UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND READINESS

JUL 28 2022

The Honorable Adam Smith
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The Department's response to section 733 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232), "Inclusion of Gambling Disorder in Health Assessments for Armed Forces and Related Research Efforts," is enclosed.

The report addresses the inclusion of screening questions for gambling disorder in the Annual Periodic Health Assessment (PHA) for members of the Armed Forces and the Health Related Behaviors Survey (HRBS) of active duty and Reserve Component personnel. The report provides screening data collected for a period of 1 year on the prevalence rate of gambling disorder among the Armed Forces (including active duty and Reserve Component personnel). The results from the PHA and HRBS revealed low overall positive screening rates for gambling disorder. Both the PHA and HRBS found higher rates among males and enlisted Service members. The overall rates reflected in the PHA and HRSB correspond with the generally low rates documented in past research in both civilian and military populations for gambling disorder.

Thank you for your continued strong support for our Service members,. I am sending a similar letter to the Senate Armed Services Committee.

Sincerely,

Gilbert R. Cisneros, Jr.

Enclosure:
As stated

The Honorable Mike D. Rogers
Ranking Member

UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND READINESS

JUL 28 2022

The Honorable Jack Reed
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

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Sincerely,

Gilbert R. Cisneros, Jr.

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As stated

The Honorable James M. Inhofe
Ranking Member

Report to the Congressional Armed Services Committees

Inclusion of Gambling Disorder in Health Assessments for the Armed Forces and Related Research Efforts

Section 733 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232)

The estimated cost of this report or study for the Department of Defense (DoD) is approximately $11,000 for the 2022 Fiscal Year. This includes $0.0 in expenses and $11,000 in DoD labor.

Generated on 3 March 11 RefID: 4-D72F5ED

EXECUTIVE SUMMARY

This report addresses the inclusion of screening questions for gambling disorder in the annual Periodic Health Assessment (PHA) for members of the Armed Forces and the Health Related Behaviors Survey (HRBS) of active duty and Reserve Component personal in response to section 733 of the John S. McCain National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2019 (Public Law 115–232). The Department of Defense incorporated screening questions for gambling disorder into the PHA and HRBS, and data were collected for a 1-year period in accordance with section 733 of the NDAA for FY 2019 (See Appendix 1). Key elements of this report include: a review of the background for screening, detection, and diagnostic criteria for gambling disorder; a description of the psychometric properties of the Brief Biosocial Gambling Screen (BBGS) included in the PHA to assess gambling disorder; prevalence data of gambling disorder in the past year by branch of service, rank/pay grade, race, gender, and age using the BBGS; a review of the psychometric properties of the Lie-Bet Questionnaire included in the HRBS to assess gambling disorder; prevalence data of gambling disorder in the past year by branch of service, rank/pay grade, race, gender, and age using the HRBS.

Although the diagnosis of gambling disorder cannot be made using screening tools alone, a positive screen can alert providers that further evaluation for gambling disorder is warranted. It is important to note that the results from the PHA and HRBS revealed low overall positive screening rates of 6 to 13 per 10,000 (0.06 percent - 0.13 percent) and 160 to 170 per 10,000 (1.6 percent - 1.7 percent) respectively for gambling disorder. Both the PHA and HRBS found higher rates among males and enlisted Service members. The overall rates reflected in the PHA and HRSB correspond with the generally low rates documented in past research in both civilian and military populations for gambling disorder. The DoD will continue to screen for gambling disorder in the PHA and HRBS in order to monitor potential long-term changes in rates of gambling disorder in the military population.

INTRODUCTION

The annual PHA is a mandatory screening tool used to assess medical readiness, identify health concerns and facilitate appropriate evaluation, care, and education for members of the Armed Forces (Active and Reserve Component Service members in the U.S. Air Force, Army, Coast Guard, Marine Corps, Space Force, and Navy). Administered approximately every 3 years, the HRBS is a voluntary, confidential self-report survey assessing the health, health-related behaviors, and well-being of Service members. The 2018 HRBS surveyed personnel from both Active and Reserve Components. Although gambling screening questions were added to the annual PHA and the HRBS, estimates of prevalence may vary because of the type of measure used, the population sampled, time frame used (e.g., problems assessed in the past year versus the past month), measurement thresholds, administration format (e.g., self-administered versus personal administration such as face-to-face or via telephone), and response rates (Otto et al., 2020).

BACKGROUND: SCREENING, DETECTION, AND DIAGNOSTIC CRITERIA FOR GAMBLING DISORDER

Many forms of gambling, including lottery tickets, casino games, internet poker, and sports betting have become increasingly accessible and legal in the United States (St-Pierre et al., 2014). Increased access and availability of gambling raises concerns about the increased risk for gambling disorder.

Gambling disorder is defined in the Diagnostic and Statistical Manual of Mental Disorders, version 5 (DSM-5; American Psychiatric Association, 2013), as "persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress." To meet diagnostic criteria for gambling disorder, a person must have at least four out of nine symptoms, which include the need to gamble with increasingly large amounts of money, repeated unsuccessful attempts to stop gambling, lying to conceal one's gambling behavior, and preoccupation with thoughts of gambling. Measurement of gambling disorder at the population levels is difficult. Gambling screening instruments are often validated against small and specific samples and few screeners have been validated against an ideal comparison instrument (i.e., a gold standard clinical interview) (Otto et al., 2020). Thus, gambling disorder prevalence estimates, although consistently low, vary considerably such that past-year U.S. gambling disorder rates have been estimated between 0.1 percent to 1.9 percent (Welte et al., 2015) and national past-year prevalence rates in Europe ranging from 0.12 percent to 5.8 percent (Calado & Griffiths 2016). Few studies have examined gambling disorder prevalence in military populations. A recent systematic review of gambling prevalence among U.S. active duty military personnel found a limited literature on this topic and concluded that gambling disorder occurred with roughly similar frequency as the general population (Patterson, Whitty, & Leslie, 2001).

INCLUSION OF GAMBLING DISORDER SCREENING QUESTIONS IN THE PHA

Population and Sample:

Self-reported data were drawn from 1,201,193 PHA records of members of the Armed Forces. Gambling data from the PHA were linked to demographic information obtained from Defense Manpower Data Center (DMDC) records. General/flag officers (O7-O10; n = 981) and those with missing gambling screening items (n = 45,149) were excluded from analysis, leaving 1,155,063 records available. The prevalence of gambling disorder in the past year was further examined by branch of service, rank/pay grade, race, gender, and age.

Brief Biosocial Gambling Screen (BBGS) Assessing Gambling Disorder:

The BBGS was developed and validated in a general population with strong reported psychometric properties (correctly identified 96 percent of cases as cases and 99 percent of non-cases as non-cases), although precision was not strong (36 percent of individuals identified as a case in screening were actually cases; Gebauer, LaBrie, & Shaffer, 2010). Low precision is common for screening measures of low base rate problems in the general population. These

psychometric measures may be overly optimistic since the measure was developed and validated in the same data source. The prevalence estimate used in validation in the sample was 18 per 10,000 individuals.

In 2020, a new four-item screener was added to the PHA to assess gambling disorder using three items from the BBGS plus one additional question. The additional question, a stem question, was added to the BBGS that asked Service members, "Did you gamble?" If the Service member responded "yes" to this question, the three-item BBGS asked Service members in the past 12 months: 1. Have you become restless, irritable, or anxious when trying to stop/cut down gambling? 2. Have you tried to keep your family or friends from knowing how much you gambled? 3. Did you have such financial trouble as a result of your gambling that you had to get help with living expenses from family, friends, or welfare? A positive screen was defined as a "yes" response to item one followed by a "yes" response on any of the three BBGS questions.

The Rate of Positive Screens for Gambling Disorder Among Service Members:

A total of 1,074 Service members had a positive screen for gambling disorder out of 1,155,063 Service members assessed. This corresponds to a positive screening rate of 6 per 10,000 Service members for the Active Component and 13 per 10,000 for the Reserve Component. Table 1 provides the demographic breakdown by component. Similar groups in both components had higher positive screening rates for gambling disorder. These included: older cohorts, men, non-Hispanic Black Service members, enlisted Service members, and those in the Army.

Table 1. Positive screening rate estimates for Gambling Disorder from the PHA, using the BBGS

Characteristics	Active Component			Reserve Component		
	Rate per 10,000	L95	U95	Rate per 10,000	L95	U95
Overall	6	5	6	13	12	14
Age						
17-24	5	4	6	11	9	13
25-34	5	5	6	12	11	14
35-44	7	6	8	15	13	17
45-69	9	6	13	15	13	19
Sex						
Female	3	2	4	9	7	11
Male	6	6	7	14	13	16
Race/ethnicity						
Hispanic	6	5	8	13	10	16
Non-Hispanic Black	12	10	14	34	30	39
Non-Hispanic White	4	3	5	10	9	11
Other	9	8	11	15	12	20

Service						
Army	17	13	20	28	24	31
Coast Guard	7	4	11	--	--	--
Air Force	2	1	2	14	8	20
Marine Corps	6	4	8	23	14	32
Navy	7	5	8	6	4	9
Rank/grade						
E1-E4	8	6	10	21	17	25
E5-E6	7	5	8	16	13	19
E7-E9	8	5	10	13	10	16
Warrant	--	--	--	--	--	--
O1-O3	5	3	7	12	8	16
O4-O6	4	2	6	7	5	10

Note: Rates are not reported for categories with fewer than 20 events.

INCLUSION OF GAMBLING DISORDER SCREENING QUESTIONS IN THE HRBS

Population and Sample:

The sampling frame of the 2018 HRBS Active Component and Reserve Component surveys included all Active and Reserve Component personnel who were not enrolled as cadets in service academies, senior military colleges, and other Reserve Officers' Training Corps programs. Personnel in an active National Guard or Reserve program and full-time National Guard members and Reservists are classified as members of their Reserve Component branch of service and were included as part of the Reserve Component sample. Demographic and occupational data were drawn from the DMDC to construct the sampling frame. The total sampling frames for Active Component and Reserve Component Service members were 1,357,219 and 811,576, respectively. The prevalence of gambling disorder in the past year was further examined by branch of service, rank/pay grade, race, gender, and age.

Lie-Bet Questionnaire Assessing Gambling Disorder:

The Lie-Bet questionnaire was added to the 2018 HRBS to assess for gambling disorder. The Lie-Bet questionnaire was developed and validated using small clinical comparison samples (Johnson, Hamer, & Nora 1998). Although further research has validated the Lie-Bet questionnaire in a general population (Norwegian) yielding strong reported psychometric properties (correctly identified 92 percent of cases as cases and 96 percent of non-cases as non-cases), the precision is not strong (36 percent of individuals identified as a case in screening were actually cases; Gotestam, et al., 2004). The low precision is common for screening measures of low base rate problems in the general population. The prevalence rate from a Norwegian community sample was low at an estimated 55 out of 10,000 adults.

The Lie-Bet consists of two items, one about lying ("lie to people important to you about how much you gambled") and one item about betting ("feeling a need to bet more and more money;"

Johnson et al., 1997). A positive response on either item indicates a positive screen for gambling disorder. The Lie-Bet was also used in the source study for the BBGS measure (Gebauer, LaBrie, & Shaffer, 2010). While both the BBGS and the Lie-Bet correctly identified the same number of cases as cases, the Lie-Bet resulted in more false positive results (non-cases identified as cases). Consequently, the positive screening rate using the Lie-Bet criteria was 96 per 10,000 individuals, almost twice the estimate based on the BBGS (49 per 10,000).

Lie-Bet Positive Screening Rate for Gambling Disorder Among Service Members:

The weighted positive screening rate for the Active Component population was 160 per 10,000 individuals. Table 2 provides weighted positive screen estimates for age, sex, race/ethnicity, service, and rank/grade. Positive screening rates for Navy and Marine Corps were higher than for the Air Force. Rates were higher among enlisted ranks than among O-4 to O-6. Men had a higher rate than women.

The weighted positive screening rate for the Reserve Component population was 170 per 10,000. Table 2 provides weighted positive screen estimates for age, sex, race/ethnicity, service, and rank/grade. Rates for Army National Guard and Navy Reserve were significantly higher than in the Air Force Reserve and the Air National Guard. Rates were higher among enlisted ranks relative to 04-06 ranks. Men had higher rates than women. Positive screening rates were higher among those age 17–24 relative to those age 45 or older.

Table 2. Positive screening rate estimates for Gambling Disorder from the HRBS, using the Lie-Bet Questionnaire

Characteristics	Active Component			Reserve Component		
	Rate per 10,000	L95	U95	Rate per 10,000	L95	U95
Overall	160	130	190	170	140	210
Age						
17-24	140	90	180	260	150	380
25-34	190	140	240	150	100	200
35-44	150	110	190	150	110	190
45-69	70	30	110	100	70	130
Sex						
Female	90	50	140	110	70	140
Male	170	140	200	190	140	240
Race/ethnicity						
Hispanic	170	100	230	310	190	440
Non-Hispanic Black	160	90	230	210	100	320
Non-Hispanic White	120	90	150	130	90	180
Other	110	20	210	100	10	190

Service						
Army	170	110	230	150	90	200
Coast Guard	120	50	190	120	20	230
Air Force	90	60	120	60	20	90
Marine Corps	190	120	260	220	60	380
Navy	190	130	260	240	130	350
Rank/grade						
E1-E4	150	100	200	220	140	300
E5-E6	190	140	250	170	120	220
E7-E9	180	120	240	130	90	180
Warrant	130	20	240	220	20	430
O1-O3	120	60	180	80	10	150
O4-O6	40	10	60	79	40	110

Note: Rates are not reported for categories with fewer than 20 events.

SUMMARY AND CONCLUSIONS

Gambling disorder prevalence estimates are generally low in both civilian and military populations, although estimates can vary considerably, and there has been limited data on military gambling disorder prevalence. The BBGS and Lie-Bet gambling disorder brief screening instruments were incorporated into the PHA and HRBS respectively to assess probable gambling disorder in the military population. Both instruments have strong psychometric properties, although both instruments have low positive predictive validity, which is common for brief screeners of low base rate disorders. As a consequence, brief gambling screeners may overestimate the number of people who screen positive for a disorder.

Although the diagnosis of gambling disorder cannot be made using screening tools alone, a positive screen can alert providers that further evaluation for gambling disorder is warranted. The results from the PHA and HRBS revealed low overall positive screening rates that correspond with the generally low rates previously reported in studies of civilian and military populations. Both the PHA and HRBS found higher rates among males and enlisted Service members. Additional demographic and occupational differences were not consistent between PHA and HRBS findings and would require further research to clarify. The higher probable gambling disorder rate observed in the HRBS relative to the PHA cannot be interpreted as these screening tools used different gambling disorder screening instruments with different methodologies and sampling frames. However, the confidential nature of the HRBS is one possible explanation for higher reported probable gambling disorder rates that cannot be ruled out.

The DoD will continue to screen for gambling disorder using the BBGS and Lie-Bet screening instrument in the PHA and HRBS which will permit examination of possible changes in rates of gambling disorder in the military population over time. The DoD remains committed to providing health care to all Service members through screening, early detection, diagnosis, and treatment of mental health disorders.

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APPENDIX: SECTION 733 OF THE JOHN S. MCCAIN NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2019

SEC. 733 <> . INCLUSION OF GAMBLING DISORDER IN HEALTH ASSESSMENTS OF MEMBERS OF THE ARMED FORCES AND RELATED RESEARCH EFFORTS.

(a) Inclusion in Next Annual Periodic Health Assessments.--The Secretary of Defense shall incorporate medical screening questions specific to gambling disorder into the Annual Periodic Health Assessments of members of the Armed Forces conducted by the Department of Defense during the one-year period beginning 180 days after the date of the enactment of this Act.

(b) Inclusion in Certain Surveys.--The Secretary shall incorporate into ongoing research efforts of the Department questions on gambling disorder, as appropriate, including by restoring such questions to the following:

(1) The first Health Related Behaviors Survey of Active Duty Military Personnel conducted after the date of the enactment of this Act.

(2) The first Health Related Behaviors Survey of Reserve Component Personnel conducted after that date.

(c) Reports.--Not later than one year after the date of the completion of the assessment referred to in subsection (a), and of each survey referred to in subsection (b), as modified pursuant to this section, the Secretary shall submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the findings of the assessment or survey in connection with the prevalence of gambling disorder among members of the Armed Forces.