Kindbridge Research Institute

EPIC GLOBAL SOLUTIONS

Gambling among First Responders in the United States

Led by Kindbridge Research Institute, with funding from Colorado Division of Gaming and in partnership with EPIC Global Solutions

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Contents

Abstract

First responders are exposed to high-risk situations, making them vulnerable to a range of mental health problems and addictive behaviors, including posttraumatic stress disorder (PTSD) and problem gambling (PG). However, there is a significant gap in research assessing gambling among first responders in the US. Therefore, this study aimed to identify (1) whether there is a link between first responders' wellbeing, quality of life, and PTSD and gambling participation, (2) whether there are any differences in gambling behaviors among first responders based on current, past or no military experience, and (3) whether there are any differences in gambling behaviors among the different groups of first responders. The sample consisted of n=507 current first responders who completed an anonymous, online survey. The short-form Problem Gambling Severity Index (PGSI mini-screen) was used to measure problem gambling (mini-PGSI ≥ 4) and 'at-risk' for problem gambling behaviors (PGSI mini-screen 1-3); alongside, the PCL-5 PTSD Checklist DSM-5 measure for PTSD. Results indicated that 94.5% of first responders have gambled in the past 12 months from which 44% met the criteria for problem gambling (PGSI mini-screen ≥ 4) and 39% met the criteria for 'at-risk' for gambling problems (PGSI mini-screen 1-3). Firefighters represented the first responder group with the highest risk of gambling related harm. Additionally, 50% of participants screened positive for possible PTSD-related symptoms, confirming the expected associations between PTSD symptoms and gambling-harm risk. A strong association between military background and gambling behavior amongst first responders was also found. The findings from this study suggest that gambling problems may be a significant yet hidden issue amongst first responders in the US, and thus there is a need for increased recognition of the issue, prioritizing proactive prevention and structured support initiatives.

Introduction

First responders play a crucial role in maintaining public safety and wellbeing. However, there is a significant lack of behavioral health and gambling related research amongst first responders. The research presented in this report was conducted by EPIC Global Solutions through funding from Kindbridge Research Institute in connection with Colorado Limited Gaming. The study aimed to address the gap in the literature by exploring gambling amongst first responders in the U.S., and use the data to inform prevention, intervention, and policy efforts in the area.

Literature review

The Unique Role and Risks of First Responders

First responders can be defined as individuals 'who are first to arrive on the scene of an emergency, accident, or disaster, facing dangerous, challenging, and cumbersome situations to preserve and protect life, environment, and property' (Lowery & Cassidy, 2022, p. 87). Their responsibilities might include working in dangerous environments, dealing with crisis situations, and delivering immediate physical and emotional support to survivors of disasters (Kleim & Westphal, 2011; Schafer et al., 2015). There is a range of occupations for first responders such as firefighters, search and rescue teams, police, emergency medical technicians (EMTs) and paramedics (Geronazzo-Alman et al., 2017; Schafer et al., 2015). Although their roles are crucial and indispensable to the community, first responders are at risk of experiencing several physical and mental health problems due to their exposure to life-threatening incidents and trauma (Lowery & Cassidy, 2022).

Maladaptive Coping in High-Stress Roles

In order to process exposure to traumatic events, first responders often use nonadaptive coping strategies, including avoidance and emotional disconnection, to avoid confronting the traumatic event and to downplay the severity of it (Díaz-Tamayo et al., 2022). Those strategies showed a strong relationship with symptoms of post-traumatic stress disorder (PTSD), burnout syndrome, and other mental health problems (Díaz-Tamayo et al., 2022). For example, drinking to cope with negative emotions and alcohol abuse were related to exposure to trauma and distress among first responders (Bacharach et al., 2008; Jones, 2017; Zavala, 2018). Additionally, research found that gambling is significant in predicting problematic alcohol consumption among police officers (Zavala, 2018). Although gambling is considered an alternative way to cope with stress for those in high stress demanding occupations such as first responders, it is understudied with this population (Cowlishaw, 2019; Gao et al., 2020).

Gambling Harm:
A Public Health and Occupational Concern

Williams et al., (2017, p.12) reviewed definitions of gambling and proposed the following definition: "staking money or something of material value on an event having an uncertain outcome in the hope of winning additional money and/or material goods''. Although considered to be a socially acceptable leisure activity around the world (Calado et al., 2017), gambling comes with significant negative implications for society (Newall et al., 2019; Ramnero et al., 2019). Problem gambling, also known as 'gambling addiction' or 'gambling disorder', can be described as gambling behavior which is damaging to a person and those close to them, often affecting their day-to-day life and career (NCPG, 2025). Individuals suffering with a gambling problem can experience major mental health distress, poverty, bankruptcy, legal problems, homelessness and even suicidal ideation (Gallaway et al., 2019; NCPG, 2025; Vandeberg et al., 2022). It is estimated that 1% of adults in the US have a severe gambling problem in a given year, with a further 2-3% experiencing mild to moderate problems with their gambling behaviors (NCPG, 2025).

While most individuals will not experience any gambling related harm, there are groups of people at a higher risk of developing a gambling problem due to a number of factors (Moreira et al., 2023; Welte et al., 2015). For example, people who serve or have served in the military are more likely to experience mental health issues and develop addictive behaviors, including gambling, as a result of exposure to stressful and traumatic situations (Brooks and Greenberg, 2018; Campbell and Nobel, 2009; Paterson et al., 2021; Van der Maas & Nower, 2021). Van der Maas & Nower (2021) found that problem gambling rates among both former and active military members are twice as high as those among civilians, and that the rate of suicidal ideation among active military members is 20 times higher than among civilians. Recent research co-led by the University of Nevada, Las Vegas and Bowling Green State University also showed that problem gambling rates were 3.5x higher among active military personnel when compared to the general population (Kindbridge Research Institute, 2023).

Additionally, Cowlishaw et al. (2020) carried out research with firefighters in Australia on the topic of gambling and found that gambling problems are major concerns among firefighters. In Australia, 2.3% of firefighters met the criteria for problem gambling, higher than the 1.8% reported for the general population. Additionally, 10% were considered 'at risk' for problem gambling, indicating they gamble with some negative consequences compared with 8% of the general population (Australian Institute of Health and Welfare [AIHW], 2025).The researchers stated that gambling problems may be a significant but hidden issue for emergency service workers, highlighting the need to recognize this issue and act on it.

A significant proportion of first responders have also served in the military, a high-stress occupation in itself which can only add to the first responders' high risk of negative mental health outcomes (Bartlett et al., 2018). In 2015, around 25.2% of police officers and 18.6% of firefighters in the US reported that they have also served in the US Armed Forces on active duty (Schafer et al., 2015).

The frequent exposure to high-stress situations and exposure to trauma puts first responders at a higher risk of developing PTSD, depression, sleep disturbances, anxiety and therefore, also impacting their quality of life (Bracken-Scally et al., 2014; Lowery & Cassidy, 2022; Stanley et al., 2016). A systematic review by Jones (2017) showed that worldwide, the prevalence of mental health consequences like PTSD and anxiety is higher among first responders when compared to the general population. For example, a study with emergency service workers in Japan showed that the prevalence of PTSD among this group was 25%, significantly higher than the rate for the general population, 1% (Noda et al., 2024). Even after retirement, first responders report a significantly lower quality of life and a higher level of PTSD symptomatology than non-emergency service retirees (Bracken-Scally et al., 2014).

Knowledge Gaps

Although research shows that certain groups of first responders are at a higher risk of developing gambling problems because of their high-risk occupations and frequent exposure to trauma and stress (Cowlishaw et al., 2020; Gao et al., 2020), there is limited research on the prevalence of gambling and gambling related problems among first responders around the world, and even less in the US. To the best of our knowledge, no studies have examined the relationship between first responders' well-being, quality of life, and PTSD and gambling participation. There are likely to be complex associations between those factors in this unique population. Therefore, it is crucial to understand this relationship to allow the development and implementation of effective gambling education and harm preventive initiatives.

Study Aims

In the absence of relevant research, the broad aim of this study is to assess gambling among first responders in the US and provide evidence to highlight the importance of recognizing gambling problems amongst first responders. The research questions set for this study are:

1) What is the prevalence of gambling and gambling related harm among first responders?
2) Is there a link between first responders' wellbeing, quality of life, and PTSD and gambling participation?
3) Are there any differences in gambling behaviors among first responders based on current, past or no military experience?
4) Are there any differences in gambling behaviors among the different groups of first responders?

Method

Sample and Procedure

Ethical approval was obtained from the Independent Research Ethics Committee (IREC). Eligible participants were currently serving in a first responder role (e.g. firefighters, EMTs, law enforcement offices) at the time of data collection and were residing in the US. The initial plan was to recruit only first responders residing in the state of Colorado. However, due to the limited number of eligible participants available on Prolific, the main recruitment platform, it was not feasible to conduct a study within that geographic restriction. Therefore, the recruitment criteria expanded to include first responders from across the US to achieve a statistically adequate sample size. The survey collected 788 individual responses, but only 507 met the study's reliability criteria. Efforts were made to verify data quality and participants' reliability and as a result, 281 responses were removed from the final analysis as their reliability could not be confirmed. Sample socio-demographic characters are shown in Table 1 below.

Table 1. Sample socio-demographic and occupational characteristics (n = 507)	n	%
Gender		
Woman	141	28.9%
Man	347	71.1%
Race		
White	336	68.6%
Black or African American	106	21.6%
Hispanic or Latino	27	5.5%
Asian or Asian American	13	2.7%
Native Hawaiian or Other Pacific Islander	2	0.4%
American Indian or Alaskan Native	3	0.6%
Another race	3	0.6%
US region		
South	166	33.2%
West	138	27.6%
Northeast	130	26%
Midwest	63	12.6%
Unknown	3	0.6%
Military experience		
Currently serving	59	11.7%
Past military experience	124	24.6%
No military experience	322	63.8%

In terms of their first responders role, participants were able to select more than one role if applicable. A total of 92 participants selected more than one role.

- Firefighters (n=225)
- Police officers (n=161)
- EMT (n=115)
- EMS (n=56)
- Other (n=36)
    - 911 dispatchers (n=9); Security officers (n=5); Corrections officers (n=5); Paramedics (n=5); Probation officers (n=2); Campus safety (n=1); Community service officers(n=1); Cyber security engineers (n=1); DERA (HAZMAT) (n=1); Emergency nurses (n=1); Flight nurse (n=1); Emergency nurses (n=1); Forensics (n=2); Physicians (n=1).

Data was collected using an online survey designed in Survey Monkey. Upon completion, respondents received a link to claim a $10 gift card. No identifiable information was collected, maintaining the anonymity of participants at all times to establish trust and rapport (Bahn & Weatherill, 2013). Participants were recruited using Prolific, direct contact with institutions, word of mouth, and a recruitment post shared on LinkedIn which was circulated within first responders' networks. Prolific provides high quality data and is considered to be the most efficient platform to recruit participants in the US (Douglas et al., 2023).

Data Cleaning and Validation Procedures

As LinkedIn was used to recruit participants and there was no way that participants could be independently verified as first responders prior to participation, a number of reliability and validation checks were implemented during data screening:

A rigorous multi-step data cleaning process was conducted to ensure sample validity and data integrity. Particular attention was given to validating first responder status and identifying potentially fraudulent or low-quality responses. In total, responses were removed prior to analysis through the following checks:

1. Not a first responder (n = 11).
2. Reported non-eligible job roles (e.g., manager, finance) (n = 9).
3. Substantial missing data (mostly incomplete responses) (n = 56).
4. Suspicious patterned responses, including: Latin phrases entered sequentially in open-text gambling activity fields, identical IP addresses, and surveys started and completed at the exact same time (n = 30).
5. Speeding: Participants completing the survey in under two minutes while answering beyond initial screening questions (n = 73).
6. Responses from similar IP addresses (first eight digits matching), started and ended simultaneously, and flagged for speeding and straight-lining by SurveyMonkey (n = 10).
7. Participants who selected all four first responder roles simultaneously, suggesting careless responding (n = 8).
8. Missing data from Question 7 onwards (n = 17).
9. Participants describing their role as “Veteran” and listing state as “N/A,” indicating ineligibility (n = 2).
10. Participants flagged for straight-lining and speeding who provided invariant responses (e.g., selecting “1” for all items) and shared identical IP characteristics (n = 2).
11. One participant listing “Ontario” as their state of residence, which could not be reliably classified as U.S.-based (n = 1).
12. An additional three participants were removed for completing the survey in under two minutes (n = 3).
13. Finally, some participants had incomplete responses on core items needed to score the PGSI mini-screen, PCL-5 and SF-12. Participants were removed if two and more of these measures could not be scored, as it will not allow core research questions to be answered (n=60).

Given uncertainty regarding verification of first responder status among participants recruited via LinkedIn and informal networks, reliability and validity analyses were conducted separately on responses of the two recruitment sources (LinkedIn vs Prolific).

Internal consistency analyses demonstrated acceptable and consistent reliability for the 4-item PCL-5 PTSD Checklist DSM-5 as well as the PGSI mini-screen. Construct validity could be established across the recruitment groups for these two measures, demonstrating an accurate structure and consistent measurement of these variables in both groups, without evidence of measurement bias at any level.

However, when considering the SF-12 health survey, the reliability of the scale for the LinkedIn sample was significantly lower than that of the Prolific sample. Furthermore, construct validity could not be established for the LinkedIn sample and measurement invariance across the two samples was not achieved. This indicates that the two recruitment samples do not share the same measurement structure (are not measuring the same thing), which severely impacted the validity of the combined sample. Consequently, analyses involving the SF-12 were restricted to the Prolific subsample only, where reliability was higher and construct validity could be established. (The reliability and validity statistics can be provided upon request.)

Measures

The study was based on a quantitative research design using an online survey designed in Survey Monkey to collect data. A copy of the survey instrument is available on request. Upon completion, respondents received a link to claim a $10 gift card. No identifiable information was collected, maintaining the anonymity of participants at all times.

This is in line with previous quantitative studies exploring gambling amongst first responders, which employed the survey method for the research strategy using online/web-based or paper questionnaires to collect data. A range of measures were utilized to identify aspects including problem gambling levels (Cowlishaw et al., 2020; Gallaway et al., 2019; Metcalf et al., 2022; Zavala, 2018;). This data collection method ensures wide reach and simpler, time-efficient, and anonymous participation for first responders participation.

The PGSI is one of the most common methods used to measure problem gambling levels for samples of first responders (Cowlishaw et al., 2020; Metcalf et al., 2022). To limit the number of questions used in this survey, the short-form PGSI (3-items) version developed by Rachel Volberg and Robert Williams in 2012 for the Gambling Commission, will be used instead of the full, 9-item version. To measure PTSD severity, the 4-item PCL-5 PTSD Checklist DSM-5 will be used; the shorter version of the 20-item PCL-5 scale has comparable diagnostic utility to the total scale, and it is classed as an appropriate alternative (Price et al., 2016). To assess the quality of life, the SF-12 Health Survey will be used as an alternative to SF-36. The shorter version was used in previous studies with first responders (Carey et al., 2011).

Data Analysis

Descriptive statistics such as frequencies, as well as ordinal regression analysis were used to assess the prevalence of problem gambling. Two researchers were involved in the analysis and the interpretation of the results to ensure thoroughness. The analysis was conducted in SPSS software and/or R code.

Results

Gambling

In the past 12 months...

- 95% of all participants indicated that they have gambled
    - 22% have gambled less than one per month,
    - 21% have gambled once per month or less than once per week,
    - 21% have gambled once per week,
    - 31% have gambled 2+ days per week.

- Online sports betting represented the most popular gambling activity amongst first responders, with 345 participants indicating it as one of the activities they have done in the last 12 months. This activity was followed by online casino (192 first responders), online lottery (171 first responders), online fantasy sports (166 first responders), in person casino (149 first responders), in person lottery (149 first responders), in person sports betting (120 first responders), online poker (105 first responders), in person poker (54 first responders), and in person fantasy sports (32 first responders). Other gambling activities such as mobile or online games, power packs sports cards, scratch off, and office pool lottery were indicated by 8 participants.

- Using the PGSI mini-screen, the following results were identified among participants who reported gambling in the past 12 months:
    - 44% met the criteria for problem gambling.
    - 28% are at a moderate risk of developing a gambling problem.
    - 11% are at a low risk of developing a gambling problem.

Gambling Behaviors and First Responder Role

Participants could select more than one first responder role, as some participants were active in a dual role. Since multiple roles could be selected, an accurate determination of the association between gambling behavior and role could not be made. Consequently, the crosstabulations that are reported below describe the distribution of gambling behavior for each first responder role.

Firefighters

- 38% indicated that they gambled 2 or more days per week, 22% once per week, 21% once per month or less than once per week, 15% indicated less than once per month, and 4% have not gambled.
- 49% of firefighters met the criteria for problem gambling, while 29% met the criteria for a moderate risk, 7.5% for low risk, and 16% no risk.

Police officers

- 28% indicated gambling 2 or more days per week over the last 12 months, 21% said they gambled once per week, 24% said once per month/less than once per week, 22% less than once per month and 5% have not gambled.
- 42% of police officers met the criteria for problem gambling, followed by 26% that met the criteria for a moderate risk, 14% low risk and 18% no risk.

EMTs

- 21% indicated that they gambled 2 or more days per week, 19% once per week, 24% once per month or less than once per week, 27% indicated that they gambled less than once per month and 9% have not gambled.
- 39% of EMTs met the criteria for problem gambling, 27% for moderate risk, 17% for low risk and 16% for no risk.

EMS

- 32% indicated gambling 2 or more days per week over the last 12 months, 16% gambled once per week, 16% once per month/less than once per week, 29% less than once per month, and 7% have not gambled.
- 42% of EMS participants met the criteria for problem gambling, 31% were at a moderate risk, 12% for low risk, and 15% for no risk.

When looking at these category distributions across first responder roles, firefighters selected a gambling frequency of two or more days per week the most (38%) followed by EMS participants (32%), while the EMT (27%) and EMS (28%) groups were the most frequent to report gambling less than once per month. Proportionately, firefighters have the highest percentage of participants meeting the criteria for problem gambling (49%) and EMS participants for moderate risk (31%).

Gambling Behaviors per U.S. Region

When considering the prevalence of gambling and gambling related harm amongst first responders across the different states grouped per U.S. region (i.e. Northeast, Midwest, South, West) the following findings emerged:

- There was not a significant association between U.S. regions and gambling participation prevalence, X2 (12) = 17.15, p= 0.14, phi = 0.186. However, the percentages from the crosstabulation showed the distribution across the regions per response, indicating that of those who have gambled:
    - **Two or more days per week**, 25% were from the Northeast, 8% were from the Midwest, 38% were from the South and 29% were from the West.
    - **Once per week**, 24% were from the Northeast, 11% were from the Midwest, 35% from the South and 30% were from the West.
    - **Once per month/less than once per week**, 25% were from the Northeast, 16% were from the Midwest, 32% were from the South, and 27% were from the West.
    - **Less than once per month**, 24% were from the Northeast, 19% were from the Midwest, 31% were from the South, and 27% were from the West.
    - **Of those who have not gambled at all**, 50% were from the Northeast, 11% were from the Midwest, 18% were from the South, and 21% were from the West.

- There was a significant association between the U.S. regions and the risk of developing a gambling problem, $X2\ (9) = 22.9$, $p < 0.001$, phi = 0.186. Therefore, the specific region had a significant effect on whether individuals were at risk for gambling harm.
    - The proportion of participants from the West (57%) that adhered to problem gambling criteria was significantly more than the proportion of people from the Midwest that met these criteria (28%). Although not significantly higher, the proportion of first responders who met the criteria for problem gambling in the West was higher than the proportion of first responders from the Northeast (41%) and South (43%).
    - When considering the odds ratios, the odds of a first responder meeting the criteria for problem gambling (instead of no risk) were 7.5 times higher if they were from the West than if they were from the Midwest, 4.8 times higher if they were from the West than from the Northeast, 3.4 times higher if they were from the West than from the South.

- The crosstabulations provide two different perspectives; 1) the distribution of where the first responders in the various PGSI categories are located in terms of U.S. regions, 2) the region with the most first responders per category relative to its own population, i.e. the highest proportion of individuals per risk category of each region.
    - Looking at the whole sample, those who had **no risk** of gambling harm, 31% were from the Northeast, 18% from the Midwest, 32% from the South, and 19% from the West. Proportionately, the Midwest has the highest percentage of first responders in the no risk category (23%), followed by the Northeast (21%).
    - Of the first responders that were at a **low risk** of developing a gambling problem, 31% were from the Northeast, 23% were from the Midwest, 31% from the South, and 15% were from the West. Proportionately, the Midwest again had the highest percentage of first responders in the low-risk category (20%) followed by the Northeast (14%).
    - Of those at a **moderate risk** of developing a gambling problem, 21% were from the Northeast, 13% from the Midwest, 39% from the South, and 26% from the West. First responders from the South also had the highest proportion of individuals in the moderate risk category (31%)
    - Of those who met the **criteria for problem gambling**, 23% were from the Northeast, 8% were from the Midwest, 33% were from the South, and 36% were from the West. As mentioned above, the West also had the highest proportion of individuals who met the criteria for problem gambling (57%). It is important to note that California residents were the majority of the West sample, and these individuals contributed to the high rates.

PTSD

Overall descriptive information of the PCL-5 provided a sample average of 5.7 (SD = 3.9) on the PCL-5-SF. Using a cut-off from 6 to indicate elevated PTSD symptom severity, 50% of participants screened positive for possible PTSD-related symptoms. These results suggest that a substantial part of our sample experienced notable possible PTSD-related symptoms.

SF-12 – Prolific Sample Only

The following results are based only on a subset of our sample with data collected via Prolific (n=168). Health-related quality of life was assessed using the SF12 (v1 norm-based scoring using US 1990 norms, mean = 50, SD = 10). The mean overall physical health (PCS) score was 52.51 (SD = 6.88), which was modestly above the US norm, while the mean overall mental health (MCS) score was 43.50 (SD = 11.37) which are below the US norm.

Associations Between Variables

Well-being Indicators vs Gambling Participation

In this study the PCL-5, which rates the severity of PTSD symptoms experienced to screen individuals at risk for possible PTSD, and the SF-12 survey, which provides scores for physical and mental health to measure overall health-related quality of life, were considered well-being indicators.

The relationship between problem gambling severity (as measured by the PGSI total score) and severity of PTSD symptoms experienced (PCL-5 total score) was explored using Spearman's rho correlation coefficient. A significant and **strong positive relationship** was found (Spearman's rho = .579, n=466, p<.001), meaning that a higher severity of PTSD symptoms experienced were related with higher scores on the PGSI mini-screen.

The ordinal logistical regression confirmed this relationship and indicated that the PCL-5 categories significantly predict the PGSI mini-screen categories (X2 (1) = 137.95, p < .001), with good model fit. (The proportional odds assumption was met (p = .859)). People in the PCL-5 category 1 (individuals not at risk of possible PTSD) were 89% less likely to fall into a higher PGSI gambling risk category than those in the group of individuals at risk of possible PTSD (Odds ratio = 0.11).

A significant **negative relationship, moderate** in size, was found between the PGSI mini-screen total score and the mental health component summary measured by the SF-12 (Spearman's rho = -.415, n=144, p< .001). This indicates that the lower someone scored on the mental health scale, the higher their score on the PGSI mini-screen.

Gambling Behaviors and Military Background

There was a modest but significant association between the participants' military background and risk of developing a gambling problem, $X2\ (6) = 35.41$, $p < .001$, phi = 0.275. Therefore, the different military background groups differ in their likelihood of being at risk for problem gambling.

The proportion of participants that are currently serving in the military (69.6%) that adhered to problem gambling criteria was significantly more than the proportion of people with no military experience that met the criteria (35.6%). Although not significantly higher, the proportion of currently serving first responders who met the criteria for problem gambling was higher than the proportion of first responders that only have past military experience (52.5%).

When considering the odds ratios, the likelihood that first responders who are currently serving in the military meet the criteria for problem gambling (instead of no and low-risk gambling) were 11.4 times higher compared to those with no military background which is a very large effect. The likelihood of harmful gambling was 4.4 times higher for those currently serving compared with those who had served in the past, and 2.6 times higher for those with past service compared with individuals with no military background.

Discussion

The broad aim of this study was to assess the prevalence of gambling participation and problem gambling levels among first responders in the U.S., and its associations with wellbeing, PTSD, military background, and occupational role. Overall, the findings have shown a significantly high gambling participation rate of 95%, of which 31% gambled often (2+ days per week), with online sports betting being the most popular activity. The study also identified that 77% of first responders reported some level of past year gambling problems, including 41% that met the criteria for problem gambling (PGSI mini-screen ≥ 4), and 36% that were at-risk gamblers (PGSI mini-screen 1-3). The findings are significantly higher than those reported by Cowlishaw et al. (2020), who found that 12.3% of firefighters experienced some level of past year gambling problems.

As mentioned previously, research on gambling among first responders in the U.S. is sparse (Cowlishaw & Hakes, 2015), while studies focused on police officers document some gambling-related problems, gambling participation and risk levels measured especially among EMS, EMTs and firefighters does not occur in any U.S. studies (Stanley et al., 2016). Consequently, the following information provided in the current study is novel and contributes greatly to our understanding of the gambling context of the first responder groups. As predictable from the high overall prevalence of gambling participation, the largest part within each of the first responder sample groups of this study met the criteria for problem gambling. However, proportionately the firefighter group had the largest proportion (49%) that met the criteria of this risk category. Participation in gambling related activities also indicated that the largest part of the firefighter (38%), EMS (32%) and police officer (28%) groups indicated that they gambled 2+ days a week, with the exception of the EMT group where the largest part of this group (27%) indicated gambling mostly once per month (27%).

It is well-detailed within literature that in order to deal with exposure to traumatic events, first responders often use nonadaptive coping strategies which are strongly associated with symptoms of (PTSD) (Díaz-Tamayo et al., 2022). These same maladaptive coping strategies are also linked to increased vulnerability to harmful or addictive behaviors, including problematic gambling, which are known to exacerbate mental-health difficulties and reduce overall well-being.

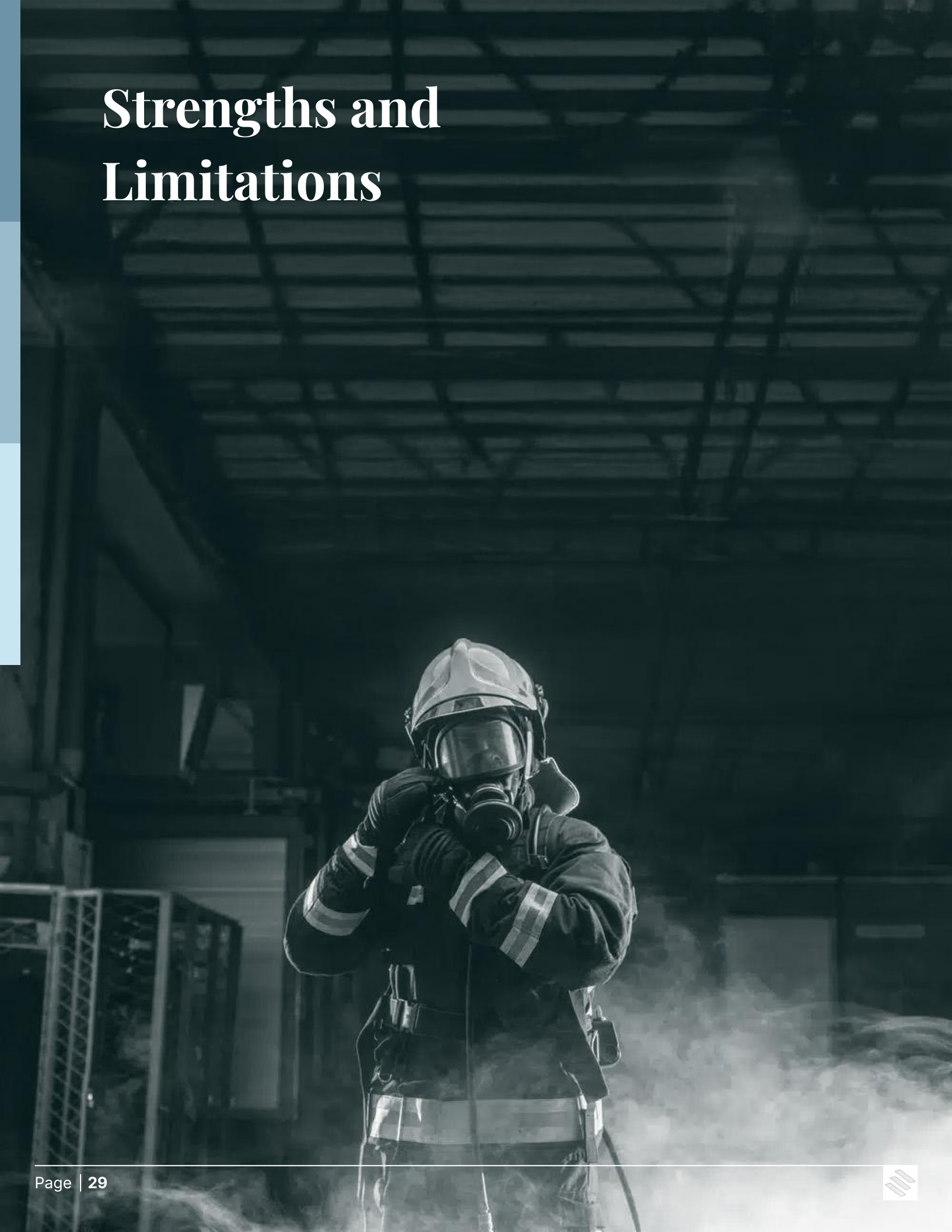
On the basis of prevalence alone, this study indicated that gambling problems are a significant concern among first responders and should be prioritized in future research and prevention efforts. Although gambling prevalence was a central focus of this study, it was not the only notable finding. Within this study, 50% of the sample screened positive for possible PTSD, which is substantially higher than the 'up to 35%' prevalence of clinically significant PTSD symptoms reported in previous studies with first responders (e.g. Petrie et al., 2018). The average overall mental health of the Prolific sample subset was mildly below the U.S. norm (Ware et al., 1996), indicating an overall below average well-being in this sample. The study also confirmed the expected associations between PTSD symptoms and gambling-harm risk, as well as between poorer mental health and gambling harm. The significant relationships were relatively strong, indicating that psychological distress and maladaptive coping may play a meaningful role in gambling vulnerability among first responders. Taken together, the high prevalence and co-occurrence of gambling problems, PTSD symptoms, and below-average mental health not only contextualize the challenges faced by this workforce, but also highlight the importance of adopting a holistic, integrated approach to gambling-harm prevention and support across first responder professions.

Another important finding emerging from this study was the strong association between military background and gambling behavior amongst first responders. Participants who were currently serving in the military showed the highest vulnerability with 69.6% meeting the criteria for problem gambling. This proportion is almost double that of first responders without any military experience (35.6%). Moreover, the proportion of those currently serving and meeting the criteria for problem gambling was also higher than that of the participants with past military service (52.5%). This suggests a potential link between first responders' recency of service with gradient of risk of gambling harm.

These differences were further reflected in the odds ratio calculation. The likelihood of first responders currently serving in the military to meet the criteria for problem gambling was 11.4 times higher than those with no military background. The likelihood of harmful gambling was also 4.4 times higher for those currently serving, compared with those who had served in the past, and 2.6 times higher for those with past service experience compared to individuals with no military background.

Together, these findings indicate that military involvement, in particular individuals actively serving in the military, may be a substantial risk factor for gambling harm within first responder populations. The findings align with previous studies that linked military service with gambling participation and harm through the channel of elevated stress exposure, trauma-related symptoms, and maladaptive coping (Dighton et al., 2025; Ekenna et al., 2025, Roberts et al., 2020). The results therefore further contextualize gambling participation amongst first responders and highlight the importance of also considering military background in that context to better design prevention, screening, and support strategies for gambling harm amongst first responders.

Strengths and Limitations



Several limitations must be taken into consideration when interpreting the findings of this study. Due to the mix of recruitment strategies, independent verification of first responders' status was not possible for all participants. Although rigorous screening procedures were followed and responses were removed after eligibility and quality checks, it remains possible that some individuals recruited through LinkedIn might not have met the eligibility criteria for the study. As such, the findings should be interpreted with appropriate caution.

Additionally, construct validity for the SF-12 could not be established across the whole sample, particularly with regards to measurement invariance, indicating that the scale did not function equivalently across the recruitment groups. The reliability also decreased substantially from the Prolific subsample to the LinkedIn subsample, which suggests a reduced internal consistency in the LinkedIn sample. The internal consistency and construct validity across these groups for the 4-item PCL-5 PTSD Checklist and the PGSI mini-screen delivered satisfactory results. This discrepancy raises the possibility of inconsistent or inattentive responding within part of the sample, which may have compromised the psychometric performance of the SF-12. While analyses involving the SF-12 were therefore restricted to the Prolific subsample, the inability to validate this measure across the LinkedIn subsample raises concerns regarding the response quality and validity of respondent participation across the survey as a whole and further highlights the need for cautious interpretation of the findings.

Participants were offered a $10 gift card incentive upon completion of the 3-5-minute survey. Although participant compensation is widely used in online research, the relatively high incentive for a short survey may have increased the likelihood of financially motivated participation (Fernandez Lynch et al., 2019; Jia et al., 2021). This may partly explain the presence of speeding and straight-lining behaviors observed during data screening.

The study was explicitly advertised as research on gambling. As a result, self-selection bias could have occurred (Khazaal et al., 2014), whereby individuals with an existing interest in gambling were more inclined to participate. Consequently, the findings may overestimate gambling engagement relative to the broader population of first responders.

Lastly, the sample was not geographically representative of the United States. Certain states were overrepresented, while others had minimal participation. Given regional differences in gambling legislation, some have legalized sports betting while others have not. Based on availability, occupational culture, and mental health resources, the findings cannot be assumed to generalize the entire population of first responders in the U.S.

Despite these limitations, the present study addresses a significant gap in literature. Research examining gambling behaviors and related psychological outcomes among first responders remains limited, particularly within U.S. samples. To our knowledge, no studies simultaneously explored gambling severity, symptoms of PTSD, and quality of life within this occupational group. As such, this study provides important preliminary evidence and contributes novel data to an underexplored area of research. While the findings should be interpreted as exploratory, they offer a foundation for future research employing occupational verification procedures, stratified sampling strategies, and longitudinal designs to further clarify the relationship between first responder roles and gambling-related outcomes.

Conclusion and Implications

To conclude, the findings from this study indicated that first responders are at a high risk of gambling harm with firefighters and those with a military background being the most vulnerable. The results indicated the importance of designing and implementing targeted prevention initiatives, and education around the potential harms of gambling for this group. Additionally, there is a need for research to better understand and address gambling-related harm within these populations. Integrating measures of gambling harm with broader assessments of wellbeing and trauma exposure, such as the SF-12 and PTSD screening tools, may be useful in identifying at-risk individuals. In turn, the findings from this study may be used to inform the development of evidence-based policy, training, and targeted screening and intervention strategies to support and protect first responders' wellbeing.

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