

Quality vs Quantity of Social Relationships in Ovarian Cancer Survival

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Results



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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

tollow-up was 36.9 months MOS Social Support did not						Un	ivariate	e Analys	sis		
multivariate regression analys	Characteristic	NE	Events	Median	log	HR 95% 95%		95%	p-value		
1.01; p=0.203) Age, lifetime smoking history	of > 1 packs of cigarettes, alcohol use	at time	Age at diagnosis	87	78		rank	1 በ2	LB 1 00	UB 1 04	0 052
of diagnosis, and suboptimal with survival	sociated	Packyears Drinks_per_mont	68 17	61 15			0.99	0.98 0.99	1.01 1.02	0.567 0.793	
In a multivariable model inclue and suboptimal debulking, sm	<i>ı</i> , grade	CCI MOS Emotional	55 85	48 76			1.03 0.99	0.96 0.98	1.11 1.01	0.415 0.404	
Significant		MOS Tangible	86	77			0.99	0.97	1.00	0.101	
Table 1: Demographic an	tudy	MOS Affectionate support	85	76			0.99	0.97	1.00	0.093	
popu	auon (n = or)		MOS Positive	85	76			1.00	0.98	1.01	0.705
t haracteristic ge at diagnosis	Ν	%	MOS overall	85	76		0 736	0.99	0.97	1.01	0.203
N Mean (SD)	87 60.07 (10.92)		Other	31	26	37.59	0.736	1.00	1.00	1.00	
Median (Min-Max) ackyears	61.12 (26.60 - 84.43)		Serous & Mixed Epithelial	56	52	36.90		1.08	0.68	1.74	0.737
N Mean (SD)	68 9.30 (15.16)		Grade High	75	70	36 76	0.228	1.00	1.00	1.00	
Median (Min-Max) rinks per month	0.00 (0.00 - 54.00)		Low	9	8	53.16	0.004	0.64	0.31	1.33	0.233
N Mean (SD)	17 28.35 (44.74)		debulking surgery				0.004				
OS Emotional support N	85		Interval	22	21	34.73		1.00	1.00	1.00	
Mean (SD) Median (Min-Max)	86.23 (17.81) 93.75 (9.38 - 100.00)		None Up-Front	3 59	3 52	16.43 41.17		3.90 0.69	1.13 0.41	13.46 1.14	0.032 0.146
OS Tangible support N	86		Debulking status	47	41	51 25	0.046	1 00	1 00	1 00	
Mean (SD) Median (Min-Max)	88.28 (15.56) 93.75 (31.25 - 100.00)		Suboptimal	32	31	34.86	0.040	1.61	1.00	2.57	0.049
OS Affectionate support	85		pack years				0.010	, = ·	,		
Mean (SD) Median (Min-Max)	93.24 (13.94) 100.00 (8.33 - 100.00)		Never smoked	40	39	36.76		1.00	1.00	1.00	
OS Positive social interaciton	85		Smoked at least 1 pack in	31	24	51.48		0.51	0.31	0.86	0.012
Mean (SD) Median (Min-Max)	88.04 (15.72) 91.67 (16.67 - 100.00)		lifetime Quit				በ በ41				
IOS overall	85		No	65	60	37.91	0.041	1.00	1.00	1.00	
Mean (SD) Median (Min-Max)	88.08 (14.90) 93.42 (14.47 - 100.00)		Yes Alcohol	6	3	108.62	0.818	0.32	U.10	1.02	0.053
innicity	6	7.32	No Yes	42 29	38 25	37.91 47.74		1.00 0.94	1.00 0.57	1.00 1.56	0.819
2 ace	76	92.68					-				
Non-white White	10 75	11.76 88.24					Di	SCI	ISS	ion	
ducation Did not receive high school	11	13.10									
pioma High school diploma/GED	18	21.43	Suboptime MOS Soc	al debu	ulking	and sm	oking l	history	/ were	e assoo	ciated w
rechnical/ vocational degree Some college level credits or 2	3 21	3.57 25.00	This findir	ng may	be du	ue to ou	r use c	of the	MOS,	which	measu
college degree Bachelors Master's degree	18	21.43	social sup Out of 15	port previo	lls etu	dies the	nt four	d a rol	ations	shin he	tween c
master's degree arital status	13	15.48	mortality,	most ir	nclude	ed socia	l suppo	ort me	asure	s that	evaluate
Single, NOT living with gnificant other	(8.05	quality	size of	socia	al netwo	rk nur	nher d	of cont	fidante	availah
Single, living with significant her	5	5.75	men	nbershi	ips		,			naunto	
warried and living with partner Married but living apart	55 2	63.22 2.30	• Our study	may a	lso ha	ave beer	n limite	ed by I	relativ sampl	ely sm le size	all samı ≈ 185
Separated Divorced	7	2.30 8.05	Unlike mo	ost of th	ne pos	sitive stu	idies, d	our stu	udy lin	nited ir	nclusion
vvidowed istology	9	10.34	carefully c	charact	erizeo	d factors	s know	n to in	npact	surviv	al
Otner Serous & Mixed Epithelial	31 56	35.63 64.37									
rade High	75	89.29					C	onc	lus	ION	
Low ndergoing debulking surgery	9 OD	10.71	 Social sur 	oport w	as no	t associ	ated w	/ith su	rvival	time	
Interval None	22 3	26.19 3.57	• Age, smo	king hi	story,	alcohol	use, a	nd su	boptin	nal del	oulking s
op-⊢ront ∋bulking status	59	70.24	 survival til Factors ki 	me nown to	o impa	act survi	ival, al	ong w	ith em	nphasis	s on net
Optimal Suboptimal	47 32	59.49 40.51	important	for fut	ure re	search i	n this a	area			
tetime smoking pack years Never smoked	40	56.34						£.			
Smoked at least 1 pack in etime	31	43.66					Ke	eter	eno	ces	
uit No	65	91.55	 ¹Baldwin et al., (2011). Ten-ye ²Matulonis et al., (2016). Ova ³Waxler-Morrison et al., (199 ⁴Ell et al., (1992). Social relat 	ear relative survival f arian cancer. <i>Nature</i> 91). Effects of social tions, social support atworks as prodicts	tor epithelial ovar Reviews Disease relationships on s and survival amo	ian cancer. Gynecologi e Primers, 2(1). https://d survival for women with ing patients with cancer th disease cancer that	c Oncology, 120. <u>ht</u> loi.org/10.1038/nrdg breast cancer: A pr <i>Journal of Psycho</i> se and hypertogram	tps://doi.org/10.1	016/j.yqyno.2010. Social Science & h, 36(6), 531–541	<u>.12.085</u> Medicine, 33(2), 17 I.	77–183. <u>https://doi.org/1</u>
Yes Icohol	6	8.45	 -vogr et al., (1992). Social ne ⁶Maunsell et al., (1995). Social ne ⁷Soler-Vila et al., (2003). Prog ⁸Weihs et al., (2005). Depen ⁹Burns et al., (2004). Does er 	al support and surviv gnostic significance idable social Relation motional support influ	on some mic hear val among wome of psychosocial fa hships predict over uence survival? F	n with breast cancer, strol n with breast cancer. Ca actors in African-Americ erall survival in Stages Findings from a lonaitud	and hypertension ancer, 76(4), 631–6 can and white breas II and III breast card linal study of patien	37. <u>https://doi.orc</u> st cancer patients cinoma patients ts with advanced	. Cancer, 98(6), 1 Journal of Psycho cancer. Supportiv	299–1308. <u>https://d</u> somatic Research, /e Care in Cancer	4 doi.org/10.1002/cncr.116 59(5), 299–306. https:// 13(5), 295–302. https://
No Yes	42 29	59.15 40.85	 ¹⁰Kroenke et al., (2006). Soci ¹¹Pinquart et al., (2006). Soci ¹²Beasley et al., (2010). Social ¹³Chou et al., (2010). Social si 	ial networks, social s cial support and survi al networks and survival i	upport, and survival in patients wi val in patients wi rival after breast n young women	ival after breast cancer th acute myeloid leukae cancer diagnosis. <i>Journ</i> with breast carcinoma.	diagnosis. Journal emia. Supportive Ca al of Cancer Surviv Psycho-Oncology.	of Clinical Oncolo are in Cancer, 15(rorship, 4(4), 372- 21(2), 125–133.	ogy, 24(7), 1105–1 (1), 81–87. <u>https://doi.o attps://doi.org/10</u> .1	1111. <u>https://doi.org</u> //doi.org/10.1007/s0 org/10.1007/s11764 1002/pon.1863	/10.1200/jco.s2005.04.2 20520-006-0114-x I-010-0139-5
			 ¹⁴Lutgendorf et al., (2012). So ¹⁵Ikeda et al., (2013). Social s 	ocial influences on c support and cancer in	linical outcomes ncidence and mo	of patients with ovarian rtality: The JPHC study	cancer. Journal of cohort II. Cancer C	Clinical Oncology auses & Control,	, <i>30</i> (23), 2885–28 <i>24</i> (5), 847–860.	390. https://doi.org/ https://doi.org/10.10	10.1200/jco.2011.39.44 007/s10552-013-0147-7

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

					Univariate Analysis			Multivariate Analysis					
Characteristic	Ν	Events	Median	log	HR	95%	95%	p-value	HR	95%LB	95%UB	p-value	
				rank		LB	UB						
Age at diagnosis	87 68	78 61			1.02 n gg	1.00 0.98	1.04 1.01	0.052	1.01	0.98	1.03	0.599	
Drinks_per_mont	17	15			1.00	0.99	1.02	0.793					
CCI MOS Emotional	55 85	48 76			1.03 0.99	0.96 0.98	1.11 1.01	0.415 0.404					
support MOS Tangible	86	77			0.00	0.00	1.01	0 101					
support MOS Affectionate	85	76			0.99	0.97	1.00	0.093					
support					0100	0.01		0.000					
MOS Positive social interaction	85	76			1.00	0.98	1.01	0.705					
MOS overall Histology	85	76		0.736	0.99	0.97	1.01	0.203					
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	0.004	0.64	0.31	1.33	0.233	0.81	0.35	1.91	0.636	
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	47	11	51 25	0.046	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				0.010									
pack years													
Never smoked	40	39	36.76		1.00	1.00	1.00						
Smoked at least 1 pack in	31	24	51.48		0.51	0.31	0.86	0.012	0.45	0.25	0.79	0.006	
lifetime													
Quit				0.041									
No	65	60	37.91		1.00	1.00	1.00	•					
Yes	6	3	108.62	0 0 1 0	0.32	0.10	1.02	0.053					
No	42	38	37 91	0.010	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	
				D .									
				וט	SCI	155	ION						
Subontim	مه اد	bulking	and sm	okina k	nietory	<i>i</i> wore	25500	niated wi	th ove	arall eur	vival		
 MOS Soci 	al Su	upport v	vas not	associa	ated v	vith su	irvival				vivai		
• This findin	ig ma	ay be dı	le to ou	r use c	of the	MOS,	which	measur	es pei	rceived	quality o	of	
social sup	port		diaa tha	4 for 100		ations	hin ha						
Out of 15 mortality i	prev most	ious stu include	dies tha	it tound Lisuppo	a rei ort me	ations	snip be s that (etween so evaluate	ociai s d <i>dua</i>	support Intity rat	and car her thar	וcer ר	
quality		,				<i>c</i>			. 90.0				
o E.g. mem	size ibers	oi socia ships	ai netwo	ik, nun	nper c	on cont	IUANIS	avallabl	e, am	ount of	group		
• Our study	may	also ha	ave bee	n limite	ed by i	relativ	ely sm	all samp	le siz	e (n=87)		
• Amo	ng th	ne positi	ive stud	ies, me	edian	sampl	e size	≈ 185					
Unlike mo	st of	the pos	sitive stu	idies, c	our stu	ıdy lin	nited in	nclusion t	to late	e-stage	disease	and	
carefully c	hara	cterized	d factors	s know	n to in	npact	surviva	al					
				C	onc	IUS	ION						
 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													
References													
 ¹Baldwin et al., (2011). Ten-year relative survival for epithelial ovarian cancer. <i>Gynecologic Oncology</i>, 120. <u>https://doi.org/10.1016/j.yoyno.2010.12.085</u> ²Matulonis et al., (2016). Ovarian cancer. <i>Nature Reviews Disease Primers</i>, 2(1). <u>https://doi.org/10.1038/nrdp.2016.61</u> 													
 "Waxler-Morrison et al., (1991). Effects of social relationships on survival for women with breast cancer: A prospective study. Social Science & Medicine, 33(2), 177–183. <u>https://doi.org/10.1016/0277-9536(91)90178-f</u> ⁴Ell et al., (1992). Social relations, social support and survival among patients with cancer. <i>Journal of Psychosomatic Research</i>, 36(6), 531–541. ⁵Vogt et al., (1992). Social networks as predictors of ischemic heart disease, cancer, stroke and hypertension: Incidence, survival and mortality. <i>Journal of Clinical Epidemiology</i>, 45(6), 659–666. https://doi.org/10.1016/0895-4356(92)90138-d ⁶Maureell et al., (1992). Social networks as predictors of ischemic heart disease, cancer, stroke and hypertension: Incidence, survival and mortality. <i>Journal of Clinical Epidemiology</i>, 45(6), 659–666. https://doi.org/10.1016/0895-4356(92)90138-d 													
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 ¹⁰Kroenke et al., (2006). Socia ¹¹Pinquart et al., (2006). Socia 	I networks, so al support and	cial support, and survi survival in patients with	val after breast cancer th acute myeloid leukae	diagnosis. Journal c emia. Supportive Ca	of Clinical Oncolo re in Cancer, 15(gy, 24(7), 1105–1 1), 81–87. <u>https://</u>	111. <u>https://doi.org/</u> doi.org/10.1007/s0	/10.1200/jco.s2005.04.28 00520-006-0114-x	<u>46</u>				

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We hypothesized that high quality of social support would have 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 <u>Medical</u> 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