LETTER TO THE EDITOR

Mental health of submariners

Editor:

In an article published last year in Science (1) a claim was made that "... submariners have shown a rate of neuropsychiatric illness twice that of surface fleet personnel. The greatest problem, though, is alcohol and drug abuse." Available data will show that the opposite is true—submariners have excellent mental health and the incidence of drug and alcohol abuse is low compared to surface personnel.

The source of the above claim appears to be an analysis of dispensary visits made during U.S. Navy ballistic missile nuclear submarine (SSBN) patrols during the period 1963–1973 and published in Undersea Biomedical Research (2); the article properly classified neuropsychiatric events occurring on board submarines as outpatient visits, which are typically mild or moderate psychological disturbances that do not require hospitalization and are often transient or situational. The outpatient data show an illness rate of 0.004 new cases/1000 man days of submarine exposure for the period 1963–1967, rising to 0.012 new cases/1000 days for the period 1968–1973. Surface fleet data were available only for a single year (1973) and showed an illness rate of 0.006/1000 days, whereas data from the National Center for Health Statistics used by the authors showed the rate of outpatient neuropsychiatric illness to be 0.012 and 0.018/1000 man days during 1963–1967 and 1968–1971, respectively, among the general American population in the age range of 25 to 34 yr. Taking into consideration that the majority of submariners are between 18–25 yr of age (i.e., much younger than the general American comparison group), and the general American comparison group contained data for both males and females, whereas submariners are exclusively male, the incidence rate for neuropsychiatric illness among submariners seems to be comparable to the incidence rate for the general American comparison group. The rise in the incidence rate among submariners between the two sampling periods was attributed to factors (undefined or unknown) similar to those acting on the general American comparison group.

An incidence rate of 0.012/1000 man days represents only 12 outpatient visits per 1 million man days of exposure. With an average of approximately 30 SSBNs on deterrent patrol throughout the year (from a total fleet of about 40 SSBNs—the difference being accounted for by ships undergoing refit, shakedown, repair, etc.), and with each of the SSBNs having about 140 crew members, total exposure for crew of the entire SSBN fleet is slightly over 1.5 million man days per year, or about 18 outpatient neuropsychiatric visits per year for the entire U.S. Navy SSBN fleet. (Only three cases were severe enough to require evacuation from a submarine at sea during the period 1968–1973; no cases were evacuated during the 1963–1967 period.) Considering the immense psychological stresses associated with preparing a submarine for deployment, as well as the stresses of deployment, this incidence of mild to moderate neuropsychiatric problems is surprisingly low.

Further testimony to the mental health of SSBN personnel is available from Navy medical records of severe and chronic mental illness requiring hospitalization (3), showing an inpatient admission rate among SSBN submariners about one-third that
of surface sailors. Gunderson and Garland (unpublished report), using data for inpatient admissions from 1974 to 1979 among enlisted white males assigned to submarines (both SSBN and fast attack) and surface ships who were matched for age and size of ship, found that hospitalization rates for submariners were about one-fourth the rate for surface fleet personnel for alcoholic psychosis, alcoholism, drunkenness, drug dependence, and improper drug use, whereas the overall rate for inpatient mental disorders among submariners was about one-half the rate of surface fleet personnel. Gunderson and Garland attribute the differences to the larger proportion of technical ratings found on board submarines compared to surface ships, implying that submariners have higher levels of verbal intelligence than personnel on board surface ships (therefore qualifying more often for technical ratings), and that sailors with higher levels of verbal intelligence are less susceptible to severe mental illness than those of lesser intelligence. Differences in verbal intelligence between enlisted submariners and the general enlisted Navy population have been confirmed by others (4), and submariners are screened psychologically and are more closely monitored by medical personnel than surface fleet personnel. Psychological screening, close medical monitoring, and intelligence most likely account for the superior mental health of submariners noted above.

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REFERENCES