The effect of cancer on suicide in ethnic groups with a differential suicide risk

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This study examined the suicide risk among persons with cancer in ethnic groups with differential suicide mortality in the general population. We calculated the suicide standardized incidence ratios (SIRs) among Europe–America–North Africa–Born Israels with cancer, relative to the respective rates in the general population. The SIRs were higher in the European–American group [men: 1.96, 95% confidence interval (CI) 1.62–2.30; women: 2.03, 95% CI 1.51–2.56], but not significantly different in the Asian-North African group (men: 0.86, 95% CI 0.52–1.20; women: 0.80, 95% CI 0.10–1.50). Assessment of suicide risk must consider the ‘suicide culture’ of the person with cancer.

Introduction

During their disease trajectory, persons with cancer are at risk of psychiatric morbidity and suicide. Approximately one-third develop mood and anxiety disorders resulting from the dreaded diagnosis, treatment side effects, pain and mutilation. Studies have identified an increased suicide risk, especially following diagnosis. The suicide risk varies as a result of clinical factors (e.g. cancer stage and site) and socio-demographic variables (e.g. gender, social supports and religiosity), including ethnicity. With regard to ethnic differentials in suicide, a question does arise: Do they remain even when the person faces cancer? Surprisingly, research on this subject is limited.

Ethnic differences in health- and suicide-related factors

Israel is a mosaic of ethnic groups. Typically, the Jewish population is grouped by the continent of origin: Asia and North Africa (mostly from Islamic countries, where suicide is relatively low), and Europe and America (from countries with higher suicide rates). These groups differ in educational level (higher among the European-Americans), family size (larger among the Asian-North Africans) and degree of religiosity (European-Americans are more often secular). Also, the rates of treated mood disorders are higher in the Asian-North African group than in its counterpart.

Cancer morbidity and mortality differ between these groups. The age-standardized incidence rates per 100 000 of all malignancies in 2008 were higher among the European-Americans than among the Asian-North Africans (men: 379 and 275, respectively; women: 311 and 298, respectively).

Suicide rates also differ between these ethnic groups. Age-specific rates per 100 000 among the European-Americans aged ≥45 years were higher than among Asian-North Africans (2006–08; men, 18.7 and 10.8, respectively; women: 4.6 and 2.6, respectively).

Objective

The objective of this study was to explore the suicide risk among persons with cancer in ethnic/cultural groups with differential suicide rates in the general population. To maximize the contrast and to secure an adequate number of cases for statistical power, we selected Europe–America-born (high suicide rate) and Asia–North Africa-born (low suicide rate) people.

Methods

The Israel National Cancer Registry (INCR), which provided the information on cancer morbidity, is fed by all medical services. These are subjected to mandatory reporting. The national identity number enables cumulative entries and linkage to other databases, e.g. the linkage between the INCR and the National Population Registry enables retrieval and validation of the demographic data on individuals with cancer.

The data in INCR include socio-demographic variables (e.g. age; sex; country of birth; dates of birth and death), primary site and histological type of the tumours according to the Standard International Classification of Diseases for Oncology (ICD-O, third version), and the time of diagnostic confirmation. Also, data from autopsy and death certificates are collected. The INCR completeness is higher than 93% for solid tumours.

In the current study, we included all malignant tumours, including malignant melanoma of skin and benign central nervous system tumours (ICD-O topography: C00.0–C80.9). The period we covered, 1999–2007, follows further upgrades made in the system.

The Central Bureau of Statistics runs the nationwide database of causes of death, which are recorded according to the ICD-10th edition since 1998. The records with causes of death for the studied years were linked with the INCR using the personal identification number and other demographic information.

Confidentiality was strictly observed since the INCR analysts had no access to the personal identification of the deceased.

Analysis

We calculated the rates of suicide in the general population (1999–2007) by sex, age groups 40–64 and ≥65 years, and continent of birth and compared them with those in the respective groups with cancer. The expected number of deaths was taken from the general population and applied to those with a malignant disease, and standardized incidence ratio (SIR) and 95% CIs were calculated. There were few people below...
operate as protective factors. 

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persons with cancer reproduced the risk differential in the general 

population. This risk was present in both genders 

of European-American origin, the risk was higher than among their coun-

ences among the Asian-North Africans (men: 0.86, 95% CI 0.52–1.20; 

women: 0.80, 95% CI 0.10–1.50). European-Americans aged 40–64 years 

had the highest risk relative to their comparison group (men: 

SIR = 3.53, 95% CI 2.12–4.95; men: SIR = 2.16, 95% CI 1.21–3.11). 

Also, the SIR for European-American men aged >65 years was signifi-

cantly higher compared with the general population of the same origin 

(1.88, 95% CI 1.52–2.24) but not among women (1.36, 95% CI 0.85– 

1.86). No statistically significant differences in risk were found in the 

European-American population by age (1.88, 95% CI 1.52–2.24; men: 

SIR = 2.16, 95% CI 1.21–3.11). 

The SIRs were higher for the European-Americans with cancer 

compared with the general population of the same age, sex and origin 

[men: 1.96, 95% confidence interval (CI) 1.62–2.30; women: 2.03, 95% 

CI 1.51–2.56]. In contrast, there were no statistically significant differences 

among the Asian-North Africans (men: 0.86, 95% CI 0.52–1.20; 

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1.86). No statistically significant differences in risk were found in the 

Asia–North Africa group (table 1).

Results

The mean years from entrance into the INCR to suicide was similar 

between both groups (European-American: men, M = 2.03 SD = 1.98; 

women: M = 2.44 SD = 2.21; Asian-North African: men, M = 2.40 

SD = 2.26; women: M = 2.40 SD = 1.55).

The SIRs were higher for the European-Americans with cancer 

compared with the general population of the same age, sex and origin 

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Discussion

We investigated the suicide risk differentials among people, with cancer, 
of differing ethnicity. Our findings showed that among those of 

European-American origin, the risk was higher than among their counter-

parts in the general population. This risk was present in both genders 

and varied by age group. In contrast, Asian-North African individuals 

with cancer showed no statistical enhanced suicide risk.

As it was hypothesized, the ethnic differences in suicide risk among 

persons with cancer reproduced the risk differential in the general 

population. We surmise that a possible reason may be the degree to 

which suicide is more (Europe–America) or less (Asia–North Africa) 

silently tolerated as part of the cultural group.7,10 Persons affiliated 

with groups with a higher risk may have their suicidal behaviour 

facilitated when facing cancer, in contrast to groups with a lower risk.6 

Also, differences in social support (stronger among Asian-North 

Africans8) and religiosity (higher among Asian-North Africans 9) may 

operate as protective factors.4,3

This study has several limitations. Due to statistical power constraints, 

analyses were performed on aggregated cancer types, which may have 

concealed differences. Also, no information was available on cancer 

stage. Lastly, in more religious groups (e.g. Asian- and North African 

groups), and despite checks, the death certificate may not record 

’suicide’, thus leading to unknown under-estimations.

In conclusion, health practitioners should attend to both the psychi-

atric conditions that frequently develop after cancer diagnosis and 

treatment, and the ‘suicidal culture’ of the affected person.

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Key points

- The differential suicide risk of persons with cancer by their ethnic 
  group affiliation should be assessed in the presence of psychiatric 
  comorbidity and relevant cancer-related factors.
- Ethnic differentials in suicide risk among persons with cancer 
  may reproduce the differential risk in the general population.

References


disorder in oncological, haematological, and palliative-care settings: A meta-analysis of 94 

2 Robson A, Scrutton F, Wilkinson L, MacLeod F. The risk of suicide in cancer patients: a 

3 Basic DT, Belik SL, Bolton JM, et al. Cancer, mental disorders, suicidal ideation and 


6 Horton L. Social cultural and demographic factors in suicide. In: Simon RI, Hales RE, 
disorders, fact or artifact? II: evidence from a cohort study. Isr J Psychiatry Relat Sci 


date last accessed).

disorders, fact or artifact? II: evidence from a cohort study. Isr J Psychiatry Relat Sci 

1997;34:149–56.