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## EDUCATIONAL PSYCHOLOGY | REVIEW ARTICLE

# Attitude toward cheating among Ghanaian undergraduate students: a parallel mediational analysis of personality, religiosity and mastery

Benjamin Amponsah<sup>1,\*</sup>, Nutifafa Eugene Yaw Dey<sup>1</sup> and Mabel Oti-Boadi<sup>1</sup>

**Abstract:** Attitude toward cheating drives academically dishonest behaviors particularly at higher education institutions. Personality, mastery and religiosity are common associates of attitude toward cheating; however, these relationships have received little research attention in Ghana. This study therefore explores the relationship between these variables among undergraduate students in Ghana. A total of 333 students ( $M = 20.84$ ;  $SD = 4.68$ ) were conveniently sampled to complete measures on Big Five Personality Inventory, Dimensions of Religiosity Scale, Pearlin Mastery Scale and Attitude Toward Cheating Scale. Findings from correlational and regression analysis revealed that personality traits (i.e., conscientiousness, agreeableness, and neuroticism), mastery and religiosity were related to attitude toward cheating. Further exploration of the data with path analysis revealed that both mastery and religiosity indirectly influenced the relationship between conscientiousness and attitude toward cheating. Taken together, these findings highlight the need to design intervention

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### PUBLIC INTEREST STATEMENT

Academic dishonesty or cheating is known to lower the integrity of higher educational institutions and produce highly incompetent human resources. For these reasons many institutions have put in place mechanisms to control the practice. Researchers have also investigated factors that influence the behaviour. Personality, mastery and religiosity are some of these factors mentioned in literature, however, only little research has emerged from Ghana. This research further investigated the patterns of effect of these variables as it relates to attitude towards cheating. A significant relationship was found between these variables. Interestingly, and after exploring the data further, both mastery and religiosity indirectly influenced the relationship between conscientiousness and attitude toward cheating. These findings provide evidence, at least, in the Ghanaian sample that interventions seeking to reduce incidences of academic cheating behavior should target students' attitude toward cheating by bearing in mind the influence of mastery and religiosity. These variables seem to repress or restrain students' predisposition to hold tolerant attitudes towards cheating.

programs that seek to reduce incidences of academic cheating behaviour by targeting students' attitude toward cheating via mastery and religiosity.

**Subjects:** School Psychology; Teachers & Teacher Education; Classroom Practice; Educational Psychology

**Keywords:** Personality; Religiosity; Mastery; Attitude toward cheating; Academic dishonesty; Ghana

## 1. Introduction

Academic cheating or dishonesty is any deceitful behavior intended by students to gain undue academic advantage, which contravenes stated assessment regulations and institutional policies (Klocko, 2014; Saana et al., 2016). Academic dishonesty tends to be a common phenomenon among university students and includes behaviors such as copying, oral or symbolic, written or electronic or asking for assistance while examination is ongoing and plagiarizing others work (Desalegn & Berhan, 2014). Evidence from a study among Malaysian nursing students reported that about 82.1% and 74.6% of 201 students had engaged at least once in an act of academic dishonesty in an academic or clinical setting respectively (Abusafia et al., 2018). Yet in another study among nursing students in Greece, between 0.9% and 51.2% of students had exhibited at least a kind of academically dishonest behavior with "seeking verbal information from other students" being the most common among them while a high proportion of students (34.8% and 75.9%) had witnessed their fellow students engaging in academic dishonesty (Kiekkas et al., 2020). In Ghana, findings suggest that about 4.7% to 62.4% of students in higher educational institutions (HEI) had ever engaged in a type of academic dishonesty behaviour (Mensah & Azila-Gbetteor, 2018; Mensah et al., 2016, 2018; Saana et al., 2016).

In addition to lowering standards and working against the academic integrity of HEI, academic dishonesty fosters the production of incompetent students who are likely to engage in unethical and counterproductive workplace behaviors, tamper with patient's medical records and engage in corruption in future professional positions (LaDuke, 2013; Lucas & Friedrich, 2005; Mulisa & Ebessa, 2021; Orosz et al., 2018; Park et al., 2013; Whitley & Keith-Spiegel, 2001). Given the direness of the phenomenon and the desire to capture its full breath, researchers have studied academic dishonesty in a variety of ways. For example, cheating among children have been measured using guessing games (Ding et al., 2014) and creative thinking task (Alan et al., 2020). Among college students, cross-sectional (Baran & Jonason, 2020), longitudinal (Macale et al., 2017), field and controlled laboratory experimental research methods have been used (Daumiller & Janke, 2020; Niiya et al., 2008; Stephens et al., 2021; Zhao et al., 2021). In the present study, academic cheating is studied via students' attitude, which is equally regarded as a reliable measure (Catacutan, 2019; Yang, 2012). Attitude toward cheating or dishonesty is closely related to the behavior of dishonesty with evidence from studies using Ajzen's planned behaviour theory indicating that tolerance or permissiveness of academic dishonesty is a reliable predictor of actual academic dishonesty (Alleyne & Phillips, 2011; Hendy & Montargot, 2019; Stone et al., 2010).

Several factors have been reported to influence both academic dishonesty and attitude towards dishonesty. Examples of these factors include gender, socioeconomic status, personality, religiosity, mastery, academic overload, prior cheating behavior, substance use, classroom environment, poor cumulative grade point average and peer and social pressures (Desalegn & Berhan, 2014; Ives et al., 2017; Klein et al., 2007; Kuntz & Butler, 2014; McCabe et al., 2001; Yu et al., 2017). The current study examines more closely how personality, religiosity and mastery are related to attitude toward cheating among Ghanaian university students.

Extensive literature shows that personality consistently predicts academic dishonesty (Cuadrado et al., 2019, 2020; Hendy, 2017; Hendy & Biderman, 2019; Hendy & Montargot, 2019; Peled et al., 2019). This popularity of personality has been documented in three recent meta-analysis, which emphasized the unique contributions of conscientiousness and agreeableness traits from the popular five-factor model (Cuadrado et al., 2021; Giluk & Postlethwaite, 2015; Lee et al., 2020). Despite the consistent findings on personality and academic dishonesty, there is limited literature on the association between personality and academic dishonesty in non-western contexts, especially Ghana. The closest study we could find was a recent cross-cultural study which revealed that perfectionism was related to academic cheating among Ghanaians (Błachnio et al., 2021). Moreover, the link between the five-factor model of personality (i.e., openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) and attitude towards cheating is yet to be investigated. It is on this basis that we predict a significant relationship between personality and attitude towards cheating.

Ghanaians are known to be highly religious, and many turn to their religions for protection against adversities and stress (Gyekye, 1996; Oti-Boadi & Oppong Asante, 2017). Religiosity also promotes upright behaviours and checks deviant ones (Osafo et al., 2014). Likewise, the influence of religiosity on the academic dishonesty, a deviant behaviour, has been associated with mixed findings (Huelsman et al., 2006; Mensah & Azila-Gbettor, 2018; Nelson et al., 2017; Onu et al., 2021; Ridwan & Diantimala, 2021). Whilst some studies found negative significant associations with academic dishonesty (Nelson et al., 2017; Onu et al., 2021; Ridwan & Diantimala, 2021), others found non-significant associations (Huelsman et al., 2006; Yu et al., 2017). The only related study in Ghana, to the best of our knowledge, also found no significant relationship between the religiosity of 345 technical university students and their cheating behaviours (Mensah & Azila-Gbettor, 2018). The reasoning of the authors for this finding include measurement error and normalization of exams cheating (Mensah & Azila-Gbettor, 2018). Clearly, this inconsistency in literature provides an impetus to further investigate the relationship between religiosity and academic dishonesty. We therefore replicate the above relationship and based on the importance of religiosity to Ghanaians, we hypothesize that religiosity will be negatively related to attitudes towards cheating.

Again, mastery (the extent to which a person considers their chances to be under their own control) or self-control and its relation to academic dishonesty have received considerable scholarly attention (Baran & Jonason, 2020; Błachnio, 2019; Błachnio et al., 2021; David, 2015; Fu & Tremayne, 2021; Krou et al., 2020; Williams & Williams, 2012). According to the general theory of crime (commonly used to explain self-control's influence on deviant behaviour; Gottfredson & Hirschi, 1990) and evidence from previous studies, students who possess strong sense of self-control are reluctant to engage in academic dishonesty. In a study by Owusu et al. (2019), Ghanaian undergraduate business students who lacked self-control had a high intention to engage in unethical behaviour. Błachnio et al. (2021) provide additional support when they found that high levels of self-control were related to academic cheating of many Ghanaian students. Despite these insightful Ghanaian findings, we believe they do not explain self-control's influence on attitudes towards cheating and that further investigations into this relationship would suffice to a large extent. Therefore, we examine these variables empirically and expect that mastery will be significantly related to attitude towards cheating.

To summarize, these three hypotheses were formulated to meet the study's aim: (1) personality, (2) religiosity and (3) mastery will be significantly related to attitude towards cheating. Data from our study will further be explored to investigate the potential interactions between the variables. There is the likelihood that religiosity and mastery may indirectly be related to personality and attitudes towards cheating; an assumption that is guided by evidence showing mastery (Baran & Jonason, 2020) and moral inhibition (Williams et al., 2010) as mediators between psychopathy and academic dishonesty. Additionally, the highly influential theory of planned behavior, developed by Icek Ajzen

(Ajzen, 1991), will provide some theoretical underpinnings for our assumption. Detailed explanations of the theory's application to academic cheating behaviour have been provided elsewhere (e.g., Alleyne & Phillips, 2011; Hendy & Montargot, 2019; Stone et al., 2010). The theory, however, postulates a pathway to behaviour as a function of intentions to engage in that behaviour and its interactions with factors including attitudes toward the behavior, subjective norms, and perceived behavioral control (Alleyne & Phillips, 2011; Hendy & Montargot, 2019; Lonsdale, 2017; Stone et al., 2010). Although alien to the original postulation, some researchers have demonstrated the relevance of personality in the model. For example, Hendy and Montargot (2019) found that conscientiousness added about 4.2% unique variance to self-reported cheating behaviour through subjective norms, attitudes towards cheating, perceived behavioural control and justifications. We therefore use this theoretical and empirical evidence to guide our explorations.

## 2. Methodology

### 2.1. Research design and participants

A correlational research design was adopted for this study using self-report survey measures designed to elicit responses on the four measures (personality, religiosity, mastery and academic cheating). A total of 333 undergraduate psychology students were conveniently sampled from the Department of Psychology, University of Ghana to participate in the study. Participants had to be registered students at the University of Ghana and not less than 18 years. There were 117 males (35.1%) and 216 females (64.9%) with an average age of 20.84 (SD = 4.68). Participants were predominantly Christians (92.8%) and many participants had ever cheated in an examination (62.8%).

### 2.2. Measures

The measures compiled for the study included a list of demographic questions asking participants about their gender, age, religious affiliations, and cheating behavior. In addition, four main measures were included: Big Five Inventory, 20-item Dimensions of Religiosity Scale, Pearlin's Mastery Scale and Attitude toward cheating scale.

#### 2.2.1. Attitude toward cheating

Attitude toward cheating was assessed using the Attitude toward Cheating Scale (ATC Scale: Gardner & Melvin, 1988), which consist of a list of 34 tolerantly and intolerantly worded statements concerning various events and issues of academic dishonesty (e.g., "Cheating on college tests is morally wrong" and "If over half the class is cheating on an assignment, the others are justified in cheating also."). These statements were rated on a 5-point Likert scale ranging from -2 (strongly disagree) to 2 (strongly agree). To obtain a total test score, the tolerant statements are reversed resulting in scores that are indicative of a conservative attitude that denounces cheating. Brodowsky et al. (2020) reported an acceptable Cronbach alpha value of .74. In this study, a fair Cronbach alpha of .64 was obtained (Pallant, 2013).

#### 2.2.2. Personality

Personality was assessed using the Big Five Inventory (BFI: John & Srivastava, 1999). This self-reporting inventory contains five broad dimensions including Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. The inventory consists of 44 simple descriptive statements measured on a five-point Likert format ranging from 1 'Strongly disagree' to 5 'Strongly agree'. Two examples of these statements are: "Is emotionally stable, not easily upset" and "Perseveres until the task is finished". The BFI is widely used and has received support for its strong psychometric properties even among Ghanaian literature (Intifal et al., 2019; Ocansey et al., 2020). Internal consistency computed with Cronbach alpha in our study ranged from fair to acceptable (.64 to .70) (Pallant, 2013).

### 2.2.3. *Mastery*

Mastery was measured using the Pearlin Mastery Scale (PM Scale: Pearlin & Schooler, 1978). This 7-item scale measures how a person considers his life chances to be under his own control and comprises of five negatively worded items (e.g., “There is really no way I can solve some of the problems I have”) and two positively worded items (e.g., “I can do just about anything I really set my mind to”). Participants responded to these items using a 4-point Likert response option: (1) Strongly Disagree (2) Disagree (3) Agree and (4) Strongly Agree. Total scores ranged from 7 to 28 after the negatively worded items are reverse coded. Previous research using the PMS have reported sound reliability values (Assari & Lankarani, 2017; Gordon et al., 2018). We report a Cronbach alpha value of .64.

### 2.2.4. *Religiosity*

Participants’ religiosity levels were assessed with the 20-item Dimensions of Religiosity Scale (DR Scale: Diduca & Joseph, 1997). The scale consists of four groups of 6 items that reflect each of the four dimensions namely religious preoccupation (e.g., “My thoughts often drift to God”), guidance (e.g., “I pray for guidance”), conviction (e.g., “I will always believe in God”), and emotional involvement (e.g., “I feel happy when I think of God”). To maintain neutrality, some items were reworded. For instance, an original item such as “Being a Christian is a joyous way to live” was reworded as “Being affiliated to a religion is a joyous way to live”. Participants responded to the items on a five-point Likert scale that ranged from strongly agree (5) to strongly disagree (1). The total scale is reliable with a reported Cronbach’s alpha of 0.93 (Joseph & DiDuca, 2007). Internal consistency for this study was satisfactory ( $\alpha = .89$ ).

## 2.3. *Procedure*

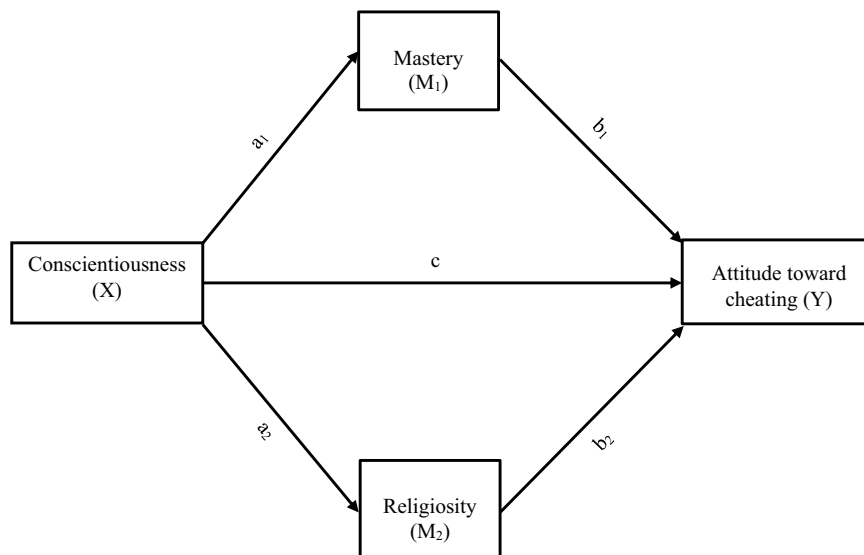
The Institutional Review Board of the Department of Psychology, University of Ghana approved this study and data collection was carried out between September and December 2019. Data collection occurred in two large classes of fourth year psychology lectures and students were requested to respond to the questionnaire in a sitting. A brief introduction about the purpose of the study was provided, and the questionnaires were distributed for completion. Students had a choice to decline participation without recourse. Students who agreed to participate had to endorse their consent on a statement of consent form that was attached to each questionnaire. The questionnaire was anonymized and therefore did not require revealing any identifying information. Confidentiality and anonymity were therefore assured. It took approximately 25 minutes to complete the entire measures. The study was completely voluntary; therefore, students were not coaxed or given any form of compensation aside thanking them for participating.

## 2.4. *Data analysis*

Statistical analyses were conducted in Statistical Package for the Social Sciences version 26.0 (SPSS) (IBM Corp. Released, 2019) and Analysis of Moment Structures version 23.0 (AMOS) (Arbuckle, 2014) with significance set at  $p < 0.05$ . Descriptive analysis and reliabilities (i.e., Cronbach alphas), were computed for the study variables. Preliminary analysis necessitated the removal of four participants for having extreme scores and not meeting the requirement of Mahalanobis distance (value  $< 24.32$ ), Cook’s distance (value  $< 0.01$ ) and centered leverage values (value  $< 0.05$ ) which were generated. Therefore, subsequent inferential analyses used data of 329 participants. G\*Power 3.1.9.2 (Faul et al., 2007) was used to determine sample size adequacy with 7 predictors, resulting in a sample of 103 research participants. With a total sample of 329, the number of our research participants far exceeded the estimated sample size.

To determine bivariate analysis for all variables, the Pearson product-moment correlation was used. A hierarchical multiple regression was also computed to test the association or influence of personality traits, mastery and religiosity on attitude toward cheating, the outcome. The results of the regression model encouraged the exploration of a potential parallel mediation of mastery ( $M_1$ ) and religiosity ( $M_2$ )

**Figure 1. Hypothesized model with mastery and religiosity as mediators between conscientiousness and attitude toward cheating.**



on the relationship between conscientiousness (X) and attitude toward cheating (Y) as seen in [Figure 1](#). Therefore, path analysis with Maximum likelihood in AMOS was utilized for this purpose. The path model produced direct effects (i.e., the effect accounting for the mediator), total effects (i.e., the effect not accounting for the mediator), and indirect effects (i.e., mediator influence). Consistent with Hayes (2009) recommendation on bootstrapping, we fixed our bootstrap samples at 5000 to ensure a more rigorous procedure. Per this same recommendation, significant mediation was determined when bootstrapped 95% bias corrected confidence intervals (CI) did not contain zero (Hayes, 2009). We used the recommended minimum chi-square value (CMIN <3), good-ness-of-fit index (GFI), Tucker-Lewis Index (TLI), normed fit index (NFI) and comparative fit index (CFI) values > .90 and root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) values < .08 to assess the fitness of our hypothetical path model (Bae, 2017; Hu & Bentler, 1999).

### 3. Results

#### 3.1. Pearson correlation

A Pearson correlation was used to examine the bivariate association between the main study variables. [Table 1](#) reports the findings and shows that agreeableness, conscientiousness, mastery and religiosity were positively related to negative or intolerant attitude toward cheating while neuroticism was negatively related. Mastery and religiosity were also significantly related to all the personality traits. Finally, findings indicated that mastery was not significantly related to religiosity ([Table 1](#)). These findings collectively confirm our first, second and third hypotheses. Specifically, the findings support the hypotheses that personality traits, religiosity and mastery are related to intolerant attitude toward cheating.

#### 3.2. Hierarchical multiple regression

Two models were used for this hierarchical multiple regression. The total model in the first step was significant,  $F(5, 323) = 3.80, p = 0.002$ , and accounted for 6% of the variance in intolerant attitude toward cheating. In [Table 2](#) it may be observed that the significant independent predictor of intolerant attitude toward cheating in the first step comprising only the personality variables was conscientiousness, ( $\beta = .14, p = 0.038$ ). In the next step, the inclusion of the measures of mastery and

**Table 1. Descriptive and correlation analysis of study variables (N = 329)**

	1	2	3	4	5	6	7	8
1. Attitude toward cheating	—							
2. Extraversion	.08	—						
3. Agreeableness	.17**	.12*	—					
4. Conscientiousness	.21**	.19**	.40**	—				
5. Neuroticism	-.18**	-.37**	-.43**	-.50**	—			
6. Openness	.05	.11*	.12*	.18**	-.12*	—		
7. Mastery	.29**	.20**	.22**	.33**	-.44**	.18**	—	
8. Religiosity	.19**	.14*	.31**	.29**	-.19**	.12**	.11	—
Min-Max	-31-32	14-37	15-40	20-45	8-36	22-49	9-24	43-101
Mean	4.12	25.06	31.14	33.19	22.12	36.31	17.41	85.01
Standard deviation	10.58	4.50	4.40	5.01	5.00	4.49	3.02	9.84
Cronbach alpha	.64	.64	.69	.70	.67	.58	.64	.89

Note. \* $p \leq 0.05$ ; \*\* $p \leq 0.01$

**Table 2. Summary of hierarchical regression of personality traits, religiosity, and mastery on attitude toward cheating**

Steps	Predictor variables	B	SE B	β	t	p	95% CI	
							LB	UB
1	(Constant)	-9.16	9.73		-0.94	0.35	-28.30	9.98
	Extraversion	0.03	0.14	0.01	0.22	0.827	-0.24	0.30
	Agreeableness	0.18	0.15	0.08	1.22	0.224	-0.11	0.47
	Conscientiousness		0.28	0.14	0.14	2.09	0.038	0.02
	0.55							
Openness	Neuroticism	-0.16	0.15	-0.08	-1.10	0.273	-0.45	0.13
	0.03	0.130	0.01	0.21	0.836	-0.23	0.28	
	(Constant)	-29.07	10.40		-2.80	0.005	-49.53	-8.61
	Extraversion	-0.02	0.13	-0.01	-0.11	0.913	-0.28	0.25
	Agreeableness	0.11	0.15	0.04	0.71	0.477	-0.19	0.40
Mastery	Conscientiousness		0.16	0.14	0.08	1.19	0.235	-0.11
	0.43							
	Neuroticism	0.00	0.15	0.00	0.01	0.992	-0.29	0.29
	Openness	-0.05	0.13	-0.02	-0.41	0.684	-0.30	0.20
	Religiosity	0.14	0.06	0.13	2.34	0.020	0.02	0.26
0.85	0.21	0.24	4.06	0.000	0.44	1.25		

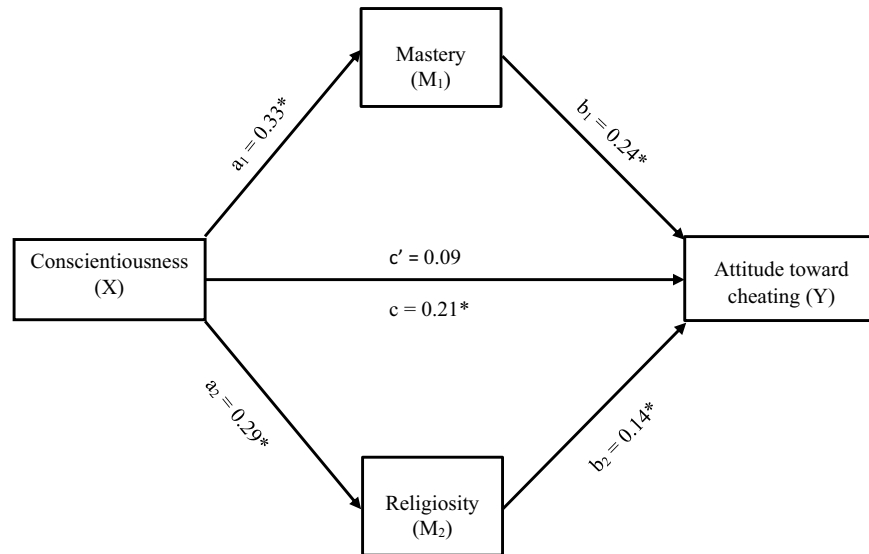
Note. \* $p \leq 0.05$ ; DV: Attitude toward cheating; 95% CI = Confidence Intervals; LB = Lower Bound; UB = Upper Bound

**Table 3. Summary of standardized total, direct and indirect effects of path model analysis**

Paths	Total effects			Direct effects			Indirect effects			SMC
	$\beta$	p-value	95% CI	$\beta$	p-value	95% CI	$\beta$	p-value	95% CI	
X→M <sub>1</sub>	0.33	<0.001	0.23, 0.42	0.33	<0.001	0.23, 0.42				M <sub>1</sub> = 0.08
X→M <sub>2</sub>	0.29	<0.001	0.20, 0.37	0.29	<0.001	0.20, 0.37				M <sub>2</sub> = 0.11
M <sub>1</sub> →Y	0.24	<0.001	0.12, 0.35	0.24	<0.001	0.12, 0.35				Y = 0.11
M <sub>2</sub> →Y	0.14	0.012	0.03, 0.24	0.14	0.012	0.03, 0.24				
X→Y	0.21	0.001	0.10, 0.31	0.09	0.133	-0.02, 0.20	0.12	<0.001	0.07, 0.18	

Note.  $\beta$  = standardized coefficient; 95% CI = confidence interval; Bootstrapped samples = 5000. BLL = Bootstrapped Lower Limit; BUL = Bootstrapped Upper Limit; Conscientiousness (X); mastery (M<sub>1</sub>); religiosity (M<sub>2</sub>); attitude toward cheating (Y); SMC = square multiple correlations

**Figure 2. Observed model with mastery and religiosity mediating the relationship between conscientiousness and attitude toward cheating;  $a$  = X influences mediator pathway,  $b$  = M influences Y pathway and  $c'$  = direct effect pathway. \* $p < .05$ .**



religiosity increased the variance by 6%, keeping the model significant at  $R^2 = .12$ ,  $F(7, 321) = 5.96$ ,  $p \leq 0.001$ . After adjustment, conscientiousness lost its significance, making mastery ( $\beta = .24$ ,  $p \leq 0.001$ ) and religiosity ( $\beta = .13$ ,  $p = 0.020$ ) the only significant predictors in this model.

### 3.3. Findings of path analysis

The findings in the regression analysis further motivated the testing of a parallel mediation of mastery and religiosity between conscientiousness and attitude toward cheating. From Table 3 it can be seen that mastery [ $\beta = 0.24$ ,  $p \leq 0.001$ ] and religiosity [ $\beta = 0.14$ ,  $p = 0.012$ ] had a total and direct effect on attitude toward cheating. It was also found that conscientiousness predicted mastery [ $\beta = 0.33$ ,  $p \leq 0.001$ ] as well as religiosity [ $\beta = 0.29$ ,  $p \leq 0.001$ ] in both the total and direct effect models. Although, conscientiousness had a total effect on attitude towards cheating [ $\beta = 0.21$ ,  $p = 0.001$ ], it lost its significance in the direct effect model [ $\beta = 0.09$ ,  $p = 0.133$ ]. Figure 2 presents a complementary visual representation of the mediation analysis. The figure contains conscientiousness as the predictor (X) variable, mastery ( $M_1$ ) and religiosity ( $M_2$ ) as the mediator variables, and intolerant attitude toward cheating (Y) as the outcome variable with standardized coefficients on each regression pathways:  $a$ ,  $b$ , and  $c'$ . The results essentially indicate that mastery and religiosity were significant parallel mediators. Clearly, highly conscientious students possessed greater mastery ( $a_1 = 0.33$ ,  $p < .001$ ) and this ability influenced their attitude toward cheating ( $b_1 = .24$ ,  $p < .001$ ). Also, students who were highly conscientious and highly religious ( $a_2 = 0.29$ ,  $p < .001$ ) had intolerant attitude toward cheating ( $b_2 = .14$ ,  $p = 0.012$ ). These results are further supported by the statistically significant indirect effect displayed in Table 3, showing that conscientiousness through mastery and religiosity predicted attitude towards cheating [ $\beta = 0.12$ ,  $p < 0.001$ ], with the 95% confidence interval completely not overlapping zero [95% CI: 0.07, 0.18]. To summarize, mastery and religiosity significantly mediated the relationship between conscientious trait and attitude toward cheating among undergraduate students in Ghana.

### 3.4. Fitness of hypothetical path model

The estimated model fit indices revealed acceptable values as follows: Minimum chi-square value (CMIN) was 0.038 ( $p = 845$ ); goodness-of-fit index (GFI) was 1.0, Tucker-Lewis Index (TLI) was 1.058; normed fit index (NFI) was 1.0; comparative fit index (CFI) was 1.0; root mean square error of

approximation (RMSEA) was 0.00; and standardized root mean square residual (SRMR) value was 0.0032. All these estimated values suggest that our model fitted the data.

#### 4. Discussion

The current study examined the relationship between personality traits, religiosity, mastery and attitude toward cheating of undergraduate students in Ghana. Generally, the results support our hypotheses: personality traits (i.e., agreeableness, conscientiousness and neuroticism); religiosity; and mastery were significantly associated with attitude toward cheating. Results from multiple regression analysis indicated that conscientiousness, religiosity and mastery were the only significant predictors of attitude toward cheating. Finally, both mastery and religiosity mediated the relationship between conscientiousness and attitude toward cheating.

Our findings about the relationship between personality factors (i.e., agreeableness, conscientiousness and neuroticism) and attitude toward cheating are consistent with earlier studies reporting the association between conscientiousness and students' attitude toward cheating (Day et al., 2011; Hendy & Montargot, 2019), as well as studies highlighting the relevance of several personality traits in academic dishonesty (Cuadrado et al., 2019, 2020, 2021; Hendy, 2017; Hendy & Biderman, 2019; Lee et al., 2020; Peled et al., 2019). More specifically, greater levels of agreeableness and conscientiousness were related to greater intolerant attitude toward cheating. Perhaps, certain traits that characterize conscientiousness (e.g., self-discipline, control, reliability, planning and hardworking) and agreeableness (e.g., honesty, politeness, good-natured, tactfulness and cooperative) may predispose such students to disapprove cheating as a pathway to passing their academic exams (Giluk & Postlethwaite, 2015; Schultz & Schultz, 2017). They may instead follow the necessary prescribed steps including researching, studying and adequately preparing in order to pass their exams. This reasoning is consistent with meta-analytical findings suggesting lower likelihood of academic dishonesty and higher academic performance particularly amongst conscientious students (Giluk & Postlethwaite, 2015; Vedel, 2014). Neurotic individuals, on the other hand, who were found to be permissive of cheating in this study, tend to experience negative emotions such as anxiety, guilt, insecurity, and pessimism which may increase the likelihood of engaging in and endorsing academically dishonest behaviors (Giluk & Postlethwaite, 2015; Peled et al., 2019).

Mastery and religiosity were both positively related to intolerant attitude toward cheating which is in accordance with previous literature reporting the link between these predictor variables and academic dishonesty as well as attitude toward cheating (Baran & Jonason, 2020; Błachnio, 2019; David, 2015; Hongwei et al., 2017; Krou et al., 2020; Lee et al., 2020; Nelson et al., 2017; Onu et al., 2021; Ridwan & Diantimala, 2021; du Rocher, 2020; Stone et al., 2010). As explained by the general theory of crime, it is possible that students high on mastery registered non-permissive attitude toward cheating because of their strong personal sense of self-control in withstanding any temptation to partake in cheating (Błachnio, 2019; Krou et al., 2020). Also, students high on religiosity may have high intolerant attitude toward cheating as a result of their convictions and doctrines that challenges them not to only abhor but refrain from participating in behaviors deemed "ungodly" such as academic dishonesty (Nelson et al., 2017).

Beyond the direct associations, the study interestingly found that both mastery and religiosity were indirectly related to conscientiousness and attitude toward cheating. This is a unique finding that merits further research; therefore, there is sparse specific scientific evidence to support this parallel mediation. The closest available evidence comes from two studies: one examined the mediating effects of mastery (Baran & Jonason, 2020) and the other moral inhibition (Williams et al., 2010) between a personality trait, that is, psychopathy and academic dishonesty. In addition, the theory of planned behavior (Ajzen, 1991) as well as Hendy and Montargot's study (2019), as described above, provide some theoretical and empirical support, respectively. Indeed,

conscientious individuals possess traits that makes them exercise self-control, ascribe to moral or ethical values, and follow rules, which in turn inspires the rejection of dishonest behaviors. Our parallel mediation finding, therefore, sheds light on this assertion.

#### **4.1. Implications of findings**

The findings of the current study have implications for educators and school counselors. First, educators or academic institutions can use the information from this study to optimize interventions against students' dishonest behaviors. For instance, educators in Ghana could emphasize in students during orientation programs the essence of adopting some of the characteristics of conscientiousness and agreeableness such as self-discipline, honesty, organization, and cooperation in a bid to increase examination preparedness and reduce the incidences of dishonest behaviors. Second, since Ghanaians are known to be highly religious (Dey et al., 2019; Gyekye, 1996), educators can directly appeal to students' religious values and faiths in a manner that would serve as a constant reminder to desist from academic dishonesty. Lastly, academic institutions through their school counselors could offer to their student body certain interventions such as mindfulness training which have been shown to be related to self-discipline, self-regulation as well as ethical decision-making (Giluk, 2009; Ruedy & Schweitzer, 2010). Such interventions when offered to students on a regular basis may increase negative attitude toward cheating and reduce incidences of academic dishonesty.

#### **4.2. Strengths and limitations**

One strength of this study is that it extends the literature on personality and academic dishonesty by examining the mediational potentials of mastery and religiosity. It also adds to the literature on academic dishonesty in Ghana as well as provides richer information about the relationship between personality and attitude toward cheating. Regardless of these strengths, care must be taken in interpreting the results due to some limitations in the study.

First, data for the study was collected using cross-sectional design, which does not permit causal inferences. Future studies in Ghana are encouraged to use longitudinal study designs to reach more comprehensive conclusions about causality, for instance, collecting data on the variables at different time points during an academic year. In addition, data was collected from only fourth year undergraduate psychology students and mostly Christians. This limits the generalizability of the results to the wider population of university students and other religious affiliations. The small-to-moderate coefficients and marginal variance in attitude toward cheating indicate that the variables considered in this study were not exhaustive and other variables (e.g., age, gender, year in school, academic performance, peer influence and intelligence) could potentially be associated with attitude toward cheating. Although our model sufficiently fit the data, we believe that future studies in Ghana could expand the model. For instance, interested researchers could apply Ajzen's planned behaviour theory to model actual cheating behaviour against intentions, attitudes, personality, religiosity, perceived control, and subjective norms, as done elsewhere (Alleyne & Phillips, 2011; Hendy & Montargot, 2019; Stone et al., 2010). Future studies are encouraged to account for these other variables to generate more robust models in understanding attitude toward cheating.

#### **4.3. Conclusion**

This study examined the relationship between personality, mastery, religiosity, and attitude toward cheating among undergraduate students, a rarely researched area in Ghanaian literature. Findings from correlational and regression analyses indicated that personality traits (i.e., conscientiousness, agreeableness, and neuroticism), mastery and religiosity were significantly related to intolerant attitude toward cheating. Additional findings suggest that both mastery and religiosity mediated the relationship between conscientiousness and attitude toward cheating. Taken together, these findings highlight the need to reduce incidences of academic cheating behavior by targeting students'

attitude toward cheating via mastery and religiosity. Given the dire consequences of academic cheating at the tertiary levels, stakeholders including academic institutions, educators and school counsellors should invest in scholarly informed interventions aimed at reducing its incidences.

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#### Declarations of interest

None

#### Disclosure statement

No potential conflict of interest was reported by the author(s).

#### Author contributions

Benjamin Amponsah conceptualized and designed the study. Benjamin Amponsah, Nutifafa Eugene Yaw Dey and Mabel Oti-Boadi contributed to the acquisition of data. Nutifafa Eugene Yaw Dey analyzed the data. All authors interpreted the data. All authors drafted the work and revised it critically for important intellectual content. All authors approved the version to be published.

#### Missing Author bio

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Benjamin Amponsah is a Senior lecturer and was a former Head of the Department of Psychology, University of Ghana. He obtained his PhD in Cognitive psychology at the Norwegian University of Science and Technology. His research focuses on individual differences, cognitive and emotional processes, gender difference and health related issues. This collaboration by the researchers falls within a broader project that attempts to gain a deeper understanding of the menace of academic dishonesty in Ghana and to help reduce its occurrence.

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