

Skrining Judi Online Beretika: Pengembangan SIJORA dan Mitigasi Efek Iatrogenik pada Remaja Indonesia

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Abstrak. Meskipun epidemi judi online pada remaja di Indonesia telah mencapai titik kritis, instrumen skrining yang tervalidasi secara budaya masih belum tersedia. Penelitian ini mengembangkan Skrining Judi Online Remaja (SIJORA) melalui adaptasi SOGS-RA dan validasi kualitatif multidimensi. Menggunakan teknik wawancara kognitif dan validasi pakar, penelitian ini mengevaluasi relevansi butir serta proses respons pada kelompok remaja berisiko dan non-judi. Temuan utama kami mengungkap risiko efek iatrogenik dan reaktansi negatif pada remaja non-judi jika menggunakan instrumen satu tahap tradisional. Sebagai solusi, SIJORA dirancang ulang menjadi Protokol Dua Tahap: Tahap pertama sebagai filter populasi umum dan tahap kedua sebagai diagnostik keparahan bagi mereka yang teridentifikasi berisiko. Inovasi ini memastikan efektivitas deteksi dini sekaligus menjaga integritas etis skrining di sekolah. Hasil ini memberikan bukti validitas proses respons yang kuat dan memposisikan SIJORA sebagai alat kebijakan kesehatan mental yang mendesak bagi konselor dan praktisi medis di Indonesia

Kata Kunci: Pendekatan kualitatif, pengembangan instrumen, skrining judi online remaja, validasi konten, validasi proses respon

Beyond Detection: The Development of SIJORA and Mitigating Iatrogenic Risks in Adolescent Online Gambling Screening

Abstract. The lack of culturally sensitive screening tools limits the effectiveness of early identification and intervention efforts in response to the increasing prevalence of online gambling among Indonesian adolescents. Therefore, this study aimed to develop *Skrining Judi Online Remaja* (SIJORA) by adapting South Oaks Gambling Screen—Revised for Adolescents (SOGS-RA) through a rigorous qualitative validation framework. A critical iatrogenic risk was identified beyond establishing content and response process validity through cognitive interviews and expert reviews. In this context, traditional single-stage screening triggered negative reactance among non-gambling youth. A primary universal filter followed by a targeted clinical severity assessment was proposed as a novel Two-Stage Screening Protocol. This dual-layered design maximized diagnostic sensitivity while upholding the ethical principle of “do no harm” in school-based settings. The results showed that SIJORA provided a strategic roadmap for the consequential validity of behavioral addiction screenings in Global South.

Keywords: Adolescents online gambling screening, content validation, instrument development, qualitative approach, response process validation

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Introduction

Adolescent inclusion in online gambling is an alarming social and mental health issue. In this context, a high rate of internet penetration among youth, with the ease of digital financial transactions, increases vulnerability to accessing gambling websites and applications. Indonesian Financial Transaction Reports and Analysis Center (PPATK) reported that individuals aged 10–20 constituted 11% of the four million citizens suspected of participating in online gambling in 2024 (PPATK, 2024). Even though this proportion is lower than adults, early exposure to gambling poses significant long-term risks to adolescent financial, academic, psychological, social, and future career well-being (Armitage, 2021; Latvala et al, 2019; Livazoviæ & Bojèiæ, 2019).

Gambling refers to the practice of risking money or other valuables on an event with an uncertain outcome in anticipation of winning a greater financial or material return (Potenza et al, 2019). Internet or online gambling includes a range of betting and gaming activities offered through devices such as computers, tablets, and smartphones (Emond & Griffiths, 2020; Gainsbury, 2015). Online gambling poses greater risks than land-based gambling because the digital features enable activities to be conducted privately, with immediate feedback on bets and outcomes (Gainsbury, 2015). The integration of online gambling into digital games increases its acceptability and appeal among adolescents. Moreover, the promotional

content is widely disseminated across websites and social media platforms, easily accessible to the general public (Damanik et al, 2023; Ikhsani, 2023).

Gambling behavior exists along a continuum of severity. Individuals may engage in occasional gambling for recreational or social purposes (Montiel et al, 2021). At more severe levels, individuals may display risky, excessive, and problematic gambling behaviors leading to personal and interpersonal harms (Lee & Lee, 2025; Nower et al, 2022). These behaviors may progress into an impulse-control disorder classified as a gambling disorder in Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5 TR) (American Psychiatric Association, 2022).

Considering the widespread risks and serious consequences associated with online gambling (Bakhtiar & Adilah, 2024; Sitanggang et al, 2023), early identification of adolescent participation is crucial. However, these efforts are often affected by the absence of validated instruments used to detect problematic gambling behaviors among adolescents. Most studies in Indonesia have focused primarily on literature-based and descriptive analyses exploring the impacts of gambling (Friska et al, 2024; Santosa et al, 2024). This instrument is expected to facilitate data collection for future empirical studies and psychological assessment due to the limited empirical evidence available to explain and address gambling problems.

Several screening instruments have been developed internationally to assess gambling-related problems. The most widely used instrument is South Oaks Gambling Screen (SOGS), developed by Lesieur and Blume (1987). SOGS was constructed based on the diagnostic criteria for pathological gambling outlined in *Diagnostic and Statistical Manual of Mental Disorders*, Third Edition (DSM-III), as well as survey data obtained from members of Gamblers Anonymous. This instrument has been widely used as a screening tool in both clinical and general populations (Siste et al., 2025). For adolescent use, Winters and colleagues developed a modified version, South Oaks Gambling Screen—Revised for Adolescents (SOGS-RA), with items more relevant to adolescent developmental and life contexts (Winters et al., 1993). This modification was necessary because adolescents exhibited different gambling behaviors, timeframes, and thresholds for meeting clinical criteria compared to adults (Potenza et al., 2019).

Other instruments have been developed to measure gambling problems, such as Canadian Problem Gambling Index (CPGI), NORC DSM-IV Screen for Gambling Problems (NODS), and Problem and Pathological Gambling Measure (PPGM) (Caler et al., 2016; Williams & Volberg, 2014). However, these measures were designed for adult populations. For adolescent assessment, Brief Adolescent Gambling Screen (BAGS) has been introduced as a modified version of CPGI (Stinchfield et al., 2017).

SOGS-RA offers the advantage of contextual items to identify gambling-related risk factors. Even though BAGS is shorter, the framework contains only diagnostic items. The identification of problem presence based on risk factors can be incorporated into the development of a screening test, provided the risk factors are strongly associated with a particular disorder (Wald et al., 1999).

According to the pathways model of gambling disorder (Nower et al., 2022), the availability and accessibility of opportunities serve as primary triggers of gambling behavior. After individuals gain access to gambling activities, behavior may progress through one of three pathways, namely behavioral conditioning (Path 1), emotional vulnerability (Path 2), and antisocial impulsivity (Path 3). Adolescents have only experimented with gambling and are not engaged in the pathological forms commonly observed among adults (Lee & Lee, 2025; Montiel et al., 2021). Increases in the frequency and intensity of adolescent gambling tend to reflect the effects of behavioral conditioning and cognitive distortions related to winning probabilities and other superstitions (Nower et al., 2022).

Based on the model described, environmental risk factors warrant particular attention. In the context of online gambling, these ecological factors primarily relate to internet and technology access. Exposure to online gambling promotions on social media (Lombardi et al., 2024), proficiency in

conducting financial transactions through e-wallets (Rinduni et al, 2024), the availability of popular online gambling games, and the presence of gambling-like mechanisms in conventional online games (Lombardi et al, 2024) trigger and facilitate gambling behavior.

Risks may arise from peer groups who engage in online gambling (Friska et al, 2024), inadequate parental guidance and monitoring of children digital activities (Hing et al, 2024), and parents who model gambling behavior themselves (Parrado-González et al, 2023).

A screening instrument is needed that assesses gambling severity and relevant environmental risk factors to facilitate the early assessment of adolescent gambling behavior. This study aims to develop *Skrining Judi Online Remaja* (SIJORA) as a tool for identifying gambling problems among adolescents in the general population and to collect validity evidence supporting the construct validity. The approach ensures that the interpretation of SIJORA scores obtained empirically is fully consistent with the theoretical conceptualization of the construct and consistent with the intended use of the scores for screening purposes. Therefore, this study addresses two key questions. First, do SIJORA items sufficiently capture the essential criteria for identifying problematic gambling among adolescents? To answer this question, the conceptualization of SIJORA centers on two domains, namely (1) The identification of key risk factors, including adolescent access to

technologies enabling online gambling, exposure to gambling promotions, gambling motivations (financial, recreational, and social), and perceived financial consequences, and (2) The preliminary assessment of online gambling severity, covering gambling frequency and intensity, amounts wagered, family and peer influences, and selected adolescent-specific diagnostic indicators adapted from SOGS-RA items (Winters et al, 1993). Second, how do adolescents cognitively process the items while responding to SIJORA?

Evidence of construct validity was collected based on content and response processes using a qualitative approach to address the questions. A qualitative approach was used because the framework enables the systematic integration of expert feedback, the evaluation of participants' comprehension, and the exploration of diverse experiences essential for developing a comprehensive screening instrument (Patrick et al, 2011).

The anticipated outcome is an online gambling screening instrument for adolescents ready for field testing. In the future, this instrument may serve both study and applied purposes, including assessing adolescent involvement in online gambling, supporting early identification, and providing an initial evaluation of gambling severity.

Method

Study Design

This study consists of two core activities: (a) Item development, which included adapting

the diagnostic items of SOGS-RA (Winters et al., 1993) to Indonesian online gambling context and writing new contextual items, and (b) The examination of validity evidence based on content and response processes. The adaptation of SOGS-RA items was conducted through a systematic modification process aimed at ensuring relevance and conceptual consistency with online gambling behavior, comprising online betting and playing online gambling games.

Item revisions included changing terms or adding phrases to reflect online gambling behaviors without altering the core content representing the diagnostic criteria. The sentence structure of stem questions and certain response options was adjusted to be consistent with Indonesian grammatical system and the societal context surrounding online gambling activities. The modified items were evaluated through expert judgment to assess content relevance, language clarity, and cultural appropriateness. Subsequently, a cognitive interview and a brief meta-survey were conducted to examine adolescent understanding and interpretation of the items and to gather evidence for response process validity. The results of the procedures were used to refine the final version of the instrument.

Based on the design, this study was conducted in four stages, broadly referencing guidelines for measurement instrument development in health and clinical settings (Swan et al., 2023) and in psychology

(American Educational Research Association, 2014). In Stage 1, the measurement domains and risk factors of online gambling were conceptualized among adolescents based on a literature review. This stage comprised gathering key concepts that served as the basis for modifying contextual items in SOGS-RA.

In Stage 2, the diagnostic items from SOGS-RA were translated into Indonesian language and modified to be consistent with the online gambling context. Only forward translation was applied (Cruchinho et al., 2024) because (a) the study did not aim to conduct a cross-cultural adaptation, and (b) the translated items were not intended to be direct equivalents of the original SOGS-RA designed for a land-based gambling context. The primary focus of this stage was to maintain the relevance of diagnostic criteria for adolescent gambling problems.

In Stage 3, a content validity study (Aiken, 1985) was conducted. Experts were asked to review the translated items to collect evidence for content-based validity. External psychology experts rated the consistency of each item with the diagnostic criteria for gambling disorder, the quality of the translation and clarity of Indonesian wording, and cultural appropriateness. Written feedback was documented, analyzed, and incorporated into item revisions.

In Stage 4, evidence to support response process validity was collected. A series of qualitative studies was carried out with

adolescents who had and had not engaged in online gambling. For adolescent with gambling experience, a cognitive interview (Peterson et al., 2017) was used to assess the correspondence between item content and participant comprehension as well as lived experiences of online gambling problems. Meanwhile, adolescents without gambling experience but familiar with the process were asked to complete a survey and describe response experience using a meta-survey (Wolf et al., 2025). Revisions were also conducted based on the feedback gathered during this stage.

Study Participants

In the content validation study, four psychology experts were considered in reviewing the translated version of the 16 SOGS-RA items, namely one clinical psychologist, two social psychologists, and one developmental psychologist. These experts were selected to ensure that online gambling was examined as a clinical or mental health issue as well as a social and developmental concern for adolescents. Before the participation, all experts were informed of the study objectives and the review responsibilities. Consent was provided with an invitation to offer suggestions for wording improvements and substantive content-related feedback in April 2025.

Adolescents with and without online gambling experience were recruited through

two separate data collection activities in the response process validation. First, one university student with a history of problem gambling participated in a cognitive interview and evaluated the relevance of SIJORA items based on experiences. The participant (initials NP) was a seventh-semester male student who began gambling in high school, with the behavior developing into a disorder during college. The participation led to severe financial problems, family conflict, and academic disruption. The interview with this former online gambler was conducted in April 2025. At the time of the interview, the participant had stopped gambling.

In addition to the cognitive interview, eight 18-year-old university students who were familiar with, but had never engaged in, online gambling participated in a meta-survey for readability checking. Participants were recruited through open calls and volunteered to participate. Informed consent was provided with a briefing on the purpose of the study and responding to the screening instrument in May 2025.

Data Collection and Analysis

The instrument adapted in this study is SOGS-RA, which consists of 16 items divided into two parts. The first four items (Items 1–4) are contextual questions intended to capture initial exposure to gambling and provide interpretive context for the main score. The remaining 12 items (Items 5–16) constitute the

core instrument, using a yes/no format or multiple-choice responses indicating symptoms of gambling disorder in the past 12 months (Winters et al, 1993).

In the content validity study, experts were asked to evaluate SIJORA according to three criteria, namely (1) item relevance, defined as the balance of items with the diagnostic criteria for gambling disorder, (2) linguistic clarity, referring to the appropriateness of terminology related to online gambling and the suitability of the language for adolescents, and (3) cultural appropriateness, referring to the presence of any cultural bias or culturally specific terms difficult to understand in Indonesian context. Experts rated each item in terms of relevance–irrelevance, clarity–unclearness, and appropriateness–inappropriateness using a 3-point scale and provided written comments for improvement.

Quantitative evaluation was conducted using Aiken's V coefficient ($V = \frac{\sum s}{n(c-1)}$) to obtain the content validity index for each item (I-CVI). S-CVI/Average was computed as the mean of all item-level CVI values, while S-CVI/Universal represented the proportion of items receiving unanimous agreement from all experts. The cutoff value for determining whether an item was sufficiently valid or required revision was 1.00 ($p < .01$) with four experts considered and three rating categories (Aiken, 1985; Almanasreh et al., 2019; Roebianto et al, 2023). This analysis was performed to determine the items necessitating

revision. All feedback was collected using a review form accompanied by SIJORA draft and the original English SOGS-RA.

In the response process validity study, two strategies were used to elicit the information necessary to determine whether an item was understood as intended. First, Cognitive Interview (CI) was conducted with a former online gambler (participant NP). The interview used a verbal probing approach to explore (1) comprehension or understanding of the item; (2) experiential relevance, referring to feedback about the relevance of the item in relation to participant lived experiences, (3) the specific meanings of the terms used in the items to clarify breadth of meaning, and (4) catch-all or additional feedback (Peterson et al, 2017; Wolf et al, 2025).

The interview was conducted semi-structurally with prompts such as "Is this item easy to understand?" "Does this term reflect your experience with online gambling?" "Do individuals who gamble online typically experience [diagnostic criterion] as stated here?" and "What does [word or phrase] mean to you?" Since the interview included only one participant, the analysis was conducted using a qualitative approach. The additional spontaneous open-ended questions were posed to further elicit relevant experiences during the interview (Peterson et al, 2017). Potential issues were documented in each interview as participants verbalized thoughts. Key phrases and statements relevant to item interpretation

were extracted, compared across notes taken by team members in the interviews, and synthesized into consensus-based domain summaries to inform instrument refinement.

A brief meta-survey was conducted, including eight adolescents who had no prior experience with gambling. Participants were instructed to complete the online version of SIJORA and provide feedback using an online evaluation form. The form consisted of several open-ended questions designed to assess general impressions of the instrument, the appropriateness and clarity of item wording, the clarity of instructions, and the adequacy of the response options. Specifically, participants were asked about (1) overall impressions of the

instrument, (2) layout and formatting, (3) wording used in the items, (4) clarity of the instructions, and (5) clarity of the response options. Different suggestions were also provided for improving the instrument. The collected data were analyzed descriptively, and the insights were used to refine item clarity, wording, and the overall relevance of the instrument.

Ethical Considerations

This study was approved by Konsorsium Psikologi Ilmiah Nusantara (KPIN), with ethical clearance No. 123/2025 Etik/KPIN in accordance with the ethical standards outlined in *Declaration of Helsinki*.

Table 1

Item Content Validity Index (I-CVI) of SOGS-RA Indonesian Version

Item No	Content Relevance Number of Agreements			Language Clarity Number of Agreements			Cultural Appropriateness Number of Agreements			Average I-CVI	Interpretation
	1	2-3	I-CVI	1	2-3	I-CVI	1	2-3	I-CVI		
1	1	3	.75	2	2	.5	1	3	.75	.67	Need revision
2	0	4	1	1	3	.75	0	4	1	.92	Need revision
3	1	3	.75	0	4	1	0	4	1	.92	Need revision
4	1	3	.75	0	4	1	1	3	.75	.83	Need revision
5	1	3	.75	0	4	1	1	3	.75	.83	Need revision
6	1	3	.75	1	3	.75	1	3	.75	.75	Need revision
7	1	3	.75	1	3	.75	1	3	.75	.75	Need revision
8	1	3	.75	0	4	1	1	3	.75	.83	Need revision
9	1	3	.75	0	4	1	1	3	.75	.83	Need revision
10	1	3	.75	0	4	1	1	3	.75	.83	Need revision
11	1	3	.75	1	3	.5	1	3	.75	.67	Need revision
12	1	3	.75	1	3	.5	1	3	.75	.67	Need revision
13	1	3	.75	1	3	.75	1	3	.75	.75	Need revision
14	2	2	.5	0	4	1	1	3	.75	.75	Need revision
15	1	3	.75			.5	1	3	.75	.67	Need revision
16	1	3	.75	0	4	1	1	3	.75	.83	Need revision

Note. 1: Not relevant, not clear, not appropriate; 2-3: (quite) relevant, clear, appropriate; Cut-off = 1.00 (Aiken, 1985)

Results

Content Validation

Content validation of the translated version of SOGS-RA (16 items) was conducted through expert review. The results showed that item-level content validity indices ranged from .67 to .92 below the critical value of 1.00 required for statistical significance based on Aiken's criteria (Aiken, 1985). S-CVI/Ave (average) calculation yielded a value of .78 (< 1.00), while S-CVI/UA was .00, indicating no universal agreement among raters. These results showed that all items required editorial revisions. The detailed Aiken's *V* coefficients for each item are presented in Table 1.

Based on the results, several items reported relatively low CVI values. However, none were removed because essential components of SOGS-RA were represented. A common issue identified across items concerned the use of the phrase "placing bets or making deposits to play online games" as a substitute for the original term "betting or gambling." This phrasing was considered ambiguous and potentially misleading, allowing experts to recommend the use of more explicit terms such as "online betting" or "online gambling games." Revisions were made to improve the clarity and appropriateness of the response format. The written feedback provided by the experts was reviewed with adolescent participant who had direct experience in the subsequent stage of the study.

Response Process Validation

Cognitive interview results

Cognitive interview with NP obtained several new insights. A former gambler found the items highly relevant and suggested improvements for greater accuracy while completing SIJORA, NP. The participant reported no confusing terms and proposed more precise wording. These results were obtained through spontaneous probing of experiences during participation in online gambling. The following are the key points derived from the interview with NP that informed instrument development

Technology facilitation of gambling.

The interview results indicate that information and financial technologies play a central role in facilitating engagement in online gambling. Smartphones were identified as the primary medium for accessing online gambling platforms because of their portability and ease of use in everyday settings compared with tablets or laptops. In addition to accessing gambling websites and applications, smartphones were also used to conduct financial transactions related to gambling activities. Digital wallets were perceived as the most convenient payment method because of the absence of administrative fees, ease of use, and ability to bypass parental monitoring commonly applied to bank accounts. NP reported that online gambling typically began through links to websites, enabling continued

participation in the activities. Moreover, the euphoria associated with winning, operator bonuses, and low-cost bets of Rp400, or roughly \$0,024, further reinforces gambling behavior.

"Pertama kali bermain atau melihat permainan judi online dari smartphome. Tablet/laptop jarang, karena sulit dibawa ke mana-mana untuk pergi nongkrong. ... sebagian besar transaksi menggunakan [dompet digital]. Awalnya pemain [remaja] dapat dipantau orangtua dari mutasi m-banking, sementara dompet digital lolos dari pengawasan orangtua. Semua bank, semua dompet digital bisa digunakan [untuk transaksi perjudian]. (I first got into online gambling through my phone. I rarely use a tablet or laptop because it is not practical to carry around when hanging out. Most transactions are done using digital wallets. At first, parents could check through mobile banking, but digital wallets usually go unnoticed. You can use any bank or e-wallet for gambling.)" (Participants NP, 2025).

The results show the role of accessibility to gambling venues and platforms, as well as the facilitation provided by information and financial technologies, as major risk factors for adolescent participation in online gambling. These results are consistent with the problem gambling pathway model among adolescents (Lee & Lee, 2025), but the aspects are not addressed in SOGS-RA. Therefore, items capturing adolescent ability to access gambling platforms, as well as the supporting technological and financial infrastructures for online gambling behavior, were included for screening purposes.

Game mechanics that introduce and reinforce online gambling. The interview with NP reported that online games and gambling are perceived as distinct activities. Unlike online games, which require effort, skill, or time investment, gambling is characterized by minimal effort, as players only need to place bets. This result clarifies a previous suggestion from experts regarding the use of the terms "online game" and "online gambling game" during the item content review stage. However, certain game mechanics can function as an entry point to gambling behavior. Several online games contain gambling-like mechanisms, such as the use of chips traded or sold for money. These hybrid game features were reported to stimulate gambling intentions by providing early experiences of winning, excitement, and euphoria, allowing players to transition to real-money online gambling platforms.

Participant NP described that gambling-oriented games commonly include simple betting mechanisms, such as slot machines, poker, live casino games, and sports betting. Slot games were identified as particularly appealing to beginners because of simplicity and fast-paced rewards, including a low minimum bet feature. Other games, namely baccarat or live casino games, comprise basic prediction mechanics, while more complex formats include game-show-style gambling with spinning wheels and numerical odds. These game mechanics were perceived as reinforcing

gambling behavior by lowering entry barriers, increasing engagement, and normalizing betting activities through repetitive and reward-based gameplay structures.

Information regarding the types of online gambling games played was obtained from participant NP. These game types differ substantially from those listed in Item 1 of the original SOGS-RA. This information was used to modify Item 1 by revising the question on types of gambling activities and adjusting the order of the listed games, beginning with the most popular (slot machines and poker) and proceeding to less common ones (such as cockfighting bets or fish-shooting games), better reflecting the context of online gambling in Indonesia.

Peer influence is the primary social factor of online gambling. Participant NP's responses reported key factors influencing gambling behavior, namely peer influence, online game characteristics, and the family environment. Peer interactions were considered by NP to be more influential in initiating adolescent gambling behavior, unlike SOGS-RA, which primarily emphasizes parental exposure to gambling. Adolescents often begin gambling with friends but later continue individually. Unemployed adolescents primarily depend on pocket money to gamble and, when depleted, may seek funds from peers, sell personal belongings, or use online loans. Parents are rarely informed because of the secretive nature of gambling activities.

"Sebab judi online karena pergaulan dengan teman sekolah. ... Awal bermain judi online bersama teman, lalu sendiri. Kemudian, lebih banyak bermain sendiri. (I got into online gambling because of hanging out with school friends. ... At first, I played online gambling together with friends, then by myself. After that, I mostly played alone." (Participants NP, 2025).

These accounts corroborate previous results showing the influence of peer groups on adolescent gambling behavior (Parrado-González et al, 2023) and further support one expert's recommendation to incorporate items assessing peer influence into the instrument. Items addressing the influence of peers on adolescent gambling are not included in SOGS-RA and must be incorporated into the instrument under development.

Brief meta-survey results

A meta-survey with eight 18-year-old university students who had never engaged in online gambling provided additional insights affecting the structuring of the instrument. Linguistically and in terms of content, SIJORA was clear, concise, and appropriate. Items assessing the severity of online gambling were not personally relevant to participants who had never engaged in any form of gambling activity. Adolescents may have access to technology and financial resources as well as be exposed to gambling-related content on the internet, but do not necessarily engage in gambling behaviors.

The participants found the items largely inapplicable when assessing gambling activity

and problematic symptoms. A participant reported feeling uncomfortable, as the items and response options implied prior gambling experience. Another indicated that completing the instrument introduced them to types of online gambling previously unknown. Participants recommended adding items to identify adolescents who have never gambled online or including a response option such as "never participated" or "not applicable."

"Some questions made me feel as if I had previously gambled, even though I had not" (Participant 1)

"The items provided were very good and detailed. For example, regarding the types of gambling games, I, who initially did not know about these games, now have knowledge about them."
(Participant 2, 2025)

"Individuals who have never engaged in online gambling may be confused by the response options, as there is no choice for 'never participated' and only options like 'almost.' In my opinion, these items are ambiguous and not relevant for those who have never tried online gambling." (Participant 3, 2025)

Online gambling appears to be a sensitive topic for adolescents. Negative reactions to several diagnostic items included confusion, feelings of offense, a sense of being cornered, and inadvertent exposure to different types of online gambling. Participants who did not find the item content personally relevant were forced to select from the provided response options, which did not reflect experiences, or

to skip the item entirely (Sischka et al, 2022). These issues indicate the presence of negative reactance and iatrogenic effects (McMurtrie, 2023; Sischka et al, 2022), compromising ethics and contributing to measurement error.

Item Revision and New Items Writing

The results from the content validation and response process studies were used to revise SOGS-RA items adapted into Indonesian and for the context of online gambling, as well as to inform the development of new contextual items addressing (1) Accessibility of technology and exposure to online gambling promotional content; (2) Motives for engaging in online gambling, such as financial gain, peer interaction, or entertainment, (3) Financial consequences, including experiences of winning or losing money through gambling, and (4) Peer influence. The following sections describe the specific revisions made to the adapted SOGS-RA items, while the complete instrument is provided in the Appendix.

Item 1. This item assesses the frequency of engagement in different types of gambling activities. The original SOGS-RA lists conventional forms replaced with types of online gambling prevalent in Indonesia. Experts rated Item 1# as somewhat relevant, linguistically clear, and culturally appropriate. The term "*game online*" (online game) is recommended in the stem question with "*game judi online*" (online gambling game) to avoid ambiguity.

Item 2. This item asks about the largest amount of money ever spent on gambling. SIJORA uses the terms “*taruhan*” (bet) and “*deposit*” to reflect money-spending behavior related to gambling. Deposit refers to money transferred into a gambling account through bank transfer or e-wallet before placing bets. Even though SOGS-RA uses U.S. dollars (\$), ranging from <\$1 to >\$200, these amounts cannot be meaningfully converted into Indonesian rupiah (Rp). Experts advised adding higher response options to accommodate potential outliers. The interview participant (NP) explained that the minimum deposit was typically Rp10,000 (H”\$0,60) and individuals engaged in online gambling rarely deposited less than Rp1,000,000 (H”\$60). Based on this information, the response options were set to range from a minimum of Rp10,000 to over Rp10,000,000 (H”\$600).

Items 3 and 4. These items capture familial exposure to gambling since no substantial modifications are required. These items are rated as quite relevant, clearly worded, and culturally appropriate. However, one expert and participant NP recommended adding an item to capture peer-related exposure to online gambling. Participant NP explained that peers were the primary source of exposure, since most parents are unfamiliar with online games and gambling platforms. In this context, a new item was added to assess exposure from peers.

Items 5–16. Experts reported the content of the adapted diagnostic items as relevant. These suggestions focused on improving linguistic clarity and ensuring that phrasing is consistent with Indonesian grammar and adolescent comprehension. Based on participant NP’s interview, references to specific behaviors such as “*bermain judi online*” (to engage in online gambling), “*deposit game judi online*” (to deposit money into an online gambling game), and “*taruhan online*” (to place online bets) were explicitly stated across items. In Items 7 and 12, consequences related to “work” were removed because adolescents aged 12–18 were primarily students. Explanatory examples were separated from the main question stems to avoid overly long and double-barreled questions.

Final SIJORA as a Two-Stage Screening Instrument

In terms of content, SIJORA includes the items necessary for identifying online gambling problems among adolescents. Response process validation shows that SIJORA is acceptable and understandable for adolescents with prior online gambling experience, as reflected in the relevance of the items to experiences. Negative reactance and iatrogenic effects were observed among participants with no gambling experience. Therefore, SIJORA was designed as a two-stage screening instrument to mitigate risks.

Stage 1 of SIJORA (SIJORA 1) is a simplified test suitable for general adolescent

populations. The framework comprises nine items (Items 1– 9) aimed at identifying whether adolescents engage in online gambling based on four risk-factor indicators, namely (1) access to technology, (2) access to information, (3) gambling motives, and (4) financial consequences. Each item uses a 3-point Likert scale with varying response categories. The expected outcomes are “definitely negative” and “potentially positive” (referral) for most individuals and the remainder, respectively. Individuals in the first group do not require further assessment, while those who respond affirmatively (“yes” or “sometimes”) to any item regarding gambling motivation or spending money are classified as “potentially positive” and proceed to Stage 2.

Stage 2 of SIJORA (SIJORA 2) includes items designed to identify the presence of gambling disorder based on diagnostic criteria and to measure the degree of severity. This stage contains a modified version of SOGS-RA. Therefore, the administration, scoring, and interpretation follow SOGS-RA guidelines (Winters et al, 1993). SIJORA 2 comprises 5 contextual (Items 10 –14) and 12 diagnostic items (Items 15 –26), covering chasing losses, lying to conceal participation, failure to control gambling, experiencing emotional distress, losing important relationships, losing educational opportunities, depending on others to resolve financial problems, and engaging in illegal activities to obtain money.

Item 10 includes ten subquestions assessing the frequency of participation in one or more online gambling games across two timeframes of lifetime and the past 12 months. This item captures the frequency and intensity of gambling. Game types include card-based games (e.g., poker, domino), slot machines, casino, number betting (lottery), wheel-of-fortune, addresses peer influence, which was not included in SOGS-RA. Items 15– 26 are scored 1 for affirmative responses (“yes”) and 0 for non-affirmative responses (“no”), obtaining a total score range of 0–12. Scores of 0–1, 2–3, and e”4 show non-problematic, at-risk, and problematic gambling, respectively. This warrants referral for further assessment to determine a gambling disorder, following guidelines from Winters et al. (1993). All validated items from SIJORA 1 and SIJORA 2 can be found in the Appendix.

Discussion

This study developed SIJORA, a two-stage screening instrument to identify adolescent participation in online gambling. The items were validated based on evidence of content validity and response processes, confirming their relevance and comprehensibility among adolescents. SIJORA 1, originally developed in the current study, includes 9 items targeting the general adolescent population to identify engagement in online gambling based on risk factors. SIJORA 2, adapted from SOGS-RA (Winters et al, 1993), comprises 17 items (five

contextual and 12 diagnostic) designed to detect problematic gambling behavior. These results suggest that SIJORA is ready for field testing in future studies.

Valuable theoretical and practical contributions are provided to gambling studies. The concept represents an effort in Indonesia to create a screening tool for adolescent online gambling. The instrument is expected to be useful for study and assessment as well as designing and evaluating psychological interventions aimed at preventing online gambling among adolescents (Balsamo et al., 2019). Instrument SIJORA 2, Indonesian version of SOGS-RA, enriches the available tools for measuring adolescent gambling behavior. Even though SOGS-RA has been adapted into multiple languages worldwide, including in Asia (China [Zhou et al., 2022] and Türkiye [Erdođdu & Arcan, 2020]), the adaptation to the online gambling context is novel and considered more relevant to current issues in Indonesia.

This study was limited to the instrument development phase based on a clinical model, namely the gambling pathway (Nower et al., 2022) and the diagnostic criteria according to DSM-5 TR (American Psychiatric Association, 2022). In the future, SIJORA should also be supported by a psychometric model (Balsamo et al., 2019). Therefore, the next major step is to conduct field testing and further studies to gather additional validity evidence, including the estimation of reliability and responsiveness (Swan et al., 2023), as well as the sensitivity

and specificity in distinguishing individuals with and without gambling disorder (Grimes & Schulz, 2002; Hasselblad & Hedges, 1995).

Integrating analyses based on Item Response Theory (IRT) using Receiver Operating Characteristic (ROC) analysis is strongly recommended for future studies to validate the accuracy of scoring and the cutoff point of e^{-4} for problem gambling. This threshold has been challenged by a recent study (Anselmi et al., 2022). In addition to ROC analysis, sensitivity–specificity trade-off analysis may be used to determine an optimal cutoff point, particularly when the primary objective is screening rather than diagnosis (Swan et al., 2023).

The use must be ethical and effective to support the consequential validity of SIJORA, which necessitates prevalence studies and the development of online gambling intervention models (Grimes & Schulz, 2002). Screening activities have inherent advantages and limitations, supporting the early detection of disorders and facilitating preventive interventions for high-risk individuals. However, false-positive results may occur, particularly when the prevalence of the condition is low or unknown.

Screening should not proceed without adequate follow-up diagnostic resources, effective intervention strategies, and trained professionals to administer the instrument and communicate with participants, minimizing potential risks (Grimes & Schulz, 2002). This

study also provides methodological contributions to the field of psychological measurement beyond the contribution to gambling studies in Indonesia. The response process-based validity approach used remains relatively underutilized in instrument development studies (Wolf et al, 2025). Even though some scholars argue that the results from response process validation do not need to be reported, this study presents evidence to contribute to the growing body of psychometric literature reporting the value of response process validation and qualitative evidence in instrument development (Peterson et al, 2017; Wolf et al, 2025).

In the present study, a qualitative approach was considered appropriate because of a key methodological challenge, namely the limited accessibility of participants, particularly adolescents engaged in problematic online gambling. This population is difficult to identify and recruit due to the legal prohibition of gambling and the inconsistency with prevailing social norms. The analysis and reporting in this study were fully qualitative. Peterson et al. (2017) acknowledged that qualitative data were analyzed using general qualitative analytic frameworks. Therefore, the reporting may follow a thematic format. Even though the approach may be considered less ideal from a methodological perspective, the framework represents a pragmatic response to constraints in participant accessibility while adhering to the principles of response process validation.

Conclusions

This study successfully developed the SIJORA and examined evidence of content-based and response process validity. Evidence of content-based validity was confirmed by expert evaluations, indicating that the items were relevant to the diagnostic criteria for problematic gambling and required linguistic improvement. The items were generally comprehensible to adolescents but were more challenging for those who had never engaged in gambling. The content was perceived as irrelevant and had the potential to elicit negative reactance and iatrogenic effects. Therefore, SIJORA was designed as a two-stage screening tool consisting of SIJORA 1 and 2. SIJORA 1 is used for the initial identification of gambling behavior in the general adolescent population based on several risk factors. SIJORA 2 is adopted for measuring gambling problems among at-risk adolescents, adapted from SOGS-RA. Therefore, this study remains at an early stage of development and has not included empirical testing, constituting the main limitation.

Suggestion

Further study should include field testing to provide empirical evidence on SIJORA reliability, validity, and responsiveness, including the sensitivity and specificity of the cutoff scores. Prevalence studies are needed through the administration of SIJORA to a broader adolescent population to map online

gambling risk levels across geographic areas. The development of intervention programs and screening protocols in schools and adolescent health services should take consider the measurement of SIJORA. Additionally, future studies should pay particular attention to consequential validity for adolescents. Ethical procedures for administering and interpreting the instrument must be carefully designed to maximize the benefits of screening without causing psychological harm.

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