The Association between Mood Disorders and Cancer Onset: Investigation of a population-based sample of Australian men

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Background

Mood disorder may be associated with cancer risk. However, the direction of the association and the mechanisms underpinning such an association, remains unclear [1-3]. The aim of this study was to investigate the association between mood disorder and incident cancer in men, exploring potential mechanisms.

Methods

Data was derived from 946 men (aged 20-93 years) participating in the Geelong Osteoporosis Study. Mood disorder (lifetime) was identified via clinical interview (SCID-I/NP) [4]. Information on cancer diagnoses was obtained through data linkage with the Victorian Cancer Registry (VCR) [5]. Demographic and lifestyle factors were documented via self-report and socioeconomic status determined (SES). Serum Interlukin-6 (IL-6) was measured following an overnight fast using an enzyme-linked immunosorbent assay (ELISA; R&D Systems). Associations between mood disorder and incident cancer were examined using logistic regression models, with covariates tested sequentially for confounding and/or effect modification.

Results

Cancer was recorded in 182 (19.3%) participants (Figure 2). A prior history of mood disorder was documented for 18 of the 182 cancer cases and 143 of the 764 controls (9.9% v. 18.7%, p=0.004). Characteristics between groups are shown in Table 1. Mood disorder was associated with a reduced odds of cancer onset independent of age and Il-6 (adjusted OR 0.55, 95% CI 0.30-0.98, p=0.04). All other covariates including BMI, physical activity, current smoking, alcohol consumption, psychotropic use, education and SES, did not contribute to the final model.

Conclusion

This data suggest that mood disorder may be associated with a reduced likelihood of incident cancer in men. Lifestyle and sociodemographic factors did not explain this observed association. However, findings are indicative of a potential interplay between mood disorder, inflammation, and cancer onset. These findings merit replication in larger prospective studies examining men and women across cancer subtypes, and accounting for differential mortality associated with mood disorders.

Keywords

Cancer, mood disorder, oncology, depression, inflammation, lifestyle, SES

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Figure 1: The study region is described by the Australian Bureau of Statistics (ABS) as the Barwon Statistical Division (BSD), situated in South-Eastern Australia. The BSD comprises the Australian Electoral Commission (AEC) Divisions of Corio, Corangamite (part) and Lalor (part)[5]. [Image courteously of the ABS [6]].

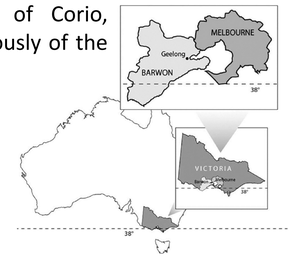

Figure 2: Confirmed VCR cases in men of the GOS. Data presented as percentages for each anatomical subtype.

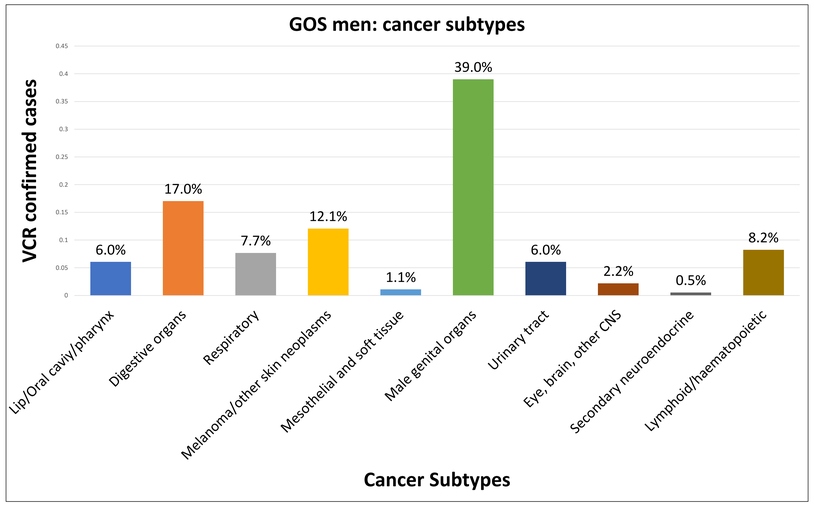

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Table 1: Participant characteristics for cases versus controls (n=946). Values are given as median (IQR), or n (%).

	Cancer cases	Controls	p
	n=182	n=764	
Mood Disorder (prior to cancer)	18 (9.9)	143 (18.7)	0.004
Age (year)	66.7 (56.2-74.3)	52.1 (38.9-65.8)	<0.001
BMI (kg/m²)	26.9 (24.5-41.7)	26.8 (24.4-58.8)	0.516
Psychotropic use (current)	14 (7.7)	60 (7.9)	0.942
Smoking (current)	21 (11.5)	115 (15.1)	0.225
Physically active (yes)	133 (73.1)	614 (80.4)	0.030
Alcohol (g/d)	13.91 (1.8-29.7)	14.22 (2.7-30.7)	0.512
Education (highest level completed)			0.354
Primary/part secondary	93 (51.1)	351 (46)	
Completed secondary	30 (16.5)	122 (16)	
Post-secondary (University/other)	59 (32.4)	290 (38)	
Socio-economic status			0.549
1 (most disadvantaged)	33 (18.1)	118 (15.5)	
2	40 (22.0)	152 (19.9)	
3	38 (20.9)	145 (19.0)	
4	32 (17.6)	171 22.4)	
5 (most advantaged)	39 (21.4)	178 (23.3)	
IL-6 (Tertiles)			<0.001
1 (lowest)	28 (16.6)	246 (37.7)	
2	55 (32.5)	219 (33.5)	
3 (highest)	86 (50.9)	188 (28.8)	