

Older Cancer Survivors Have a Lower Symptom Burden

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Conflict of Interest

The authors have no conflicts of interest to report.



Background

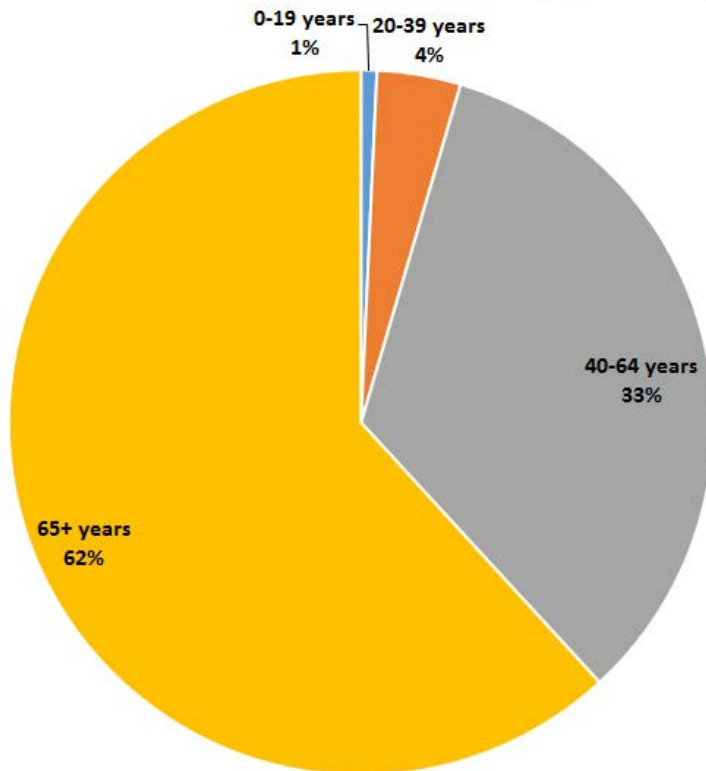
- Over 16.9 million cancer survivors are living in the United States in 2019
- Represents 5.0% of the population
- 21.7 million survivors by 2029
- 26.1 million survivors by 2040
- **64% of survivors are over 65 years of age**
- **73% of cancer survivors will be over 65 years of age in 2040**



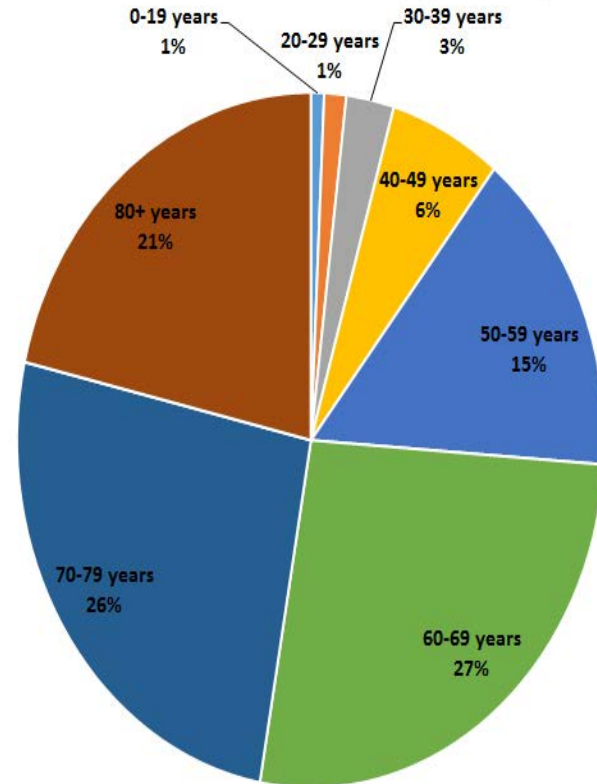
Age Distribution of Cancer Survivors

Miller et al. CA: A Cancer Journal for Clinicians, 2016

Estimated Number of Cancer Survivors in the U.S., by Current Age



Estimated Number of Cancer Survivors in the U.S., by Current Age – More Detail



Symptom Burden in Cancer Survivors

- **Clinical experience suggests that cancer survivors experience multiple co-occurring symptoms**
- **Epidemiologic studies are lacking for individual symptoms and multiple co-occurring symptoms**
- **Majority of the studies done in survivors with breast cancer**
- **Variability in occurrence estimates**
 - **Variability in the number of symptoms assessed**
 - **Variability in the timing of the assessments**
- **No data on age differences in symptom severity scores**

Purpose of Study

- **Evaluate for differences in the severity of seven common symptoms between younger (<65 years) and older (\geq 65 years) cancer survivors**
- **Seven symptoms**
 - Trait anxiety
 - State anxiety
 - Depression
 - Fatigue
 - Sleep disturbance
 - Attentional function
 - Pain



Design and Methods

- **Cross-sectional study**
- **Parent study designed to evaluate survivors with and without CIPN**
- **Patients were recruited from throughout the San Francisco Bay area**
- **Inclusion criteria:**
 - **18 years of age or older**
 - **Had received a platinum +/- taxane compound**
 - **Had complete the course of chemotherapy**
 - **Were able to read, write, and understand English**

Study Procedures

- **Written informed consent was obtained from all patients**
- **Patients were sent self-report questionnaires to complete in their home one week prior to the study visit**
- **Patients were seen in the Clinical Research Center at UCSF**
 - **Booklets were checked for completeness**
- **Medical records were reviewed for disease and treatment information**

Instruments

- **Demographic questionnaire**
- **Karnofsky Performance Status scale**
- **Self Administered Co-morbidity Questionnaire**
- **Spielberger State Anxiety Inventory**
- **Center for Epidemiological Studies-Depression Scale**
- **General Sleep Disturbance Scale**
- **Lee Fatigue Scale**
- **Attentional Function Index**
- **Brief Pain Inventory**



Data Analysis

- **Descriptive statistics were generated on patients' demographic and clinical characteristics**
- **Differences in demographic and clinical characteristics and symptom severity scores were evaluated using:**
 - **Independent sample t-tests**
 - **Fisher's exact tests**
 - **Mann Whitney U tests**



Differences in Demographic Characteristics

Characteristic	Younger 63.1% (n=393)	Older 36.9% (n=230)	p-value
Education (mean, SD)	16.3 (2.7)	16.6 (2.8)	.171
	% (n)	% (n)	
Female	87.0 (341)	80.9 (186)	.049
Ethnicity			
White	73.8 (290)	87.4 (201)	.001
Non-white	26.2 (103)	12.6 (29)	
Married/partnered (% yes)	62.7 (239)	59.7 (135)	.490
Lives alone (% yes)	25.2 (97)	34.6 (79)	.016
Working for pay (% yes)	56.2 (221)	24.0 (55)	<.001
Income >\$100,000 per year	44.7 (165)	34.9 (73)	.027
Child care responsibilities (% yes)	21.5 (84)	4.0 (9)	<.001
Exercise on a regular basis	86.7 (339)	85.6 (196)	.718

Differences in Clinical Characteristics

Characteristic	Younger 63.1% (n=393) Mean (SD)	Older 36.9% (n=230) Mean (SD)	p-value
Karnofsky Performance Status score	84.8 (10.7)	87.4 (10.1)	.002
Number of comorbid conditions	1.7 (1.4)	2.1 (1.5)	<.001
Self-Administered Comorbidity Questionnaire	3.5 (3.3)	4.2 (3.3)	.019
Years since cancer diagnosis	4.2 (4.6)	5.5 (5.1)	.003
Number of prior cancer treatments	3.3 (1.0)	3.0 (0.9)	.002
Number of current cancer treatments	0.5 (0.6)	0.3 (0.5)	.002
Number of metastatic sites	0.7 (0.7)	0.9 (0.9)	.010
Cancer diagnosis (% (n))			
Breast	62.3 (245)	44.3 (102)	<.001
Colon	6.4 (25)	10.9 (25)	
Lung	2.3 (9)	4.3 (10)	
Ovarian	8.4 (33)	9.1 (21)	
Other	20.6 (81)	31.3 (72)	

Differences in Symptom Severity Scores

Symptom (clinically meaningful cutoff score)	Younger 63.1% (n=393) Mean (SD)	Older 36.9% (n=230) Mean (SD)	p-value
Trait anxiety (≥ 31.8)	36.0 (9.9)	32.6 (8.6)	<.001
State anxiety (≥ 32.2)	32.9 (11.1)	30.1 (10.3)	.002
Depression (≥ 16.0)	10.8 (9.2)	7.7 (7.8)	<.001
Morning fatigue (≥ 3.2)	3.4 (2.2)	2.2 (1.9)	<.001
Evening fatigue (≥ 5.6)	5.7 (1.9)	4.8 (2.0)	<.001
Sleep disturbance (≥ 43.0)	47.1 (20.2)	42.2 (20.7)	.004
Attentional function (<5.0 is low function, 5.0 to 7.5 is moderate function, >7.5 is high function)	6.6 (1.7)	7.4 (1.5)	<.001
Pain not related to cancer or its treatment (% yes (n))	53.5 (209)	60.5 (138)	.094
Causes of non-cancer pain (% yes (n))			
Headache	24.4 (51)	16.7 (23)	.108
Low back pain	45.0 (94)	46.4 (64)	.826
Fibromyalgia	3.8 (8)	0.0 (0)	.024
Diabetic neuropathy	1.4 (3)	2.9 (4)	.443
Arthritis	24.4 (51)	65.2 (90)	<.001

Conclusions

- Findings are consistent with a previous report of patients undergoing active cancer treatment¹
- Despite having a higher level of comorbidity, older patients report a significantly lower symptom burden
- Plausible hypotheses:
 - Age related changes in the hypothalamic-pituitary-adrenal axis
 - Older patients may experience a “response shift” – psychological shift that represents a change in a person’s internal framework for the assessment of experiences
 - Older adults may under-report symptoms

¹Cataldo et al., BMC Cancer 13:6, 2013

Limitations

- **Cross-sectional study with a convenience sample**
- **Parent study designed to evaluate for differences in demographic and clinical characteristics and QOL outcomes in survivors with and without CIPN**
- **Older adults with a higher symptom burden may not have enrolled in the study**
- **Demographic and clinical characteristics of the sample may limit the generalizability of the study findings**
 - **Primarily women with breast cancer**
 - **Caucasian**
 - **Well-educated**

Implications for Practice

- **Regardless of age, cancer survivors warrant evaluation of common symptoms including:**
 - **Anxiety**
 - **Depression**
 - **Fatigue**
 - **Sleep disturbance**
 - **Attentional function**
 - **Pain**
- **The majority of these symptoms were above the clinically meaningful cutoff scores**

Implications for Research

- Longitudinal studies are needed to evaluate for changes over time in the symptom experience of cancer survivors
- Differences in the symptom experience of older age groups warrant consideration
 - 60 to 64 years
 - 65 to 69 years
 - 70 to 74 years
 - ≥ 75 years
- Mechanisms that underlie age differences in survivors symptom experiences warrant investigation

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