Low intelligence increases risk of suicide

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Q **Does poor performance on intelligence tests predict suicide in Swedish men over 18 years old?**

METHODS

Design: Retrospective cohort study.

Follow up period: Five to 26 years from the date of military conscription to the date of suicide, emigration, or 31 December 1999, whichever was first.

Setting: Swedish military service conscripts between 1968 and 1994.

People: 987 308 Swedish men aged over 18 years who conscripted for military service, and for whom a full set of intelligence test results and sociodemographic information were available.

Risk factors: Intelligence test scores (logic/general intelligence; verbal; visuospatial; technical/mechanical) partitioned into low, medium, and high scores.

Outcomes: Suicide (ICD-8 to ICD-10; codes E950-9 and X60-84) and unexplained deaths (ICD-8 to ICD-10; E980-9 and Y10-34).

MAIN RESULTS

After adjustment for age, year of birth, test centre, parents' socioeconomic status, and education, there were significant negative associations between all four test scores and risk of suicide. The associations with verbal, visuospatial, and technical/mechanical test results were greatly attenuated when correlation between test scores was controlled for, but the strong association between logic scores and suicide risk persisted. In all cases, except with verbal test scores, higher scores were associated with a lower risk of suicide (hazard ratio increase per unit increase in test score: 0.92, 95% CI 0.89 to 0.95, $p<0.0001$ on logic test v 0.97, 95% CI 0.94 to 0.99, $p<0.01$ on spatial test v 0.96, 95% CI 0.94 to 0.99, $p<0.005$ on technical test v 1.00, 95% CI 0.97 to 1.03, $p = 0.77$ on verbal test). Subsequent analyses of the association between the logic test score and suicide risk found that risk was not significantly changed by adjustment for poor mental health at baseline (p not reported), or parental education ($p = 0.35$ for interaction). The study reported that the association between intelligence scores and suicide depended on individual educational level ($p<0.005$ for interaction) and that in those with high or medium levels of education, the gradient of suicide risk in relation to intelligence was greatest (HR for suicide: 2.25 in those with $\leqslant 9$ years of primary school education and low (1–3) logic test score v 1.37 in those with >3 years of secondary school and medium (4–6) logic test scores).

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CONCLUSIONS

Higher risk of suicide is related to low scores on intelligence tests.

NOTES

Analysis of the interaction between intelligence score and potential confounders such as pre-existing psychiatric illness, and personal or parental education levels were performed using results of the logic test only. Authors state that logic test score was more strongly associated with suicide risk than other test scores, but the use of one test to represent overall intelligence must be interpreted with caution. Although the results of the study support an association between logic intelligence test scores and risk of suicide in Swedish military conscripts, the generalisability of these results is unclear. The authors acknowledge that unknown factors may have contributed to suicide and confounded the results.

Commentary

Suicide is a relatively rare event. Although much is known about risk factors for suicide (such as being male, having a family history of suicide, and the presence of psychiatric illness) the vast majority of individuals at risk for suicide do not end their lives. As a result, attempts to develop predictive models based solely on risk factor identification have not succeeded in reducing the suicide rate in any population.

The current study examines the relation between intelligence scores in men, measured at age 18 years as part of a military conscription examination required of all Swedish men, and subsequent suicide in the next 5–26 years. Taking advantage of the Swedish register, the authors obtained family information, medical history, and cause of death for a very large sample. The sample size of 2811 suicides that occurred in the follow up period is substantially larger than samples used in previous studies of suicide and intelligence.

The authors suggest their findings indicate that cognitive ability is associated with the aetiology of mental disorder, as the risk for suicide death was highest for those in the lowest overall intelligence categories. Further, they assert that the strongest association for the logic subtest and suicide death may indicate that limited problem solving skills are associated with the use of suicide as a coping strategy. Measures of intelligence are not fully described; therefore it remains unclear what is actually measured in the logic test. Although test administration procedures changed in 1980, the authors did not speculate on the effect this might have had on findings.

By examining a cohort of young-to-middle aged men, the authors cannot comment on the role intelligence may play in late life suicide. Moreover, it is unlikely that evaluating intelligence will ever be incorporated into screening measures for identifying suicidal individuals.

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