Common mental health conditions among navy divers: A brief report

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Abstract
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Introduction: A recent article reported on common mental health conditions among recreational scuba divers, and observed that the prevalence mirrored national population figures. This raised the question of the extent to which this might also be the case among professional divers. No data on commercial divers could be located; this paper presents the situation among navy divers.
Methods: Mental health survey data from 132 South African Navy divers were reviewed to describe the 12-month prevalence of common mood, anxiety, and alcohol misuse disorders.
Results: Prevalence of common mood and anxiety conditions appeared to reflect local general population estimates, and the occurrence of alcohol misuse was higher than local population figures, although the usefulness of the population data could be challenged.
Conclusions: It appeared that common mental health conditions in both sport and navy divers may generally conform to their respective local general population estimates. If this were to be the case in the broader professional diving environment as well, the inclusion of some form of formal mental health screening during commercial diving medical examinations may be beneficial.

Introduction

A recent article in this journal described mental health (MH) issues among recreational scuba divers in the UK.[1] Although the authors indicated some limitations to their data, it did provide a fascinating 'first picture' of this very relevant field. One particularly interesting observation was that the reported prevalence of various common MH conditions (CMHC) among sport divers were similar to the prevalence of those conditions among the general UK population.[1] This raises the question of the extent to which this might also be the case among professional divers. It is a topical question, for such answers may have implications for MH screening during formal diving medical examinations (for both sport and professional diving).

Few data are available on the prevalence of CMHC among sport (i.e., amateur) scuba divers, apart from the abovementioned survey of UK recreational scuba divers that found prevalence rates comparable to the general UK population.[1] Earlier reports did suggest that history of panic attacks were not uncommon among sport divers.[2–3] No prevalence data for CMHC among commercial divers could be located. In the case of military divers, no recent prevalence data could be found either. Historically, generally low levels of psychopathology were reported, suggesting good MH within this population.[4–7] Further, military divers are characterised by lower levels of generalised anxiety, which is considered contextually important in the military diving environment.[8]

For this study we were able to access recent data on South African Navy (SAN) divers, with the aim to explore whether the prevalence of reported CMHC in this specialised group would also reflect published local population prevalence estimates.[9] SAN divers undergo an annual statutory diving medical examination, which includes a mental health screen, and data for one calendar year (namely 2019) were examined. This short communication will describe the occurrence of mood disorder (depression), anxiety disorders (generalised anxiety, post-traumatic stress disorder, panic disorder), and problematic alcohol use.

Methods

Ethics clearance was obtained for this analysis (University of Pretoria Research Ethics Committee, #HUM020/0320).

SAMPLE

The analysis took the form of a retrospective review of an anonymised electronic database kept at the Institute

for Maritime Medicine. Due to the military nature of the sample, only limited biographical data are reported. A total of 132 active duty military divers (16 women, 116 men), with an average age of 30.6 years (SD 6.2, range 22–52) were included in the sample.

MEASURES

Participating divers completed a MH survey consisting of the Patient Health Questionnaire for Depression (PHQ-9),[10] the Generalised Anxiety Disorder questionnaire (GAD-7),[11] the primary care screen for post-traumatic stress disorder (PTSD-5),[12] and the CAGE questionnaire for alcohol use,[13] as well as a two-item scale for panic-like anxiety.[14] All the divers were also formally assessed through an interview with a clinical psychologist.

DATA ANALYSIS

Diagnostic prevalence was calculated based on the interpretation of psychometric scales (i.e., 'self-report' PHQ-9 and GAD-7) using established norms, as well as on psychological interview outcomes across five CMHC, all reported separately in Table 1. Interview outcomes constituted 'formal diagnosis', using DSM-5 criteria.

Results

Table 1 presents the prevalence for common mood, anxiety, and alcohol misuse disorders among SAN divers, as well as a summary of CMHC prevalence of UK scuba divers, and local South African 12-month population estimates, for comparison.

The prevalence of self-reported depression was less than half of the UK sport diver sample, while prevalence based on formal diagnoses mirrored the reported general SA population figures. Within the SAN diver sample, self-reported depression (using the PHQ-9) is slightly underreported, compared to formally diagnosed cases, which in turn was similar to population estimates. The prevalence of self-reported generalised anxiety was substantially less than the UK sport diver sample, although the indicators were still in range of general SA population estimates. The reported prevalence of PTSD and panic disorder were close to reported local population estimates, with alcohol misuse disorders considerably higher than known SA general population figures.

Discussion

The table allows for a number of interesting observations. Firstly, both mood and generalised anxiety were reported less by SAN divers than by UK sport divers. Navy divers are a healthy group, with regular access to healthcare and the associated opportunity for early intervention. Further, in the diving context, close supervisory monitoring may facilitate early referral and thus intervention. The lower proportion of GAD-7 cases (compared to the sport diver sample) could also be attributed in part to the practice of screening out high anxiety in military diving (including through self-selection, previous exclusion, and regular annual screening during diving medical examinations).

Secondly, diagnoses of mood and anxiety disorders in the SAN diver sample at first glance appeared to reflect local 12-month population estimates, similar to the description of UK sport divers. This could to some degree be expected, as the SAN targets recruitment to reflect broader South African demographic composition,[15] which may result in a similar health profile as the general population. However, given organisational recruitment practices, younger mean age, and access to healthcare, it could be argued that a lower prevalence of CMHC compared to the general population would have been expected. In this regard the national comparator data are dated, with actual prevalence estimated

Table 1

Prevalence of common mental health conditions among South African Navy divers and comparable reference groups. *Patient Health Questionnaire-9, moderate to severe depression. ^Generalised Anxiety Disorder-7, moderate to severe generalised anxiety. #Formal diagnoses (FD) were made based on clinical interviews using DSM-5 criteria. PTSD = post-traumatic stress disorder

Source	Sample	Mood disorders		Anxiety disorders				Alcohol abuse disorders
		Depression		Generalised anxiety		PTSD	Panic	
		PHQ-9*	FD#	GAD-7^	FD	FD	FD	Confirmed abuse
St Leger Dowse et al. (2019)[1]	729 UK recreational scuba divers	8%	7%	5%				
Herman et al. (2009)[9]	SA population estimates		4.5%		1.4%	0.6%	0.8%	4.5%
South African Navy divers	132 active duty divers	3.8%	4.5%	0.8%	1.6%	0.8%	0.8%	9.1%

to be somewhat higher.[16] While it could be inferred that the SAN divers might present with lower CMHC figures than the general population, their data highlight the need to consider those CMHC which carry implications for safe diving. The prevalence of panic (similar to local population estimates) was unexpected, as panic-like anxiety is often considered contra-indicative to safe diving. The limited available interview data suggested that panic first presented later in divers' careers, and was not present during training, but this tentative observation requires further exploration.

The third observation is more practical: the severity of mood and generalised anxiety symptoms were slightly under-reported on PHQ-9 and GAD-7. This might be common for self-reporting during occupational medical examinations, given the known concerns around anxiety in professional military diving, and may speak to the need for clinical screening by diving medical practitioners.

Lastly, the higher rate of alcohol misuse disorders, compared to population data, might still be under-reported. This is suggested by even higher rates of alcohol use disorders in a general military population from the same province, and also widely reported in other military contexts.[17,18] Such under-reporting are of concern, as problematic alcohol use could have implications for diving safety. In this regard, while the intake of alcohol before diving is recognised as a risk to safety, it is not uncommon, and although standard texts and manuals indicate alcohol dependence as contra-indicated to diving medical certification, the role of a general history of problematic alcohol use in the framework of occupational diving medical examination is not clear.[19,20] Additional objective screening tools (e.g., blood work) could be considered to examine medical risk that could affect diving safety.

There are limits to the findings. As noted, the comparator data are dated and may not fully reflect current population estimates. Further, given the small sample size, results cannot easily be generalised to all professional diving contexts. The sample profile was also limited to a relatively healthy subset of divers, with more severe cases already excluded through regular diving medical examinations.

Conclusions

This study demonstrated that CMHC in both UK sport divers and SAN divers conform to their respective local population estimates. While the comparator data for South African divers could be challenged, it is plausible that a similar picture may exist in the commercial diving environment, and research is needed to describe MH profiles in the broader professional diving context.

The findings also have practical implication. If divers present with CMHC similar to the general population, it is recommended that formal MH screening during commercial diving medical examinations be considered. Further, given the likelihood that commercial divers may under-report MH issues, some form of confirmatory screening by clinicians may also be beneficial.

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