



The effect of the dark triad traits on the relationship between obedience pressure and budgetary slack^{*,**}

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ABSTRACT

The aim of this paper was to evaluate the effect of personality traits on the relationship between obedience pressure and the creation of budgetary slack. Concatenating the dark triad personality traits and obedience pressure in a decision-making scenario relating to the creation of budgetary slack enables us to widen the investigation of factors associated with the practicing of budgetary slack. The relevance of this study lies in understanding how personality traits influence decision making under hierarchical obedience pressure in relation to the creation of budgetary slack, enabling us to measure and detect possible biases in managers' decision making due to these factors, thus being able to predict or mitigate decisions in the organizational environment. It was verified that the practice of creating budgetary slack can be carried out independently of a hierarchical order and that personality traits influence decision making with relation to the execution and planning of budgets. The article makes theoretical contributions to the accounting area, enabling the advancement and deepening of the discussion of social aspects (obedience theory) and behavioral aspects (personality traits) associated with decision making relating to the creation of budgetary slack. The approach is quantitative and experimental (2 x 2 factorial design), using 82 accounting sciences students. The data were analyzed using Mann-Whitney and Kruskal-Wallis tests and binary logistic regression. It was found that, independently of being under obedience pressure, individuals with high dark triad personality traits were more inclined toward the creation of budgetary slack, demonstrating that the intrinsic personality traits of each individual have an effect over decision making. However, regarding obedience pressure, it was verified that there was no significant effect on the creation of budgetary slack. These results offer contributions to organizations, as their managers and teams do not practice slack due to obedience pressure scenarios, but rather according to personality traits.

Keywords: budgetary slack, Milgram's obedience theory, dark triad, organizational structure, informational asymmetry.

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1. INTRODUCTION

The theme investigated involves company budgets and human behavior and the experiment was conducted using accounting sciences course students, based on obedience and personality traits.

One of the main challenges managers face centers around company perpetuity; therefore, besides the planning, control, and elaboration of budgets, avoiding mortality requires these professionals to have an understanding of behavioral and social aspects of their team and leadership, these being important allies of company success.

Regarding the question of the persuasion and influence of third parties, Milgram's obedience theory highlights how malicious human beings can be when subjected to pressure derived from a third-party order. Milgram argues that individuals feel less responsible for a committed act if they were following an order (Milgram, 1963).

Besides obedience pressure, the decision of individuals to take their convictions into consideration relates when acting relates with other personal characteristics, such as their personality traits. Personality trait scales seek to make inferences on the way people behave in relation to various situations according to their particular characteristics, even under pressures from third parties.

Paulhus and Williams (2002) elaborated the dark triad construct, which evaluates dark, non-pathological traits under three aspects: Machiavellianism, narcissism, and psychopathy. Research on the dark triad indicates negative and positive perspectives of personality traits, to cite D'Souza (2016), who related characteristics of the dark triad with financial manipulations.

Within this context, budgetary slack can be linked to individuals' behavioral questions and to personality traits, which in turn influence their behavior. Budgetary slack enables managers to make intentional adaptations in organizational budgets in order to protect against market fluctuations (Faria et al., 2012), as well as to provide greater ease in the achievement of goals (Yuen, 2004).

By testing the behavioral aspects underlying obedience pressure and personality traits in a context of practicing budgetary slack, we hope to contribute to organizational management, as obedience pressure can lead to dysfunctional behavior, violating established standards (Hasan & Andreas, 2019), since subjects exposed to obedience pressure tend to violate regulations and also feel less guilty compared with those who maintain their decisions according to the entity's policy (D'Souza et al., 2019); at the same time as associating

personality traits with the maximization of gains (D'Souza et al., 2019).

Therefore, the study may contribute by concatenating the two behavioral elements with the budgetary slack of managers in budgetary elaboration, execution, and control. By understanding that these elements (obedience and the dark triad) can imply budgetary slack practices, managers may align their choices within the dimension of budgetary typologies, for example: flexible budgeting, a rolling forecast, adjusted or revised forecasting, zero-based budgeting, history-based budgeting, collaborative budgeting, and matrix budgeting. In addition, managers may plan their budgetary goals and ways of achieving them, generating a greater feeling of responsibility in their team.

Thus, in light of the opportunity to expand the discussion of the theme – given that, besides the objective of recording, accounting, as a social science, aims to provide useful, timely, and reliable information to its users, and so it is relevant to analyze factors that alter the behavioral perspectives of individuals so there is alignment of organizational objectives with the strategic objectives of teams, managers, and employees, thus seeking to maintain the integrity of the information – we intend to answer the following research question: what is the effect of personality traits on the relationship between obedience pressure and the creation of budgetary slack? Thus, we aim to evaluate the effect of the dark triad personality traits on the relationship between obedience pressure and the creation of budgetary slack.

Taking into consideration that the dark triad traits can interfere in their conduct and in the development of their activities under a hierarchical environment of obedience pressure, these themes need to be examined in more depth, in order to understand how individuals behave in certain situations, considering their individual characteristics.

This study is relevant as it instigates an understanding of how personality traits influence decision making under hierarchical obedience pressure in relation to the creation of budgetary slack. In light of this, it will enable us to detect possible biases in managers' decision making due to these factors and to predict or mitigate decisions in the organizational environment. In addition, jointly concatenating personality traits and obedience pressure in a decision-making scenario regarding the creation of budgetary slack will enable us to widen the discussion on this theme.

This study makes advances in relation to previous ones as it aims to identify, by means of an experiment, cognitive tendencies derived from the personality traits of each individual, in which, through this identification, we seek to measure and detect possible decision-making biases according to personal characteristics, and thus mitigate orienting impacts of aversive decisions. We also seek to analyze how obedience pressure linked to the dark traits intervenes in the creation of budgetary slack.

In light of this, this study contributes to the advancement of research and practices of the accounting area. In the case of the former, this is done through the deepening of the discussion on these themes, since the literature needs research that explores these three factors simultaneously, based on the understanding that it is not only one factor that exerts an influence on decisions regarding the creation

of budgetary slack. Therefore, the study innovates by including the dark triad personality traits in this research. In the second case, the study contributes by analyzing the effects of the personality traits of accounting sciences students, who will in the future be professionals in the area and will face adverse situations in which they may be subjected to obedience pressure from superiors and be instigated to commit budgetary slack.

Thus, verifying whether these personal characteristics can positively or negatively influence their decision making and the management of day-to-day financial activities, as well as how the understanding is sustained that obedience pressure has a significant relationship with the creation of budgetary slack, contributes to the understanding that behavioral aspects increasingly interfere in the attitudes and decisions of organizations.

2. THEORETICAL FRAMEWORK

2.1 Conceptual Aspects Concerning Budgetary Slack

The budget as a management tool is fundamental for steering entities financially, expressing future outlooks based on its data. The budget can be widely used as an organizational management tool (Nowak, 2004). It contributes to short-term planning (operational planning) and long-term planning (strategy formulation), being used for the communication of these plans (communication of the goal) and for performance evaluations (Hillen & Lavarda, 2020). Yet, the budgetary estimate can undergo biased alterations that seek to favor managers in administering the budget, enabling the achievement of established goals, as is the case of the creation of budgetary slack.

Budgetary slack represents premeditated adaptations, made by managers, in which they add obligations and disregard productive efficiency in the elaboration of the budget (Faria et al., 2012). Yuen (2004) argues that budgetary slack is created by managers due to the possibility of providing ease in the achievement of the proposed objectives, being commonly used in the corporate area (Faria et al., 2012) and reflected in remuneration benefits for managers and subordinates, depending on the goals of the institution (Beuren et al., 2015).

With the aim of fulfilling organizational goals and budgetary estimates, managers become vulnerable to the implementation of means that enable the achievement of the objectives. Faria et al. (2012) highlight that, through

budgetary slack, managers elaborate estimates that are adverse to reality, adapting the budget in an adjustable way to the results and according to their personal interests.

Various studies have analyzed aspects of the creation of budgetary slack, including the following: that of Davila and Wouters (2005), who highlight beneficial aspects of budgetary slack in the budgetary system, enabling management activity; that of Beuren et al. (2015), who evaluate the sharing of the benefits of budgetary slack, highlighting the creation of greater slack by managers when their assistants are not holders of such information; and that of Yuen (2004), who examines company objectives in which the communication and reward system affects the objectives and, thus, makes the creation of budgetary slack more likely.

Consistently with the internal policies of each entity, budgetary reports should present institutional data in which their veracity is as real as possible. Beuren et al. (2015) believe that budgetary slack portrays restructuring that is inconsistent with the entity's needs and should be treated as an impeditive factor, as it requires knowledge of the motivations for it.

Thus, it is of major relevance to evaluate factors that can intensify the use of devices that seek to obfuscate budgetary data. Davis et al. (2006) evaluate the creation of budgetary slack in relation to hierarchical obedience pressure, concluding that this condition raises the individual's tendency to take decisions that are adverse to the entity's policy. So, the creation of budgetary slack may be related with the presence of higher pressures.

2.2 Theoretical Aspects in Relation to Milgram's Obedience Theory

Milgram's experiment, conducted in the 1960s, showed implausible results regarding the obedience individuals present due to a third-party order. In Milgram's (1963) study, tests were conducted in which people subjected to the experiment gradually applied electric shocks on another individual, simultaneously with mistakes to questions asked, with it being concluded that people under the pressure of an order are likely to act inconsistently with their ethical and moral precepts.

Milgram's study arose from the author's concern about trying to explain heinous crimes in which people submitted to obedience to their leader, citing the crimes arising from Nazism. He aimed to evaluate to what extent human beings would obey authority, even if it was necessary to sacrifice another individual. Milgram (1963) describes obedience as a basic element of social life, where there is only no obligation for people living in isolation.

In his experiment, Milgram evaluated common-sense people. He told his participants that the study was related to examining learning, in which, in the role of teachers, those evaluated asked a particular student questions, and in the case of a wrong answer, they could apply electric shocks to the victim. The shocks applied for mistakes gradually increased up to the point that the student no longer answered, showing that most people evaluated reached the maximum level of electric charges (Milgram, 1963).

The research conducted by Milgram generated various criticisms relating to the methods used, due to the stress generated in the participants in the experiment. However, its important contribution to research in this field cannot be denied. Based on its construct, studies associated with authority and obedience have been developed, to cite the base article for the present one, the experiment of Davis et al. (2006), who evaluated the creation of budgetary slack in relation to obedience pressure and the degree of responsibility perceived by the individual.

Obedience theory is based on Milgram's experimental data, which created evidence regarding how human beings can submit to a superior's command. It also explained that people tend to renounce blame, claiming they were following orders, which highlighted that following orders may take precedence over moral precepts acquired throughout life (Milgram, 1963).

In practical terms, obedience plays an important role in the relationship between leaders and their subordinates. Orders from superiors occur daily in hierarchical administrative structures, with discernment being needed among the parties, according to moral and ethical precepts,

so that the institutional objective is achieved. In addition, obedience pressure from superiors can cause different impacts, depending on the personal characteristics of the subordinates, that is, the intrinsic personality traits of each individual.

2.3 Conceptualization of the Dark Triad Personality Traits

Personality traits are defined as those related to uniform internal characteristics derived from the individual's feelings, habits, and behaviors (Vandenbos, 2010). Among the theoretical approaches to personality that analyze the particular traits of Machiavellianism, narcissism, and psychopathy, the dark triad personality traits stand out, contributing to studies that involve analyzing individual characteristics and their relationship in certain situations, such as their influence on decision making.

Originating from psychology, the dark triad personality traits seek to identify dark particularities of a certain individual in order to elucidate paradigms of their behavior and, thus, help in identifying the amount of influence that these traits can have over human decisions and choices.

The dark triad consists of a theoretical framework that seeks to detect Machiavellian, narcissistic, and psychopathic personality traits through non-pathological investigation, measuring their classification levels (D'Souza, 2016; Jones & Paulhus, 2014). Paulhus and Williams (2002) describe the characteristics of the dark triad traits, belonging to individuals with a malicious and biased character and egocentric behavior.

The traits of Machiavellianism characterize manipulative individuals capable of doing anything to achieve their objectives (Judge et al., 2009). Individuals with narcissistic traits experience aggressive aspects in the search to pursue what they understand to be their right (Olsen & Stekelberg, 2016), and they denote a high level of self-love (Judge et al., 2009).

The authors Paulhus and Jones established the short dark triad (SD3) evaluation method, which consists of applying a questionnaire, gauging nine statements about each personality trait in order to measure the representational levels of each trait in the individual (Jones & Paulhus, 2014; Paulhus & Jones, 2011).

Within the organizational and accounting context, there are various studies that aim to examine the dark personality traits and their relationships with accounting manipulations (D'Souza, 2016), company performance (Babiak et al., 2010), tax evasion financial practices (Olsen & Stekelberg, 2016), opportunistic decision making (D'Souza & Lima, 2015), and bold decisions derived from impulsive behaviors (Crysel et al., 2013). In light of

this, it is possible that specific factors of personality traits subjected to obedience pressure can influence decisions to create budgetary slack.

2.4 The Triad: Relationship between the Dark Triad, Obedience, and the Creation of Budgetary Slack

The conceptualizations and characteristics of the dark triad personality traits, of Milgram's obedience theory, and of the creation of budgetary slack mentioned enable us to make triangulations between these concepts.

First, with regard to the dark triad personality traits, the literature shows that self-centered individual characteristics, in which the individual's behavior is self-focused, establish a relationship of indifference towards other subjects, conveying the idea that individuals with these accentuated characteristics will have a propensity for creating budgetary slack, as studies have verified that individuals with Machiavellian traits are more manipulative and do everything necessary to benefit themselves (Judge et al., 2009), as well as being more prone to financial manipulations (D'Souza, 2016) and taking opportunistic decisions (D'Souza & Lima, 2015).

Along this same line of understanding, Hartmann and Maas (2010) investigated whether involvement in decision making makes controllers more vulnerable to social pressure when related to the creation of budgetary slack through an experiment with 136 participants. These researchers evaluated the individuals' Machiavellian personality trait, finding that those with high traits are more likely to yield to social pressure and, consequently, to the creation of budgetary slack, while individuals with low traits have a lower probability of yielding to obedience pressure. This understanding gives rise to the first hypothesis:

H₁: individuals with high dark triad personality traits are more prone to the creation of budgetary slack.

Combined with this, based on the experimental conclusions that resulted in Milgram's obedience theory, as previously highlighted, when subjected to an order coming from a superior, individuals renounce their responsibilities and fail to assume blame, based on the understanding that they were merely following orders (Davis et al., 2006; Milgram, 1963). Thus, the second hypothesis is established:

H₂: individuals under obedience pressure feel less responsible for the decision to create budgetary slack than those who are not under such pressure.

Within the budgetary context, obedience theory relates to the idea that when individuals are subjected to obedience pressure they will be more prone to the creation of budgetary slack, as they will not feel responsible since they were merely following orders (Davis et al., 2006; Milgram, 1963), revealing that following orders may take precedence over moral and/or organizational rules (DeZoort & Lord, 1994; Hasan & Andreas, 2019; Milgram, 1963). So, the third hypothesis is created:

H₃: individuals under obedience pressure are more prone to the creation of budgetary slack.

Studies have verified that when individuals are subject to obedience pressure they will feel less responsible for decision making and will be more prone to the creation of budgetary slack (Davis et al., 2006). Besides obedience pressure, budgetary decision making can be affected by managers' personality traits.

According to previous studies, managers with dark triad traits are associated with opportunistic gains maximization (D'Souza et al., 2019), accounting manipulations (D'Souza, 2016), better company performance (Babiak et al. 2010), a greater propensity for tax evasion financial practices (Olsen & Stekelberg, 2016), opportunistic decision making (D'Souza & Lima, 2015), and bold decisions derived from impulsive behaviors (Crysel et al., 2013). In turn, the decision regarding the creation of budgetary slack better enables managers to achieve the organizational goals (Yuen, 2004), and may be reflected in an increase in managers' and subordinates' remuneration (Beuren et al., 2015).

Thus, it follows from these studies that individuals with high dark triad personality traits are more likely to take opportunistic decisions for their own self-benefit; so the tendency is for a greater propensity for the creation of budgetary slack.

In light of the context presented, as obedience pressure can impact the creation of budgetary slack, this relationship tends to be intensified when individuals present high dark triad personality traits, giving rise to the following hypothesis:

H₄: the relationship between obedience pressure and the creation of budgetary slack is moderately positive for individuals with high dark triad personality traits.

3. METHODOLOGICAL ASPECTS

In terms of the method, this study is classified as an experiment that uses a quantitative approach, and in terms of the objectives, it is exploratory (Raupp & Beuren, 2009). Next, we discuss the sample, the construct and data collection instruments, the experimental design, the stages of the experiment, and the analysis procedures carried out.

3.1 Research Sample

In terms of the method, an in-person experiment was conducted with accounting sciences course students divided over two campuses of a public higher education teaching institution in the state of Paraná, which have similar timetables and course content. The instrument was applied to students starting from the third year of graduation, given that they had already taken the general and professional ethics and company planning and budgeting disciplines, and it was understood that they had empirical knowledge regarding budgetary slack and ethics in the accounting profession, according to the curricula of those disciplines, thus seeking to inhibit possible interpretation errors that would invalidate the experiment. The minimum sample planned to develop the research was 20 participants for each condition/group, with a minimum total of 80 participants spread over the four groups. For research whose focus is on the relationship between variables with predictions based

on behavioral theories, the sample selection can occur through non-probabilistic or convenience sampling and, as a practical norm, 20 participants are recommended in each condition (Cozby, 2003).

Thus, in the first stage of measuring the dark triad personality traits, 86 participants were obtained. However, only 84 participants were present for the second experimental stage and two participants were excluded from the sample due to them having incomplete data, so the final research sample contained 82 students matriculated in the accounting sciences course.

3.2 Research Construct and Data Collection Instruments

This experiment uses a 2 x 2 factorial design, where the independent variables are the dark triad personality traits (high/low) and obedience pressure (group with pressure/group without pressure), and the dependent variable is the decision regarding the creation of budgetary slack.

Besides the dependent variable “creation of budgetary slack,” the variable “feeling responsible,” measured on a five-point scale, was observed in relation to the experimental treatment of the independent variable “obedience pressure.” In light of this, Table 1 presents the research construct and the synthesis of the instruments for the data collection.

Table 1

Research construct

	Variables	Metric	Authors
Independent	Personality traits	High dark triad score Low dark triad score	Jones and Paulhus (2014) and Paulhus and Jones (2011), translated and validated by D'Souza (2016)
	Obedience pressure	With obedience pressure Without obedience pressure	Adapted from Davis et al. (2006)
Dependent	Creation of budgetary slack	Decision – Maintain the original budgetary estimate Decision – Alter the original budgetary estimate adding budgetary slack	Davis et al. (2006) and Faria et al. (2012)

Source: *Elaborated by the authors.*

As highlighted in Table 1, to apply this experiment, each participant's dark triad personality traits were measured based on the instrument built by the authors Jones and Paulhus (2014) and Paulhus and Jones (2011) – SD3 – translated and validated in Brazil by D'Souza (2016). The instrument is composed of 27 statements distributed on a scale of 1 to 5 points, according to the participants'

level of agreement and disagreement regarding each statement and, based on the results, they were separated into two groups, with high and low levels of the dark triad. To recognize each student's personality traits and subsequently divide the groups, we asked the students to identify themselves in the questionnaire using their academic matriculation number.

Regarding the scenarios, there were two different ones, one with obedience pressure and the other without it, these being adapted from the studies of Davis et al. (2006), in which, through the context presented, the participants, in the role of a new accounting manager responsible for making budget recommendations and applying tax policies for the whole company, should take the decision to maintain the original budgetary value informed or alter the budgetary estimate based on their own judgement.

The scenario shown refers to the hypothetical situation of a specific factory engaged in the practice of increasing budgetary estimates by 10% (budgetary slack); however, in a management meeting, the general manager highlighted that the other managers should adopt practices to make the budget as precise as possible. In the scenario with obedience pressure, the immediate superior secretly asks the new accounting manager to create budgetary slack, affirming that if the manager indicated a lower value, it could damage the workers' bonus, reflecting poorly on the team, a decision that would go against the new policy imposed by the general manager. In the other

scenario, there was no obedience pressure imposed by the immediate superior over the new accounting manager.

3.3 Experimental Design

In this study, we adopted a between-subjects design, forming two distinct groups to compare the factors that characterize the independent variables of the experiment. In the between-subjects design, the participants in the study are randomly allocated into different groups, with different experimental treatments, that is, there are no interferences between the treatments, considering that the subjects of each condition/group participate in a different treatment (Smith, 2003).

As seen, the factorial composition of the experiment is 2 x 2, that is, two independent variables with two levels in each variable (personality traits: high levels and low levels; obedience pressure: with and without). In light of this, four groups were designated for comparison purposes, where to apply the experiment the participants were allocated according to Figure 1.

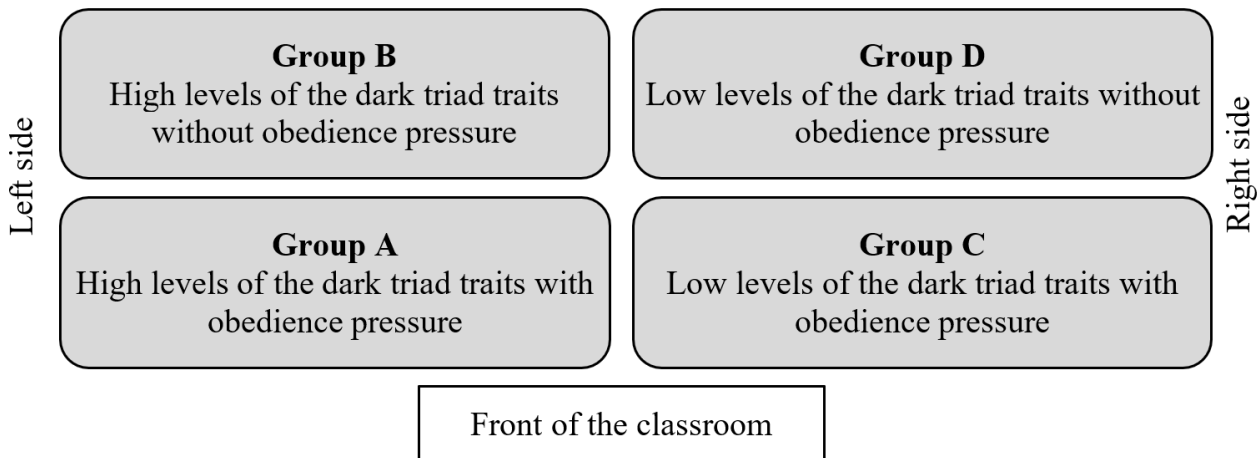


Figure 1 Composition of the participant allocation

Source: Elaborated by the authors.

Subsequently, in the tabulation of the dark triad traits, the participants were called using their academic matriculation numbers to form two lines, dividing them into high and low traits. The female members of each line were also asked to go to the front and the males were asked to go to the back, so that there was an approximate gender distribution in each group. Thus, the participants with high dark triad personality traits were randomly distributed in Groups A and B and the participants with low dark triad traits were randomly distributed in Groups C and D.

With the aim of guaranteeing the efficacy of the experiment, it is essential to analyze factors that threaten

the research result. Thus, we employed threat analysis regarding the internal and external validity, for the purposes of mitigating possible flaws that could negatively intervene in the outcome of the trial. Regarding internal validity, Smith (2003) presents some elements to be recognized, aiming to reduce threats to the experiment, such as maturation, history, testing, subject mortality, instrumentation, selection, treatment imitation, and resentful demoralization. Table 2 presents each threat and the respective measures adopted to minimize these situations.

Table 2*Threats to internal validity*

Threats	Control measures
Maturation	Experiment conducted in two in-person meetings in which the tasks could be quickly executed.
History	The research was applied over a short time period, with the two meetings being held in the same period in order to mitigate possible historical damage.
Testing	No pre-tests were conducted with the subjects of the experiment. For validation purposes, the pre-test was conducted with master's students in accounting. Thus, there were no risks of perceptive instruction.
Subject mortality	In the first meeting, we emphasized the importance of committing to the research and sought to apply it on the same day, to mitigate possible dropouts.
Instrumentation	The instrument was randomly applied and the results were treated equally.
Selection	The research was limited to the influence of the personality traits on decision making. The subjects were distributed into two groups with high and low dark triad personality traits and randomly subdivided into with and without obedience pressure. Even through the two groups were not quantitatively equal, the samples can be analyzed so as not to impair the analysis of the results obtained.
Treatment imitation	The instrument was individually applied, without interaction between the subjects.
Resentful demoralization	The differential treatment employed (obedience pressure) is a factor pertaining to routine activities of society.

Source: Adapted from Smith (2003).

Similarly, regarding the external validity, Smith (2003) presents the factors population validity, ecological validity, and temporal validity. Table 3 represents the means adopted for mitigating them.

Table 3*Threats to external validity*

Threats	Control measures
Population validity	Generalization of the results extended to the context of the present study. The research was conducted with accounting students who in their professional careers are possibly already facing or will face similar situations.
Ecological validity	The instrument was built using fictitious data, but it aims to be as close as possible to reality, similarly to the case used by Davis et al. (2006) and adapted to the local reality.
Temporal validity	The experiment is limited to a specific period.

Source: Adapted from Smith (2003).

3.4 Stages of the Experiment

The research instruments reported were applied by the same researchers *in loco*, on the same day and in two distinct stages, occurring between the months of November and December of 2019, with the students' signing an informed consent form. In the first stage, the instrument was applied in order to measure the personal characteristics relating to the students' personality traits so that, subsequently, the participants could be divided into two groups: high levels and low levels of the dark triad traits.

In the second stage, after tabulating the data and dividing the groups, as described in topic 3.3, two experimental instruments were applied – one with obedience pressure

and another without obedience pressure – among the groups with high levels and low levels of the dark triad traits. It warrants mentioning that the allocation of the participants into groups with and without obedience pressure was carried out randomly.

Each instrument was divided into two parts: the first section featured the scenario related to the judgement and decision making about the creation of budgetary slack; the second section contained the post-experiment questionnaire, which verified the participants' perception regarding the experimental treatments they were subjected to in order to capture the demographic data. In light of this, seven stages were established to carry out this experiment (Table 4).

Table 4
Stages of the experiment

1st meeting	1 st stage – Application of the instrument regarding the dark triad personality traits to the students
	2 nd stage – Tabulation of the data
	3 rd stage – Data analysis and division into two groups – high and low levels of the dark triad
2nd meeting	4 th stage – Separation of the students into two groups – high and low levels of the dark triad and random allocation of them into subgroups with and without obedience pressure
	5 th stage – Application of the experiment concerning the creation of budgetary slack and obedience pressure together with the instrument involving the students' perception regarding the experiment
	6 th stage – Tabulation of the data
	7 th stage – Data analysis and comparison with the hypotheses

Source: *Elaborated by the authors.*

3.5 Data Analysis Procedures

Initially, the experimental pre-test was carried out with six master's students of the *stricto sensu* controllership program of a higher education institution in the state of Paraná, in order to validate and identify possible errors that could occur when applying the experiment. After the pre-test, the preparations were begun relating to the operationalization of the experiment.

To define the separation of the individuals into two groups, high and low dark triad traits, the first stage of the experiment was applied on 11 students matriculated in the third year of the accounting sciences course of a higher education institution in the state of Paraná. As a parameter, the median (Md) calculated from the general means of the student personality scores obtained via the dark triad scale used in the studies of D'Souza (2016) was stipulated, so as to separate the other groups based on the same criterion and to make the sample more homogeneous for comparison purposes.

Thus, the values of the means calculated per student were divided into two quartiles, obtaining a median equal to 2.56; the values obtained above this value ($Md > 2.56$) were considered high traits and those equal to or below ($Md \leq 2.56$) were considered low traits. These values are consistent with those found in the study of D'Souza (2016), which divided the levels into three quartiles, whose intervals were low [1,3[, moderate [3], and high]3,5] levels, with a sample of 263 managers.

For the data analysis, descriptive statistics were used via frequency and percentages to characterize the participants

in the experiment and analyze the data relating to the dark triad personality trait and obedience pressure variables in relation to the decisions taken regarding the creation or not of budgetary slack. To verify the research hypotheses, non-parametric tests were used due to the dependent variable (budgetary slack) not being metric.

Thus, we chose to use the Mann-Whitney test to analyze, via the mean ranks of two independent samples, if it is possible to reject the null hypothesis and accept the alternative hypothesis that the means of the two groups are different (Bruni, 2012). To verify the first, second, and third research hypotheses, as well as for a complementary analysis, we considered the gender and professional experience variables in relation to the creation of budgetary slack. We also used the Kruskal-Wallis test by ranks to analyze more than two groups of independent samples, to verify whether to accept the null hypothesis that there are no statistically significant differences between the means of the groups analyzed or whether to accept the alternative hypothesis that there are differences (Marôco, 2014) for verifying the complementary variable "age of the participants."

Finally, to verify H_4 , we applied the binary logistic regression statistical technique used to "describe the behavior between a binary dependent variable and independent metric or non-metric variables" (Russel, 2009, p. 440), as well as to investigate the effect of the variables to which the objects or subjects are exposed regarding the possibility of occurrence of a particular event of interest (Russel, 2009).

4. ANALYSIS AND DISCUSSION OF THE RESULTS

4.1 Data and Sample Characterization

Of all 82 participants in the experiment, 48 (58.5%) belong to the female sex and 34 (41.5%) are male. With relation to the dark triad levels, 42 (51.2%) participants present high traits and 40 (48.8%) present low traits,

which represents a homogeneous sample between the groups with high and low traits, divided according to the median calculated ($Md = 2.56$). These groups, in turn, were randomly divided and subjected to obedience pressure or no obedience pressure for decision making in relation to the creation of budgetary slack, as according to Table 5.

Table 5

Creation of budgetary slack

Groups	Dark triad level	Obedience pressure	Total		Gender				Creation of budgetary slack			
					Male		Female		Alter		Maintain	
			f	f(%)	f	f(%)	f	f(%)	f	f(%)	f	f(%)
A	High traits	With pressure	21	50.0	11	50.0	10	50.0	11	47.8	10	52.6
B		No pressure	21	50.0	11	50.0	10	50.0	12	52.2	9	47.4
Subtotal – high traits			42	100.0	22	100.0	20	100.0	23	100.0	19	100.0
C	Low traits	With pressure	20	50.0	5	42.0	15	54.0	5	50.0	15	50.0
D		No pressure	20	50.0	7	58.0	13	46.0	5	50.0	15	50.0
Subtotal – Low traits			40	100.0	12	100.0	28	100.0	10	100.0	30	100.0
General total			82		34	41.5	48	58.5	33	40.2	49	59.8

Source: *Elaborated by the authors.*

According to Table 5, the 42 participants belonging to the group with high traits, composed of 22 (52.4%) males and 20 (47.6%) females, were divided into two groups containing 21 participants subjected to each condition, with obedience pressure and without pressure. The 40 participants with low traits were also divided into two groups containing 20 in each condition (with obedience pressure and without obedience pressure), where, of that total, 12 (30%) are male and 28 (70%) are female. Thus, of all 34 male participants in the research, 22 (64.7%) presented high traits and 12 (35.3%) presented low traits. In contrast, of all 48 women participants, 20 (41.7%) presented high traits against 28 (58.3%) who presented low traits. From these data, it can be verified that in the group analyzed there is a greater tendency for men with high dark triad traits in relation to women.

It is verified that, of the 82 participants in this research, 33 (40.2%) would alter the budget against 49 (59.8%) who would not alter it. These results are worrying if analyzing the question of decision making that is aversive to organizational objectives by future professionals in the accounting area, since, independently of them being subjected to obedience pressure, a considerable number of participants would alter the budgets, with 19 (57.6%) agreeing that the decision they made was best for the company, 9 (27.3%) being unable to give an opinion, and 5 (15.1%) disagreeing that their decision was best.

In the analysis by dark triad level, it is verified that, of all 42 participants with high dark triad traits, 23 (54.8%) belonging to that level opted to alter the budget, thus creating budgetary slack, against 19 (45.2%) who would maintain the budget value; on the other hand, of all 40 participants with low traits, only 10 (25%) chose to alter the budget value, creating budgetary slack, and 30 (75%) chose to maintain the most realistic budget value possible.

Regarding the analysis by obedience pressure level, it is observed that, of the 41 participants subjected to an obedience pressure scenario, 16 (39%) opted to alter the budget, thus creating budgetary slack, and 25 (61%) chose to maintain the budget value, not creating slack. The results found for the group subjected to the scenario without obedience pressure were very similar, since, of the 41 students belonging to that group, 17 (41.5%) would alter the budget against 24 (58.5%) who would maintain the value.

4.2 Analysis of the Experiment Result

This subsection presents and discusses the results of the experiment compared with the research hypotheses, a complementary analysis of the experiment, and regarding the participants' perception about the experimental treatments they were subjected to. It starts with the results of the Mann-Whitney test for H_1 , as according to Table 6.

Table 6*Results for the relationship between dark triad traits and the creation of budgetary slack*

Creation of budgetary slack	Dark triad traits	f	f(%)	Mean ranks	Mann-Whitney U	Z	p-value	Hypothesis
	High traits	42	51.2	47.45	590	-2.730	0.006	H ₁ is not rejected
	Low traits	40	48.8	35.25				
	Total	82	100.0					

Source: *Elaborated by the authors.*

As shown in Table 6, with relation to the first hypothesis proposed in this study, for the individuals in the condition of high dark triad personality traits in the scenario where they need to decide whether to create budgetary slack or not, independently of being subjected to obedience pressure or not, the mean rank value for the groups with high and low dark triad traits were 47.45 and 35.25, respectively, with the hypothesis test presenting a Z test statistic equal to -2.730, with a 0.006 significance level. These results enable it to be inferred that it is not possible to assume that the means of the two groups are equal; so, the high traits group presented

a higher mean, which was significantly different to that of the low traits group.

These findings lead to the non-rejection of H₁, in which it was suggested that individuals in the high dark triad personality traits condition are more prone to creating budgetary slack. This result corroborates the previous studies that mention that, in a condition of high dark triad personality traits, people tend to manipulate results (D'Souza, 2016) and are more likely to take opportunistic decisions for their own self-benefit (D'Souza & Lima, 2015; Judge et al., 2009).

For the comparison with H₂, see Table 7.

Table 7*Results for the relationship between feeling responsible and obedience pressure*

Feeling responsible for decision making	Scenario	F	f(%)	Mean ranks	Mann-Whitney U	Z	p-value	Hypothesis
	With pressure	41	50.0	42.54	798	-0.457	0.648	H ₂ is rejected
	No pressure	41	50.0	40.46				
	Total	82	100.0					

Source: *Elaborated by the authors.*

According to Table 7, the test of means indicated that there are statistically significant differences between obedience pressure and feelings of responsibility among the participants ($p = 0.648$ and $Z = -0.457$). This leads to the rejection of H₂, in which it was suggested that individuals in the condition of obedience pressure feel less responsible for the decision to create budgetary

slack than those who are not under such pressure. These findings diverge from Milgram's (1963) theory and the findings of Davis et al. (2006), which argue that individuals feel less responsible when following a third-party order.

To verify H₃, see Table 8 with the results of the Mann-Whitney test.

Table 8*Results for the relationship between obedience pressure and the creation of budgetary slack*

Creation of budgetary slack	Obedience pressure	F	f(%)	Mean ranks	Mann-Whitney U	Z	p-value	Hypothesis
	With pressure	41	50.0	42.00	820	-0.224	0.823	H ₃ is rejected
	No pressure	41	50.0	41.00				
	Total	82	100.0					

Source: *Elaborated by the authors.*

According to Table 8, the results of the hypothesis test presented a Z test statistic equal to -0.224, with a significance level of 0.823; thus, it is not possible to assume that the means of the two groups are different. These results lead to the rejection of H₃, in which it was suggested that individuals in the obedience pressure condition are more likely to create budgetary slack, in disagreement with DeZoort and Lord (1994), Hasan and Andreas (2019), and Milgram (1963), who infer that following orders provokes attitudes unconcerned

with moral and/or organizational rules. However, as found by Faria et al. (2012), there are indications that the creation of budgetary slack is an institutionalized practice, which may explain the absence of significance of the hypothesis.

Next, H₄ consists of analyzing whether the relationship between obedience pressure and the creation of budgetary slack is moderately positive for individuals in the conditions of high dark triad personality traits and the results of the binary logistic regression are shown in Table 9.

Table 9

Results of the binary logistic regression model for the analysis of hypothesis 4 (H₄)

Creation of budgetary slack	B	S.E.	Wald	df	p-value	Exp(B)	95%CI for Exp(B)		Hypothesis
							Lower	Upper	
Traits	1.386	0.679	4.168	1	0.041	4.000	1.057	15.138	H ₄ is rejected
Pressure	0.000	0.730	0.000	1	1.000	1.000	0.239	4.184	
Pressure vs traits	-0.192	0.958	0.040	1	0.841	0.825	0.126	5.399	
Constant	-1.099	0.516	4.526	1	0.033	0.333			

95%CI = 95% confidence interval.

Source: Elaborated by the authors.

In the binary logistic regression analysis, it is verified that only the variable “personality traits” presented statistical significance ($p = 0.041$), with no significance being presented in the “obedience pressure” variable ($p = 1.000$) with relation to the creation of budgetary slack. Thus, it was not possible to find a moderating effect of personality traits ($p = 0.841$) on the relationship between obedience pressure and the creation of budgetary slack, and so H₄ is rejected. It is verified that, although previous studies have found that obedience pressure influences managers’ behavior with regard to them feeling less responsible for their decisions, as they claim to be following a third-party order (Davis et al., 2006), and that high traits are intrinsically related to opportunistic decisions (D’Souza et al., 2019) and accounting manipulations (D’Souza, 2016), based on the results, it was not possible to find that the decision to create budgetary slack was simultaneously influenced by both of these elements.

Complementarily, from analyzing the relationship between gender and the propensity to create budgetary slack, of the 34 male participants, 17 (50%) opted to alter the budget against 17 (50%) who decided to maintain it. In relation to the women, of the 48 female participants, only 16 (33.3%) altered the budget against 32 (66.7%) who maintained it. However, due to the results of the Mann-Whitney test ($Z = -1.507$; $p = 0.132$), it is verified that there is a statistical difference between the means of the two groups, so there is no greater propensity of one gender over the other regarding the creation of budgetary slack.

Other findings of this study with relation to the creation or not of budgetary slack were that there were no differences between the means of the groups with professional experience and without professional experience in the accounting area according to the results of the Mann-Whitney test ($Z = -0.044$; $p = 0.965$), as well as there being no significant differences between the ages of the participants according to the results of the Kruskal-Wallis test (chi-squared = 2.309; $p = 0.511$).

Hence, it is observed that H₁ was not rejected, with significance being presented in the relationship between dark triad traits and the decision to create budgetary slack. The other hypotheses of this study were rejected (H₂, H₃, and H₄), with there being no statistical significance, respectively, in the variables “obedience pressure,” “feeling responsible,” and in the relationship between obedience pressure and the creation of budgetary slack. In addition to this, the variables “gender,” “age,” and “professional experience” were also not significant.

After the operationalization of the experiment, the post-experiment questionnaire was applied with the aim of verifying the participants’ perception about the factors they were subjected to. It was found that most of the participants had partial or total knowledge of the subject addressed of budgeting and the creation of budgetary slack. The results also showed that the participants subjected to obedience pressure felt more pressured than those who were not subjected to it. In light of these results, the participants’ perception was verified regarding the experimental treatments they were subjected to, revealing consistency of the factors observed.

5. CONCLUSION

This study aimed to evaluate the effect of the particular dark triad personality traits of individuals on the relationship between obedience pressure imposed by superiors and decision making about the creation or not of budgetary slack. To achieve this objective, these variables were analyzed separately and together based on an experiment with accounting sciences course students.

Based on the theoretical framework, four research hypotheses were raised related to the aforementioned variables. The results obtained enabled it to be inferred that there was an effect on the relationship between the dark triad personality traits and the decision to create budgetary slack (H_1), with it being found that individuals with high dark traits are more likely to alter budgets, creating budgetary slack.

However, it was not possible to find that the individuals under obedience pressure felt less responsible for their decisions regarding the creation of budgetary slack (H_2), nor that the individuals subjected to obedience pressure would have a greater propensity to create budgetary slack (H_3). It was also verified that there was no effect of the dark triad personality traits on the relationship between obedience pressure and the creation of budgetary slack (H_4).

Other findings of the research were that there was no statistical significance between the variables “gender,” “professional experience,” and “age of the participants” and the creation of budgetary slack. It was found that 33 (40.2%) participants in the experiment altered the budget by creating budgetary slack, independently of being subjected to the condition of obedience pressure, which is a worrying result if analyzing the question of possible biases in the decision making of future professionals.

Thus, it is concluded that the obedience pressure imposed did not have a significant influence on the manipulation of budgetary data, as in the case in question, of the creation of budgetary slack, in disagreement with the findings of Davis et al. (2006) and Milgram (1963) regarding obedience theory. Thus, this study makes advances in relation to the previous studies, as it was verified that this practice can be carried out independently of a hierarchical order, as seen by Faria et al. (2012), and that the creation of budgetary slack has become a routine condition of organizations.

Yet, it was found that individuals with high dark triad traits have a propensity to create budgetary slack, and the research provides a practical contribution to the analysis of behavioral factors that can lead to an increase in informational asymmetry, given that, with the creation of slack, budgets may not show the reality of the organization.

These findings are relevant and have practical implications, since it was verified that personality traits influence decision making with relation to the elaboration, execution, and planning of budgets, extending the previous findings on the dark triad traits, which verified maneuvers to achieve self-benefits (Judge et al., 2009), a propensity for financial manipulations (D’Souza, 2016), and opportunistic decisions (D’Souza & Lima, 2015). Thus, the results enable the measurement and detection of possible decision making biases of managers with the aim of preventing or mitigating decisions that are inconsistent with organizational objectives.

The results have relevant implications for organizations that use the budget as a management tool and as a mechanism for monitoring and managing the goals of their leaders and teams. On one hand, this study provides empirical experimental evidence, reinforcing the idea that personality traits (dark triad) can evoke practices of creating budgetary slack. Thus, organizations can align their choices within the dimension of budgetary typologies with the personality traits of their leaders and teams.

On the other hand, under the focus of obedience pressure, it was not possible to reinforce, via the methods used in this research and the results obtained, the idea that the practice of creating budgetary slack is accentuated due to obedience pressure. One possible explanation for this fact is that there are indications that the creation of budgetary slack is an institutionalized practice (Faria et al., 2012).

In addition, these results provide a contribution for organizations, as their managers and their teams do not practice slack due to obedience pressure scenarios, but rather according to personality traits.

So, organizations interested in using the budget as a management tool can benefit from knowing the personality traits of their leaders and teams to prevent their managers from intentionally adapting organizational budgets.

In light of this, this study provides a theoretical contribution to the accounting area, as it enables the advancement and deepening of the discussion of social and behavioral aspects derived from psychology associated with the decision making of individuals in relation to the creation of budgetary slack, with individual aspects, such as dark traits, and social aspects, such as obedience pressure, being recognized in the execution of this practice.

Limitations of the research include the sample chosen; as it involves students, the experience in the budgetary area may be compromised. To mitigate this impact, the experiment was conducted with academics starting from the third year who had taken the planning and company budgeting discipline. Another limitation relates to the reproduction of the hypothetical environment in which the experiment was applied. The participants carried out

an artificial task and, thus, there was no observation of the participants in their natural budget decision-making activities.

For future research, we suggest an analysis that takes some control variables into consideration in the experimental treatments, such as gender and experience, as well as an individual analysis of the dark triad traits. In the research, the demographic information was captured and analyzed, but not treated as experimental groups. We also suggest that new studies conduct the experiment with professionals for a comparative analysis and investigate whether managers' intentions to create budgetary slack are for the purposes of optimizing company performance or to adjust goals (budgetary earnings management). There is also the question of widening the research construct to the dark tetrad.

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