



# An optimizing communication channels, message relevance for anti-online gambling campaigns: The critical role of public awareness as a mediator

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## ABSTRACT

This quantitative study investigates the factors influencing the efficacy of anti-online gambling campaigns, employing a survey of 255 respondents. Using structural equation modeling, we examined the relationships between message relevance, communication channels, government regulations, public awareness, and the decrease in online gambling application users. Findings indicate that message relevance directly impacts both public awareness and a reduction in application usage. Notably, communication channels and government regulations affect application usage exclusively through their influence on public awareness, which fully mediates these relationships. Public awareness also partially mediates the impact of message relevance on application usage. These results highlight the critical role of relevant messaging in directly altering user behavior. Furthermore, the study underscores the importance of strategically utilizing communication channels and government regulations to enhance public awareness, which serves as a crucial intermediary for reducing online gambling application usage. This research offers robust managerial implications for designing effective anti-online gambling campaigns, emphasizing tailored messaging and strategic public awareness initiatives.

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## 1. INTRODUCTION

Exponential technological developments have produced significant implications for various aspects of human life. In this context, the online gambling sector has experienced rapid growth in recent years, characterized by increased accessibility, anonymity, and variety of games (Ghelfi et al., 2024; Russell et al., 2024). The perception of online gambling has shifted from a form of amusement or potential earnings to a serious social concern. Its negative impact on mental health and the dynamics of social interaction is a growing focus of concern among academics and practitioners (Armit Kurnia Sari et al., 2024). This growth has led to significant economic, social, and regulatory implications. Despite stringent regulations in some regions, the global nature of the internet makes it challenging to enforce these laws effectively (Eadington, 2004; Wijnholds & Little, 2007). The prevalence of online gambling has been linked to various demographic characteristics and gambling problems, with a notable increase in participation among young adults (Fahrudin et al., 2024). The structural characteristics of online gambling platforms, such as fast-paced games and easy accessibility, contribute to compulsive behaviors and addiction. Public awareness and responsible gambling initiatives are crucial in mitigating these risks, highlighting the need for

comprehensive regulatory frameworks and collaboration among stakeholders. Continuous monitoring and evaluation of online gambling trends are essential to inform future policies and identify emerging risks (Fahrudin et al., 2024).

Anti-online gambling campaigns must adopt comprehensive strategies that include strict regulation, effective harm minimization tools, and continuous monitoring to address the evolving landscape of online gambling (Hing et al., 2022). Recently, emphasis on raising awareness about the risks of online gambling addiction, particularly through public health campaigns and educational programs targeting vulnerable groups such as adolescents and young adults (Ferrara et al., 2018). By considering these internal motivations, anti-online gambling messages can be tailored to resonate more deeply with users, thereby enhancing their effectiveness in promoting safer gambling behaviors.

Personalized feedback messages have been effective in reducing gambling expenditure among online gamblers, as evidenced by a study where recipients wagered significantly less money after receiving such messages (M. Auer & Griffiths, 2020a). Self-exclusion measures, particularly long-term ones, have also proven effective in reducing gambling behavior, although short-term self-exclusion appears less impactful (Hopfgartner et al., 2023). However, the effectiveness of blocking measures to prevent access to unregulated gambling sites is limited and requires constant updates to remain effective (Egerer & Marionneau, 2024).

Although anti-online gambling campaigns have been pursued by the government, through the Ministry of Communications & Digital, many citizens are unaware of the existence of the campaign, as evidenced by the low level of recognition in post-campaign surveys. Additionally, messages often fail to resonate with younger audiences who are more likely to engage in online gambling, demonstrating a disconnect between the campaign's approach and the behavior of its target demographic. Additionally, reliance on self-regulation in the gambling industry has proven inadequate, as many operators prioritize profits over responsible gambling practices. Finally, the lack of a comprehensive support system for individuals seeking help undermines the goals of the campaign, as those struggling with gambling addiction often find it difficult to access the resources necessary for recovery.

This study aims to reveal the role of public awareness in mediating the role of communication channels, the relevance of messages and government regulations in increasing the effectiveness of online gambling campaign. Government regulation plays a crucial role in ensuring that online gambling platforms adhere to responsible gambling practices, which can enhance consumer trust and perceived value of digital services (Philander & Wimmer, 2025). Communication channels are essential for disseminating relevant and persuasive messages that can influence gambling behaviors and promote harm minimization tools (Drosatos et al., 2020). Message relevance is critical, as personalized and targeted messages have been shown to effectively reduce gambling expenditure and encourage self-control among gamblers (M. Auer & Griffiths, 2020a; Monaghan & Blaszczynski, 2010). Public awareness campaigns should be designed to highlight the benefits of harm minimization tools, making them appear relevant and valuable to all gamblers, not just those with existing gambling problems (Gainsbury et al., 2018; Riley et al., 2024). Continuous monitoring and evaluation of these campaigns are necessary to adapt to the dynamic nature of online gambling and ensure their effectiveness (Dickson et al., 2021). By integrating these elements, anti-online gambling campaigns can create a robust framework that mitigates gambling-related harms and promotes safer gambling practices.

The mismatch between the communication channels used by the government and the preferences of the younger generation significantly affected the effectiveness of anti-online gambling campaigns. Young people are highly exposed to gambling content through social media platforms like YouTube, TikTok, and Twitch, where influencers use subtle strategies to normalize gambling behaviors (Bolat et al., 2025). However, government campaigns often fail to utilize these platforms effectively, instead relying on traditional media channels that do not resonate with the younger audience (Messerlian & Derevensky, 2006). Adolescents prefer campaigns that depict real-life stories, use emotional appeals, and portray the negative consequences of gambling in a non-judgmental manner (Messerlian & Derevensky, 2007). The lack of alignment between the government's communication strategies and the media consumption habits of the youth leads to

lower engagement and reduced impact of the campaigns. Therefore, to enhance the effectiveness of these campaigns, it is crucial to adapt the communication channels and strategies to better align with the preferences of the younger generation

The development of this research thinking is stated in several hypotheses as research questions. The hypotheses that are to be expressed are as follows: H1: Is there an influence of message relevance on public awareness in the anti-online gambling campaign?. H2: Is there any influence of communication channels on public awareness in the anti-online gambling campaign?. H3: Is there any influence of government regulations on public awareness in the anti-online gambling campaign?. H4: Is there an influence of message relevance on the decrease in the number of online gambling application users in the anti-online gambling campaign?. H5: Is there any influence of communication channels on the decrease in the number of online gambling application users in the anti-online gambling campaign?. H6: Is there any influence of government regulations on the decrease in the number of online gambling application users in the anti-online gambling campaign?. H7: Is there any influence of public awareness on the decrease in the number of online gambling application users in the anti-online gambling campaign?. H8: Does public awareness mediate the effect of message relevance on the decrease in the number of online gambling application users in the anti-online gambling campaign?. H9: Does public awareness mediate the influence of communication channels on the decline in the number of online gambling application users in anti-online gambling campaigns?. H10: Does public awareness mediate the influence of government regulations on the decline in the number of online gambling application users in anti-online gambling campaigns?

## 2. RESEARCH METHOD

The population of the research survey involved was 168 million users of online gambling applications based on data from Databoks.katadata.co.id (Muhamad, 2023). The author recruited respondents by distributing questionnaires through online google forms. The sampling method was carried out with a snow ball system. Snowball sampling is particularly useful for reaching populations that are difficult to identify through traditional methods, such as drug users, online gamblers, non-heterosexual individuals, or people with certain health conditions (von der Fehr et al., 2018). The snowball method was carried out starting from participants who the author knew were included in the target population of 10 people. The selection of ten novice participants as eligible respondents was carefully conducted, with the criteria outlined in the questionnaire (Barendregt et al., 2005). Moreover, a rigorous screening protocol was applied by the authors during the collection of respondent data (Pickering & Blaszczyński, 2021). These initial participant answers were also used to validate the questionnaire. The criteria for the target respondents are clearly written in the questionnaire, to eliminate bias. Then, these participants were asked to identify and refer other potential participants, who, in turn, referred more participants, and so on, creating a "snowball" effect. The researcher limited the research time to 2 months, due to the limitations of the authors. The data of 255 respondents was then processed with the help of the smart PLS v4 application. The respondent demography in this study can be described as follows.

Table 1. The Respondent Demography

Criteria	Item	Amount	%
Education Level	High School/Equivalent	134	52,5
	D3	23	9,0
	S1	89	34,9
	S2	9	3,5
Range of Age	18 – 25	180	70,6
	26 - 45	32	12,5
	46-55	34	13,3
	>55	9	3,5

The data obtained is processed using the SEM-PLS approach with Smart PLS4.0 software. Hypothesis tests are carried out if the data obtained meets the requirements of validity, reliability and model tests.

### 3. RESULTS AND DISCUSSIONS

All Construct Indicator are reflective indicator, the validity was measured by the outer loading value, as below:

Table 2. Validity (outer loading)

Construct	Item indicator	Questioner Statement	Outer loading
Message Relevance (MR)	MR1	Message campaign according to my situation and needs.	0.899
	MR2	The campaign message touched my feelings regarding the dangers of online gambling.	0.895
	MR3	The campaign message is presented clearly and easily understood.	0.857
Communication Channels (CC)	CC1	I can easily find campaign information in the media I use every day.	0.878
	CC2	The communication channels used are able to reach many people.	0.852
	CC3	Communication channels allow me to interact or ask questions regarding campaign information.	0.795
Government Regulation (GR)	GR1	I am aware of government regulations regarding the prohibition of online gambling.	0.733
	GR2	I see the government is active in closing access to online gambling sites or applications.	0.836
	GR3	I am aware that there are strict sanctions for online gambling perpetrators	0.863
Public Awareness (GR)	PA1	I understand the negative impacts of online gambling on social and economic life.	0.861
	PA2	I paid attention to the anti-online gambling campaign information that I found	0.895
	PA3	try to avoid access to online gambling platforms or applications.	0.884
User Reduction (UR)	UR1	I see less and less online gambling ads or promotions.	0.870
	UR2	I feel that online gambling sites and applications are becoming increasingly difficult to access.	0.897
	UR3	I see less and less people around me playing online gambling.	0.814

Table 2 shown that all outer loading > 0,7, it mean that all data are valid, It is supported by AVE measured as below:

Tabel 4. Reliability and Convergent Validity

Construct	Cronbach'Alpha	Rho_a	Rho_c	AVE
User Reduction (UR)	0.825	0.825	0.896	0.741
Public Awarness (PA)	0.855	0.855	0.912	0.775
Message Relevance (MR)	0.860	0.864	0.915	0.781
Communication Channel (CC)	0.795	0.800	0.880	0.710
Government Regulation (GR)	0.742	0.755	0.853	0.660

The overall *composite reliability* and *Cronbach's Alpha* values of the latent variables of this study have been above 0.7. This means that all latent variables have good internal consistency reliability. Thus, if the data collection is re-done using all the same latent variables and indicators as this study, the results obtained will be the same. So, it can be concluded that the results of the research obtained using latent variables and indicators of this research have good consistency. The model test was carried out in several steps, where in this study with endogenous latent R Square, where the model is said to be feasible if the value of R Square is more than 0.2.

Tabel 5. Model assesment

Variabel dependen	R Square	R Square Adjusted
User Reduction (Y)	0.531	0.526
Public awarness (Z)	0.566	0.559

The Mediation role of Public awareness and the relation between construct indicated by the Path value and the specific indirect effect in Bootstrap operation, as Below.

Tabel 6. Path coefficient and specific indirect effect

Hypotes	Original sample	Sample Mean	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values
MR → PA	0.147	0.148	0.079	1.864	0.031
SK → PA	0.328	0.327	0.078	4.219	0.000
PP → PA	0.147	0.148	0.079	1.864	0.031
RP → UR	0.126	0.128	0.076	1.646	0.050
CC → UR	0.122	0.123	0.079	1.557	0.060
GR → UR	0.108	0.110	0.077	1.397	0.081
PA → UR	0.492	0.487	0.073	6.744	0.000
MR → PA → UR	0.072	0.071	0.039	1.859	0.032
CC → PA → UR	0.161	0.161	0.050	3.225	0.001
GR → PA → UR	0.171	0.169	0.039	4.416	0.000

Hypothesis 1: The relevance of messages significantly affects public awareness indicated by P-value less than 0,05. Previous research has shown that messages that present new information and counter-attitudes are more effective in influencing public opinion, especially when they align with audience values (Sagan & Valentino, 2025). In addition, high personal engagement with message content leads to greater engagement and awareness, as seen in public service announcements targeting specific demographics (Keys et al., 2009). The effectiveness of public health campaigns also depends on the relevance of the message to the audience, with tailored messages leading to better recall and engagement (Pearson & Cappella, 2024). In addition, the appeal of a message, such as its symmetry and presentation, can increase perceived relevance and thus increase public engagement and awareness (Middlewood & Gasper, 2014).

Hypothesis 2: Communication channels significantly influence public awareness, indicated by P-Value less than 0.05. Different media, such as social media, television, and radio, play an important role in shaping public opinion and awareness by reaching out to different audience segments (Pettigrew, 2019). The effectiveness of these channels is enhanced by their ability to present customized messages tailored to specific audiences, thereby increasing engagement and understanding (Jorstad et al., 2014). In addition, electronic communication channels have been shown to facilitate citizen participation in public discourse, further strengthening public awareness (Yao et al., 2010). The strategic use of various communication channels ensures that messages are disseminated and received effectively, thereby increasing public awareness (Sommerfeldt et al., 2019).

Hypothesis 3: government regulations has effluences to the public awareness in the anti-online gambling campaign, indicated by P-Value less than 0,05. Government regulations play an important role in shaping public awareness by mandating information disclosure and promoting transparency. For example, the introduction of real-time air pollution monitoring in China led to increased government awareness and investment in pollution control, which in turn increased public awareness of air quality issues (Yu et al., 2024).

Additionally, regulations that require businesses to disclose information, such as calorie labeling on foodstuffs, can significantly increase public awareness and engagement with health policy (Polden et al., 2023). The use of government social media accounts to disseminate policy information also has a positive impact on public engagement and awareness, as seen from increased interaction and feedback from citizens (Wan et al., 2023). In addition, e-government services increase public trust and awareness by providing high-quality and relevant information and ensuring safe and private interactions (Fadrial et al., 2024).

Hypothesis 4: message relevance has effluences on the decrease in the number of online gambling application users in the anti-online gambling campaign, indicated by P-Value less than 0,05. The relevance of messages significantly impacts the decline in online gambling application users by effectively reducing gambling behavior. This research has shown that personalized messages, which provide feedback on actual gambling behavior, lead to a significant reduction in

the amount of money wagered by users both directly and in a short period of time (M. Auer & Griffiths, 2020).

In addition, messages that encourage self-assessment and provide normative feedback have been found to double the number of gamblers who stop playing for a long time compared to simple messages (M. M. Auer & Griffiths, 2015). Additionally, targeted messages asking users to withdraw money from their gambling accounts have been effective, with a percentage of users withdrawing funds after receiving the message (M. Auer & Griffiths, 2024). These findings suggest that relevant and personalized messages can play an important role in reducing gambling behavior and thus contributing to a decline in online gambling app users.

Hypothesis 5: communication channels has no effluences on the decrease in the number of online gambling application users in the anti-online gambling campaign, , indicated by P-Value more than 0,05. Communication channels, such as pop-up messages during gambling sessions, can significantly influence user behavior by promoting judgment and self-control, potentially leading to a decrease in the use of gambling apps (Harris & Parke, 2016). In addition, exposure to electronic communication modes, including spam and counseling links, is associated with higher awareness of gambling problems, which can deter users from continuing gambling (Phillips et al., 2012).

The adoption of high-speed internet has been linked to a decline in place-based gambling activity, suggesting that better communication infrastructure can shift gambling habits away from traditional venues (Ackermann et al., 2024). Additionally, personalized feedback through communication channels, such as phone or mail interventions, has been shown to significantly reduce gambling spending (Jonsson et al., 2020). Finally, the COVID-19 pandemic has highlighted how the shift to online communication and gambling platforms can change gambling behavior, with many users reducing their gambling activities due to changes in their environment and communication habits (Zhou et al., 2024).

Hypothesis 6: government regulations has no effluences on the decrease in the number of online gambling application users in the anti-online gambling campaign, , indicated by P-Value more than 0,05. In this study, according to table 1, the majority of respondents (70.6%) were millennials (aged 18-25). And the majority (52.5%) are educated at the high school level. So information about government regulations is still slightly absorbed by respondents. And government regulations are often ineffective in curbing the use of gambling apps, not significantly deterring users (Morse, 2007). In addition, ambiguous and inconsistent enforcement of the law has made it difficult to enforce regulations effectively, leading to minimal impact on user behavior (Marconi & Mcquaid, 2007).

Such deviant practices have been widely spread on social media and have been widely captured by the millennial generation. As in Spain, different regulatory regimes throughout the autonomous communities have shown that entry restrictions do not necessarily reduce gambling activity but can instead benefit incumbent companies (Safón, 2010). In addition, the rapid proliferation of gambling consumption in Australia and New Zealand, regardless of the regulatory framework, suggests that regulation does not have a significant impact on the number of users (Livingstone & Adams, 2011). Lastly, the persistence of online gambling in Malaysia, despite outdated laws, highlights the limited effect of government regulations on user decline (Dhillon et al., 2021).

Hypothesis 7: public awareness has effluences on the decrease in the number of online gambling Application users in the anti-online gambling campaign, , indicated by P-Value less than 0,05. Public awareness campaigns have been shown to effectively reduce the number of users of online gambling apps by educating individuals about the risks and consequences of gambling. For example, strategies that promote media literacy and critical thinking among college students can help them recognize and reject online gambling propaganda, thereby reducing their participation in such activities (Siricharoen, 2023). In addition, responsible gambling initiatives, such as pop-up messages that encourage self-awareness, have been proposed to increase responsible gambling and reduce the incidence of problem gambling (Monaghan & Blaszczyński, 2010).

Public awareness efforts can also lead to higher levels of social awareness, which in turn positively influences gambling behavior (Compton et al., 2015). In addition, personalized feedback

interventions have been found to significantly reduce gambling spending among high consumers, demonstrating the effectiveness of targeted awareness strategies (Jonsson et al., 2019). Overall, these findings suggest that increasing public awareness can play an important role in reducing the number of users of online gambling applications.

Hypothesis 8: public awareness mediate the effect of message relevance on the decrease in the number of online gambling application users in the anti-online gambling campaign, indicated by P-Value of specific Indirect effect less than 0,05. Because of the 4th hypothesis, where the relevance of the message has a direct effect on the decrease in online gambling application users. Therefore, the nature of mediation by public awareness is *partial mediation*. This means that the influence of communication channels on the decline in the use of online gambling applications is not always mediated by public awareness variables. Research has shown that awareness of problem gambling significantly affects individual support for public service advertising and censorship, suggesting that increased awareness can lead to behavioral change (Guerrero-Solé et al., 2017b).

Additionally, safer gambling messages on social media have been found to reduce betting behavior, suggesting that relevant messages can effectively change gambling habits as public awareness increases (Houghton & Moss, 2024). The effectiveness of gambling messaging interventions in raising awareness of gambling-related harms further supports this mediating role (Ray et al., 2024). In addition, the interaction between self-assessment messages and gambling outcomes suggests that relevant messages can increase self-awareness and control over gambling behavior, contributing to decreased use (Harris & Parke, 2016).

Hypothesis 9: public awareness mediate the influence of communication channels on the decline in the number of online gambling application users in anti-online gambling campaigns, indicated by P-Value of specific Indirect effect less than 0,05. Because of the 5th hypothesis, where communication channels do not have a direct effect on the decline in online gambling application users. Therefore, the nature of mediation by public awareness is full mediation. This means that the influence of communication channels on the decline in the use of online gambling applications will always be mediated by public awareness variables. Therefore, the government must always consider so that communication channels can increase public awareness of the dangers of online gambling. Public awareness plays an important role in mediating the influence of communication channels on the decline in online gambling application users.

Research has shown that awareness of gambling issues significantly affects individual support for censorship or public service advertising, which can reduce the prevalence of online gambling (Guerrero-Solé et al., 2017a). In addition, media campaigns that raise awareness about the risks associated with gambling can lead to a decrease in gambling behavior, as seen in interventions using billboards and other communication tools. The effectiveness of these campaigns is often improved when adjusted for the stages of behavior change, suggesting that informed public awareness is a key factor in reducing gambling activity (Calderwood & Wellington, 2015). Additionally, promoting media literacy and critical thinking among vulnerable groups, such as college students, can help them recognize and reject online gambling propaganda, thereby reducing their engagement with gambling apps (Siricharoen, 2023).

Hypothesis 10: public awareness mediate the influence of government regulations on the decline in the number of online gambling application users in anti-online gambling campaigns, indicated by P-Value of specific Indirect effect less than 0,05. Because of the 6th hypothesis, where government regulations do not have a direct effect on the decline in online gambling application users. Therefore, the nature of mediation by public awareness is full mediation. This means that the influence of government regulations on the decline in the use of online gambling applications will always be mediated by public awareness variables. Therefore, the government must always consider that the substance and dissemination of information on government regulations can increase public awareness of the dangers of online gambling.

Government regulations, when combined with public awareness campaigns, can significantly reduce the number of users of online gambling applications. Research has shown that regulation alone may not be enough; however, when users are made aware of the risks and legal implications, their behavior changes more effectively (Gainsbury et al., 2019) (Hernández Ruiz,

2019). For example, in Spain, the implementation of Article 8, which includes awareness-raising and preventive measures, is essential in promoting responsible gambling behavior. Additionally, public awareness can help users understand the benefits of using regulated sites rather than offshore sites, thereby reducing the appeal of unregulated platforms (Jang et al., 2015, 2016). This combined approach ensures that regulations are not only enforced but also understood and accepted by the public, leading to a more significant decline in online gambling application users.

#### 4. CONCLUSION

This study reveals that message relevance, communication channels, and government regulations significantly impact public awareness regarding anti-online gambling campaigns. Notably, while message relevance directly reduces online gambling application usage, communication channels and regulations influence usage solely through increased public awareness. This suggests that effective campaigns should prioritize relevant messaging to directly alter behavior. Government agencies must develop targeted messages that resonate with specific demographics, taking into account factors such as age, economic status, and emotional motivations, utilizing the types of communication channels appropriate to the targeted population. While utilizing appropriate channels and regulations primarily to cultivate public awareness, which subsequently mediates the reduction in online gambling application users. These elements should be combined with technological advancements and behavioral markers, can enable early detection and intervention of online gambling habits.

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