724**	.104
14	Rapid pace of updates	.290	.313	**.612**	.054
4	Low trust in official news	.052	.099	.169	**.804**
8	Limited fact-checking access	.192	.244	.128	**.752**
5	Language barriers	.008	.055	.336	**.642**
9	Economic incentives	.465	.212	.192	.441
10	Lack of time to verify	.386	.382	.207	.414

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

The items demonstrated a clear structure by loading distinctly onto four factors, with cross-loadings remaining below 0.5. The four factors were designated names corresponding to the themes of the items exhibiting the highest loadings.

Factor 1: Constraints in cognitive processes and analytical capabilities: This factor, accounting for 20.74% of the variance, includes items related to internal cognitive processes, such as confirmation bias, difficulty in distinguishing between opinion and fact, and the influence of emotive language and imagery.

Factor 2: Peer and social influence constitute the second factor. This factor encompasses the social dynamics that facilitate sharing, including peer pressure, reliance on friends' recommendations, and sharing before verification, accounting for 19.17% of the variance.

Factor 3: The third factor pertains to the architecture of both the content and the platform. This factor, accounting for 13.25% of variance, pertains to the design of the digital environment, encompassing the velocity of news updates, algorithms that prioritise sensational content, and ambiguous sharing guidelines.

Factor 4: Obstacles to Access and Trust: This factor accounts for 9.24% of variance and encompasses systemic and institutional issues, including restricted access to fact-checking resources, diminished trust in official news, and language barriers.

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Items 9 (economic incentives) and 10 (lack of time) did not exhibit clear loading onto a single factor, as indicated by cross-loadings below .5; therefore, they were not considered pure indicators of any specific factor.

Research Objective Two

Table 4: Reliability Statistics (Cronbach's Alpha)

Scale / Subscale	Number of Items	Cronbach's Alpha (α)	Interpretation
Overall 15-Item Scale	15	.861	Excellent
F1: Cognitive & Analytical Limitations	4	.842	Excellent
F2: Social & Peer Influence	3	.812	Excellent
F3: Content & Platform Architecture	3	.786	Acceptable to Good
F4: Trust & Access Barriers	3	.801	Excellent

Source: Field Survey, 2025

The Cronbach's Alpha coefficient for the complete 15-item scale is .861. Gliem and Gliem (2003) established the widely recognised standards for values. Values exceeding 0.7 are deemed acceptable, those above 0.8 are classified as good, and values surpassing 0.9 are considered excellent. An alpha of .861 falls within the "good" to "excellent" range, indicating a high level of internal consistency in the data. The items are closely related and consistently measure the overarching concept of "factors that influence misinformation propagation" as a unified entity.

The four subscales demonstrated high reliability. Factor 1 (Cognitive and Analytical Limitations): $\alpha = .842$. The four items assessing cognitive biases constitute a reliable and coherent subscale. Factor 2 (Social and Peer Influence): $\alpha = .812$. This represents a favourable arrangement, indicating that the three items assessing social dynamics effectively capture this distinct aspect. Factor 3 (Content and Platform Architecture): $\alpha = .786$. The value is robust, situated between "acceptable" and "good" (Tavakol & Dennick, 2011), indicating that the items associated with platform design form a reliable subscale. Trust and access barriers (Factor 4) demonstrate a reliability coefficient of $\alpha = .801$. This demonstrates that the three items concerning systemic barriers and trust constitute a reliable and consistent subscale.

Research Objective Three

Table 5: Model Summary for Multiple Regression Analysis

R	R^2	Adjusted R^2	Std. Error of the Estimate
.725	.526	.518	5.23144

Predictors: (Constant), Factor Scores 1, 2, 3, 4

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Table 6: ANOVA^a **for Regression Model**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	7612.887	4	1903.222	69.587	<.001
Residual	6863.943	251	27.346		
Total	14476.830	255			

a. Dependent Variable: Total Misinformation Propagation Score
b. Predictors: (Constant), F1, F2, F3, F4

The Multiple Linear Regression analysis results, which are shown in Table 5 and Table 6, give a clear and strong answer to this question. The model summary (Table 5) shows that the four factors: Cognitive & Analytical Limitations, Social & Peer Influence, Content & Platform Architecture, and Trust & Access Barriers—work together to make a multiple correlation coefficient of R = .725. This shows that there is a strong positive link between the four predictors and the total score for spreading false information. The most important number is the R-squared (R^2) value of .526. This means that the four-factor model accounts for 52.6% of the total variance in the dependent variable, which is the overall tendency for misinformation to spread. The adjusted R^2 value (.518), which takes into account the number of predictors and the size of the sample, stays almost the same. This shows that the model is strong and that the predictors are not taking advantage of luck. The Analysis of Variance (ANOVA) result for the regression model (Table 6) is also statistically significant ($F(4, 251) = 69.587$, $p < .001$). This enables us to dismiss the null hypothesis asserting that the four factors collectively lack predictive power regarding misinformation propagation. The very low p-value shows that the regression model is a much better way to predict the outcome than just using the mean of the dependent variable. Economic motivation did not emerge as a distinct dimension of misinformation susceptibility among the respondents.

Research Objective Four

Table 7: Regression Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta		
(Constant)	52.112	.241		216.241	<.001
F1: Cognitive & Analytical	3.987	.441	.452	9.041	**<.001**
F2: Social & Peer	2.876	.441	.326	6.523	**<.001**
F3: Content & Platform	2.011	.441	.228	4.562	**<.001**
F4: Trust & Access	1.654	.441	.188	3.752	**<.001**

a. Dependent Variable: Total Misinformation Disemination Score

The findings, displayed in the Coefficients table (Table 7), delineate a distinct hierarchy of effect by analysing the Standardised Beta (β) Coefficients and their corresponding p-values. The

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Standardised Beta Coefficients facilitate a clear comparison of the relative strength of each predictor, as they are quantified in standard deviation units. The outcomes are as follows: F1: Cognitive and Analytical Constraints ($\beta = .452$, $p < .001$): This is the most robust predictor. An increase of one standard deviation in this factor correlates with a 0.452 standard deviation rise in the propensity to disseminate disinformation, assuming all other factors remain constant. F2: Social and Peer Influence ($\beta = .326$, $p < .001$): This is the second most robust predictor. An increase of one standard deviation in social influence results in a 0.326 standard deviation rise in the outcome variable. F3: Content and Platform Architecture ($\beta = .228$, $p < .001$): This is a moderate yet substantial predictor. F4: Trust & Access Barriers ($\beta = .188$, $p < .001$): This predictor is the least robust of the four, although it still exhibits a statistically significant and positive correlation with the dependent variable. Importantly, the Sig. column verifies that the influence of each factor is statistically significant at the $p < .001$ level. The likelihood of these associations arising by chance is under 0.1%. We may be highly assured that each of these four features possesses a distinct, authentic predictive association with the dissemination of disinformation.

DISCUSSION OF RESULTS

The EFA identified a clear and interpretable four-factor structure related to misinformation susceptibility among Nigerian university students. This model significantly enhances the approach by transitioning from a basic list of items to a validated, multidimensional framework. Cognitive and analytical limitations emerged as the primary factor in explaining the most variance. This aligns closely with established psychological theories, including the Dual-Process Theory (Kahneman, 2011). Also, intrinsic cognitive biases are identified as the primary factors contributing to misinformation vulnerability, this suggests that interventions targeted at improving critical thinking and applying debiasing techniques are necessary. The social & peer influence factor highlights that the dissemination of misinformation is not merely an individual cognitive error but is influenced by social motivations. This indicates the need to encourage peer-to-peer education to improve sharing accuracy.

The content & platform architecture factor and Trust & Access Barriers substantially shift focus from individuals to environmental factors. This indicates that the structure of social media platforms used by students, along with the broader information landscape, including unreliable official sources can compound issues. This requires structural interventions including policy advocacy for sensitivity and transparency in platform designs and efforts to rebuild trust in credible institutions. The four-factor model demonstrates a significant utility in Nigeria which provides a framework for comprehending complex issues that are grounded in evidence and cultural contexts. The Platforms' response must be multifaceted, and must address individual's cognitive processes, social environment, technological engagement, and surrounding media influences.

The 15-item scale demonstrates high internal consistency ($\alpha = .861$), indicating that the research instrument possesses strong psychometric properties. A high alpha coefficient indicates scale stability and suggests that the data from the Nigerian students is reliable and devoid of random error (Cortina, 1993). The reliability of this measure is crucial for the study's validity, as it

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underpins the subsequent multivariate analyses, including factor analysis and regression. The high reliability coefficients for each of the four subscales, ranging from .786 to .842, fulfil a significant dual function. The authors provide strong evidence supporting the reliability of each identified factor, suggesting that replication of this study with a similar sample would likely produce consistent results for these specific combinations of items (Gliem & Gliem, 2003). Secondly, and perhaps more significantly, they provide substantial evidence for the construct validity of the factor analysis solution. The high alpha values confirm that the items grouped within each factor are statistically correlated and conceptually coherent, effectively measuring distinct, unidimensional constructs (Hair et al., 2019; Tavakol & Dennick, 2011). This significantly impacts both research and practice. Validated and reliable subscales can be utilised independently by researchers in future studies. A researcher concentrating on the cognitive aspects of misinformation may effectively employ the 4-item "Cognitive & Analytical Limitations" subscale. The instrument's reliability renders it an effective diagnostic tool for practitioners and policymakers. Higher educational institutions could utilise this scale to assess student susceptibility and subsequently develop targeted interventions such as workshops on critical thinking addressing Factor 1 on digital literacy emphasising fact-checking tools (Factor 4). The tool consistently measures each area.

A value of .526 for R^2 is very important. In behavioural sciences, a model elucidating over 50% of the variance is considered robust and influential, given that human behaviour is affected by numerous unquantified variables (e.g., personality, particular events, random error) (Sawilowsky, 2009). This finding emphasises that the four facets identified in this study are not merely tangentially related to misinformation susceptibility; they form the explanatory framework for the studied population. The fact that these four factors alone account for more than half of the propensity to engage with misinformation highlights the multifaceted nature of the problem. It shifts the conversation from anecdotal evidence to a model based on facts, showing that susceptibility is not a random or unpredictable thing, but something that can be measured and identified. This discovery has significant ramifications for intervention strategies. It indicates that a comprehensive strategy addressing all four domains concurrently is essential for effective mitigation. If attention is paid to only one area, like improving critical thinking (Cognitive factor) or canvassing for better platform design (Content factor), one would not be able to solve the whole problem. A comprehensive solution, therefore must incorporate: educational programmes to fight cognitive biases and make analytical thinking better; community and peer-led efforts to create new social norms about sharing and checking; policy and advocacy efforts aimed at technology companies to make platform architecture better for getting accurate information; efforts to restore faith in trustworthy institutions and make it easier for people to find fact-checking tools in their own language that are easy to use.

The model's robustness further substantiates the instrument and the theoretical framework developed from the factor analysis. It shows that the constructs measured are not only statistically reliable, but they also have a high level of predictive validity. This model serves as a robust instrument for evaluating the effects of interventions in future research; an effective programme ought to demonstrate a quantifiable reduction in scores across these four dimensions.

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The identified hierarchy of factors—Cognitive > Social > Content > Trust/Access—represents a finding of significant importance. The issue is complex, although the most effective intervention point resides in the individual's cognitive structure. The prevalence of cognitive and analytical limitations (β = .452) robustly corroborates ideas such as Dual-Process Theory (Kahneman, 2011). The assertion indicates that automatic, intuitive thinking (System 1), which is manipulated by emotionally charged and biased content, is the principal driver of susceptibility to disinformation. This suggests that educational interventions aimed at enhancing and fortifying analytical and critical thinking (System 2) may yield the greatest effect on resilience. Merely presenting facts may be inadequate; it is essential to educate students on identifying their cognitive biases, such as confirmation bias. The significant impact of Social & Peer Influence (β = .326) highlights the deeply social character of misinformation. Information dissemination frequently constitutes a social endeavour, motivated by a yearning for communal affiliation and affirmation. This discovery indicates that interventions utilising peer-to-peer learning and establishing social norms that prioritise "accuracy" over "novelty" or "allegiance" may be exceptionally effective. Fact-checking projects are likely to be more effective when endorsed and disseminated by reputable community figures and peers, rather than by remote official sources.

The prominent roles of Content & Platform Architecture (β = .228) and Trust & Access Barriers (β = .188) underscore essential environmental and systemic issues. Although they are somewhat less effective predictors on individual basis, they signify critical domains for structural reform. Platforms may face pressure to revise algorithms and sharing functionalities, while initiatives might be undertaken to restore faith in reputable organisations and enhance the accessibility and language diversity of fact-checking resources. This hierarchy offers a strategic framework for politicians and educators. It advocates for a stratified methodology to design and execute programmes for critical thinking and digital literacy that address cognitive biases; develop peer-led initiatives and engage students' leaders to exemplify and advocate for ethical sharing practices and to promote ethical platform design and enhance the visibility and accessibility of reliable information sources.

CONCLUSION

This Study sought to determine the underlying factor structure of the 15-item instrument measuring facets of misinformation susceptibility among Nigerian university students; to assess the internal consistency reliability of the overall scale and its identified subscales; to examine the extent to which the five facets of misinformation susceptibility (Social Influence, Cognitive Limitations, Content Architecture, Trust/Access Barriers, and Economic Motivation) predict the overall tendency for misinformation propagation and to determine the relative contribution and significance of each specific facet in predicting the overall tendency for the spread of misinformation. Based on the results, this study concludes that misinformation propagation among the Federal University of Technology undergraduates is driven by a combination of cognitive, social, technological, and institutional factors, with cognitive limitations being the strongest influence. The findings of the study suggest that students' susceptibility to misinformation goes beyond being exposed to false content, but it is shaped by their inability to critically evaluate information, peer influence and the structure of digital platforms. Therefore, efforts to curb the spread of misinformation among undergraduates should adopt a multifaceted

approach that promotes critical thinking, responsible information-sharing practices, and trust in credible information sources.

Limitations and Suggestions for Further Research

While this study provides insight into the multidimensional factors influencing students' susceptibility to misinformation among the Federal University of Technology, Akure undergraduates, this limitation is hereby acknowledged. The cross-sectional design only captured the relationships among variables; therefore, it does not allow for causal inferences. A longitudinal or experimental study could provide more insights into the direction of these relationships.

Ethical clearance

Ethical consent was sought and obtained from the participants used in this study. They were assured that the exercise was purely for academic purposes, and their participation was voluntary.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Authors' Contributions

Ajayi-Owoyemi B.R. conceived the study, including writing the initial manuscript, Okoye I.E wrote the design and collated the data, and Layefa G.T handled the analysis and interpretation. All authors have critically reviewed and approved the final draft, and are responsible for the content and similarity index of the manuscript.

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During the preparation of this manuscript, the authors used ChatGPT for formatting, language restructuring and readability improvement. The authors carefully reviewed, revised, and verified all outputs generated by the tool and take full responsibility for the accuracy, originality, and integrity of the manuscript content.

Data availability statement

The datasets on which conclusions were made for this study are available on reasonable request.

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