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An Analysis of the Relationship Between Medical Faculty Students' Personality Traits, Ethical and Academic Ethical Values

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Abstract

The relationship between ethical dispositions and scientific and academic ethics is important in understanding how individuals' general ethical values influence their behavior in the academic setting. Examining this relationship by considering personality, which is one of the important individual characteristics, will be useful in developing strategies to prevent ethical violations and encourage ethical behavior in the academic world. This study aims to investigate the relationships between medical students' personality traits, ethical position, and levels of scientific ethics. 363 medical faculty students from various grade levels participated in the study, which used a relational survey model. “Five Factor Personality Inventory”, “Ethical Position Scale” and “Scientific Ethics Scales” were used to collect the data of the study. The analysis of the research data was carried out with SEM analysis in AMOS Program. The study's conclusions indicate that medical faculty students had a high level of scientific ethics and ethical position. Additionally, a five-factor personality test revealed that the students exhibited a high degree of variability in the areas of conscientiousness, agreeableness, and openness to new ideas. Medical students' ethical position and personality traits significantly predicted their perceptions of scientific ethics.

Keywords: *Academic ethic, ethic, medical faculty students, personality traits*

Introduction

Medical faculties can be defined as a special social environment where knowledge, skills and, of course, values related to the profession of medicine are transferred to students through certain social and psychological processes. In these environments that provide physician candidates with their professional identities, the ability to think, feel and behave like a physician is transferred (Harden & Laidlaw, 2020; McLean et al., 2008). Medical ethics education is described as an educational process that looks at how values will play a part in how medical students relate to society, their patients, and their colleagues in the future. It also discusses how these values fit into the professional identity. This procedure is a crucial component of a larger programme designed to enhance the prospective physician's values, perspective on society and the social sphere, and

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personal competencies (Lehrmann et al., 2009; Rabin et al., 2020). According to the Institute for International Medical Education (2002), one of the fundamental competency areas that physicians who have completed their medical education should possess is "ethics, professional values, scientific ethics, attitudes and behaviours." The ability to think, feel, and act like a physician after graduation is transferred in these settings which provide them their professional identities. Theoretical courses or the atmosphere of values in the environment play a fundamental role in this transfer. Thus, medical students are taught the importance of values in their future relationships with patients, colleagues, and society through faculty lessons and courses on medical ethics. The goal is to ensure these values in medical students and help them develop a sense of professional identity (Coulehan & Williams, 2003; Emanuel, 2020).

Ethical values are the traits that an individual acquires in ethical relationships by acting in a way that protects ethical values and by engaging in experiences of worthiness that are specific to these relationships. From a human perspective, ethical values are defined as specific actions and experiences in ethical relations (Kuçuradi, 2011; Berges Puyo, 2022). While it's acknowledged that one of the subfields of bioethics is medical ethics, which looks at value conflicts in the medical field, the subfields of "medical ethics", "health ethics," "medical bioethics," "clinical ethics," and "clinical bioethics" all fall within the scope of bioethics (Beauchamp & Childress, 2012). As a result of the careless application of medical knowledge in the delivery of healthcare, a situation known as "health ethics" emerges. Therefore, it is expected that health ethics will address the questions of what health professionals should and shouldn't do generally when carrying out their professional duties or conducting research in the relevant field, as well as how they should address issues that arise when providing healthcare services (Kuçuradi, 2011). As a subset of professional ethics, health ethics deals with the ethical obligations placed on medical professionals to act morally when providing care (American Medical Association, 2013; Williams, 2009). The way medical personnel treat patients depends on how much the patient trusts their doctors and nurses and what they expect from them ethically. Another thing to consider is that the healthcare provider is in complete control of what they can do and, more importantly, whether they choose to provide treatment and care for patients or not (Førde, 2012; Koslovski, 2011). This setting highlights the unique qualities of medical students who will eventually deliver critical healthcare services, as well as their intellectual and overall ethical qualities. Because of this, the study concentrated on ethical tendencies and personality traits of medical students.

Personal ethics are the moral guidelines and precepts that guide an individual's behaviour. It is any ethical system or doctrine that a person chooses to follow as a moral guide in life (Jacorzynski, 2009). Personal ethics are the moral guidelines and precepts that guide an individual's behaviour. It is any ethical system or doctrine that a person chooses to follow as a moral guide in life (Ercan et al., 2020; Hazard, 1992; Jacorzynski, 2009). Ideas like integrity, dependability, openness, caution, bravery, restraint, and fairness are all part of personal ethics. These moral principles aid in creating and upholding norms that specify what is considered "right" behaviour. These moral principles impact people's decisions and prompt actions that either support or oppose them (Finegan & Theriault, 1997; Sorunke, 2016). To summarise, personal ethics refers to the moral judgements that shape an individual's actions, establish their sense of right and wrong, and inform their decision-making.

When the relationship between ethics and health science is examined, it also becomes clear that health researchers, who carry out these studies, and scientific studies in this field must adhere to a set of principles. According to Hrabak et al. (2004), these guidelines are known as "scientific ethics" or "scientific research and publication ethics." One of the fundamental principles to which all researchers should adhere is scientific ethics (Rezanejad & Rezaei, 2013). As per the 2002 report by the Turkish Academy of Sciences (TÜBA), there are four main categories that encompass the causes of unethical behaviour. The greatest of these is ignorance. Failure to provide students with the necessary training on ethics at the beginning of their academic life may cause this situation (McCabe & Trevino, 1997. This instance demonstrates the greater significance of the educational component. Stubbings and Brine (2003) claim that because first-year university students often resort to unethical behaviour at the start of their academic careers, they commit plagiarism unintentionally and without realising it. Kansu (1994) argues that educational institutions ought to give students the pre- and post-school education they require, including instruction in scientific research methods, a focus on ethical principles, and the development of research skills.

The activities conducted in all educational and scientific institutions, particularly universities, in conformity with general moral philosophy and professional ethics, are referred to as science ethics or academic ethics. The concept of ethics in science can be interpreted in this context as pertaining to research ethics, education ethics, student relations ethics, and management ethics (Archila, 2018; Johnson, 2010). Science ethics encompasses not only research but also the production, distribution, and instruction of knowledge as well as the transformation of knowledge into

technology. In the context of academic ethics, it becomes more important for researchers doing research at university to adhere to ethical research requirements. It also becomes more important to define the rights and responsibilities of educators and students, as well as their duties and responsibilities, and to define the duties and responsibilities of university administrators (Bulger & Reiser, 1993; Edwards, 2009).

One of the important elements in the field of scientific ethics is the transfer of ethical norms to future generations through education and the attitudes and behaviours of scientists in scientific research. Unless ethical perception is conceptually transferred to the new generation of researchers, it will continue to be a problem, especially in today's competitive environment. One of the important factors here is that scientists should be role models for their students and the scientific community in their scientific research and academic behaviours (Ametller, 2020; May & Luth, 2013).

The term "scientific ethics" describes right and moral behavior in research and teaching. Scientific ethics encompass the following principles (Cax et al., 2023; Kerr, 1994; Knight, 1984; Weinbaum et al., 2019):

• Integrity: Accuracy and transparency in the information-gathering and information-producing procedures.

• Non-discrimination: Giving other people's opinions and works a fair hearing.

• Conscientiousness: Awareness of responsibility in academic studies and teaching processes.

• Respect: Respect and co-operation between individuals in the academic setting.

• Confidentiality: Respect for the confidentiality of participants in research processes.

First and foremost, university students and aspiring academics need to internalise the moral attitudes and behaviours in this field for science ethics to be implemented effectively. Regardless of how many standards are established in scientific ethics, these standards will always be a set of guidelines that lack significance unless academics and students internalise them and incorporate them into their conduct when conducting research. Therefore, the foundation of students' fundamental behavioural patterns in medical education should be ethics and the virtues of science (Holm & Hofmann, 2018; Sobczuk et al., 2022). It is believed that there is a connection between people's ethical behaviours and their personality traits in this context.

Understanding, explaining, and controlling human behavior all depend on an awareness of each person's unique personality traits (Büyükşahin, 2023; Özsoy & Yıldız, 2013). Throughout their

working lives, employees display a variety of behaviours based on the axis of their personality traits in order to accomplish both concrete and abstract goals. According to Buchanan (2008) and McAllister et al. (2015), employees struggle in this environment to the extent that their personality traits enable them to accomplish their objectives and get what they want. They also engage in political behaviour to further their own interests. There is insufficient research in this area, even though studies have shown a significant relationship between ethical behaviour and personality traits (Koodamara et al., 2020). Personality traits influence behaviour in all spheres of life, including business, to a great degree. The productivity and performance of employees, as well as the organisations they work for, are positively impacted when they have jobs that align with their personalities. Most research indicates that people who are dependable, consistent, accountable, patient, diligent, cautious, and goal-oriented typically perform better across a wide range of business domains (Birekul, 2020; Hurtz & Donovan, 2000).

The research of McCrae and Costa (1987) became the most influential in identifying personality traits in the 1980s. The dimensions of agreeableness and conscientiousness were discovered as a result of the studies conducted by the researchers who supported the three-factor model (extraversion, neuroticism, and openness to experience) until 1985. This supported the theory that there are five basic dimensions of personality (İnanç & Yerlikaya, 2012; Tiryaki Yenilmez & Akman, 2023). It is evident that there is a dearth of research on the connections between moral tendencies and behaviours and the five factors of personality. According to Strang and Kuhnert (2009), extraversion and openness to experience dimensions are linked to performance within the parameters of ethical leadership, while the conscientiousness dimension of the five basic personality traits is a significant variable in the prediction of leader performance (Barrick & Mount, 1991; Bass, 1997). According to Dollinger and LaMartina (1998), moral reasoning and conscientiousness are positively correlated. According to Sackett and Wanek (1996), agreeableness, conscientiousness, and neuroticism are among the personality traits that are correlated with integrity. According to Mayer et al. (2007), the three personality dimensions which are important most for fostering an equitable work environment are conscientiousness, agreeableness, and neuroticism.

The five-factor personality model, which was created based on the distinctive trait approach, was used in the current study to evaluate personality. There are five fundamental personality dimensions in this model. These include neuroticism, agreeableness/softness, openness to

experience, extraversion, and self-discipline/conscientiousness (Hendriks et al., 1999; McCrae & Costa, 2008). Although every person has a distinct personality, these dimensions tend to group the traits together. Personality traits grouped under specific dimensions may be linked to an individual's positive or negative behaviours (Louwen et al., 2023; Ringwald et al., 2022; Romanelli et al., 2006). These basic dimensions of personality are likely related to people's ethical behaviours and tendencies (Khan et al., 2016). People who have high responsibility as a personality trait generally exhibit more ethical behaviours. These people responsibly carry out their responsibilities and refrain from academic dishonesty. Once more, people who possess agreeable personality traits are better at working together and building respectful relationships with other academic stakeholders. This may reduce ethical violations. Individuals with high levels of openness tend to think innovatively and creatively. However, sometimes this creativity may push ethical boundaries; therefore, ethics training is important for these individuals. Those with low emotional stability (neuroticism), on the other hand, might find it difficult to handle stress, which occasionally results in unethical behaviour (Harkness & Lilienfeld, 1997; Karim et al., 2009; Tijdink et al., 2016). For example, the tendency to cheat and plagiarise may increase in exams and scientific studies conducted under intense stress.

Empirical studies examining the behavioural styles endorsed by personality traits are still scarce, despite the ongoing research on the personality traits of qualified health professionals (Byrne, 2018). Numerous studies have demonstrated the impact of personality traits on the lives and careers of a wide range of individuals, including medical students; however, the majority of recent publications on the subject of personality traits' effects concentrate on a single facet of life or career (Liu, et al., 2022). There are limited comprehensive reviews on the phenomenon of personality traits influencing various facets of life and the workplace. Furthermore, some research on these effects in other articles have only examined in detail how specific personality traits affect individuals, ignoring studies on other aspects of the five personality traits.

However, as in other domains, the limited empirical research in scientific ethics and health ethics is noteworthy. In fact, an analysis of the health ethics literature reveals that the studies that are currently available are primarily focused on two areas. The first one focuses on the relationship between normative ethics and empirical ethics research and is associated with the conceptual framework of empirical ethics. Some of the articles in question consist of studies that investigate concrete ethical issues and use socio-empirical methods (Coughlin et al., 2012; Lee, 2017; Salloch

et al., 2012). This demonstrates the need for empirical research to be prioritised in health ethics studies in terms of ethical awareness, scientific ethical behaviours and ethical decision-making of health professionals.

The relationship between ethical disposition and scientific and academic ethics is important in understanding how the general ethical values of individuals affect their behaviours in the academic environment. Examining this relationship will be useful in developing strategies to prevent ethical violations and encourage ethical behaviours in the academic world. Ethical dispositions directly affect individuals' attitudes and behaviours towards complying with academic ethical rules and exhibiting ethical behaviours (Bore et al., 2005; Nugroho et al., 2023; Yang, 2012). Academic institutions can organise ethics education programmes to strengthen ethical dispositions and raise ethical awareness among students and academic staff by emphasising the importance of ethical values. Such programmes can improve individuals' general ethical dispositions and encourage them to exhibit more ethical and responsible behaviours in the academic environment.

The aim of this study is to explain the relationships between the personality traits and ethical value perceptions of medical students and their perceptions of scientific ethics. In this regard, the study sought to test two hypotheses.

-What are the levels of science ethics, ethical values, and personality traits as perceived by medical students?

Hypotheses

H1: Personality traits have a significant effect on the perception of scientific ethics.

H2: Ethical position has a significant effect on the perception of scientific ethics.

Method

Research Design

The main purpose of the research is to identify the relationships between medical students' ethical value perceptions and personality traits and how they view scientific ethics. In this context, the study was designed and conducted with relational survey model on the basis of quantitative research paradigm. In relational survey models, the research problem is investigated and clarified on a relational or comparative basis (Lau, 2017).

Sample

The population of the study consisted of students studying in medical faculties of universities in Turkey. Because it was not possible to reach the entire population in the time, money, or resources available, the convenience sampling method was employed. Firstly, the number of samples needed to represent the population was calculated using the formula "n= N.t2.p.q / d2.(N-1)+t2.p.q." The formula is as follows: N is the number of individuals in the target population; n is the number of individuals to be sampled; p is the probability that the event under investigation will occur; q is the probability that it won't occur; t is the theoretical value found from the t table at a certain level of significance; and d is the sampling error accepted based on the frequency of the event (Francis et al., 2010). For the target population (N) of 80000 medical faculty students in Turkey, the theoretical t-value was set at 1.96 and the sampling error at 0.05, with p = 0.5, q = 0.5, and α = 0.05. The sample number (n), after the values are entered into the formula, is 352. It is evident that the 365 completed surveys can accurately reflect the sample size. Before this research, written permission was obtained from the Ethics Committee (Date: 05.04.2024, Decision Number: 2024/4903). All participants were informed about the study and the online questionnaire form was distributed to participants who agreed to participate in the convenience sampling method of the research. The students were asked to complete the data collection forms. Mahalanobis distance was calculated on the data obtained from 365 participants, and the data of 2 participants whose scores exceeded the critical values were deemed to be outliers and were therefore removed from the data set. The analyses were conducted on the data obtained from 363 participants (208 female and 155 male). When the sample group is analysed according to demographic characteristics, it is seen that the mean age of the participants is 20.94±1.95. Of the participant students, 74 were in their first year of study, 165 in their second, 25 in their third, 18 in their fourth, 75 in their fifth, and 6 in their sixth. First, a personal information form was used to gather personal data about the participants, and scales pertaining to the research variables were employed as a data collection tool.

Instruments

In the study, ‘Scientific Ethics Scale’, ‘Ethical Position Scale’ and ‘Five Factor Personality Inventory’ were used as data collection tools to be applied to medical faculty students.

Scientific Ethics Scale

Students' awareness of the guidelines of scientific ethics in their research was assessed using Ülker et al. (2020)'s five-point Likert-style "Scientific Ethics Scale." Likert-type questions include statements containing an attitude or opinion about the subject under investigation and options indicating the level of agreement with the statement.

Ethical Position Scale

The Ethical Position Scale consists of a total of 20 questions designed on a five-point Likert scale, each consisting of 10 questions covering two main dimensions: idealism and relativism. The determination of idealism and relativism factors for the IAS is based on a study conducted by Schlenker and Forsyth in 1977. Turkish adaptation of the scale was conducted by Yazıcı and Yazıcı (2010). The validity and reliability analyses of the Likert-form five-point scale were conducted again in the sample of this study.

The Five Factor Personality Inventory

Costa and McCrae (1992) developed the Five Factor Personality Inventory (FFPI), which Benet-Martinez and John (1998) expanded into a 44-item short form. People use some of the statements on this inventory to characterise their personality traits and themselves. After reading each statement, participants are asked to check the number that best represents how much it describes them as a whole. There are five sub-dimensions in this inventory: extraversion, agreeableness, conscientiousness, neuroticism, and openness. A five-point Likert scale is used to grade the answers: 1 represents strongly disagree (1.00-1.80), 2 represents somewhat disagree (1.81-2.60), 3 represents undecided (2.61-3.40), 4 represents somewhat agree (3.41-4.20), and 5 represents strongly agree (4.21-5.00). Somer et al. (2000) translated the FFPI's abbreviated form into Turkish.

Validation of instruments

The one-factor structure of the scientific ethics scale was tested in the study sample using confirmatory factor analysis. The analysis of the fit values ($\chi2$= 646.48; Sd= 187; $\chi2$/sd=3.46; $p<0.001$; RMSEA=0.08; SRMR= 0.03; CFI=0.95; TLI=0.94) revealed that the scale's one-factor structure fit the research data quite well. The internal consistency of the scale indicates high levels of reliability (Cronbach's alpha= 0.93).

Confirmatory factor analysis was applied to test the two-factor structure of the ethical position scale. The one-factor structure of the scale demonstrated a good fit with the research data, as indicated by the obtained fit values ($\chi2$= 540.65; Sd= 143; $\chi2$/sd=3.78; $p<0.001$; RMSEA=0.08;

SRMR= 0.03; CFI=0.92; TLI= 0.91) (Hair et al., 2010). The idealism factor of the scale had an alpha coefficient of 0.88, while the relativism factor had an alpha coefficient of 0.89.

The study's sample was used to test the five-factor personal inventory's validity and reliability. Its five-factor structure was tested using confirmatory factor analysis. According to Hair et al. (2010), the inventory's one-factor structure demonstrated a satisfactory degree of fit with the research data, as evidenced by the fit values obtained ($\chi 2$= 3586.57; Sd= 872; $\chi 2$/sd=4.11; p<0,001; RMSEA=0.09; SRMR= 0.06; CFI=0.90; TLI=0.90). The alpha coefficients for extraversion, agreeableness, conscientiousness, neuroticism, and openness to new experiences were found as 0.82, 0.65, 0.67, 0.69, and 0.82 respectively.

Data collection

Due to time constraints, assistance was required from the relevant medical faculty's IT personnel during the application and collection of scale forms. The scales used in the study were initially converted into online forms by the researcher. The medical faculty's IT staff distributed the scales online to the study's participants' e-mail addresses and WhatsApp groups. Furthermore, in the introduction section of the instruments for measurement, an explanation was made to the participants that their answers to the survey questions would be used only for scientific purposes, that they did not need to specify their names. It was important for them to try to give the most appropriate answers for the research results to be more accurate. The participants were also informed that the answers they would give would never be used outside of the purpose of the research. The study's instruments for measurement were administered to medical faculty students over a one-month period.

Data Analysis

Before the study data were analysed, a few presumptions were verified. When Cook distance values were computed to check for outliers, the results revealed that the data set contained none (Maximum Cook distance value = 0.06). According to the results of the Kolmogorov-Smirnov test, the data did not conform to a normal distribution. However, it is recommended in social sciences to examine skewness and kurtosis values to assess the normality assumption, especially in large samples. The data have a distribution that is close to normal because the skewness and kurtosis coefficients are both within the range of ±1. (Tabachnick & Fidell, 2007). The estimated coefficients (-0.46 ≤ kurtosis ≤ 0.51; -0.72 ≤ skewness ≤ 0.35) verify that the data have a distribution that is close to normal. When the Variance Inflation Factor (VIF) is less than 3, multi-

collinearity is not a problem (Yurt, 2023). The calculation of the highest VIF value, 1.61, shows that there is no multi-collinearity problem among the variables. To test the linearity, scatter plots were checked. The visual inspection of plots showed a very close to linear relationship between dependent and independent variables of the study.

The relationships between scientific ethics, ethical position, and personality traits were analysed, and Pearson correlation coefficients were computed. The predictive impact of personality traits and ethical position on scientific ethics was tested using structural equation modelling analysis. The maximum likelihood model was used to test the model. Several indices were used to confirm that the model and data fit, including χ^2/df (< 5), Tucker-Lewis Index (TLI) (≥ 0.90), Comparative Fit Index (CFI) (≥ 0.90), Root Mean Square Error of Approximation (RMSEA) (< 0.10), and Root Mean Square of Standardised Residual Means (SRMR) (< 0.10) (Hair et al., 2010). The statistical package programmes AMOS 24.0 and IBM SPSS 25.0 were used to carry out the analyses.

Findings

First, the study presents the descriptive statistics results and the medical faculty students' scores on the personality traits scale, scientific ethics, and ethical position (See Table 1). Next, the findings of the correlation analyses regarding ethical position, scientific ethics, and personality traits of the participants are presented (See Table 2). In the final stage of the study, the structural equation model analyses between these three variables are provided (See Figure 1 and Table 3).

Table 1

Descriptive Analyses Of Medical Students' Personality Traits, Ethical Position and Scientific Ethics Scales Scores

	N	Minimum	Maximum	Mean	Std. Deviation
Extraversion	363	1.38	4.88	3.32	0.66
Agreeableness	363	2.44	4.89	3.64	0.48
Conscientiousness	363	1.44	4.78	3.47	0.49
Neuroticism	363	1.50	4.50	2.99	0.58
Openness to experience	363	1.50	5.00	3.57	0.57
Idealism	363	18	45	34.85	5.70
Relativism	363	14	50	34.26	7.53
Ethical position total	363	38	95	69.12	11.40
Scientific ethics	363	22	110	88.78	14.81

The mean scores for neuroticism, conscientiousness, extraversion, agreeableness, and openness to new experiences were determined to be 3.32±0.66, 3.64±0.48, 3.47±0.49, 2.99±0.58, and 3.57±0.57, respectively (Table 1). According to the values obtained, the students' personality traits were at a moderate level for extraversion and neuroticism and at a high level for agreeableness, conscientiousness, and openness to experience. The ethical position scale's mean scores for idealism, relativism, and overall scores were determined to be 34.85±5.70, 34.26±7.53, and 69.12±11.40, respectively. The participant students generally had a high level of perception of ethical positions when the scores from this scale were divided by the total number of items. Ultimately, it was determined that the participant students' mean score on the scientific ethics scale was 88.78±14.81. In general, the perception of scientific ethics of medical students is at a high level.

Correlation Analysis Results

Table 2 shows the coefficients of the relationships between the research variables.

Table 2

Pearson Correlation Coefficients Between Variables

	Variables	Ort	Ss	1.	2.	3.	4.	5.	6.	7.	8.
1.	Scientific ethics	88.78	14.81	1							
2.	Extraversion	3.32	0.66	.144**	1						
3.	Agreeableness	3.64	0.48	.248**	.244**	1					
4.	Conscientiousness	3.47	0.49	.237**	.269**	.497**	1				
5.	Neuroticism	2.99	0.58	.042	-.200**	-.229**	-.250**	1			
6.	Openness to experience	3.57	0.57	.335**	.532**	.270**	.230**	-.005	1		
7.	Idealism	34.85	5.70	.539**	.188**	.279**	.322**	.015	.280**	1	
8.	Relativism	34.26	7.53	.366**	.123*	-.106*	.024	.036	.191**	.475**	1

**p<0,01; *p<0,05; N=363

Analysis of the statistically significant relationships presented in Table 2 reveals that the relationships between scientific ethics scores and Agreeableness (r=0,248; p<0,01), Conscientiousness (r=0,237; p<0,01), Openness to experience (r=0,335; p<0,01), Idealism (r=0,539; p<0,01), Relativism (r=0,366; p<0,01) are low to moderately positive.

Results of Structural Equation Modelling Analysis

The study developed and tested the structural model shown in Figure 1 to test the study's hypotheses. The model demonstrated an acceptable fit with the data, according to the determined goodness of fit values (χ^2= 1263.08; Sd= 360; χ^2/sd=3.51; p<0.001; RMSEA=0.08; SRMR= 0.08; CFI=0.92; TLI= 0.92) (Hair et al., 2010). Table 2 displays the path coefficient, standard error value, significance level, and confidence intervals.

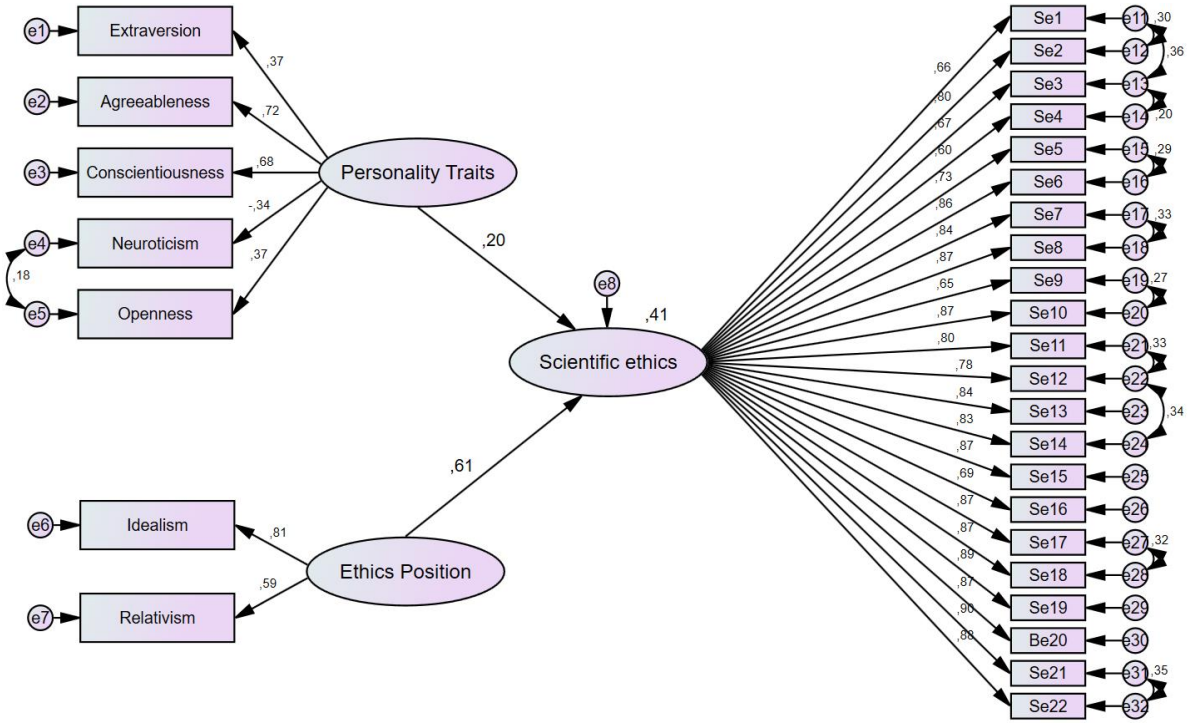

Figure 1. ***Structural Equation Modelling***

Analysis of Table 3 reveals that personality traits have a 0.20 (SE= 0.07; t=3.08; p<0.001) predictive power for scientific ethics. Scientific ethics rises in accordance with increases in positive and decreases in negative personality traits. This result indicates that hypothesis H1 is accepted. For scientific ethics, the predictive power of ethical position is 0.61 (SE= 0.06; t=7.29; p<0.001). Scientific ethics rose in line with ethical position. Based on this finding, hypothesis H2 is accepted. 41% of the change in scientific ethics was explained by personality traits and ethical position.

Table 3

Standardised Path Coefficients and Significance Levels

Hypothesis		**Paths**		*B*	*SE*	*T*	*%95 CI*	*p*	Result
H1	Personality traits	--->	Scientific ethics	0.20	0.07	3.08	[0.08; 0.32]	***	Accepted
H2	Ethical position	--->	Scientific ethics	0.61	0.06	7.29	[0.49; 0.73]	***	Accepted

***p<0,001; CI= Confidence interval

Discussion

This study investigated the relationships between medical students' personality traits, ethical values, and perceptions of scientific ethics. The study's initial findings indicated that medical students had high scores regarding their perceptions of scientific ethics and ethical values. Again, the results of the five-factor personality test analyses showed that the students who took part had high mean scores for conscientiousness, agreeableness, and openness to new experiences, but only moderate mean scores for extraversion and neuroticism. In general, descriptive and normative studies predominate when reviewing the literature in the fields of ethics and health ethics. However, research in the field of medical ethics indicates that physicians and medical faculty students have highly developed ethical value perceptions and tendencies (Hebert et al., 1992; Miles et al., 1989; Patenaude et al., 2003; Shapiro & Miller, 1994). According to Altan et al. (2013), medical faculties offer distinct social environments where students acquire knowledge, skills, and, of course, values relevant to the medical profession through a variety of social and psychological processes. This helps to increase students' awareness of medical ethical values. Furthermore, it is believed that a medical ethics education course that explores how values will play a part in medical students' future interactions with patients, peers, and society as well as how these values fit into professional identities will positively impact the values of the candidate physicians. However, a study by Demirören et al. (2015) found that medical students have a strong tendency to assume ethical responsibility and approach ethical problems by using their skills in ethical reasoning. The idea that medical students have strong, high standards for scientific ethics is also supported by the literature in this regard.

Another finding of the study is the relationship between personality traits, ethical value perceptions and scientific ethics levels of the participating medical students. The study's relational analyses revealed that students' views of ethical values and personality traits had significant effects on their

levels of scientific ethics, both separately and together. Among these two independent variables (ethical value perception/personality traits), ethical value perception affects scientific ethics at a higher level. The second finding of the study is related to the hypothesis "personality traits have a significant effect on the perception of scientific ethics". The results of the analyses showed that the personality traits of medical students significantly predicted their perceptions of scientific ethics. Relational analyses of medical faculty students' personality traits and levels of scientific ethics revealed significant relationships. The analyses showed that scientific ethics rise in tandem with increases in positive and decreases in negative personality traits. The five-factor model of personality scale's agreeableness, extraversion, conscientiousness, and openness to experience dimensions all showed a positive correlation with the perceptions of scientific ethics. Especially students with high openness to experience and agreeableness scores were found to have high levels of scientific ethics perception. According to ethical theories, a person's ethical behaviour varies depending on their personal traits (e.g., Ferrell & Gresham, 1985, Hunt & Vitell, 1986, Hunt & Vitell, 1992, Rallapalli et al., 1994). Antes et al. (2007) and Tijdink et al. (2016) have noted the multidirectional and significant relationships between individual personality traits and scientific ethical behaviours. These researchers claim that basic scientific ethical principles such as integrity, dependability, and openness stem from the personality traits of scientists or academics. Personality traits like extraversion, conscientiousness, and agreeableness are closely associated with ethical principles like not harming research participants, knowing one's limits of expertise, and being responsible.

Another finding of the study is related to the hypothesis "Ethical status has a significant effect on the perception of scientific ethics". Correlational analyses showed that ethical dispositions of medical students significantly and strongly affected their perceptions of scientific ethics. These findings are similar to the results of studies conducted by Abu Farha et al. (2021), Bebeau & Thoma (1994), Know et al. (2017), which show that ethical dispositions make a significant contribution to students' academic integrity. For example, Abu Farha et al. (2021), in a study investigating the impact of medical students' ethical dispositions on academic integrity, found that a strong ethical awareness increased the likelihood that students would avoid academic misconduct such as cheating and plagiarism. Bebeau and Thoma's (1994) study shows that ethics education improves students' ethical reasoning abilities and that these abilities are positively related to academic ethical behaviour. As a matter of fact, Büken (2006) argues that there is a strong

relationship between ethics and scientific ethics. Scientific ethics develops and strengthens when the activities carried out in universities are carried out in accordance with general moral philosophy and professional ethics. It is a more accurate approach to consider science and general ethics together. Research ethics refers to ethical principles, regulations, instruments, procedures, and practices directly related to the process of conducting research. Scientific ethics refers to ethical values, attitudes, and behaviours related to all scientific research and study processes. Both fall under the purview of general ethics notwithstanding this distinction (Felt, 2004; Nokkala, 2010). The development of students' ethical and scientific ethical characteristics is a fundamental basis in higher education for effective learning and teaching (Steinberger et al. 2021). In the context of scientific ethics, academic integrity is a prerequisite for high-quality education (Ozoliņa & Bēriņa, 2021). It is impossible to attain quality education without maintaining standards for the quality of the educational process and fulfilling academic integrity (Eshet et al., 2022; Kudeikina et al. 2022). In this respect, it is considered important that ethical values and scientific ethics are handled together in medical education and that students acquire them. The ethical dispositions of medical students significantly affect their academic ethical behaviour. Ethical dispositions seem to play an important role in increasing students' academic integrity, avoiding unethical behaviours and complying with professional ethical standards. Therefore, strengthening ethics education in the medical education and increasing students' ethical awareness may contribute to the development of both academic and professional ethical behaviours in the long term.

Conclusion and Recommendations

As a result, we can conclude that ethical and scientific ethical perceptions of medical students were at a high level, and personal characteristics such as agreeableness, openness and conscientiousness are dominant in the personality profile. The study's key finding is that medical students' scientific ethical views and behaviours are significantly influenced by their ethical perceptions and personality traits. The study revealed the intricate and multifaceted relationship between personality traits, scientific ethics, and ethics. Under these circumstances, medical schools may design educational programmes that consider personality traits in order to promote ethical conduct in both staff and students. This may support academic integrity and encourage moral behaviour in academic environment in general. The study's limitations can be attributed to its single-center

cross-sectional design. As a result, testing the research variables with larger numbers of participants and at various universities is recommended. Increasing the number of courses, trainings, workshops, among others for the dissemination and establishment of disciplined, principled, rule-based, and diligent research processes based on the scientific method is suggested to strengthen students' scientific ethical values. In medical education, there should be a greater focus on scientific research, methodology, and ethics. Another limitation of this study is that the ethical disposition and scientific ethical perceptions of medical students were measured with self-report techniques based on the quantitative paradigm. In future studies, in-depth investigation of participants' ethical dispositions and perceptions of scientific ethics with qualitative and mixed methods will make important contributions to the field.

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