

Quality vs Quantity of Social Relationships in Ovarian Cancer Survival

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Background

Ovarian Cancer

- Ovarian cancer is devastating to patients and their loved ones
- Though uncommon, it is the deadliest gynecologic cancer, with 5-year relative survival of just 48%¹
- Treatment often extends through the duration of the patient's life, causing adverse physical, functional, and emotional quality of life outcomes²

Social Support

- Anecdotally, patients often attribute survival to strong social support, despite conflicting empirical evidence
- Despite this, evidence for a connection between social support and cancer survival is mixed
 - Out of 27 prospective studies with different cancer patient populations, 15 observed a positive relationship³⁻¹⁷
 - Just 1 study investigated the impact of social support on survival in ovarian cancer. This study found a positive influence of increased social support on survival after diagnosis¹⁴
- This disagreement may be due to lack of consensus regarding how to best measure social support
 - **Quality-** Social support scales that evaluate the patient's perceived quality of support relationships
 - **Quantity-** amount of social support available to the patient, (measured through social network size, number of confidants, group memberships, etc)

Purpose

- This study aimed to examine the relationship between social support and survival in patients with ovarian cancer, after controlling for specific demographic, disease and treatment baseline covariates
- We hypothesized that high quality of social support would have an independent association with increased survival

Methods

Participants

- Newly-diagnosed patients with stage III-IV ovarian/peritoneal cancer were eligible if they were at least 18 years old, spoke English, had performance status less than 3, and were in their first 2 cycles of chemotherapy

Procedure

- Eligible patients were approached for consent during the first two chemotherapy treatment appointments at the Gynecologic Oncology Center at MD Anderson
- After consent, participants were asked to fill out a psychosocial questionnaire battery at home and to mail it back within 2 weeks. They were also given the option to complete it at the clinic

Measures

- **Social support** was evaluated using the **Medical Outcomes Study (MOS) Social Support Survey**, a 20-item 5-point likert response scale which measures four dimensions of social support (emotional/informational, tangible, affectionate, and positive social interaction). Internal consistency for all subscales is greater than .91¹⁸
- **All-cause survival** information was abstracted from medical records
- Debulking status, tumor grade, lifetime smoking pack years and current alcohol use were abstracted from the medical record

Analysis

- Descriptive statistics summarized the demographic and clinical characteristics
- Overall survival was defined as the date of cancer diagnosis to date of death or last contact
- Data were analyzed through Cox proportional hazards regression analysis, controlling for age, alcohol use, smoking history, tumor grade and debulking status

Results

- 87 ovarian cancer patients had complete data for this study. The median follow-up was 36.9 months
- MOS Social Support did not predict survival outcome in univariate or multivariate regression analyses (Hazard ratio [HR], 0.99; 95% CI, 0.97-1.01; p=0.203)
- Age, lifetime smoking history of ≥ 1 packs of cigarettes, alcohol use at time of diagnosis, and suboptimal debulking status were univariately associated with survival
- In a multivariable model including age, alcohol use, smoking history, grade and suboptimal debulking, smoking and debulking status remained significant

Table 1: Demographic and clinical characteristics of study population (n = 87)

Characteristic	N	%
Age at diagnosis		
N	87	
Mean (SD)	60.07 (10.92)	
Median (Min-Max)	61.12 (26.60 - 84.43)	
Packyears		
N	68	
Mean (SD)	9.30 (15.16)	
Median (Min-Max)	0.00 (0.00 - 54.00)	
Drinks_per_month		
N	17	
Mean (SD)	28.35 (44.74)	
MOS Emotional support		
N	85	
Mean (SD)	86.23 (17.81)	
Median (Min-Max)	93.75 (9.38 - 100.00)	
MOS Tangible support		
N	86	
Mean (SD)	88.28 (15.56)	
Median (Min-Max)	93.75 (31.25 - 100.00)	
MOS Affectionate support		
N	85	
Mean (SD)	93.24 (13.94)	
Median (Min-Max)	100.00 (8.33 - 100.00)	
MOS Positive social interaction		
N	85	
Mean (SD)	88.04 (15.72)	
Median (Min-Max)	91.67 (16.67 - 100.00)	
MOS overall		
N	85	
Mean (SD)	88.08 (14.90)	
Median (Min-Max)	93.42 (14.47 - 100.00)	
Ethnicity		
1	6	7.32
2	76	92.68
Race		
Non-white	10	11.76
White	75	88.24
Education		
Did not receive high school diploma	11	13.10
High school diploma/GED	18	21.43
Technical/ vocational degree	3	3.57
Some college level credits or 2 yr college degree	21	25.00
Bachelors	18	21.43
Master's degree	13	15.48
Marital status		
Single, NOT living with significant other	7	8.05
Single, living with significant other	5	5.75
Married and living with partner	55	63.22
Married but living apart	2	2.30
Separated	2	2.30
Divorced	7	8.05
Widowed	9	10.34
Histology		
Other	31	35.63
Serous & Mixed Epithelial	56	64.37
Grade		
High	75	89.29
Low	9	10.71
Undergoing debulking surgery		
Interval	22	26.19
None	3	3.57
Up-Front	59	70.24
Debulking status		
Optimal	47	59.49
Suboptimal	32	40.51
Lifetime smoking pack years		
Never smoked	40	56.34
Smoked at least 1 pack in lifetime	31	43.66
Quit		
No	65	91.55
Yes	6	8.45
Alcohol		
No	42	59.15
Yes	29	40.85

Table 2: Overall survival and associations with demographic and clinical characteristics of study population

Characteristic	N	Events	Median	log rank	Univariate Analysis			Multivariate Analysis				
					HR	95% LB	95% UB	p-value	HR	95%LB	95%UB	p-value
Age at diagnosis	87	78			1.02	1.00	1.04	0.052	1.01	0.98	1.03	0.599
Packyears	68	61			0.99	0.98	1.01	0.567				
Drinks_per_month	17	15			1.00	0.99	1.02	0.793				
CCI	55	48			1.03	0.96	1.11	0.415				
MOS Emotional support	85	76			0.99	0.98	1.01	0.404				
MOS Tangible support	86	77			0.99	0.97	1.00	0.101				
MOS Affectionate support	85	76			0.99	0.97	1.00	0.093				
MOS Positive social interaction	85	76			1.00	0.98	1.01	0.705				
MOS overall	85	76			0.99	0.97	1.01	0.203				
Histology				0.736								
Other	31	26	37.59		1.00	1.00	1.00					
Serous & Mixed Epithelial	56	52	36.90		1.08	0.68	1.74	0.737				
Grade				0.228								
High	75	70	36.76		1.00	1.00	1.00					
Low	9	8	53.16		0.64	0.31	1.33	0.233	0.81	0.35	1.91	0.636
Undergoing debulking surgery				0.004								
Interval	22	21	34.73		1.00	1.00	1.00					
None	3	3	16.43		3.90	1.13	13.46	0.032				
Up-Front	59	52	41.17		0.69	0.41	1.14	0.146				
Debulking status				0.046								
Optimal	47	41	51.25		1.00	1.00	1.00					
Suboptimal	32	31	34.86		1.61	1.00	2.57	0.049	1.97	1.13	3.42	0.016
Lifetime smoking pack years				0.010								
Never smoked	40	39	36.76		1.00	1.00	1.00					
Smoked at least 1 pack in lifetime	31	24	51.48		0.51	0.31	0.86	0.012	0.45	0.25	0.79	0.006
Quit				0.041								
No	65	60	37.91		1.00	1.00	1.00					
Yes	6	3	108.62		0.32	0.10	1.02	0.053				
Alcohol				0.818								
No	42	38	37.91		1.00	1.00	1.00					
Yes	29	25	47.74		0.94	0.57	1.56	0.819	1.35	0.78	2.34	0.282

Discussion

- Suboptimal debulking and smoking history were associated with overall survival
- MOS Social Support was not associated with survival
- This finding may be due to our use of the MOS, which measures perceived quality of social support
- Out of 15 previous studies that found a relationship between social support and cancer mortality, most included social support measures that evaluated *quantity* rather than *quality*
 - E.g. size of social network, number of confidants available, amount of group memberships
- Our study may also have been limited by relatively small sample size (n=87)
 - Among the positive studies, median sample size \approx 185
- Unlike most of the positive studies, our study limited inclusion to late-stage disease and carefully characterized factors known to impact survival

Conclusion

- Social support was not associated with survival time
- Age, smoking history, alcohol use, and suboptimal debulking status were associated with survival time
- Factors known to impact survival, along with emphasis on network size, may prove important for future research in this area

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