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The Reliability and Validity Study of The Turkish Version of Gambling Disorder Identification Test

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Abstract. *Background and Objectives:* Gambling disorder was first classified as a mental disorder in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Due to the lack of structured clinical interviews, scales are commonly used to assess gambling disorders. The Gambling Disorder Identification Test (GDIT) was developed to create a valid and reliable scale aligned with the diagnostic criteria for Gambling Disorder in DSM-5. This study aims to establish the reliability and validity of the Turkish version of the GDIT scale. *Methods:* Total number of 290 participants were selected after assessing language, content, and construct validity. Individuals seeking treatment for gambling-related problems were interviewed. The control group comprised those who did not apply to the psychiatry clinic. A diagnostic interview was conducted with participants, after they completed the GDIT forms. Four weeks following the application, the scales were re-administered to 58 participants for consistency analysis. GDIT scores and the corresponding DSM-5-TR diagnostic criteria counts were recorded. *Results:* In the test–retest reliability analysis, the intraclass correlation coefficient was 0.998, and Cronbach's alpha was 0.941, indicating excellent reliability. Participants in the case group met an average of 6.6 DSM-5-TR diagnostic criteria for gambling disorder, whereas the control group met an average of 0.2 criteria. Each GDIT item showed significant correlations with DSM-5-TR gambling disorder criteria**,** supporting strong item-level construct validity. *Conclusions***:** The Turkish version of the GDIT is a valid and reliable tool for assessing gambling disorders in the Turkish population.

Keywords: Gambling, Diagnostic Tools, Reliability, Validity.

Introduction

Gambling can be defined as "risking something of value in an action where the probability of losing or winning is less than certain." Gambling has become an enormous industry that takes many forms (Gabellini, Lucchini, & Gattoni, 2023). Data on the prevalence of gambling disorders widely vary. Although a prevalence of approximately 1% is mentioned worldwide, this rate varies between 0.12% and 5.8%. People's gambling behaviors are evaluated according to scales with different cutoff points for diagnosis (Calado & Griffiths, 2016).

Gambling disorder was first defined as a mental disorder named as “Pathological Gambling” in DSM-III, published in 1980. In DSM-5, published in 2013, several important changes were made regarding gambling disorder compared to the previous versions. First, the name of the disorder was changed, and the name "Gambling Disorder" was preferred. Secondly, gambling disorder has been removed from impulse control disorders as a diagnostic category and reclassified under the heading "Substance-Related and Addictive Disorders." Lastly, In DSM-IV, a diagnosis of gambling disorder required meeting at least five of the ten criteria. However, in DSM-5, the criterion related to engaging in illegal activities to support gambling was removed, and the threshold for diagnosis was lowered to meet four out of nine criteria (Stinchfield et al., 2016).

In a meta-analysis comparing 202 studies on gambling disorders conducted between 1975 and 2012, the prevalence of gambling disorders was found to range from 0.5% to 7.6%. The authors highlighted various methodological issues affecting gambling prevalence rates, noting that comparisons between studies are challenging and potentially misleading (Williams & Volberg, 2014a).

Semi-structured diagnostic interviews, such as the Structured Clinical Interview for Gambling Disorder (SCI-GD), may be used to diagnose gambling disorders (Grant, Steinberg, Kim, Rounsaville, & Potenza, 2004). However, validity and reliability analyses of this interview have not yet been conducted in Türkiye.

Due to the absence of structured clinical interviews, scales are commonly used to evaluate gambling disorders. Nevertheless, there are significant issues with the alignment between existing gambling disorder scales and diagnostic criteria. A recent systematic review of gambling disorder scales identified severe diagnostic shortcomings in the scales currently used for DSM-5 gambling disorder diagnosis. Of these, only the South Oaks Gambling Screening Test has been validated against a standard semi-structured interview, regarded as the reference for diagnosing gambling disorders (Otto et al., 2020).

However, the South Oaks Gambling Screening Test has some limitations. The scale does not have cutoff scores for the severity of gambling disorder. An additional clear limitation of this scale is its reliance

on the DSM-III-R clinical criteria for pathological gambling, which were current at the time of its development. Consequently, certain aspects of the scale may now be considered outdated (Duvarcı & Varan, 2001).

Experts discussed issues concerning discrepancies in gambling disorder scales during panels at the 3rd Annual Alberta Gambling Research Institute Conference, held at the University of Calgary, Canada. As a result of these discussions, a consensus-based framework, termed the "Banff Consensus," was developed to outline the minimum specifications for gambling disorder scales (Walker et al., 2006). Despite the formulation of the Banff Consensus, few comprehensive studies have examined the alignment between gambling scales and the consensus recommendations. However, some research has indicated that most gambling scales do not fully meet the Banff Consensus guidelines (Pickering, Keen, Entwistle, & Blaszczynski, 2017).

The Gambling Disorder Identification Test (GDIT) was developed in response to various challenges, drawing on the recommendations of the Banff Consensus and using the DSM-5 as a reference. The GDIT was designed to parallel the Alcohol Use Disorder Identification Test (AUDIT) and the Drug Use Disorder Identification Test (DUDIT) (Molander et al., 2019). The process began with four gambling researchers conducting a content analysis and categorizing 583 statements from 47 existing gambling scales. From this analysis, 30 candidate items were selected for inclusion in the GDIT. Sixty-one mental health professionals from 10 countries participated in an online Delphi process to ensure construct and content validity, rating the 30 proposed items. Based on the feedback from this process, a draft version of the GDIT was developed. The evaluation of the psychometric properties of the GDIT, including validation analyses, yielded that the GDIT showed excellent internal consistency reliability ($\alpha = 0.94$) and test-retest reliability (intraclass correlation coefficient = 0.93) (Molander et al., 2019)..

Confirmatory factor analysis showed factor loadings supporting the measurement of the three domains that the GDIT planned to measure, namely gambling behavior, gambling symptoms, and negative consequences of gambling, considering the Banff Consensus recommendations. Afterward, ROC analyses were used to determine the cutoff points of the scale as "Recreational Gambling (<15)", "Problematic Gambling (15-19)" and "Gambling Disorder (≥20)". "Mild Gambling Disorder (20-24)", "Moderate Gambling Disorder (25-29)" and "Severe Gambling Disorder (≥30)" (Molander et al., 2019).. As a result of all these analyses, GDIT has been accepted as a valid and reliable scale for detecting gambling disorders as well as determining the severity of gambling disorders (Molander et al., 2023).

Although international research has increasingly focused on identifying gambling disorder using standardized tools, Turkey still lacks a validated instrument for systematically assessing gambling-related behavior and harm. This gap creates significant limitations for clinical screening,

epidemiological surveillance, and cross-cultural research. The GDIT, developed in accordance with the Banff Consensus recommendations and grounded in DSM-5 criteria, offers a psychometrically robust alternative to older measures with inconsistent conceptual foundations. However, without an adapted and validated Turkish version, clinicians and researchers are unable to apply these internationally accepted standards. Therefore, thepresent study aimed to evaluate the diagnostic validity and reliability of the GDIT within a Turkish clinical sample. The specific objectives were; examining the internal consistency, test–retest reliability, and construct validity of the GDIT, comparing GDIT scores with DSM-5-TR diagnostic criteria for Gambling Disorder, and contribute to the limited research on standardized assessment tools for gambling disorder in Türkiye.

Methods

This study was designed as a quantitative, analytical, and cross-sectional investigation, with data collection occurring between January 1, 2023, and September 1, 2023. Participants who presented with gambling-related issues at the Psychiatry Outpatient Clinic of İzmir Seferihisar Necat Hepkon State Hospital were interviewed.

All participants were evaluated for DSM-5-TR gambling disorder criteria using the SCID, administered by psychiatrists trained in addiction assessment. Diagnostic interviews were conducted prior to administering the GDIT, and interviewers were blind to group assignment and all scale scores. After the diagnostic evaluation, participants independently completed the Gambling Disorder Identification Test (GDIT). The GDIT, developed by Molander et al. (2019), is a 14-item multidimensional screening instrument assessing gambling behavior, gambling problems, and negative consequences. Items are rated on a 4-point ordinal scale (0–3; ‘Never’ to ‘Almost always’), with higher scores reflecting greater gambling-related harm.

Following completion of the assessments, each participant’s case number, interview outcomes, and test results were recorded. The control group consisted of hospital visitors and volunteers who met the same inclusion criteria as the case group except for the absence of gambling disorder. All control participants were screened with the same SCID protocol to confirm they did not meet current or subthreshold gambling disorder criteria. GDIT forms were administered to all participants who provided informed consent. For test–retest reliability, the research scales were re-administered to 58 participants four weeks after the initial administration.

The inclusion criteria for participants were as follows: being between 18 and 65, having a diagnosis of Gambling Disorder according to the DSM-5-TR for the case group, having no diagnosis for the control group, and consenting to participate in the study. Exclusion criteria included having a comorbid mental disorder that could influence scale scores, being illiterate, and refusing to participate in the study. Case report forms were utilized to

collect sociodemographic data, including age, gender, education level, marital status, and occupational status. GDIT scores and the corresponding DSM-5-TR criteria count for each participant were compiled after the interviews.

Data Analysis

SPSS 29 was employed to analyze the data. The participants' demographic characteristics are presented in mean, frequency, and percentage. The analysis of variance test was applied to numerical variables, and the chi-square test was applied to categorical variables. In reliability analyses, Cronbach's alpha internal consistency analyses of the scales' total and subdimensions were performed. Also, the scale's reliability was demonstrated with item-total score and subscale-total score correlation coefficients.

Receiver Operating Characteristic (ROC) analyses were conducted in the development of the GDIT scoring system. The optimal cutoff point was identified by calculating the Youden index. Research scales were re-administered to a minimum of 30 volunteers from the case and control groups, with a minimum interval of two weeks between the initial and subsequent applications. Test-retest reliability was established by calculating the correlation coefficient between the two sets of measurements. Confirmatory factor analyses were performed to assess the scale's construct validity, evaluating items with factor loadings of 0.4 and above within the identified factor structures.

Results

The sociodemographic characteristics of the participants are presented in Table 1. Clinical interviews conducted with both the case and control groups revealed that participants in the case group met an average of 6.6 out of the 9 diagnostic criteria for gambling disorder as defined by the DSM-5-TR. In contrast, participants in the control group met an average of only 0.2 criteria. This difference was statistically significant ($p < 0.001$; Fisher's Exact Test). Within the case group, 51 out of 145 participants were diagnosed with non-severe gambling disorder (GD), 39 were diagnosed with moderate GD, and 55 were diagnosed with severe GD.

Table 1. Sociodemographic Data of the Sample

		Case Group, n (%)	Control Group, n (%)	p-value
Gender[1]	Female	3 (2.1)	2 (1.4)	1.000
	Male	142 (97.9)	143 (98.6)	
Marital Status[2]	Single	82 (56.6)	85 (58.6)	
	Married	57 (39.3)	52 (85.9)	0.744
	Divorced/Widowed	6 (4.1)	8 (5.5)	
Occupational Status[1]	Unemployed	53 (36.6)	50 (34.5)	0.878
	Employed	90 (62.1)	92 (63.4)	
	Student	2 (1.4)	3 (2.1)	
		Case group	Control Group	
Age (year)[3]		31.3 [18-56]	30.1 [18-54]	0.991
Education (year)[3]		11.2 [5-16]	11.5[7-16]	0.958

1. Fisher's exact test 2. Chi square 3. Fisher's test for variance, mean, minimum and maximum values were given

Validity Analyses

Language Validity

Two psychiatrists translated GDIT from English to Turkish. They later applied this translation to a group of 10 psychiatrists and psychiatry residents and a group of 10 psychologists for understanding. Based on the feedback received, adjustments were made.

National and regional card games or events on which betting can be made have been added to the gambling types in the "Additional" section of the scale (Batak, pişti, deve güreşi, horoz dövüşü, etc.).

Then, a professional translator who had never seen the original English version of the scale translated it from Turkish to English. This translation was forwarded to the team that created the original GDIT, and the scale took its final form in accordance with the suggestions. The translation and back-translation process was conducted in accordance with established guidelines to ensure semantic and conceptual equivalence. Although formal pilot testing with a separate participant sample was not performed, the translated version was reviewed by bilingual clinicians with experience in gambling-related assessments to evaluate clarity and comprehensibility. The absence of pilot testing represents a limitation of the adaptation process.

Content Validity

Content validity was assessed using the Lawshe method. Twelve specialist physicians in mental health and diseases evaluated the relevance of each GDIT item. Experts were asked to indicate whether each item was essential for measuring the intended construct, partially relevant but insufficient, or not relevant. Based on these evaluations, content validity ratios (CVR) were calculated to reflect the level of expert agreement on the essentiality of each item, with higher CVR values indicating stronger consensus among experts regarding item relevance.

In determining the content validity of the GDIT, the Content Validity Criterion (CVA) was established at 0.56, based on the consultation with the twelve experts. For an item to yield a CVA value below this threshold, the number of experts rating it as "Necessary" must be nine or fewer. In our study, the Content Validity Ratio (CVR) for all items in the scale exceeded the CVA value of 0.56. Consequently, no items were removed from the scale following the content validity assessment.

Construct Validity

Confirmatory factor analysis (CFA) is employed to verify the factor structure of a scale that has been previously established. This study conducted CFA based on the participants' responses to the Gambling Disorder Identification Test (GDIT) items. The original version of the scale comprises 14 items organized into three sub-dimensions. The first three items address gambling habits, items four through ten pertain to gambling symptoms, and the final four items focus on the negative consequences of gambling. A summary of the data is presented in Table 2.

Table 2. Confirmatory Factor Analysis (CFA) Results of GDIT Items

GDIT	1st Dimension	2nd Dimension	3rd Dimension
Item 1	.641		
Item 2	.670		
Item 3	.743		
Item 4		.614	
Item 5		.844	
Item 6		.733	
Item 7		.710	
Item 8		.938	
Item 9		.765	
Item 10		.629	
Item 11			.938
Item 12			.830
Item 13			.672
Item 14			.579

Model fit indices: χ^2:83.7 df:36 p<.001 CFI: 0.988 TLI: 0.971 RMSEA: 0.0676 %95 CI: 0.048-0.086

Upon examination of the CFA results, it was found that the factor loadings for all items exceeded 0.500. The analysis indicated that the scale model exhibited a satisfactory fit; therefore, no modifications were made to the items or removed from the scale.

Reliability Analyses

Test-Retest/Invariance Reliability

To evaluate the invariance of the scale over time, the relationship between the scores obtained from the first and second administrations was examined using the intraclass correlation coefficient (ICC). The ICC for the responses provided by participants to the repeated questions assessing

reliability was 0.998. This result indicates that the fit for GDIT is very good. The retest interval was relatively short, which should be considered when interpreting this finding.

Internal Consistency

Cronbach's alpha value is utilized as a reliable indicator of internal consistency. It was found to be 0.941, indicating that the scale demonstrates very high reliability, thus negating the need for further processing.

When the Cronbach's alpha values were analyzed individually for the GDIT sub-dimensions—gambling behavior, gambling symptoms, and negative consequences of gambling—these values were 0.847, 0.914, and 0.783, respectively. Item-total correlations, along with the new Cronbach's alpha coefficient values that would result from the deletion of each item in question, are summarized in Table 3.

Table 3. Total Correlations of GDIT Items and Cronbach's Alpha Value in the Case of Removal of Items

GDIT Item	Item Total Correlations	Cronbach's Alpha Value
Item 1	.922	.930
Item 2	.773	.936
Item 3	.567	.941
Item 4	.868	.934
Item 5	.883	.933
Item 6	.846	.933
Item 7	.830	.934
Item 8	.715	.938
Item 9	.822	.935
Item 10	.854	.934
Item 11	.736	.939
Item 12	.547	.942
Item 13	.791	.937
Item 14	.509	.946

Item numbers correspond to the following content domains: GDIT1–GDIT3 = gambling behavior; GDIT4–GDIT10 = gambling symptoms; GDIT11–GDIT14 = negative consequences.

GDIT Results

The scale was administered to both groups, with participants completing it independently. The mean scale score for the case group was 28.2 points, while the control group scored a mean of 5.3 points; this difference was significant ($p < 0.001$). Two-way chi-square analyses were conducted for each Gambling Disorder Identification Test (GDIT) item individually, demonstrating that all items were significantly related to the diagnosis of gambling disorder. The mean values of all GDIT items for both the case and control groups are summarized in Table 4.

Table 4. Mean Values of GDIT Items

GDIT	Case group [min-max]	Control group [min-max]	*p-value*
Item 1[1]	4.42 [2-6]	1.54 [0-2]	.000
Item 2[2]	2.23 [0-5]	0.92 [0-2]	.000
Item 3[2]	1.30 [0-6]	0.61 [0-1]	.000
Item 4[1]	1.80 [0-3]	0.16 [0-1]	.000
Item 5[1]	1.79 [0-3]	0.11 [0-1]	.000
Item 6[1]	2.32 [0-3]	0.30 [0-2]	.000
Item 7[2]	2.06 [0-4]	0.46 [0-2]	.000
Item 8[1]	1.11 [0-4]	0.10 [0-1]	.000
Item 9[2]	1.70 [0-4]	0.33 [0-2]	.000
Item 10[2]	1.59 [0-4]	0.23 [0-2]	.000
Item 11[1]	2.91 [0-4]	0.18 [0-2]	.000
Item 12[1]	2.42 [0-4]	0.07 [0-2]	.000
Item 13[1]	3.23 [0-4]	0.19 [0-2]	.000
Item 14[1]	0.32 [0-4]	0.06 [0-2]	.005
Total GDIT Score[1]	28.2 [19-44]	5.3 [1-18]	.000

1.Independent samples t-test, 2. Fisher's test for variance, mean, minimum and maximum values were given

Based on the GDIT scores of the participants, receiver operating characteristic (ROC) analyses were performed to identify the cutoff points for diagnosing gambling disorder. The Youden index was calculated to determine the most sensitive and specific cutoff points. The analyses indicated that a GDIT score of 19 serves as a valid cutoff point for diagnosing gambling disorder(AUC = 0.986, 95% CI = 0.976–1.000 p < .001). Further analyses established cutoff points for the severity of gambling disorder, identifying a cutoff score of 25 for moderate gambling disorder(AUC = 0.971, 95% CI = 0.915–1.000 p = .001) and 30(AUC =

0.941, 95% CI = 0.917–0.965 p = .007). for severe gambling disorder. Data regarding these cutoff points are summarized in Table 5.

Table 5. Youden Index Values

Cut-off value	Sensitivity	Specificity	Youden index
Mild Gambling Disorder			
17	1,000	0,986	0,986
18	1,000	0,993	0,993
19	1,000	1,000	**1,000**
20	0,986	1,000	0,986
21	0,938	1,000	0,938
Moderate Gambling Disorder			
23	1,000	0,924	0,924
24	1,000	0,971	0,971
25	0,989	0,982	**0,972**
26	0,957	0,994	0,952
27	0.787	1,000	0.787
Severe Gambling Disorder			
28	1,000	0,943	0,943
29	1,000	0,976	0,976
30	0,987	0,995	**0,977**
31	0,873	1,000	0,873
32	0,727	1,000	0,727

Upon examining the games and gambling venues preferred by participants, it was found that the most favored type of gambling among the

case group was sports betting, accounting for 86.2%. Approximately 75% of individuals in sports betting prefer to place their bets exclusively online, while 95% of participants favor online betting over physical locations. Only 5% of participants prefer to place sports bets in physical venues. The second most-preferred type of gambling in the case group was poker, with all participants choosing to do so online; only one participant preferred playing poker in physical locations. The third most favored type of gambling was horse racing; however, in contrast to the first two categories, only 8% of participants engaged in horse racing through online platforms. Most participants in horse racing prefer to do so at venues designated explicitly for horse racing.

Discussion

The gender distribution within the study sample's case and control groups indicated that almost all participants were male. This trend is consistent with findings from numerous studies in the field of addiction, where male participants typically predominate (Håkansson, Mårdhed, & Zaar, 2017). While a male-dominant gender ratio is expected, differences exist in the motivations and behaviors associated with gambling based on gender.

More than half of the participants in both groups reported never being married. Literature on marital status shows variability; for instance, a study conducted in Spain involving approximately 17,000 individuals found that never being married was associated with higher gambling disorder scores (Secades-Villa, Krotter, & Aonso-Diego, 2023). Recent research has shifted focus from marital status to the concept of loneliness. Some studies indicate a relationship between loneliness and the initiation of gambling, while others have failed to establish this link (Nordmyr & Forsman, 2020).

In the present study, two-thirds of participants had regular employment, while approximately one-third were unemployed during data collection. The literature suggests that stable employment protects against addiction (Pallesen, Mentzoni, Morken, & Engebø, 2021). Conversely, some studies report that individuals with regular jobs exhibit the highest spending rates among online gamblers (Håkansson & Widinghoff, 2020). This phenomenon may be attributed to the accessibility of gambling from work or home environments, reducing the need to visit physical gambling locations (Pallesen et al., 2021).

The mean age of participants was 31 years in the case group and 30 years in the control group. The earlier onset of gambling disorders has been linked to the increase in online gambling options in recent years (Lind et al., 2022). The youngest participant in both groups was 18, while the oldest was 56 in the case group and 54 in the control group. Younger individuals tend to prefer online gambling formats, whereas middle-aged and older individuals favor traditional gambling venues (Wall et al., 2021). Varying rules and restrictions for entry into gambling venues across countries may influence this preference. Notably, young men are currently at a heightened

risk of engaging in online gambling (Abbott et al., 2013). Due to the closure of all gambling venues in Turkey following the amendments to the Tourism Encouragement Law No. 4302 on August 10, 1997, and February 11, 1998, our capacity to comment on and analyze gambling trends in the country is limited.

Our findings indicated that the sociodemographic characteristics of the case and control groups did not significantly differ, and there was no substantial difference between the groups outside of gambling disorder-related characteristics. This lack of significant difference is beneficial for obtaining robust results in scale analysis (Jebb, Ng, & Tay, 2021).

The test-retest method was employed to assess the reliability of the GDIT, yielding a Cronbach's Alpha value of 0.941, indicating very high reliability. Previous studies focused on scale translation for gambling disorders made modifications to the scale content due to items that were not culturally appropriate for Turkish society (Duvarci, Varan, Coşkunol, & Ersoy, 1997). Since the original GDIT was developed based on DSM-5 criteria and did not prominently include cultural differences, we did not identify any problematic items necessitating changes in expression.

The study demonstrated that the GDIT effectively measures three dimensions of gambling: gambling behavior, gambling symptoms, and negative consequences of gambling, consistent with the objectives of the Banff Consensus. During the analysis, we noted that the 14th item yielded statistically weaker results than the others. In the original GDIT studies, item 14 was also the weakest (Molander et al., 2023). The observation that issues at school or work produced poorer results than family-related problems may indicate that this item is diagnostically weaker or that it arises later in the sequence of gambling disorder development (Molander et al., 2019).

A critical aspect of the present study is its utility for mental health professionals in diagnosing gambling disorders during routine practice and assessing the severity of these disorders at that time. Our results identified a cutoff score of 19 points as the threshold for diagnosing a gambling disorder, with 25 points indicating moderate gambling disorder and 30 points indicating severe gambling disorder. The original version of the scale set the cutoff point for gambling disorder diagnosis at 20 points. The most suitable value in our analysis was 19 points, one point lower than the original scale. Variations in cutoff points are common in scale translations. For example, the South Oaks Gambling Screening Test, widely used in our country and internationally, has an original cutoff point of 5. In contrast, the ideal cutoff point in the Turkish version is 8 points (Duvarcı & Varan, 2001). Similarly, in the Chinese version of the same scale, the cutoff point was also determined to be 8 points (Tang, Wu, Tang, & Yan, 2010). Differences in cutoff scores between the Turkish validation and the original GDIT study may reflect variations in cultural norms, gambling accessibility, predominant gambling modalities, and sample composition. Similar cross-cultural variability in optimal cutoffs has been reported in the

validation of other behavioral addiction measures, underscoring the importance of population-specific calibration.

In the original GDIT, different categories were established for cutoff points below 20 points, including "No gambling" (GDIT total score: 0), "Recreational gambling" (GDIT total score: <15), and "Problematic gambling" (GDIT total score: 15-19) (Molander et al., 2023). Given that the DSM-5-TR diagnostic criteria for gambling disorder do not encompass categories such as "recreational gambling" and "problematic gambling," we chose not to include these classifications in the scoring section of our study. There is currently no Turkish validity and reliability study for the "Problem and Pathological Gambling Measure," which was utilized to establish these categories in the original scale (Williams & Volberg, 2014b).

The present study thoroughly analyzed the validity and reliability of the GDIT. At the same time, the relationships between parameters such as participants' monthly income, employment status, preferred gambling game, and gambling venue were not explored in detail to maintain focus on the primary objectives. Notably, the monthly income of individuals diagnosed with gambling disorders was higher than that of the control group. Previous studies have linked high-income levels with gambling behavior (Pallesen et al., 2021). Conversely, many studies suggest an association between gambling and low socioeconomic status (Potenza et al., 2019; Hahmann, Hamilton-Wright, Ziegler, & Matheson, 2021). A study conducted in Japan revealed a correlation between gambling behavior and proximity to physical gambling locations among men residing in low-income areas. At the same time, no relationship was identified for individuals living in high-income areas (Kato & Goto, 2018).

Sports betting emerged as the most favored gambling activity within the case group, accounting for 86.2% of participants. Approximately 75% of those who engaged in sports betting did so exclusively in online settings; overall, 95% of participants placed sports bets online, with only 5% opting for physical venues. The increasing popularity of sports betting, particularly online, is reflected in our sample (Pallesen et al., 2021). This trend may be attributed to the faster pace and shorter wait times for results associated with sports betting compared to traditional forms of gambling, such as lotteries or raffles (Banerjee, Chen, Clark, & Noël, 2023). The third most popular gambling activity among participants was horse racing, with most preferring to engage at racetracks.

The study has several limitations. First, the sample was drawn from a single state hospital, restricting generalizability to broader populations. Second, the predominance of male participants. However, since the objective was to evaluate the validity and reliability of the Turkish version of the Gambling Disorder Identification Test (GDIT), and since the scale items were designed to be gender-neutral in their scoring, this limitation is not anticipated to affect the results significantly. Third, the exclusion of individuals with comorbid psychiatric disorders may reduce ecological validity, as gambling disorder frequently co-occurs with other mental health

conditions. The very high test–retest reliability observed in the present study should be interpreted with caution, as short retest intervals and potential recall effects may contribute to inflated stability estimate. Similarly, regarding the cut-off values, the observation of perfect sensitivity and specificity at a single cutoff score should be interpreted cautiously, as such findings may reflect sample-specific characteristics and require replication in independent samples. Also, unlike countries where the original GDIT was developed, data on preferences for gambling venues in Turkey is limited due to the scarcity of legally sanctioned gambling establishments. Finally, the potential for low reliability in participants' responses to self-administered questionnaire items presents another limitation.

Our study also has notable strenghts. First, it is the first attempt in Türkiye to evaluate the psychometric properties of the Gambling Disorder Identification Test (GDIT), thereby addressing a critical gap in the assessment of gambling disorders in this context. Second, the use of both a clinical sample and a control group allowed for a more rigorous examination of the scale's discriminative validity. Third, the study employed comprehensive statistical analyses, including internal consistency, test–retest reliability, confirmatory factor analysis, and ROC curve analyses, ensuring a robust evaluation of the GDIT's reliability and validity. Fourth, the inclusion of DSM-5-TR diagnostic interviews alongside self-report measures enhanced diagnostic accuracy and strengthened the criterion validity of the findings. Finally, the administration of the scale at two time points for a subset of participants allowed for the assessment of temporal stability, which is often neglected in similar validation studies.

Conclusion

The Turkish version of the GDIT demonstrated adequate reliability and validity in a Turkish sample and showed congruence with DSM-5-TR diagnostic criteria. The scale may support both dimensional assessment and categorical diagnosis in clinical settings. This study represents the first translation and psychometric evaluation of the original GDIT.

Statement of Competing Interests
The authors do not declare any competing interests.

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a) The name of the ethics committee and affiliation: Ege University Medical Research Ethics Committee (Ege Üniversitesi Tıbbi Araştırmalar Etik Kurulu).
b) The identifying title and/or number or code of the project as considered by the ethics committee: Decision No: Revizyon 23-2.1T/45. Project Title: Kumar Oynama Bozukluğu Tanıma Testinin (GDIT) Türkçe Geçerlilik ve Güvenilirlik Çalışması.
c) The date of final ethics approval: (February 23, 2023).
d) The ethics approval references for each research project if data from several were combined in the paper: Not applicable (This study is based on a single approval reference: Revizyon 23-2.1T/45).

Relative Contributions
HOT: Conceptualization, Resources, Writing – original draft, Investigation, Methodology. BA: Conceptualization, Formal Analysis, Resources, Writing – original draft, Writing – review & editing. PK: Formal Analysis, Methodology. ÖÖS: Review & Editing. HC: Methodology, Supervision, Writing – review & editing.

Research Promotion
This study was conducted to validate the Turkish version of the Gambling Disorder Identification Test (GDIT), addressing the need for a psychometrically sound assessment tool aligned with DSM-5 criteria in Turkey. The findings demonstrated excellent internal consistency and test-retest reliability, confirming that the Turkish GDIT is a robust and valid instrument for accurately assessing gambling disorder severity in clinical and research settings.

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