

Are Lifestyle Behaviors Associated With Psychological Distress In Cancer? Results from a Longitudinal Study

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Introduction

- Poor lifestyle behaviors, such as low physical activity and use of tobacco, alcohol and caffeine, have been found to be associated with psychological distress in the general population.
- Some studies have suggested that exercise and smoking cessation may help promote psychological well-being following cancer diagnosis and treatment.
- Much less is known about the relationship between other health behaviors and psychological distress in the context of cancer. Moreover, the few studies that have assessed the associations between lifestyle behaviors and psychological distress were cross-sectional.

Objectives

- To document the associations between lifestyle behaviors and psychological distress in the context of cancer
- To explore these relationships throughout the cancer treatment trajectory

Methods

Participants

- Inclusion criteria were:
 - to have received a confirmation for a first diagnosis of non-metastatic cancer;
 - to be scheduled to receive a curative surgery;
 - to be aged between 18 and 80 years old;
 - to be able to read and understand French.
- Exclusion criteria were:
 - to have received a neoadjuvant treatment for cancer;
 - to have severe cognitive impairments (e.g., Alzheimer's disease) or a severe psychiatric disorder (e.g., psychosis, bipolar disorder) as noted in the medical chart, observed at recruitment, or reported by the patient;
 - to have received a diagnosis for a sleep disorder other than insomnia (e.g., obstructive sleep apnea, periodic limb movements);
 - to have severe visual, hearing or language defects impairing their capacity to complete the measures.
- 3196 patients were solicited to take part in this study
 - 1677 patients were eligible (52.5% of solicited patients)
 - 962 of them agreed to participate (57.4% of eligible patients)

Procedure

As part of a longer longitudinal study :

- Potential participants were recruited at L'Hôtel-Dieu de Québec and l'Hôpital du St-Sacrement, Québec, Canada
- A research assistant met patients and explained the study goals and procedures
- Patients agreeing to participate were asked to provide their written consent
- Patients received a battery of self-report scales and were asked to complete it within two weeks and return it by mail, at four time points:
 - Baseline (T1);
 - 2 months (T2);
 - 6 months (T3);
 - 10 months (T4).

Measures

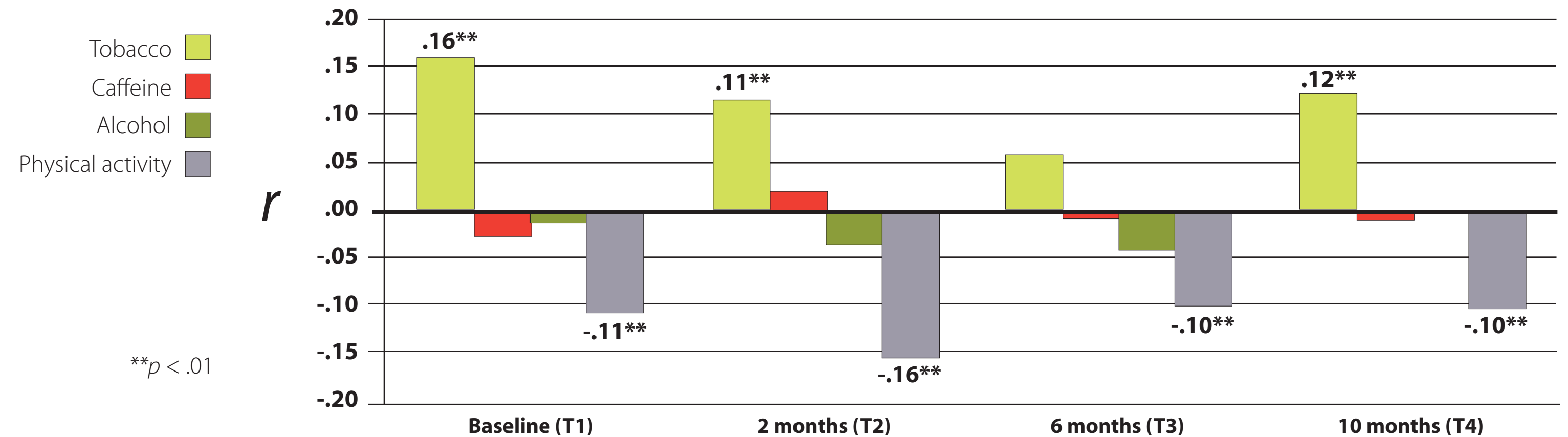
- The battery included many self-report scales, among which:
 - the *Hospital Anxiety and Depression Scale* (HADS; Zigmond and Snaith, 1983), assessing:
 - total psychological distress (HADS-T)
 - anxiety (HADS-A)
 - depression (HADS-D)
 - a sociodemographic and medical questionnaire which provided an assessment of the frequency of:
 - physical activity
 - consumption of alcohol
 - consumption of caffeine
 - tobacco use

Table 1. Participants' demographic and clinical characteristics at baseline (N = 962)

Variable	M (SD)	%
Age (years; range = 23-79)	57.0 (9.9)	
Gender		
Male		36.4
Female		63.6
Cancer Site		
Breast		48.3
Prostate		27.2
Gynecological		11.5
Urinary and gastro-intestinal		7.2
Head and neck		2.3
Other		3.4
Time since cancer diagnosis (months; range = 0-17)	2.2 (1.9)	
Tobacco use		
Never		84.4
Sometimes		2.4
Every day		13.2
Alcohol use (consumptions/week; range = 0-56)	4.1 (5.6)	
Caffeine use (consumptions/day; range = 0-12)	2.4 (1.6)	
Physical activity (times/month; range = 0-60)	7.1 (9.4)	
Total psychological distress (HADS-T)	11.1 (6.9)	
Anxiety (HADS-A)	7.6 (4.4)	
Depression (HADS-D)	3.5 (3.3)	

Results

Figure 1. Associations obtained between health behaviors and psychological distress (HADS-T) at each time assessment



Pearson's correlations revealed that:

- increased tobacco use was significantly associated with increased psychological distress at each assessment, except at T3;
- increased physical activity was significantly associated with decreased psychological distress at each assessment;
- caffeine and alcohol use were not significantly associated with psychological distress.

Table 2. Health behaviors as predictors of anxiety level (HADS-A) for each time assessment

Time assessment	Variables	B	Standard error	β
1 (R ² = .021)	Tobacco	0,853	0,213	0,134 *
	Caffeine	-0,098	0,092	-0,036
	Alcohol	0,000	0,026	0,000
	Physical activity	-0,022	0,015	-0,048
2 (R ² = .020)	Tobacco	0,616	0,209	0,104 *
	Caffeine	0,033	0,086	0,014
	Alcohol	-0,007	0,024	-0,010
	Physical activity	-0,036	0,014	-0,090 *
3 (R ² = .006)	Tobacco	0,332	0,214	0,056
	Caffeine	-0,062	0,088	-0,025
	Alcohol	-0,019	0,021	-0,033
	Physical activity	-0,015	0,014	-0,038
4 (R ² = .016)	Tobacco	0,687	0,218	0,115 *
	Caffeine	-0,082	0,087	-0,035
	Alcohol	-0,006	0,021	-0,011
	Physical activity	-0,017	0,014	-0,044

* p < .05

Linear regression analyses revealed that:

- increased physical activity was a significant predictor of lower levels of anxiety at T2 and of depression at all time points;
- increased tobacco use was a significant predictor of higher anxiety and depression scores, except at T3;
- increased caffeine consumption was a significant predictor of lower depression only at T1;
- alcohol consumption was not a significant predictor of either depression or anxiety scores.

Table 3. Health behaviors as predictors of depression level (HADS-D) for each time assessment

Time assessment	Variables	B	Standard error	β
1 (R ² = .043)	Tobacco	0,694	0,159	0,144 *
	Caffeine	-0,143	0,069	-0,068 *
	Alcohol	-0,032	0,019	-0,054
	Physical activity	-0,043	0,011	-0,123 *
2 (R ² = .049)	Tobacco	0,456	0,173	0,091 *
	Caffeine	0,006	0,071	0,003
	Alcohol	-0,031	0,020	-0,054
	Physical activity	-0,064	0,011	-0,191 *
3 (R ² = .025)	Tobacco	0,328	0,171	0,069
	Caffeine	-0,018	0,071	-0,009
	Alcohol	-0,021	0,016	-0,045
	Physical activity	-0,042	0,011	-0,135 *
4 (R ² = .031)	Tobacco	0,474	0,175	0,099 *
	Caffeine	-0,035	0,070	-0,018
	Alcohol	0,004	0,017	0,008
	Physical activity	-0,042	0,011	-0,138 *

* p < .05

Discussion

- Results found in this longitudinal study are consistent with those of previous cross-sectional studies in showing significant associations between two lifestyle habits (i.e., smoking and physical activity) and psychological distress.
- Several reasons could explain the absence of significant associations between alcohol or caffeine consumption and psychological distress in this study:
 - the small variability across participants on alcohol and caffeine variables;
 - the strong correlations obtained between tobacco, caffeine and alcohol consumption (these variables may thus share an important common variance with tobacco use).

Conclusions

Increased physical activity appears to be the most consistent predictor of decreased depressive symptoms, whereas increased tobacco consumption appears to be the most consistent predictor of greater anxiety scores in cancer patients throughout their treatment trajectory. Further studies are needed to determine whether poor lifestyle habits are consequences of psychological distress or are instrumental in increasing psychological symptoms.