

## **META-ANALYSIS STUDY: THEORY OF PLANNED BEHAVIOR IN FRAUD BEHAVIOR**

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### **ABSTRACT**

*As the world agenda in sustainable development, the Sustainable Development Goals (SDGs) have 17 programs that must be achieved by 2030. To achieve these goals, the four pillars of SDGs development the social, economic, environmental, legal, and governance pillars must be integrated. However, the phenomenon of fraud is a serious threat to the posts of law and governance that has the potential to hinder the achievement of goals. The previous research focused to develop the internal control system to reduce fraud, even though individual tendencies to commit fraud have an important role. Therefore, this study is intended to examine individual factors that influence fraud using the theory of planned behavior. Ten of the 53 selected studies were tested through meta-analysis according to the feasibility criteria, the results were attitude toward behavior, and perceived behavioral control had a significant effect on fraud behavior. The highest correlation is in the subjective norm variable, then the attitude toward behavior variable, and the lowest is the perceived behavioral control variable.*

**Keywords:** *Theory of Planned Behavior; Attitude Toward Behavior; Subjective Norm; Perceived Behavioral Control; Fraud*

### **INTRODUCTION**

The Sustainable Development Goals (SDGs), also known as the goals of sustainable development, are a global agenda aimed at ensuring the continuous improvement of the economic well-being of society, maintaining the sustainability of social life, preserving the quality of the environment, and achieving inclusive development and governance capable of preserving the quality of life from one generation to the next. The SDGs program is a development of the previous program known as the Millennium Development Goals (MDGs), which were established in August 2015 through a United Nations resolution, with development targets set for the year 2030. One hundred and ninety-three countries have collectively agreed upon 17 goals under the SDGs program, including the eradication of poverty, zero hunger, ensuring good health and well-being, quality education, decent work and economic growth, as well as peace, justice, and strong institutions. These goals are divided into four pillars: social, economic, environmental, and legal and governance.

The successful realization of the SDGs relies on the integration of these four development pillars. However, the effectiveness of achieving these goals can be compromised if any of the pillars, particularly the legal development and governance pillar, are not optimized (Guritno &

Mangkunegara, 2022). Corruption poses a significant threat within the legal and governance pillar, which is also a focal point in Goal 16.4 of the SDGs, aiming to substantially reduce corruption and bribery in all forms (Hope, 2020).

According to the Association of Certified Fraud Examiners (ACFE, 2022), there were 2,110 corruption cases reported in 130 countries during 2022, resulting in a total loss of \$3.6 billion. The estimated average annual corruption of organizations stands at 5% of their income. Among the three types of fraud—asset misappropriation, corruption, and fraudulent financial reporting—asset misappropriation is the most prevalent worldwide, followed by corruption and fraudulent financial reporting. However, financial statement fraud causes the largest financial losses, reaching \$593,000 in the year 2022 (ACFE, 2022). In the Asia-Pacific region, 194 fraud cases were reported in 2022, with corruption being the most common form, accounting for 57% of cases and causing an average loss of \$121,000. Indonesia ranks fourth in the region for fraud cases, following Australia, China, and Malaysia. This is consistent with the decline in Indonesia's Corruption Perception Index (CPI) ranking, which dropped to 110 out of 180 countries. These findings indicate that corruption remains prevalent in Indonesia, and the government's efforts to combat it have been slow and inadequate, lacking sufficient support from

stakeholders. Consequently, existing strategies and programs to eradicate fraud have not proven entirely effective (Transparency International Indonesia, 2023).

The strategies employed to combat fraud vary, primarily focusing on repressive measures that entail internal sanctions within organizations or legal actions. In Indonesia, there was an 11.11% increase in investigation cases in 2022, involving a total of 120 investigations and 149 corruption suspects, resulting in a state loss of IDR 144.2 trillion and USD 61.9 million. Another strategy involves enhancing the internal control system to address the root causes of corruption stemming from weaknesses within the system itself, as 29% of fraud cases are attributed to such weaknesses (ACFE, 2022). However, prior to implementing these repressive actions, organizations must undertake preventive measures by detecting fraudulent behavior at the individual level. This is crucial because individuals account for a significant percentage of fraud-related losses (Holtfreter et al., 2008; Timofeyev, 2015). In fact, 85% of fraudsters exhibit behavioral red flags in their daily activities (ACFE, 2022). Aligning with the earlier fraud triangle theory proposed by Clinard & Cressey (1954), which identifies pressure, opportunity, and rationalization as the three causes of fraud, it is evident that intrinsic factors such as pressure and justification significantly influence individual behavior. Consequently, studying individual fraud behavior is essential given the significant role played by individual tendencies to engage in fraudulent activities (Lin et al., 2022). However, previous research related to fraud has primarily focused on analyzing systemic weaknesses rather than individual behavior (Lin et al., 2022).

The theory of planned behavior, proposed by Ajzen (1991), has been commonly employed in previous research to analyze individual behavior, considering three variables: attitude toward behavior, subjective norm, and perceived behavioral control. Attitude toward behavior pertains to an individual's evaluation of a specific behavior as either positive (beneficial) or negative (harmful), which subsequently motivates or discourages the person from engaging in that behavior (Wang et al., 2018). Subjective norm refers to an individual's belief regarding whether to engage or abstain from a behavior, influenced by normative expectations and the motivation to comply. This belief is shaped by societal or group perspectives on whether the behavior is deemed acceptable (Othman et al., 2018). Perceived behavioral control reflects an individual's belief

regarding the ease or difficulty of performing a behavior (Ajzen, 2015). If individuals believe they have control over their behavior, they are more likely to take action, whereas the motivation to engage in the behavior diminishes if they perceive a lack of control.

Based on the findings of previous research, there exists a diversity of results. Carpenter & Reimers (2005), Skapa (2012), Nadhim (2017), and Nez and Rinaldi concluded that attitude toward behavior is the primary driving factor behind fraudulent behavior. Conversely, Amrullah and Novianti, N (2017), Putra, K. N et al. (2018), Lin B et al. (2022), Sarikhani and F Ebrahimi (2022), and Yuniarwati (2022) found that subjective norm plays the most significant role in encouraging individuals to engage in fraudulent behavior. Perceived behavioral control tends to be the weakest predictor of individual fraud behavior, as supported by the research of Dian (2021) and Sarikhani and F Ebrahimi (2022). In fact, Nadhim (2017) and Carpenter et al. (2005) found that perceived behavioral control has no influence on individual fraud behavior.

This presents an opportunity for further research by integrating and consolidating the outcomes of prior studies through meta-analysis. According to Glass (1976), "meta-analysis is a statistical approach that involves summarizing, integrating, and interpreting the findings of multiple previously conducted studies." Meta-analysis serves as a statistical method aimed at synthesizing results from prior studies with a common theme to provide substantial insights (Cooper et al., 2010). Therefore, the objective of this study is to determine the correlation between attitude toward behavior, subjective norm, and perceived behavioral control in predicting fraud behavior. The benefits of this research are to develop a preventive fraud prevention strategy through an individual behavioral approach, this is more efficient than improving the corruption handling system which requires large costs and is not necessarily effective.

### **Hypothesis Development**

The "Theory of Planned Behavior (TPB)" provides a useful framework for analyzing unethical behavior related to fraud (Cohen et al., 2010). This is supported by the assertion that TPB is highly relevant to the study of ethics (Black, 2022). TPB combines "attitude toward behavior, subjective norm, and perceived behavioral control" to form intentions that drive behavior (Ajzen, 2020). Thus, the evaluation of intention to behave is often measured by the actual behavior

performed, as demonstrated by Carrington et al. (2010) and Barr-Pulliam (2017) who found a relationship between intention and behavior.

Fraudulent behavior is determined by the intentions driven by attitude toward behavior, subjective norm, and perceived behavioral control (Lin et al., 2022). Attitude toward behavior is based on the evaluation of behavioral beliefs and control beliefs regarding the benefits or drawbacks of certain actions, as well as personal experiences and observations that may influence fraudulent behavior. Carpenter (2015), in a study involving 70 respondents responsible for financial reporting, found that attitudes exerted the most significant influence, suggesting that individuals with a positive attitude are less likely to engage in fraudulent activities when preparing financial reports.

Furthermore, beliefs give rise to behavioral intentions, specifically normative beliefs that involve considering social references for fraudulent behavior. These normative beliefs are influenced by societal or group views on the acceptability of such behavior (Othman et al., 2018). An individual's motivation can be influenced by the surrounding environment and the norms established within it. Research conducted by Achmad et al. (2019) on accounting managers in state-owned companies across Indonesia found that subjective norms have a negative effect on individual intentions to commit fraud. This indicates that perceptions of ethical norms related to fraud within the environment can discourage individuals from engaging in fraudulent behavior.

Perceived behavioral control refers to an individual's belief regarding their ability to engage or refrain from engaging in certain behaviors, taking into account the perceived ease or difficulty of doing so, as well as anticipating obstacles and challenges (Ajzen, 2015). The findings of the study by Lin et al. (2022) suggest that "perceived behavioral control is the strongest factor influencing individual fraudulent behavior, followed by attitudes, and subjective norms." This suggests that when it comes to committing fraud, individuals primarily consider factors that can

facilitate or hinder their actions. Once convinced, individuals then evaluate their attitudes toward committing fraud, driven by their perceptions of societal views on fraudulent behavior.

Based on the previous theoretical studies, the following research hypotheses were formulated:

H1: Attitude toward behavior affects fraud behavior.

H2: Subjective norm affects fraud behavior.

H3: Perceived behavioral control affects fraud behavior.

## RESEARCH METHODS

This research adopts an analytical method that involves reviewing various research articles relevant to the research objectives. The focus is placed on journal articles that have been selected for analysis in order to draw conclusions that address the research question (Card, 2012).

Meta-analysis, as described by Glass (1976), is a statistical approach that involves summarizing, integrating, and interpreting previously conducted research results. Similarly, Cooper (2010) defines meta-analysis as a statistical method aimed at synthesizing the findings of previous studies with a common theme to provide meaningful insights.

The process of conducting the meta-analysis involves several stages, which are as follows:

### 1. Feasibility criteria

Articles are obtained from Google Scholar and Scopus databases, and the following criteria are applied: a) articles that are openly accessible; b) exclusion of duplicate articles; c) inclusion of quantitative research studies; d) inclusion of research articles containing the keywords "theory of planned behavior," "fraud," "asset misappropriation," or "corruption" in the title.

### 2. Study selection

The study selection process consists of four steps: identification, screening, feasibility assessment, and determination. This process adheres to the Prism Flow Diagram, which visually represents the stages involved in selecting relevant studies which described as follows:

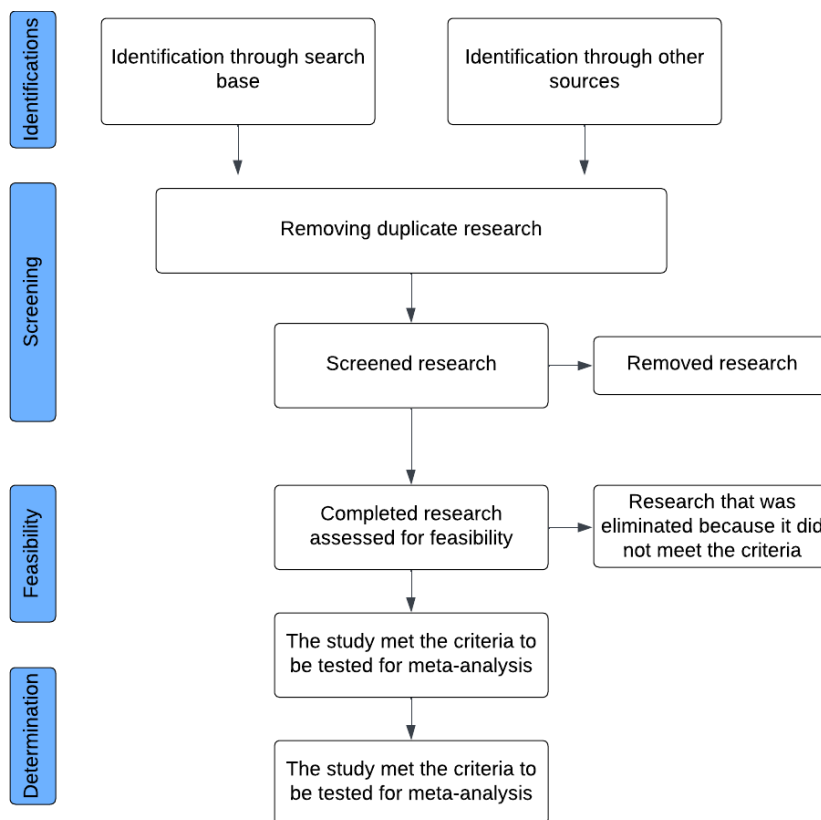


Figure 1. Prism Flow Diagram  
Source: Mother et al (2015)

The study identification process involves applying filters using keywords within Google Scholar and Scopus databases based on the specified criteria. Subsequently, the screening stage is conducted by reviewing the titles and abstracts of the articles. In the abstracts, it is ensured that the research is quantitative in nature and examines the variables of interest, namely the theory of planned behavior and fraud. The feasibility assessment is then performed on each article by reading the full text and referring back to the criteria. Finally, a crosscheck is conducted to confirm the selection of articles that will undergo further testing.

### 3. Procedures and Measurements

The meta-analysis procedure in this study was conducted using Jamovi software. Meta-analysis is a quantitative method that aims to analyze specific measurements, such as assessing the strength of the relationship pattern, correlation, or influence between variables (effect size) (Shelby and Vaske, 2008). The magnitude of the correlation is categorized as a small effect size if the obtained effect size value is  $\leq 0.02$ , a medium effect size if the obtained effect size value is  $\geq 0.2$  to  $< 0.80$ , and a large effect size if the obtained

effect size value is  $\geq 0.8$  (McLeod, 2019). Alongside the effect size, a bias assessment is performed to determine whether there is publication bias present in the included studies. The research study is considered unbiased if the significance value of Egger's Regression is  $> 0.05$ .

## RESULTS AND DISCUSSION

### Results

Article searches were conducted on Google Scholar and Scopus using the keywords "theory of planned behavior," "fraud," "asset misappropriation," or "corruption" at the title level. A total of 32 articles were obtained from Google Scholar, and 21 articles were obtained from Scopus. Subsequently, data analysis was carried out using predetermined feasibility criteria. These criteria included open accessibility of the article, absence of prior publication, and the research being quantitative in nature. Among the 43 articles initially identified, ten articles met the feasibility criteria and proceeded to the review stage. These ten articles were used as research data. The study selection flowchart is presented in Figure 2 below:

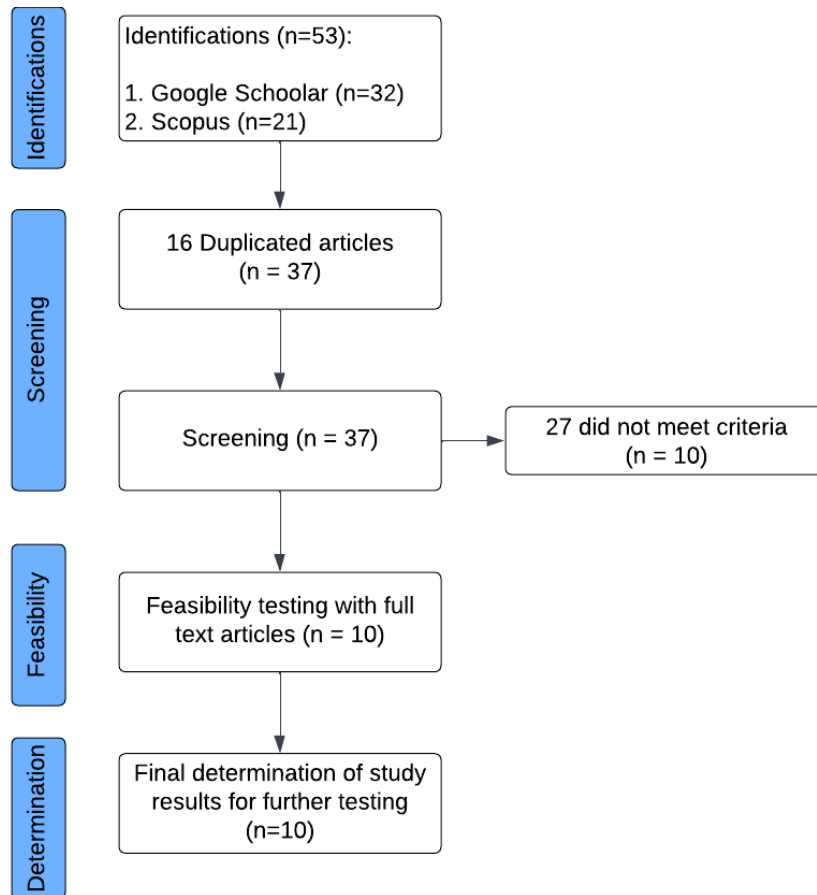


Figure 2. Prism Flow Diagram of Study Selection Results  
(Data processed, 2023)

The outcomes of the research study selection process are presented in detail in the following table:

Table 1. Results of Research Study Selection

No.	Authors and Year of Publication	Article title	Publisher	Research Data			Sample size (N)
				Coefficient			
				ATB	SN	PBC	
1.	M. Sarikhani, F. Ebrahimi (2022)	Whistleblowing by accountants: an integration of the fraud pentagon and the extended theory of planned behavior.	Meditari Accountancy Research, 30(6), 1740-1763.	0,181	0,383	0,249	171
2.	Lin, B., Huang, J., Liao, Y., Liu, S., & Zhou, H. (2022)	Why do employees commit fraud? Theory, measurement, and validation.	Frontiers in psychology.	0,623	0,706	0,577	371
3.	Y Yuniarwati, IC Ardana, SP Dewi (2022)	Theory of Planned Behavior for Predicting Fraudulent Financial Reporting Intentions.	In 3rd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2021) (pp. 529-537). Atlantis Press.	0,210	0,745	0,083	50
4.	Dian, N. E. Z. (2021)	The effect of Planned Behavior Theory on Corruption Intention Intracampus Organization.	Jurnal RAP (Riset Aktual Psikologi Universitas Negeri Padang), 11(2), 150-167.	0,264	0,229	0,193	111
5.	Hermanuya, Sindy Aziza (2020)	Kombinasi Theory Of Planned Behavior dengan Fraud Triangle Terhadap Perilaku Bidan Desa dalam Penatalaksanaan Pencatatan dan Pelaporan Imunisasi Rutin di Kabupaten Sampang	Doctoral dissertation, Universitas Airlangga.	0,039	0,026	0,047	110

6.	Putra K.N, I Triyuwono, L Purwanti (2018)	Fraud procurement of goods and services a perspective of the Theory of Planned Behavior.	Jurnal Akuntansi, 22(3), 385-404.	0,279	0,346	0,272	316
7.	Nadhim, M. (2017)	Analisis Minat Staff Keuangan Melakukan Fraud: Pendekatan Theory Of Planned Behavior Dan Fraud Triangle Theory.	Doctoral dissertation, Universitas Brawijaya.	0,175	-0,182	0,298	91
8.	Amrullah, Muhammad Mukhlis; Novianti, Nurlita (2016)	Implementasi Theory of Planned Behavior dalam Mendeteksi Minat dan Perilaku Fraud pada Sektor Publik (Studi pada Bagian Keuangan di SKPD se-Kota Probolinggo).	Jurnal Ilmiah Mahasiswa FEB, 5(2).	0,239	0,692	0,146	60
9.	R Škapa (2013)	Application of the theory of planned behavior to fraudulent returning.	Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 60(7), 379-386.	0,146	-0,136	0,097	207
10.	Carpenter, T. D., & Reimers, J. L. (2005).	Unethical and fraudulent financial reporting: Applying the theory of planned behavior.	Journal of business ethics, 60, 115-129.	0,776	0,414	0,505	70

The results of the attitude toward behavior variable correlation test using JAMOVI software

on the coefficient data and the number of samples of ten studies show the following results:

Table 2. Results of the Attitude Toward Behavior Variable Correlation Test

	Estimate	se	Z	p	CI Lower Bound	CI Upper Bound
Intercept	0.332	0.0957	3.47	<.001	0.145	0.520
	.	.	.	.	.	.

Based on the table, it is evident that the estimated correlation result is 0.332 with a p-value of less than 0.001. The correlation value of 0.332 falls within the range of  $\geq 0.2$  to  $< 0.8$ , indicating a medium effect size. Additionally, the p-value of less than 0.001 suggests a statistically significant

relationship between attitude toward behavior and fraud behavior.

The results of the correlation test for the subjective norm variable, conducted using JAMOVI software, based on the coefficient data and the sample size of the ten studies, are presented in Table 3:

Table 3. Results of Subjective Norm Variable Correlation Test

	Estimate	se	Z	p	CI Lower Bound	CI Upper Bound
Intercept	0.379	0.130	2.91	0.004	0.124	0.633

Based on the table, it is evident that the estimated correlation result is 0.379 with a p-value of 0.004. The correlation value of 0.379 falls within the range of  $\geq 0.2$  to  $< 0.8$ , indicating a medium effect size. Additionally, the p-value of 0.004 is less than the significance level of 0.05, indicating a statistically significant relationship between subjective norm and fraud behavior.

The results of the correlation test for the perceived behavioral control variable, conducted using JAMOVI software, based on the coefficient data and the sample size of the ten studies, are presented in Table 4:

Table 4. Results of Perceived Behavioral Control Variable Correlation Test

	Estimate	se	Z	p	CI Lower Bound	CI Upper Bound
Intercept	0.270	0.0666	4.05	<.001	0.139	0.400

Based on the table, it is evident that the estimated correlation result between perceived behavioral control and fraud behavior is 0.270, with a p-value of less than 0.001. This correlation value falls within the range of  $\geq 0.2$  to  $< 0.8$ , indicating a medium effect size. Moreover, the p-value of less than 0.001 further confirms the statistically significant relationship between perceived behavioral control and fraud behavior. In assessing the risk of bias within the research studies, Egger's Regression was utilized. The p-values obtained for the attitude toward behavior variable, subjective norm variable, and perceived behavioral control variable were 0.961, 0.451, and 0.323, respectively. These results suggest that there is no publication bias present across all variables. By employing Egger's Regression, we can conclude that there is no indication of publication bias for any of the variables considered in the study: attitude toward behavior, subjective norm, and perceived behavioral control.

**Discussion**

The results of the meta-analysis reveal a significant effect of attitude toward behavior on fraud behavior, with a correlation value of 0.332 and a significance level of less than 0.001. This indicates that attitudes toward fraud behavior play a crucial role in two aspects. Firstly, they reflect an individual's belief regarding the consequences that may arise from engaging in fraudulent activities. Secondly, attitudes are shaped by a subjective

assessment of these consequences. Individuals are more likely to engage in illegal activities if they perceive the benefits outweigh the potential sanctions they might face (Polinsky and Shaveel in Dian, 2021). An individual's positive or negative perspective of fraud behavior, along with their evaluation of the associated benefits or losses and the consequences for the perpetrator, significantly influence their inclination to engage in fraudulent behavior. Previous research studies by Carpenter et al. (2005), Skapa (2012), Nadhim (2017), and Nez (2021) also underscore the considerable influence of attitude toward behavior on fraudulent behavior. Therefore, first hypothesis which posits an effect of attitude toward behavior on fraud behavior, is supported.

The meta-analysis results further demonstrate a significant effect of subjective norm on fraud behavior, with a correlation value of 0.379 and a significance level of 0.004. This indicates that individuals are more likely to participate in fraudulent activities if they believe that the people within their environment and the prevailing norms, whether in the workplace, family, or other social contexts, condone such behavior. This finding aligns with the pressure individuals feel from their social surroundings to engage in fraudulent conduct. Moreover, individuals are inclined to engage in corrupt behavior if they perceive that others around them are involved in such activities (Bicchieri and Ganegoda, 2017). Previous research studies by



Amrullah and Novianti, N (2017), Putra, K.N et al. (2018), Lin B et al. (2022), Sarikhani and F Ebrahimi (2022), and Yuniarwati (2022) also highlight the influential role of subjective norm in shaping fraud behavior. Thus, second hypothesis, which proposes an influence of subjective norm on fraud behavior, is supported.

The meta-analysis results also indicate a significant effect of perceived behavioral control on fraud behavior, with a correlation value of 0.270 and a significance level of less than 0.001. This implies that individuals are more likely to engage in fraudulent activities if they believe they have control and opportunities that facilitate such behavior. This belief is closely linked to an individual's position and strategic advantage, enabling them to take actions without encountering obstacles. This finding is consistent with prior research by Hermanuya (2020), which emphasizes "the considerable influence of perceived behavioral control on fraud behavior." Therefore, the third hypothesis, which suggests that "perceived behavioral control has an impact on fraud behavior," is confirmed.

Comparing the correlation test values for the three research variables, all fall within the range of  $\geq 0.2$  to  $< 0.8$ , indicating a medium effect size. Additionally, all correlation coefficients are less than 0.05, signifying statistical significance. Among the three variables, the subjective norm variable exhibits the highest correlation, followed by the attitude toward behavior variable, while the perceived behavioral control variable has the lowest correlation.

These findings shed light on the important factors that contribute to fraud behavior. Attitudes, subjective norms, and perceived behavioral control all play significant roles in influencing individuals' inclination towards fraudulent activities. The medium effect sizes suggest that these factors have a meaningful impact on fraud behavior. Understanding and addressing these factors can help develop effective strategies for preventing and detecting fraud in various contexts.

## CONCLUSION

In this meta-analysis, a total of ten out of the 53 selected studies were subjected to analysis based on the predetermined feasibility criteria. JAMOVI software was employed to analyze the coefficient data and the number of samples from the selected studies. The meta-analysis explored the relationship between fraud behavior and the theory of planned behavior.

The results of the meta-analysis indicate that each variable, namely attitude toward behavior,

subjective norm, and perceived behavioral control, demonstrates a correlation value falling within the range of  $\geq 0.2$  to  $< 0.8$ , indicating a medium effect size. Additionally, all the correlation coefficients have a p-value of less than 0.05, signifying statistical significance. These findings suggest that each variable significantly influences fraud behavior and can serve as a predictive factor in analyzing individual engagement in fraudulent activities. Among the variables, the subjective norm variable exhibits the highest correlation, followed by the attitude toward behavior variable, while the perceived behavioral control variable demonstrates the lowest correlation.

These results contribute to the understanding of the theory of planned behavior in the context of fraud behavior. It indicates the importance of individual attitudes, subjective norms, and perceived behavioral control in predicting and explaining fraudulent activities. By considering these variables, organizations and policymakers can develop targeted interventions and strategies to prevent and address fraud effectively.

Further research is warranted to delve deeper into the underlying mechanisms the relationships between the theory of planned behavior variables and fraud behavior. Exploring additional contextual factors and employing diverse research methodologies can enhance our understanding of fraud behavior and facilitate the development of comprehensive prevention and detection strategies.

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