

Supplementary Materials

Supplementary Table 1: Characteristics of present study participants and non-participants

Characteristics	Study participants (N=1,195)	Study non-participants (N=2,081) ^c	Study non-participants (N=1,651) ^d	Study participants vs. non-participants ^c	Study participants vs. non-participants ^d
	No. (%)	No. (%)	No. (%)	X ² - or t-statistics (P-value)	X ² - or t-statistics (P-value)
Pain status at T1 ^a					
Significant pain (SF-36 pain scale scores <40)	187 (15.65)	N/A	298 (18.29)	N/A	.07
Non-significant pain (SF-36 pain scale scores ≥40)	1,008 (84.35)	N/A	1,331 (81.71)	N/A	
Substance use at T1					
Opioid	60 (5.02)	N/A	107 (6.48)	N/A	.10
Marijuana	103 (8.68)	N/A	246 (15.06)	N/A	<.0001
Age at T1 in years, mean (SD)	33.62 (7.92)	30.06 (8.72)	30.55 (8.35)	<.0001	<.0001
<18 years	0 (0)	38 (1.83)	0 (0)	<.0001	<.0001
18 – 29.9 years	431 (36.07)	1123 (53.96)	879 (53.24)		
30 – 39.9 years	497 (41.59)	639 (30.71)	546 (33.07)		
≥ 40 years	267 (22.34)	281 (13.50)	226 (13.69)		
Time since cancer diagnosis in years, mean (SD)	24.66 (7.94)	22.12 (8.36)	22.46 (8.18)	<.0001	<.0001
<10 years	0 (0)	24 (1.15)	0 (0)	<.0001	<.0001
10 – 19.9 years	370 (30.96)	964 (46.32)	754 (45.67)		
20 – 29.9 years	512 (42.85)	695 (33.40)	569 (34.46)		
≥ 30 years	313 (26.19)	398 (19.13)	328 (19.87)		
Interval between T1 and T2 ^b in years, mean (SD)	4.22 (1.34)	N/A	N/A	N/A	N/A
Sex					
Male	560 (46.86)	1154 (55.45)	883 (53.48)	<.0001	.0005
Female	635 (53.14)	927 (44.55)	768 (46.52)		
Race/ethnicity					
Non-Hispanic white	1,028 (86.03)	1658 (79.67)	1327 (80.38)	<.0001	<.0001
Other	167 (13.97)	423 (20.33)	324 (19.62)		
Education level					
Below high school (HS)	80 (7.06)	203 (11.59)	150 (9.83)	<.0001	<.0001

HS graduate/general education diploma	244 (21.54)	496 (28.33)	391 (25.62)		
Some college/training after high school	316 (27.89)	553 (31.58)	511 (33.49)		
College graduate and above	493 (43.51)	499 (28.50)	474 (31.06)		
Annual household income at T1					
< \$39,999	430 (41.23)	750 (47.68)	627 (46.10)	.01	.06
\$40,000 – \$79,999	358 (34.32)	482 (30.64)	428 (31.47)		
≥ \$80,000	255 (24.45)	341 (21.68)	305 (22.43)		
Marital status at T1					
Married/living with a partner	639 (55.18)	816 (43.82)	747 (46.40)	<.0001	<.0001
Status other than married	519 (44.82)	1046 (56.18)	863 (53.60)		
Health insurance at T1					
Insured	934 (79.69)	1424 (76.07)	1224 (75.56)	.02	.01
Uninsured	238 (20.31)	448 (23.93)	396 (24.44)		
Cancer diagnosis					
Acute lymphoblastic leukemia	452 (37.82)	594 (28.54)	474 (28.71)	<.0001	<.0001
Other leukemia	47 (3.93)	100 (4.80)	78 (4.73)		
Hodgkin lymphoma	198 (16.57)	190 (9.13)	162 (9.81)		
Non-Hodgkin lymphoma	61 (5.1)	173 (8.31)	147 (8.90)		
Central nervous system malignancy	86 (7.20)	274 (13.17)	168 (10.18)		
Sarcomas	142 (11.88)	197 (9.47)	162 (9.81)		
Wilms tumor	74 (6.19)	142 (6.82)	121 (7.33)		
Neuroblastoma	46 (3.85)	102 (4.90)	82 (4.97)		
Retinoblastoma	31 (2.59)	70 (3.36)	52 (3.15)		
Other solid malignancies	58 (4.83)	239 (11.48)	205 (12.42)		
History of cancer therapies					
Steroid	609 (50.96)	898 (43.15)	725 (43.91)	<.0001	.0002
Vincristine	871 (72.89)	1372 (65.93)	1086 (65.78)	<.0001	<.0001
Major surgery	821 (68.70)	1512 (72.66)	1196 (72.44)	.02	.03

^a T1: the time point when survivors completed baseline medical evaluation and self-reported health survey.

^b T2: the time point when survivors completed a follow-up evaluation and self-reported health survey.

^c Defined as 2,081 survivors who completed medical evaluation, but did not complete self-reported health survey at both T1 and T2 or had used both opioid and marijuana at T2 (non-convergence issue due to small sample size).

^d Defined as 1,651 survivors who completed self-reported health survey at T1 only, or used both opioid and marijuana at T2.

Supplementary Table 2: Change status of significant pain, depression, and anxiety from T1^a to T2^b

Change Status	No. (%)
Change of significant pain status from T1 to T2 ^c	
None/decreased	971 (81.26)
Persistent/increased	224 (18.74)
Change of significant depression status from T1 to T2 ^c	
None/decreased	1,015 (86.98)
Persistent/increased	152 (13.02)
Change of significant anxiety status from T1 to T2 ^c	
None/decreased	1,048 (89.88)
Persistent/increased	118 (10.12)

^a T1: the time point when survivors completed baseline medical evaluation and self-reported health survey.

^b T2: the time point when survivors completed a follow-up evaluation and self-reported health survey.

^c Significant status: SF-36 bodily pain T-score <40 and Brief Symptom Inventory-18 depression and anxiety T-scores ≥63.

Supplementary Table 3: Status of opioid and marijuana use at T1^a and/or T2^b

Substance use	No. (%)
Opioid use at T1 and/or T2	
None	1,093 (91.46)
T1 only	44 (3.68)
T2 only	42 (3.51)
T1 and T2	16 (1.34)
Marijuana use at T1 and/or T2	
None	1,034 (88.07)
T1 only	35 (2.98)
T2 only	39 (3.32)
T1 and T2	66 (5.62)
Opioid and/or marijuana use at T2 alone	
None	1,018 (86.20)
Opioid only	57 (4.83)
Marijuana only	106 (8.98)

^a T1: the time point when survivors completed baseline medical evaluation and self-reported health survey.

^b T2: the time point when survivors completed a follow-up evaluation and self-reported health survey.

Supplementary Figure 1: Study participants and sample selection



