

Supplemental online content for:

Posttraumatic Stress Symptoms in Patients With Cancer During the COVID-19 Pandemic: A One-Year Longitudinal Study

Etienne Bastien, MD; Sophie Lefèvre-Arbogast, PhD; Justine Lequesne, PhD; François Garnier, PhD, RN; François Cherifi, MD; Olivier Rigal, MD; Lydia Guittet, MD, PhD; Jean-Michel Grellard, MSc; Giulia Binarelli, MSc; Marie Lange, PhD; Marie Fernet, BSN; Laure Tron, PhD; Adeline Morel, MD; Doriane Richard, PhD; Bénédicte Griffon, PhD; Alexandra Leconte, MSc; Florian Quilan; Louis-Ferdinand Pépin, MD; Fabrice Jardin, MD, PhD; Marianne Leheurteur, MD; Audrey Faveyrial, MD; Bénédicte Clarisse, PharmD, PhD; and Florence Joly, MD, PhD

J Natl Compr Canc Netw 2023;21(3):265–272.e7

eFigure 1: Four Trajectory Classes of IES-R Change Over Time

eFigure 2: Trajectories of PTSS During the COVID-19 Pandemic by Patient Characteristics Assessed at First Lockdown

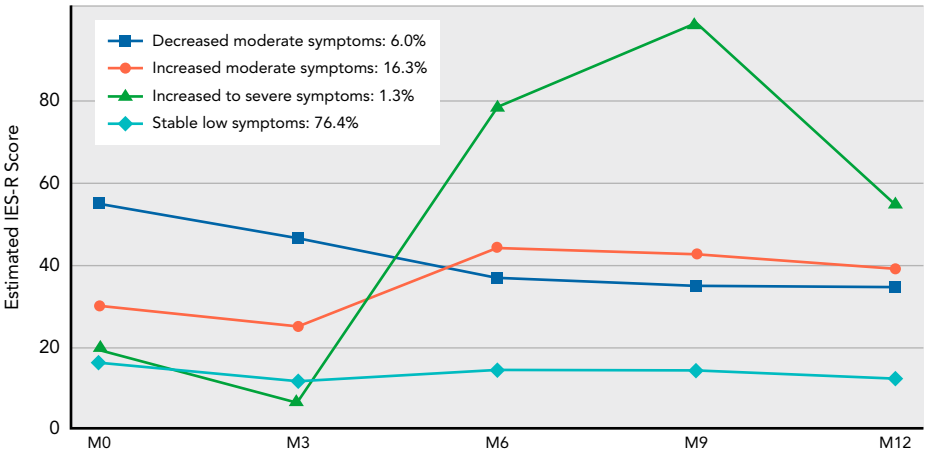
eFigure 3: Changes in Insomnia, Cognitive Complaints, and Quality of Life by PTSS During the COVID-19 Pandemic

eTable 1: Fit of Latent Class Models Identifying Distinct Trajectory Classes of IES-R Evolution

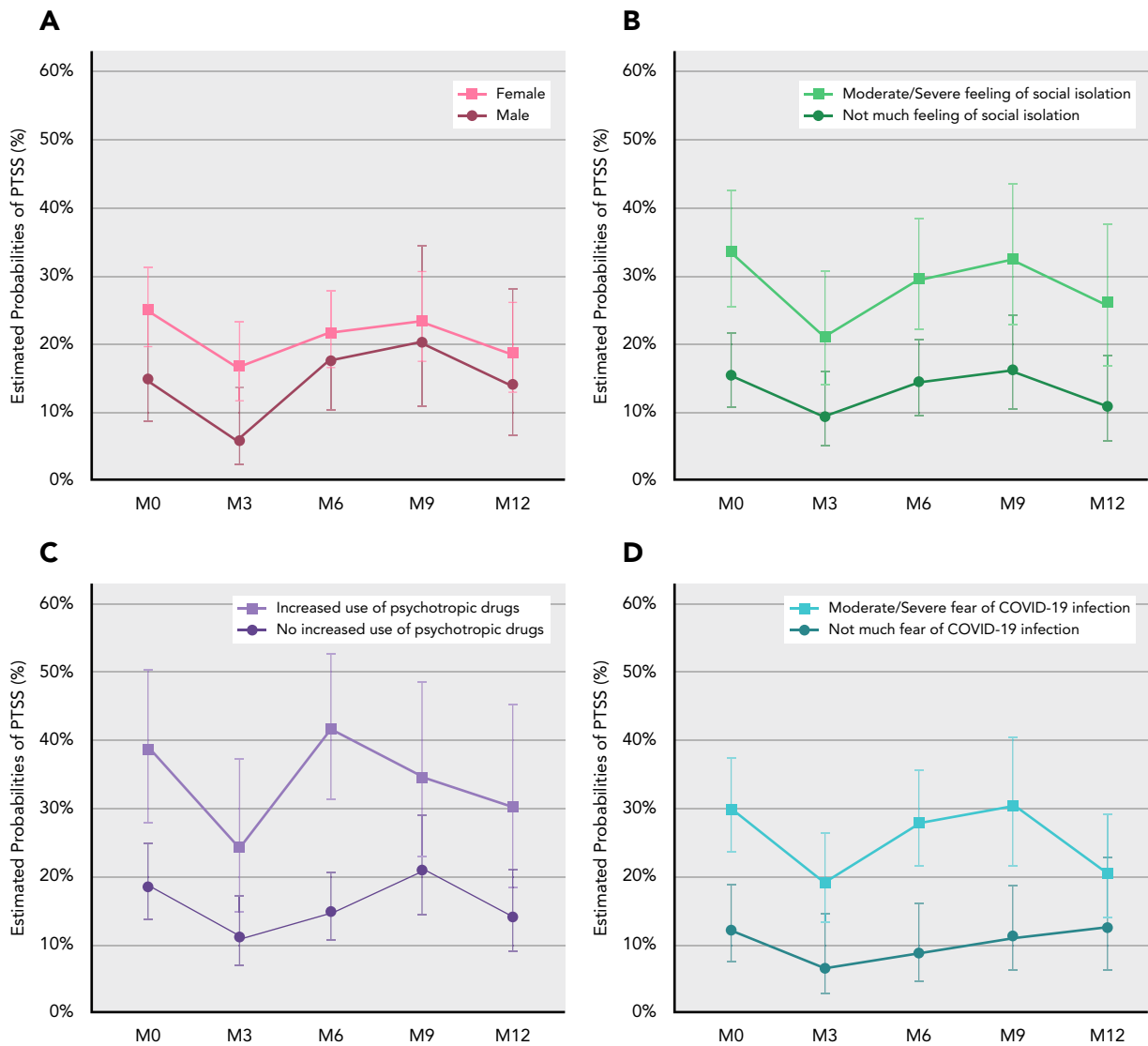
eTable 2: Clinical Characteristics of Patients at Baseline and Retained in and Excluded From the Longitudinal Analysis

eTable 3: Multivariable Analysis of Posttraumatic Stress Symptoms

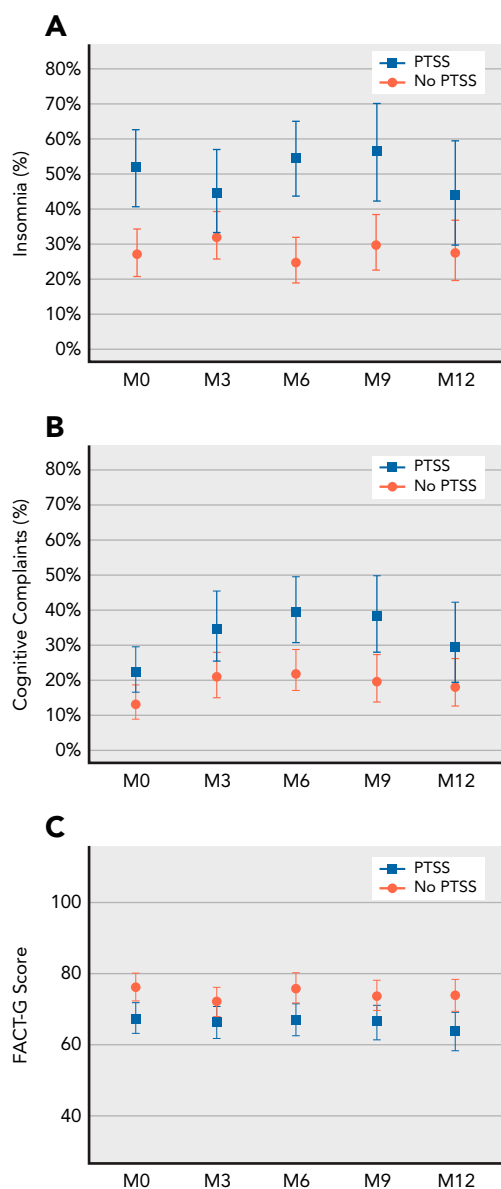
eTable 4: Multivariable Associations Between Patient Characteristics and PTSS Trajectory Class



eFigure 1. Four trajectory classes of IES-R change over time. Distinct trajectories of IES-R were identified using latent class mixed models, which account for heterogeneity in patterns of change. The optimal number of latent classes from 2 to 6 was chosen according to the Bayesian information criterion. The latent class model that provided best statistical fit identified 4 trajectory groups. The smallest trajectory class, shown in green (n=5) was combined a posteriori with the trajectory class shown in orange (n=63) as the “Increased moderate IES-R” group. Abbreviations: IES-R, Impact of Event Scale–Revised; M0, first French lockdown (April–May 2020); M3, first French lockdown release (July–August 2020); M6, second French lockdown (October–November 2020); M9, second French lockdown release (January–February 2021); M12, third French lockdown (April–May 2021).



eFigure 2. Trajectories of PTSS during the COVID-19 pandemic by characteristics of patients with cancer assessed at first lockdown in the French COVIPACT study (N=386). Estimates and 95% confidence intervals are from separate logistic mixed models on PTSS (defined as IES-R score ≥ 33), with discrete time and random patient effect and including as independent fixed factor: **(A)** patient sex, **(B)** feeling of social isolation, **(C)** increased use of psychotropic drugs, and **(D)** fear of COVID-19 infection during first COVID-19 lockdown in France. Abbreviations: IES-R, Impact of Event Scale–Revised; M0, first French lockdown (April–May 2020); M3, first French lockdown release (July–August 2020); M6, second French lockdown (October–November 2020); M9, second French lockdown release (January–February 2021); M12, third French lockdown (April–May 2021); PTSS, posttraumatic stress symptom.



eFigure 3. Changes in (A) insomnia, (B) cognitive complaints, and (C) QoL (FACT-G) by PTSS during the COVID-19 pandemic in patients with cancer in the French COVIPACT study. Estimates are from logistic and linear mixed models adjusted for baseline age, sex, study center, and cancer progression at M6. Curves are plotted for an average study participant profile (a female patient from the François Baclesse center aged <70 years who did not experience disease progression at M6). PTSS are defined at each time as IES-R score ≥ 33 . Insomnia is defined as ISI score ≥ 15 . Cognitive complaints are defined as FACT-Cog PCI score \geq age-dependent cutoff (59 for patients aged <50 years, 47 for patients aged 50–69 years, 41 for patients aged >70 years). QoL is measured using the total score of the FACT-G, with higher scores indicating better QoL.

Abbreviations: FACT-Cog, Functional Assessment of Cancer Therapy–Cognitive Function; IES-R, Impact of Event Scale–Revised; ISI, Insomnia Severity Index; M0, first French lockdown (April–May 2020); M3, first French lockdown release (July–August 2020); M6, second French lockdown (October–November 2020); M9, second French lockdown release (January–February 2021); M12, third French lockdown (April–May 2021); PCI, perceived cognitive impairment; PTSS, posttraumatic stress symptoms; QoL, quality of life.

eTable 1. Fit of Latent Class Models Identifying Distinct Trajectory Classes of IES-R Evolution											
Model With n Classes	loglik	AIC	BIC	SABIC	Entropy	Class 1 N	Class 2 N	Class 3 N	Class 4 N	Class 5 N	Class 6 N
1	−6,044.58	12,103.16	12,130.85	12,108.64	1	386					
2	−5,972.70	11,971.39	12,022.82	11,981.57	0.8959	358	28				
3	−5,945.90	11,929.80	12,004.96	11,944.68	0.8672	21	327	38			
4	−5,912.71	11,875.43	11,974.32^a	11,895.00	0.8521	23	63	5	295		
5	−5,900.56	11,863.11	11,985.74	11,887.38	0.8648	36	298	34	5	13	
6	−5,893.40	11,860.80	12,007.16	11,889.77	0.5964	9	0	15	14	280	68

Abbreviations: AIC, Akaike information Criterion; BIC, Bayesian Information Criterion; IES-R, Impact of Event Scale–Revised; SABIC, sample-size-adjusted BIC.
^aSelection model based on minimum BIC.

eTable 2. Clinical Characteristics of Patients at Baseline and Retained in and Excluded From the Longitudinal Analysis

	Sample Available at Baseline n (%)	Sample Retained in Longitudinal Analysis n (%)	P Value ^a	Sample Excluded From Longitudinal Analysis n (%)
Total, n	565	386		179
Age, median (min–max), y	63 (24–87)	63 (28–87)	.67	64 (24–84)
Age			1.00	
<70 y	419 (74%)	287 (74%)		132 (74%)
≥70 y	146 (26%)	99 (26%)		47 (26%)
Sex			.32	
Male	155 (27%)	94 (24%)		61 (34%)
Female	410 (73%)	292 (76%)		118 (66%)
Study center			.041	
François Baclesse center	465 (82%)	296 (77%)		169 (94%)
Henri Becquerel center	100 (18%)	90 (23%)		10 (6%)
ECOG performance status			.69	
0 or 1	531 (94%)	366 (95%)		165 (92%)
>1	34 (6%)	20 (5%)		14 (8%)
Months since diagnosis, median (min–max)	15 (0.48–410)	14 (0.67–410)	.96	18 (0.48–290)
Type of cancer			.072	
Breast	252 (45%)	193 (50%)		59 (33%)
Digestive	94 (17%)	44 (11%)		50 (28%)
Lung, head and neck	109 (19%)	64 (17%)		45 (25%)
Urologic and gynecologic	85 (15%)	71 (18%)		14 (8%)
Other solid and hematologic	25 (4%)	14 (4%)		11 (6%)
Metastatic cancer			.24	
Yes	329 (59%)	204 (54%)		125 (70%)
No	226 (41%)	173 (46%)		53 (30%)
Not applicable/missing	10	9		1
History of anxiety and depression			.94	
Yes	46 (8%)	32 (8%)		14 (8%)
No	519 (92%)	354 (92%)		165 (92%)
Adapted cancer treatment or care during first lockdown			.41	
Yes	149 (26%)	112 (29%)		37 (21%)
No	416 (74%)	274 (71%)		142 (79%)

^aP values are from Wilcoxon Mann-Whitney and chi-square tests for continuous and categorical variables, respectively, to compare sample available at baseline to sample retained in longitudinal analysis.

eTable 3. Multivariable Analysis of Posttraumatic Stress Symptoms (N=357 in Complete Case Analysis)							
	Association at Baseline		Association With Change Over Follow-up				
	β_{M0} (OR)	P Value	β_{M3}	β_{M6}	β_{M9}	β_{M12}	P Value
Sex		.005					
Male	Ref						
Female	0.87 (2.40)						
Feeling of social isolation during first lockdown		.008					
No/Not much	Ref						
Moderate/Severe	0.62 (1.86)						
Fear of COVID-19 infection		<.001					
No/Not much	Ref						
Moderate/Severe	1.25 (3.48)						
Increased use of psychotropic drugs during first lockdown		<.001					
No	Ref						
Yes	0.87 (2.40)						
Current occupation status		.13					.080
In activity	Ref						
Retired	0.65 (1.92)		-0.21	0.10	-0.13	1.41	
Not active	0.10 (1.10)		-0.11	0.85	0.80	1.69	
Adapted cancer treatment or care during first lockdown		.17					.006
No	Ref						
Yes	0.42 (1.52)		-0.85	0.04	-1.00	0.39	

Multivariable logistic mixed model including factors associated with baseline PTSS or change with $P < .10$ in univariable analysis and adjusted for study center and progressive disease at M6.

If the factor was associated with PTSD at baseline but not with PTSD change at $P < .10$, only the association at baseline was included. In this case, the factor is associated at baseline and consistently over the follow-up (ie, with same trajectory of change).

If the factor was associated with PTSD change at $P < .10$ but not baseline PTSS, both the association with change and the association at baseline were included in the model. In this case, there is no association/difference at baseline, but there are different trajectories of change over follow-up according to this factor.

If the factor was associated with both baseline PTSS and PTSD change at $P < .10$, both the association at baseline and the association with change were included in the model. In this case, there is an association/difference at baseline, and there are different trajectories of change over follow-up (ie, the baseline association either decrease [and possibly disappear] or increase over follow-up).

β_{M0} refers to the association between the factor and PTSD at baseline.

$\beta_{M0} + \beta_{MX}$ refers to the association between the factor and PTSD at month MX ($X=3, 6, 9, \text{ or } 12$). High absolute value of β_{MX} indicates difference in association between M0 and MX, with increased association if β_{MX} and β_{M0} are in the same direction, and reduced association if they are in opposite direction (and no difference of association when β_{MX} is close to zero).

Abbreviations: M0, first French lockdown (April–May 2020); M3, first French lockdown release (July–August 2020); M6, second French lockdown (October–November 2020); M9, second French lockdown release (January–February 2021); M12, third French lockdown release (April–May 2021); OR, odds ratio; PTSD, posttraumatic stress disorder; PTSS, posttraumatic stress symptoms.

eTable 4. Multivariable Associations Between Patient Characteristics and PTSS Trajectory Class

	RRR (95% CI) Class 2 vs 1 (Increased Moderate IES-R vs Stable Low IES-R)	RRR (95% CI) Class 3 vs 1 (Decreased Moderate IES-R vs Stable Low IES-R)	P Value
Feeling of social isolation during first lockdown			.0192
No/Not much	Ref	Ref	
Moderate/Severe	2.17 (1.19–3.95)	2.11 (0.79–5.62)	
Fear of COVID-19 infection during first lockdown			<.001
No/Not much	Ref	Ref	
Moderate/Severe	2.94 (1.41–6.14)	11.78 (1.53–91)	
Increased use of psychotropic drugs during first lockdown			.0129
No	Ref	Ref	
Yes	1.74 (0.93–3.26)	3.62 (1.41–9.27)	

RRR and 95% confidence intervals are from multivariable multinomial logistic regression adjusted for study center and progressive disease at M6 and including factors with $P < .10$ in univariate analysis.

Abbreviations: IES-R, Impact of Event Scale–Revised; M6, second French lockdown (October–November 2020); PTSS, posttraumatic stress symptom; RRR, relative risk ratio.