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Evaluation of the Psychometric Properties of the Moral Behavior Inventory and the Moral Values Scale on College Students

Gülbahar Baştuğ,[1] Koray Yarız,[2] Zehra Uçar Hasanlı,[2] Sevinç Kırıcı,[2] Erguvan Tuğba Özel Kızıl[2]

[1]Ankara University Vocational School of Health, Ankara, Türkiye
[2]Department of Psychiatry, Ankara University Faculty of Medicine, Ankara, Türkiye

ABSTRACT

Assessment of moral values and behaviors is important in the study of moral development. This study aimed to investigate the psychometric properties of the Moral Behavior Inventory (MBI) and Moral Values Scale (MVS) and to obtain culturally specific instruments. The study sample consisted of 505 healthy college students aged 20 years and above (386 [76.4%] women and 119 [23.6%] men). The participants were asked to complete the sociodemographic data form, MBI, MVS, Scale of Moral Maturity (SMM), Moral Disengagement Scale (MDS), and Moral Value Inventory (MVI). Exploratory factor analysis (principal component analysis and varimax rotation) was applied to the MBI, and it was found that five factors explained 48% of the total variance. Exploratory factor analysis was applied to the MVS (100 items), which originally had 50 items and was added with 50 more culture-specific items, and it was found that four factors explained 42% of the variance. Cronbach's alpha of the MBI was 0.85, and the Guttman split-half reliability coefficient was 0.83; Cronbach's alpha of the final 45-item MVS was calculated to be 0.96, and the Guttman split-half reliability coefficient was 0.93. The scores of the MBI and 45-item MVS-final form were significantly correlated with the SMM, MDS, and MVI total score, supporting the concurrent validity of these scales. It was concluded that both scales are valid and reliable measurement tools that can be used in future studies.

Keywords: Morality, moral development, moral values, moral behavior

ÖZ

Ahlaki Davranış Ölçeği ve Ahlaki Değerler Ölçeğinin Psikometrik Özelliklerinin Üniversite Öğrencilerinde İncelenmesi

Ahlak gelişiminin incelenmesinde değerler ve davranışların değerlendirilmesi önemlidir. Bu çalışmada, Ahlaki Davranış Envanteri (ADE) ve Ahlaki Değerler Ölçeğinin (ADÖ) psikometrik özelliklerinin incelenmesi ve kültüre özgü ölçme araçlarının kazandırılması amaçlandı. Çalışmanın örneklemini 20 yaş ve üstü 386 (%76,4) kadın ve 119 (%23,6) erkek toplam 505 sağlıklı üniversite öğrencisi oluşturdu. Katılımcılara Sosyodemografik Veri Formu, ADE, ADÖ, Ahlaki Olgunluk Ölçeği, Ahlaki Uzaklaşma Ölçeği ve Ahlaki Değer Ölçeği uygulandı. ADE'ye açımlayıcı faktör analizi (temel bileşenler analizi ve varimaks rotasyonu) uygulandı ve toplam varyansın %48'ini açıklayan beş faktörü olduğu; orijinali 50 maddeden oluşan ve kültüre özgü 50 madde eklenmesiyle 100 maddelik olan ADÖ'ye açımlayıcı faktör analizi uygulandı ve varyansın %42'sini açıklayan dört faktörünün bulunduğu saptandı. ADE'nin Cronbach alfa değeri 0,85, Guttman split-half güvenilirlik katsayısı 0,83; nihai 45 maddelik ADÖ'nün Cronbach alfa değeri 0,96, Guttman split-half güvenilirlik katsayısı 0,93 olarak hesaplandı. ADE ve 45 maddelik nihai ADÖ puanları Ahlaki Olgunluk Ölçeği, Ahlaki Uzaklaşma Ölçeği ve Ahlaki Değer Ölçeği toplam puanlarıyla istatistiksel olarak anlamlı biçimde ilişkili bulunmuş olup eş değer ölçek geçerlilikleri desteklendi. Her iki ölçeğin ilerideki çalışmalarda kullanılabilecek geçerli ve güvenilir ölçme araçları olduğu sonucuna varıldı.

Anahtar Kelimeler: Ahlak, ahlaki gelişim, ahlaki değerler, ahlaki davranış.

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Address for correspondence:
Koray Yarız.
Ankara Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı, Ankara, Türkiye
Phone: +90 312 595 66 72
E-mail: korayyariz@gmail.com

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INTRODUCTION

From the moment humans are born, they change and develop biologically, socially, spiritually, and psychologically. One of the most important elements of human psychosocial development is moral development. Throughout the centuries, the concept of morality has been defined in different ways by different philosophers, and it has been commonly discussed on the basis of the distinction between good and bad, right and wrong, and goodness (Gümüş & Gençdoğan, 2015). Morality is the set of attitudes and actions that people should demonstrate by thinking about what is good and right according to the morals and norms of the cultural structure in which they live (Başalan İz & Özsoy Altuğ, 2009). In the Turkish General Dictionary (Türk Dil Kurumu, 2019), morality is defined as "the patterns of behavior and rules that people in a society have to follow."

In the most general sense, morality can be defined as a set of norms, principles, and values and includes concepts, such as honesty, justice, and righteousness (Örselli & Gökçe, 2010). According to Gander and Garnider (2010), morality is evaluated as cognitive, emotional, and behavioral. When confronted with a situation, a person asks herself, "What is right and wrong?" Then, he/she attempts to form a judgment by questioning her beliefs and values. In terms of behavior, the person may take an action consistent with or contrary to the judgment he/she has formed. In the emotional process, a person may feel various emotions regarding right or wrong attitudes.

A moral judgment occurs when a person concludes that a behavior is right or wrong or good or bad (Yavuz Bozduğan, 2019). It also occurs when an individual weighs the rights of others against his/her own and chooses a direction in the face of a moral dilemma (contradiction). Moral judgment is a mental process regarding how we should treat others and how they should treat us. This judgment determines how individuals relate to others in situations where they are conflicted, contradicted, or hesitant. Studies in this area have focused on how people judge, blame, and punish a person based on his/her mental state, behavior, and consequences (Cushman, 2008; Malle, 2021).

How people make moral judgments and what processes are operative in those judgments are questions related to moral judgments extensively focused on by researchers. Generally, the current study has relied on the distinction between pragmatism and deontology in examining moral judgments. The moral situations people face throughout their lives that lead them to make certain decisions may be guided by the right–wrong nature of an action, or they may be influenced by being based on the well-being of multiple people (Lee & Gino, 2015). Pragmatism links the feasibility of an action to whether it increases the happiness of the majority (Cohen & Ahn, 2016). In this approach, the moral quality of an action is determined by its consequences. An action is morally acceptable from a pragmatic perspective if it improves the well-being and welfare of the majority, even if the action harms some people. In the deontological approach, the rightness of a moral action is considered to be independent of the situation and outcome (Gawronski & Beer, 2017). Deontology states that some actions, such as killing, stealing, or torturing, are wrong without dispute. For example, according to the pragmatic approach, killing someone is morally acceptable if it serves the good of the majority, whereas according to deontology, killing someone is morally unacceptable regardless of the consequences.

Recent research also suggests that moral judgment is a phenomenon that exhibits considerable interpersonal variation. Several factors seem to influence moral judgment, including age, educational level, gender, personality traits, acute or chronic stress, executive memory capacity, intuitive thinking ability, professional expertise, religious belief, and political opinion (Arutyunova et al, 2016; Hauser et al, 2007; Li et al, 2021; Malle, 2021; Moore et al, 2008). The evidence on these interpersonal differences comes largely from studies of brain injury and other diseases, neurotransmitters, neuroimaging, and noninvasive brain stimulation (Sevinç & Gürvit, 2015). In some neuropsychiatric disorders, such as frontotemporal dementia, a deterioration in moral behavior and the ability to follow social rules and norms occurs (Mendez et al, 2005).

Society expects people to follow certain rules and internalize such rules to fulfill their duties. This situation can be achieved through moral development, which is the process of creating a value system that ensures harmony with society (Senemoğlu, 1997). Morality is not just a value or an isolated action, but it is only possible when the individual acts according to his/her values (Fiske et al, 1991). In other words, having moral values is an indicator of moral development (Aydın, 2011). Moral development, which is the process of creating a value system that individuals effectively use in society, has been discussed in psychoanalysis, behavioral science, social learning, as well as cognitive science and neuroscience. In the field of moral development, the most recognized approach is Kohlberg's theory of cognitive moral development, which was influenced by Dewey and Piaget. Kohlberg viewed morality as a cognitive capacity and as a whole in which the individual makes a judgment by activating his/her cognitive processes when events are right or wrong, good or bad, true or false (Krebs et al, 1997). His theory was more concerned with moral reasoning than moral action (Parrish & Edelstein-Keshet, 1999). According to Freud's theory of psychoanalysis, a balanced relationship between id, ego, and superego, which are explained in the

structural model, is important for moral development (Çiftçi, 2003). Superego is the representative of the moral values and prohibitions internalized in early life and is manifested in daily life as feelings of guilt and conscience (Kuhmerker et al, 1991). The behavioral approach proposes that moral judgments are made depending on factors in the individual's environment. If a behavior is approved and reinforced, it is interpreted as right or good, but if it is not approved and is punished, it is considered to be bad or wrong. The social learning approach views morality as a whole consisting of learned habits, behaviors, and values. What a person learns depends on his/her social environment and the reinforcement conditions provided by the environment (Eisenberg, 2006). Moral disengagement is a concept considered to be within Bandura's social learning theory and is associated with the inactivation of self-regulatory mechanisms (Bandura et al, 1996; Gezici-Yalçın et al, 2016). In the individual's moral disengagement, the self-regulatory mechanisms that mediate between moral thinking and behavior do not function, and internalized self-affirmations are deactivated, causing the person to believe that his/her behavior has no moral enforcement. A conflicting perception of the situation does not occur in the person as self-enforcement must be operative for the person to perceive the violation of a moral norm. When self-enforcement is not activated, no cognitive conflict occurs. Moral disengagement leads to ignoring cues and prevents comparisons that would create conflict (Bandura et al, 1996).

Scientific studies on the evaluation of moral judgment and development are limited owing to the qualitative and quantitative inadequacy of standard measurement tools. There is a need for culturally specific, practical, and appropriate measurement tools that can evaluate moral judgment in clinical samples for further studies. A review of the Turkish literature showed that the available instruments used to evaluate the moral values and moral behavior of individuals in Turkey are quite inadequate in terms of moral reasoning/judgment evaluation. These instruments include the Humanistic Values Scale developed by Dilmaç and Kulaksızoğlu (2007); the Values in Action Questionnaire adapted to Turkish by Dündar, Ekşi, and Yıldız (2008); the Attitude Scale Toward Universal Values developed by Demir and Koç (2009); and the Moral Value Inventory (MVI) adapted to Turkish by Sarıçam, Çelik, and Güven (2013). However, none of these instruments can directly assess moral values and moral judgment, particularly in clinical samples.

Therefore, the present study aimed to explore the psychometric properties of the Turkish versions of the two scales, Moral Behavior Inventory (MBI) and Moral Values Scale (MVS), which are frequently used to assess the moral values and behaviors of individuals in previous research. The MVS was developed by Crissman (1942) as a 50-item scale to study the changes in moral judgments over the years. It is a comprehensive measurement tool for moral judgment and values and has inspired the subsequent development of many scales. The MBI was developed by Mendez et al. (2005) based on the MVS (Rettig & Pasamanick, 1959) in a way that minimizes cultural and religious influences and maximizes the content validity of empathy and sense of justice. The MBI was preferred as it is suitable for moral decision-making and reasoning in clinical samples and exhibits distinctiveness for certain clinical situations (Mendez et al, 2005; Oudman et al, 2021; Vlot et al, 2023). The Turkish adaptation of these instruments will be useful for future studies investigating moral values and behavior, particularly in clinical samples. The neurobiological basis of moral judgment can thus be understood. Moreover, moral values, judgment, and behaviors can be investigated in clinical psychometric evaluation, which occupies an important place in the framework of psychology that aims to evaluate the cognitive abilities, personality structures, emotions, thoughts, and moral development of individuals, and can pave the way for future psychological and sociological studies on this topic.

METHOD

This study was conducted on 505 healthy college students (386 [76.4%] women and 119 [23.6%] men) aged 20 years and above who volunteered to participate from different departments of a university. Their mean age was 20.1±1.56 years, and their mean education period was 13.54±0.83 years. Most of the participants were single (n=498, 98.6%), 6 (1.2%) were married, and 1 (0.2%) was divorced. As regards their parents, 63.6% (n=321) of the mothers were primary school graduates and 52.9% of the fathers (n=267) were high school graduates or higher. 46.7% of them lived with their families. After the participants signed the informed consent form, the sociodemographic data form, MBI, MVS, Scale of Moral Maturity (SMM), Moral Disengagement Scale (MDS), and MVI were used. To ensure the confidentiality of their personal data, the participants were asked to use pseudonyms in the scales. This study was conducted in accordance with the principles of the Declaration of Helsinki. The study protocol was approved by the University Ethics Committee (04 meeting number of 02/28/2022 and 51 decision number). Detailed information on the scales are presented below.

Measures

MBI: The MBI, which was developed by Mendez, Anderson, and Shapira (2005), is a 4-point Likert scale (1, not wrong; 2, slightly wrong; 3, moderately wrong; 4, strongly wrong) containing 24 items. The original study was conducted on 26 patients with frontotemporal dementia, 26 with Alzheimer's disease and dementia, and 26 healthy adults. Semireliability (Cronbach's

α-coefficient) for all 78 participants was determined to be rkk=0.73 (0.72–0.76 for each group). In this study, no statistically significant difference was observed between the groups in terms of scale scores (Mendez et al, 2005). The MBI was translated into Turkish by the researchers (E.T.O.K. and Z.U.) after obtaining the required permission from the authors of the original scale for the Turkish validity and reliability study. Backtranslation from Turkish to English was performed by another researcher (K.Y.). Both versions were fully compatible with each other. Examples of items are "cut in line when in a hurry," "take the last seat on a crowded bus," "ignore a hungry stranger," and "fail to keep minor promises."

MVS: For the first time, Crissman (1942) developed the 50-item MVS to study the changes in moral judgments over the years. Later, Rettig and Pasamanick (1959) employed the same scale to examine the items to be rated as moral and immoral. The participants were asked to indicate how wrong they were on a scale ranging from wrong (1) to very wrong (10). In a study conducted on 489 university students, the Kuder–Richardson reliability coefficient was 0.90. When the factor structure of the scale was examined, it was found to consist of six factors. Factor A includes core moral values, Factor B consists of religious moral values, and Factor C relates to family concern and lies between positively loaded items relating to core family functions and negatively loaded items relating to more general social functions (voting behavior, giving to charity, and supporting religion), suggesting discrimination. Furthermore, Factor D relates to "puritan morality," indicating that people distinguish between actions that are traditionally wrong and actions that are fundamentally and deeply wrong (Factor A). Factor E is the most uncertain of the factors and includes items such as forged checks and failure to keep promises. Lastly, Factor F indicates economic moral values.

As the MVS is extremely old, it was impossible to ask permission from the developers of the original scale. The Turkish translation (E.T.O.K. and Z.U.) and the English backtranslation (K.Y.) of the scale were performed by the researchers, and the two forms proved to be fully compatible with each other. In the assessment of content validity, it was assumed that the original scale items were strongly influenced by cultural and religious characteristics. Therefore, 50 alternative items (e.g., not taking care of elderly parents, not executing a deceased person's will, not visiting elders during religious holidays) were added to the scale that were deemed appropriate for Turkish culture by the researchers (S.K. and G.B.). In this study, the item pool was intentionally broadened to facilitate the identification of items that are appropriate for Turkish culture.

SMM: SMM, developed by Şengün and Kaya (2007), is a 5-point Likert scale containing 66 items. It measures the level of moral maturity of individuals. While the rating of the items in the scale is "yes, always=5," "most of the time=4," "occasionally=3," "very rarely=2," and "no, never=1" for positive items, the rating is reversed for negative items. Of the items of this scale, 52 are positive and 14 are negative. The highest score that can be obtained with the moral maturity scale is 330 (66×5), and the lowest score is 66′ (66×1). The highest score that can be obtained on the SMM is 330 (66×5), and the lowest score is 66′ (66×1). A high score indicates high moral maturity, whereas a low score indicates low moral maturity. The validity and reliability data of the SMM were collected from 830 students. Furthermore, factor analysis was conducted for construct validity, and it was found that the factor loadings of the items were collected in the first factor. The criterion validity of the scale was evaluated using the Defining Issues Test (DIT). It was found that there was a significant correlation between the postconventional score of DIT and the SMM scores. The test–retest reliability coefficient of the SMM was 0.88, the split-half reliability coefficient was 0.89, and the Cronbach alpha reliability coefficient was 0.93. "When I behave badly, my conscience is disturbed." and "I make an effort to make others happy." are some examples of the items.

MDS: The MDS, which was developed by Bandura, Barbaranelli, Caprara, and Pastorelli (1996), measures the extent to which a person uses moral disengagement methods. A high score on the scale indicates that immoral behavior is considered normal by the person. The scale is theoretically based on the Moral Disengagement Theory. This 32-item scale covers behaviors, such as assault, harmful acts, name-calling, cheating, and stealing, and includes eight sociocognitive mechanisms for justifying immoral behaviors. These mechanisms are moral justification (1 [It's not wrong to fight to protect your friends.], 9, 17, 25), euphemistic language (2, 10, 18 [When you use someone's bike without permission, you are just "borrowing" it.], 26), advantageous comparing (3 [Damaging property is not a big deal when someone is harming people.], 11, 19, 27), diffusion of responsibility (4, 12, 20 [It is unfair to blame one member of the group for wrongs decided by the group.], 28), displacement of responsibility (5 [Children living in poor conditions cannot be blamed for their aggressive behavior], 13, 21, 29), disregard or distortion of consequences (6 [It's okay to tell little lies that don't hurt anyone.], 14, 22, 30), dehumanization (7 [Some people deserve to be treated like animals.], 15, 23, 31), and blame (8, 16 [It is their own fault that people who do not have their belongings have their belongings stolen.], 24, 32). Although the scale is based on eight sociocognitive mechanisms, factor analysis revealed that the scale had a one-dimensional structure explaining 16.2% of the variance, and the Cronbach alpha coefficient was 0.82 (Bandura et al, 1996). The Turkish adaptation of the scale was

Table 1. Mean scores and standard deviations of all scale scores

Scales	Mean (n=505)	SD
Moral Behavior Inventory (MBI)	65.36	10.72
Moral Values Scale (MVS) 50	349.32	69.38
Moral Values Scale (MVS) 45	327.47	75.94
Scale of Moral Maturity (SMM)	272.99	1.25
Moral Disengagement Scale (MDS)	34.67	0.75
Moral Value Inventory (MVI)	180.24	1.35

SD: Standard deviation

performed by Gezici-Yalçın et al. (2016) on university students, and the scale, which was originally graded as 3, was converted to a 5-point scale. The Cronbach alpha coefficient of the Turkish version was 0.86, and the split-half reliability was.78.

MVI: A pool of 99 items was first created for the MVI developed by Abdullah, Salleh, Mahmud, and Ghani (2010), and these items were prepared based on nine values (patience, gratitude, humility, positive interest, honesty, love, avoidance of prohibitions, sincerity, taqwa). As a result of the exploratory factor analysis, a structure consisting of 48 items (such as "When listening to the news, I act without prejudice and with an open mind to all opinions.") and four factors (self-spirituality, social personality, social spirituality, self) was obtained. The Cronbach alpha coefficient was 0.95 for the whole scale and ranged between 0.73 and 0.87 for the subscales. A total of 301 university students participated in the Turkish adaptation study conducted by Sarıçam et al. (2013). The Humanistic Values Scale developed by Dilmaç and Kulaksızoğlu (2007) was employed for criterion-related validity. In the exploratory factor analysis, the Keiser–Meyer–Olkin (KMO) sample fit coefficient was calculated to be 0.77 and the Barlett test $\chi 2$ value was 3108,206 ($p<0.001$, SD=1128). The exploratory factor analysis for the construct validity of the scale revealed that 48 items were collected in a single factor, which was not consistent with the original form. The Cronbach alpha coefficient of the scale was 0.80. Answering the scale is in the form of a 5-point Likert scale (1, never; 5, always) for each statement. Increasing scores indicate higher moral values. In other words, higher scores indicate increased tendency toward spiritual life.

Statistical Analysis

SPSS was used for all statistical analyses. The chi-squared test was used for categorical variables, and according to the distribution of the data, independent samples t-test or Mann–Whitney U test was used for continuous variables. Validity analyses for the MBI and MVS (criterion-based validity–concurrent validity) were conducted by examining their correlations with the scores obtained from the SMM, MDS, and MVS. For correlation analysis, Pearson's or Spearman's test was employed in accordance with the distribution. In addition, exploratory factor analysis was applied to evaluate the construct validity of the MBI and MVS. Internal consistency analysis (with Cronbach alpha and halving method/split-half) was used for reliability analyses (Karakoç & Dönmez, 2014).

Table 2. Factor structure of the Moral Behavior Inventory (MBI)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
MBI1	**0.51**	0.10	0.01	-0.07	0.47
MBI2	-0.13	**0.72**	-0.03	-0.04	0.12
MBI3	0.29	-0.20	0.39	0.14	0.20
MBI4	**0.62**	-0.02	0.19	0.09	0.02
MBI5	**0.66**	0.03	0.18	0.05	0.11
MBI6	0.38	**0.41**	-0.09	0.28	0.05
MBI7	**0.53**	0.25	0.13	0.14	0.22
MBI8	**0.65**	0.06	0.13	0.09	0.11
MBI9	0.08	-0.37	0.36	0.16	0.37
MBI10	0.05	0.03	0.22	0.27	**0.56**
MBI11	0.28	**0.44**	0.01	0.42	0.31
MBI12	0.03	**0.47**	-0.16	0.41	0.08
MBI13	0.06	0.05	0.14	**0.83**	0.11
MBI14	0.14	0.02	0.22	**0.75**	0.09
MBI15	**0.42**	0.28	0.11	0.26	-0.37
MBI16	0.09	0.23	**0.58**	0.11	0.12
MBI17	0.16	0.07	**0.81**	-0.02	-0.04
MBI18	0.18	-0.19	**0.62**	0.16	0.22
MBI19	0.26	0.46	-0.03	0.04	**0.45**
MBI20	0.25	0.17	0.35	0.14	0.33
MBI21	0.42	**0.46**	0.18	0.00	0.19
MBI22	0.30	0.17	0.28	0.09	**0.49**
MBI23	0.19	**0.63**	0.14	0.06	-0.08
MBI24	0.18	**0.45**	0.33	0.32	-0.01

RESULTS

Descriptive Statistics

The mean scores and standard deviation values of the scale total scores of the entire sample are presented in Table 1.

No statistically significant difference was observed between the male and female participants in terms of the MBI and MVS-45 total scores (for MBI, mean and SD: 64.59±11.37 vs. 65.59±10.52; t=-0.89, p=0.37; for MVS-45, mean and SD: 324.61±75.62 vs. 328.36±76.12; t=-0.47, p=0.64).

Validity and Reliability Analyses

When exploratory factor analysis (using principal component analysis and varimax rotation) was applied to 24 items of the MBI, it was found that there were five factors with an eigenvalue greater than 1, explaining 48% of the total variance. The KMO value was 0.87, which was statistically significant ($p<0.001$). The Cronbach alpha value of the MBI was 0.85, and the Guttman split-half reliability coefficient was 0.83. The factor loadings of three items (items 3, 9, and 20) of the MBI were below 0.40 (Table 2).

The Cronbach alpha value of the original form of MVS containing 50 items was found to be 0.94. When exploratory factor analysis (using principal component analysis and varimax rotation) was applied for the MVS containing 100 items, it was found that there were four factors with an eigenvalue greater than one and explaining 42% of the total variance based on the sloping graph (Table 3). The KMO value was 0.95, which was significant ($p<0.001$). A total of 55 items were excluded from the final scale as their factor loadings were below 0.40 or they were not loaded on these four factors. Of the 55 extracted items, 41 were from the original scale items; the Cronbach alpha value of 45 items constituting the final scale was calculated to be 0.96, and the Guttman split-half reliability coefficient was calculated to be 0.93. The factor loads of the MVS containing 45 items are given in Table 3.

Table 4 presents the correlations of the MBI and the final form of MVS, namely, MVS-45, with the SMM, MDS, and MVI total scores. Accordingly, it was determined that the MBI and MVS-45 were statistically significantly correlated with all the scale scores whereas the MDS scores showed a negative correlation (Table 4).

DISCUSSION

The Turkish versions of the MBI and MVS are reliable and valid instruments for assessing moral behavior and values, as evidenced by the results of this study. As many items in the original form of the MVS were not suitable for the Turkish culture, MVS-45 was introduced as a culture-specific assessment tool by updating the original form and adding appropriate items. Evaluations of moral values and behaviors are highly influenced by culture. Furthermore, the changing and developing social structure and judgments over time show the need to update such scales. As a result, the present study is expected to make a substantial contribution to the current literature and serve as a direction for future research.

For validity analyses (criterion-based validity–concurrent validity) of the MBI and MVS-45, correlations with SMM, MDS, and MVI were examined, and they were found to be highly correlated. The exploratory factor analysis conducted

Table 3. Factorial structure of the 45-item Moral Values Scale (MVS)

Items	Factor 1	Factor 2	Factor 3	Factor 4
MVS 15	–	0.42	–	–
MVS 23	–	0.62	–	–
MVS 24	–	0.66	–	–
MVS 26	–	0.43	–	–
MVS 27	–	0.73	–	–
MVS 30	–	0.44	–	–
MVS 35	–	0.41	–	–
MVS 37	–	0.45	–	–
MVS 38	–	0.43	–	–
MVS 54	0.40	–	–	–
MVS 56	0.69	–	–	–
MVS 57	0.67	–	–	–
MVS 58	0.43	–	–	–
MVS 64	0.45	–	–	–
MVS 65	–	–	0.46	–
MVS 67	0.44	–	–	–
MVS 68	0.44	–	–	–
MVS 69	0.67	–	–	–
MVS 70	0.73	–	–	–
MVS 71	0.71	–	–	–
MVS 72	–	–	–	0.49
MVS 73	–	–	–	0.54
MVS 74	–	–	–	0.55
MVS 75	0.41	–	–	–
MVS 76	–	–	–	0.69
MVS 77	–	–	–	0.61
MVS 78	–	–	–	0.53
MVS 80	–	–	–	0.61
MVS 81	0.57	–	–	–
MVS 82	–	–	–	0.45
MVS 83	0.56	–	–	–
MVS 84	0.52	–	–	–
MVS 85	–	0.57	–	–
MVS 86	–	0.58	–	–
MVS 88	0.69	–	–	–
MVS 89	0.54	–	–	–
MVS 91	0.48	–	–	–
MVS 92	0.54	–	–	–
MVS 93	–	–	0.62	–
MVS 94	–	–	0.70	–
MVS 95	–	–	0.39	–
MVS 96	–	–	0.51	–
MVS 97	–	–	0.69	–
MVS 98	–	–	0.70	–
MVS 99	–	–	0.62	–

Table 4. Correlations of the scales used in the study

	1. Moral Behavior Inventory (MBI))	2. Moral Values Scale-45 (MVS-45)	3. Scale of Moral Maturity (SMM)	4. Moral Disengagement Scale (MDS)	5. Moral Value Inventory (MVI)
2	0.62[a*]				
3	0.48[a*]	0.37[a*]			
4	-0.33[a*]	-0.27[a*]	-0.52[a*]		
5	0.38[b*]	0.39[b*]	0.59[b*]	-0.25[b*]	–

a: Pearson's correlation test; b: Spearman's test; *: P<0.001.

to evaluate the construct validity of the MBI revealed that 24 items were distributed into five factors, namely, irresponsibility, egocentrism, rule-breaking, indifference, and pragmatism. It was determined that the factor loads of three items (3, "Sell someone a defective car"; 9, "Drive out the homeless from your community"; 20, " Falsely get out of jury duty") were below 0.40. All these items were found to load almost equally on different factors. Original items 9 and 20 seemed to be culturally affected; however, these items were translated differently (9, "If you isolate a homeless person in the community"; 20, "If you withdraw from jury /citizenship duty (unlawfully) even though you are not entitled to do so"). Due to the high internal consistency and reliability of the scale, it was decided that it would be more appropriate not to exclude these three items from the scale. The 2nd item ("Take the last seat on a crowded bus") and the 12th item ("Keep over-change at a store") of the MBI were evaluated as "not morally wrong" by the majority of the participants (76.2% and 53.9%, respectively). These results may indicate that the participants exhibit an attitude contrary to traditional social rules, which may be due to the fact that the sample consists of young people. This situation can be interpreted as a consequence that facilitates Turkey's transition from a collectivist to an individualistic structure (Göle, 2001).

Similarly, in the exploratory factor analysis employed to evaluate the construct validity of the MVS, it was found that the items were distributed into four factors (basic moral values, material gain, social values, and social order). In this scale, 55 of 100 items were excluded from the final scale as their factor loadings were below 0.40 or they were not loaded on the four existing factors. It was found that some of these items removed from the scale were related to Christianity (e.g., seeking amusement on Sunday instead of going to church), which is the religion of the culture in which the original scale was developed. The original scale had six factors: moral values, religious moral values, family concern, puritan morality, others, and economic moral values (Rettig & Pasamanick, 1959). Essentially, MVS-45 has a similar factor structure with the original scale, except for the religious moral values. General moral values are the main factor in both versions. In MVS-45, social values and social order factors seem to correspond to family concern and puritan morality, which are associated with traditional values in the original version. Some items associated with religious beliefs in MVS-45 were also included in the social values factor (e.g., 65, "Eating next to someone who is fasting"). The internal consistency and reliability of MVS-45 were found to be quite high.

The MVS-45 and MBI do not have cutoff values. Thus, future studies are recommended to include healthy controls in clinical samples.

The results obtained from the studies indicate that as age progresses, the moral judgment level of individuals will improve (Cesur, 1997; Kaya, 1993; McNair et al, 2019). However, some studies that do not show a significant relationship between age and moral judgment levels in adults (Rest, 1979). As this study was conducted on university students of similar ages and educational level did not allow the evaluation of the effect of age and education on moral judgment processes. Therefore, in future studies, it would be useful to examine the MBI and MVS-45 in samples with different age groups and educational levels.

Another factor affecting moral judgment is gender. For example, Fumagalli et al. (2010a) found that men gave more pragmatist responses than women when they had to resolve a personal moral dilemma. Manfrinati et al. (2013) reported that women are less inclined to give pragmatist responses and their decision-making processes are slower. Women were found to be more inclined than men to consider the care and protection of others when making moral decisions and to avoid hurting them (Friedman et al, 1987; Hotelling & Forrest, 1985). Meanwhile, men are more inclined to ignore the needs of others when making decisions when they are in a moral dilemma but give more consideration to principles, such as justice and equality (Friedman et al,

1987). In addition, neuroimaging studies support that there are gender differences in moral judgment (Riva et al, 2019). Some studies reported that women tend to exhibit stronger deontological tendencies than men (Friesdorf et al, 2015; Gilligan, 1982; Jaffee & Hyde, 2000). Harenski, Antonenko, Shane, and Kiehl (2008) also observed differences in neural structures involved in the moral judgments of men and women. Similarly, anodal transcranial direct current stimulation (tDCS) of the ventral prefrontal cortex increases pragmatist responses to moral dilemmas, whereas cathodal tDCS exhibited a tendency to decrease (Fumagalli et al, 2010a). However, this effect only occurred in women; men were unaffected by the manipulation of cortical excitability. Moreover, a stronger correlation was observed between posterior cingulate and insula activity when women were shown pictures of moral violations; in men, a stronger activity was found in the lower parietal lobe (Fumagalli et al, 2010b). In the present study, however, no significant difference was observed between the male and female participants in terms of moral behavior and values evaluated using the MBI and MVS-45; this finding contradicts the results of the current literature. Women also had higher scores in the original MVS (Crissman, 1942). This result may be due to the temporal change or exclusion of religious items from the MVS-45. Moreover, our sample consisted of participants from similar ages and sociocultural levels, and the difference between men and women could be widened at later ages. In addition, the fact that the majority of the sample consisted of female participants may have caused a statistical type-II error.

Another limitation of the study is that all assessments were based on self-report and did not include a clinical assessment. It is recommended that psychiatric disorders, particularly personality disorders, which may affect moral behavior and values, should be evaluated in future studies.

CONCLUSION

Recently, the concepts of moral development and moral judgment, which are important factors in the psychosocial development of human beings, have become an interdisciplinary field of study. Moral development research is conducted in a wide variety of areas, including civil rights, cultural differences, intergroup relations, gender, family relations, parenting, conscience, values, social services, aggression, nature, children's rights, justice, crime, and victimization. In this study, two measurement tools, namely, the MBI and MVS-45, which are thought to fill an important gap in the psychology literature, were investigated. The results indicated that these tools are valid and reliable and can be used in future neuropsychological, developmental, forensic, and clinical evaluation studies.

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