

Burnout among German oncologists: A cross-sectional study in cooperation with the *Arbeitsgemeinschaft Internistische Onkologie Quality of Life Working Group*

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Research Article

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Abstract

Purpose

Oncologists are at an increased risk of developing burnout, leading to negative consequences in patient care and in professional satisfaction and quality of life. This study was designed to investigate exhaustion and disengagement among German oncologists and assess the prevalence of burnout among oncologists within different professional settings. Furthermore, we wanted to examine possible relations between sociodemographic factors, the oncological setting, professional experience and different aspects of burnout.

Methods

In a cross-sectional study design, an Internet-based survey was conducted with 121 oncologists between April and July 2020 using the Oldenburg Burnout Inventory, which contains items on exhaustion, disengagement, and burnout. Furthermore, sociodemographic data of the participants were assessed. The participants were members of the Working Group Medical Oncology (*Arbeitsgemeinschaft Internistische Onkologie*) within the German Cancer Society.

Results

The survey showed a burnout prevalence of 43.8%, which correlated with age and professional experience; that is, the prevalence is particularly high among younger oncologists. Exhaustion is closely related to employment status; that is, it was significantly higher among employed oncologists. There were remarkably low levels of disengagement among oncologists, highlighting the own demand to fulfill job requirements despite imminent or actual overburdening in daily work.

Conclusion

More support is necessary to mitigate the professional stressors in the healthcare system. To ensure quality medical care, employees should be offered preventive mental health services early in their careers.

Introduction

Since the second half of the last century, burnout among healthcare workers in hospitals has been becoming the focus of health psychology and occupational medicine research. Compared with the general population, health care professionals are at an increased risk of developing symptoms of burnout (Shanafelt et al., 2012; Dyrbye et al., 2014). Maslach's fundamental work defined burnout as work-related stress in terms of three components: emotional exhaustion (EE), depersonalization (DP) and low personal accomplishment (PA). Moreover, to date, the Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Leiter, 1981) is the most widely used and accepted survey to assess burnout (Rotenstein et al., 2018).

During the last 20 years, an increasing prevalence of burnout among physicians has been observed (Linzer et al., 2001; Eelen et al., 2014; Shanafelt et al., 2015), though the prevalence rates vary significantly between different surveys depending on the analyzed diagnostic criteria, demographic factors and medical discipline (Prins et al., 2007; Yates & Samuel, 2019). The highest rates were observed in emergency care, neurology and general internal medicine (Shanafelt et al., 2012; Shanafelt et al., 2015), especially among oncologists (Yates & Samuel, 2019).

Several factors have been identified as risk factors for physicians developing burnout, including workload (Cooper, Rout, & Faragher, 1989; Freeborn, 2001). Among these factors are inefficient work processes (Shanafelt, Dyrbye, et al., 2016), time pressure (Kleiner & Wallace, 2017) and administrative issues (Sinsky et al., 2016). Beyond that, oncologists are often confronted with patients deteriorating significantly or dying due to an advancing tumor disease, despite their efforts in terms of oncological care (Trufelli et al., 2008).

Burnout among physicians can have devastating effects on patient care, including a significantly increased risk of medical errors (Shanafelt et al., 2010; Hall, Johnson, Watt, Tsipa, & O'Connor, 2016), a decreased job productivity (Dewa, Loong, Bonato, Thanh, & Jacobs, 2014; Shanafelt, Mungo, et al., 2016) and a lower patient satisfaction rate (Haas et al., 2000; Halbesleben & Rathert, 2008). Furthermore, physicians with burnout may suffer from somatic and mental health problems, including depression and substance abuse (Oreskovich et al., 2012; Medisauskaite & Kamau, 2017), an increased risk of vehicular accidents (West, Tan, & Shanafelt, 2012) and an increased suicide

risk (van der Heijden, Dillingh, Bakker, & Prins, 2008). Hence, the assessment of the prevalence of burnout among clinically active oncologists is of great interest to researchers, clinicians, and policy makers.

The prevalence of burnout repeatedly leads to debates (Banerjee et al., 2017; Bianchi, Schonfeld, & Laurent, 2017), and the MBI (Maslach et al., 1981) has revealed some psychometric weaknesses (i.e. factor validity and one-sided wording of items) (for further information, see Demerouti, Bakker, Vardakou, & Kantas, 2003; Demerouti & Bakker, 2008). A verification of the prevalence via repetitive measurements of the burnout diagnostic criteria seems to be necessary. Therefore, this study was designed to investigate two dimensions of burnout using a well-validated questionnaire in a German sample of oncologists working in different oncological settings. Furthermore, we wanted to examine possible relations between sociodemographic factors, the oncological setting, and work experience and different aspects of burnout.

Materials And Methods

Study population

All members of the Working Group Medical Oncology (*Arbeitsgemeinschaft Internistische Onkologie (AIO)*) within the German Cancer Society were asked via email to participate in an Internet-based survey. The inclusion criteria were a minimum age of 18 years and a medical practice with patients with cancer. This cross-sectional study, platform provided by SoSci Survey, was open for 3 months from April to July in 2020. The access was only possible using a hyperlink sent in an email circular sent to all AIO members. Participation in the survey was voluntary and anonymous. The manuscript was prepared according to the Strengthening the Reporting of Observational Studies in Epidemiology statement criteria (Von Elm et al., 2007).

Questionnaire

The 16-item Oldenburg Burnout Inventory (OLBI) (Demerouti & Bakker, 2008) was assessed to measure the two following subscales—*exhaustion* and *disengagement* (8 items per subscale)—on a 5-point Likert scale (1 = “strongly disagree” to 5 = “strongly agree”). Four items of each subscale were inverted. The exhaustion dimension (OLBI_{exh}) refers to the “general feelings of emptiness, overtaxing from work, a strong need for rest and a state of physical exhaustion” (Demerouti & Bakker, 2008, p. 10). Exhaustion refers to the long-term consequence of intense physical, affective, and cognitive stress, while emotional exhaustion (MBI_{EE}) surveys only affective aspects. Depersonalisation (MBI_{DP}) refers to distancing from a beneficiary and is only one aspect of the disengagement scale (OLBI_{dis}). OLBI_{dis} refers to “distancing oneself from one’s work and the associated attitudes and attitudes toward work, to negative cynical attitudes and behaviors toward one’s work in general” (ibid., p. 10). The last issue in particular seemed crucial, as work-related attitudes are predictors of job performance (Hettiarachchi & Jayarathna, 2014), and job involvement is related to job satisfaction (Awadh & Wan Ismail, 2012).

Both subscales had a reliability of 0.85. Bivariate correlations between both subscales were 0.55 ($p < 0.01$) for healthcare workers with mean levels of exhaustion ($M = 2.53$) and disengagement ($M = 2.38$) (Demerouti & Bakker, 2008). Since there is no standard cutoff for burnout in the OLBI, we first used $M_{OLBI} \geq 2.18$ as the mean value of the disengagement and exhaustion scales (Peter Chernoff, Adedokun, O’Sullivan, McManus, & Payne, 2019). Further analyses are limited to the more sensitive cutoff of $M_{Exh} \geq 2.5$ (Block, Bair, & Carillo, 2020) for the exhaustion subscale as a “burnout measure.”

Furthermore, sociodemographic data, profession, medical field, professional experience, workplace, and employment status, board certification, work on inpatient palliative care unit (PCU) and participation in an outpatient palliative care team (*Spezialisierte Ambulante Palliativversorgung (SAPV)*) were assessed, including the estimated proportion of total working time, proportion of inpatient work, working hours with tumor patients and the estimated proportion of working time with palliative patients.

Statistics

To evaluate exhaustion, disengagement, and burnout among German oncologists, absolute and relative frequencies for categorical data, mean values, standard deviation, and range for continuous variables were calculated. Participants whose data were incomplete were nevertheless included, as the missing data only included some sociodemographic data. First, we used one-way analysis of variance (ANOVA) as an alternative to t-test to examine differences in the subgroups of sociodemographic variables in exhaustion, disengagement, and burnout. Second, correlation coefficients were measured among all study variables to examine possible relationships between them. Third, multiple regression analyses were performed between disengagement and exhaustion as dependent variables and the sociodemographic factors as independent variables to examine possible predictors for the OLBI measures. The risk ratio (RR) was used to

determine the risk of burnout. For all tests, p-values of less than 0.05 were used to indicate statistical significance. Analyses were done using Statistical Package for the Social Sciences, version 27 (IBM, 2020).

Informed consent was obtained from all participants. Ethical approval was received on September 2019 from the Ethical Committee of the Medical Faculty in Heidelberg (S-615/2019). The study was registered to the German Clinical Trials Register (DRKS500018851).

Results

Characteristics of Participants

Approximately 1,400 physicians were contacted, among whom 121 participated, which corresponds to a response rate of 8.64%. The mean age was 50.28 ± 9.32 years (range, 28–75 years). The sample was predominantly male ($n = 80$, 66%). Professional experience varied widely between 2 and 49 years (median = 20–24 years (26%, interquartile range (IQR) = 15–29 years). Moreover, 113 (94.9%) physicians had a board certification in haemato-oncology. The participants worked on average $82.40\% \pm 17.13\%$ (range, 21–100%) of their time with patients with tumor. Twenty-one (17.4%) physicians worked within a PCU, spending $27.81\% \pm 24.11\%$ (range, 6–81%) of their working time, whereas 11 (9.1%) physicians participated in an outpatient palliative care team (*SAPV*), accounting for $11.64\% \pm 8.51\%$ (range, 2–34%) of their working time. Absolute and relative frequencies are shown in Table 1. Table 2 presents the mean values, standard deviations, ranges, and correlation coefficients.

Table 1
Descriptive statistics of sociodemographic factors in disengagement and exhaustion.

		Disengagement						Exhaustion					
		Low ¹		Medium		High		Low		High (burnout) ²		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
		60	49.6	46	40.5	15	12.4	68	56.2	53	43.8	121	100
Gender	Male	37	30.6	31	29.8	12	9.9	45	37.2	35	28.9	80	66.1
	Female	23	69.4	16	13.2	3	2.5	23	19.0	18	14.9	41	33.9
Status of Employment	Self-employed in oncological practice	2	1.7	-	-	1	0.8	2	1.7	1	0.8	3	2.5
	Individual practice												
	Group practice	8	6.6	13	10.7	3	2.5	16	13.2	8	6.6	24	19.8
	Employed	7	5.8	3	2.5	1	0.8	5	4.1	6	5.0	11	9.1
	In oncological practice/medical care centre												
	In hospital	41	33.9	29	24.0	10	8.3	42	34.7	38	31.4	80	66.1
	Not specified	2	1.7	1	0.8	-	-	3	2.5	-	-	3	2.5
Medical field	Internal medicine	47	38.8	39	32.2	13	10.7	56	46.3	43	35.5	99	81.8
	Hematology/oncology												
	Gastroenterology	1	0.8	4	3.3	1	0.8	1	0.8	4	3.3	5	4.1
	Pneumology	2	1.7	1	0.8	-	-	2	1.7	1	0.8	3	2.5
	Gynecology	2	1.7	1	0.8	-	-	2	1.7	1	0.8	3	2.5
	Radiation therapy	2	1.7	-	-	-	-	1	0.8	1	0.8	2	1.7
	Neurology	-	-	-	-	-	-	-	-	-	-	-	-
	Surgery	-	-	1	0.8	1	0.8	-	-	2	1.7	2	1.7
	Other	5	4.1	1	0.8	-	-	5	4.1	1	0.8	6	5
Not specified	1	0.8	-	-	-	-	1	0.8	-	-	1	0.8	
Type of specialists	Internal medicine	2	1.7	1	0.8	-	-	2	1.7	1	0.8	3	2.5
	Hematology/oncology	43	35.5	34	28.1	10	8.3	53	43.8	34	28.1	87	71.9
	Gastroenterology	1	0.8	3	2.5	1	0.8	-	-	5	4.1	5	4.1
	Pneumology	2	1.7	1	0.8	-	-	2	1.7	1	0.8	3	2.5
	Radiation therapy	2	1.7	1	0.8	-	-	1	0.8	2	1.7	3	2.5
	No specialist	5	4.1	4	3.3	3	2.5	11	9.1	1	0.8	12	9.9
	Another specialist	5	4.1	2	1.7	1	0.8	4	3.3	4	3.3	8	6.1
PCU ³	Yes	13	10.7	7	5.8	1	0.8	14	11.6	7	5.8	21	17.4
	No	45	37.2	38	31.4	14	11.8	52	43.0	45	37.2	97	80.1
	Not specified	2	1.7	1	0.8	-	-	2	1.7	1	0.8	3	2.5

¹ low (<1.63), medium (1.64–2.24) and high (>2.24), ²Cutoff = 2.5, ³ PCU = Palliative Care Unit Activity, ⁴ SAPV = Spezialisierte Ambulante Palliativversorgung (outpatient palliative care).

		Disengagement						Exhaustion					
SAPV ⁴	Yes	8	6.6	7	5.8	2	1.7	9	7.4	2	1.7	11	9.1
	No	50	41.3	43	35.5	13	10.7	56	46.3	50	41.3	106	88.4
	Not specified	2	1.7	2	1.7	-	-	3	2.5	1	0.8	4	2.5
Professional experience	<2	-	-	-	-	-	-	-	-	-	-	-	-
	2-4	3	2.5	2	1.7	3	2.5	3	2.5	5	4.1	8	6,6
	5-9	4	3.3	3	2.5	2	1.7	5	4.1	4	3.3	9	7,4
	10-14	4	3.3	7	5.8	-	-	4	3.3	7	5.8	11	9,1
	15-19	9	7.4	6	5.0	2	1.7	8	6.6	9	7.4	17	14
	20-24	14	11.6	10	8.3	2	1.7	13	10.7	13	10.7	26	21,5
	25-29	15	12.4	2	1.7	2	1.7	15	12.4	4	3.3	19	15,7
	30-34	6	5.0	10	8.3	2	1.7	11	9.1	7	5.8	18	14,9
	35-39	1	0.8	7	5.8	2	1.7	4	3.3	4	3.3	8	6,6
	40-44	1	0.8	-	-	2	1.7	1	0.8	-	-	1	0,8
	>45	1	0.8	-	-	-	-	1	0.8	-	-	1	0,8
	not specified	2	1.7	1	-	-	-	2	1.7	-	-	3	2,5

¹ low (<1.63), medium (1.64-2.24) and high (>2.24), ²Cutoff = 2.5, ³ PCU = Palliative Care Unit Activity, ⁴ SAPV = Spezialisierte Ambulante Palliativversorgung (outpatient palliative care).

Table 3
Relative ratio for burnout among German oncologists.

	Cutoff/ Categories	Value	N = 53	%	RR [95% CI]	Pearson - Chi	p ¹
Age (years)	P25 = 43	< 43	14	50.0	1.192 [0.767– 1.853]	0.569	0.451
		> 43	39	41.9	0.839 [0.540– 1.303]		
	P50 = 52	< 52	33	55.0	1.618 [1.096– 2.568]	6.063	0.014
		> 52	20	32.8	0.596 [0.389– 0.913]		
	P75 = 57	< 57	42	46.7	1.315 [0.779– 2.220]	1.171	0.278
		> 57	11	35.5	0.760 [0.450– 1.283]		
Work time with patients with tumor (%)	P25 = 76	< 76	15	55.6	1.330 [0.878– 2.016]	1.602	0.206
		≥ 76	38	41.8	0.752 [0.496– 1.139]		
	P50 = 86	< 86	29	51.8	1.338 [0.895– 2.001]	2.033	0.154
		≥ 86	24	38.7	0.747 [0.500– 1.118]		
	P75 = 96	< 96	41	47.7	1.271 [0.772– 2.094]	0.976	0.323
		≥ 96	12	37.5	0.787 [0.478– 1.290]		
Palliative patients with tumor (%)	P25 = 48	< 48	11	39.3	0.842 [0.565– 1.403]	0.470	0.493
		≥ 48	42	46.7	1.188 [0.713– 1.980]		
	P50 = 65	< 65	26	44.8	0.996 [0.668– 1.486]	0.000	0.985
		≥ 65	27	45.0	1.004 [0.673– 1.497]		
	P75 = 78.25	< 78.25	41	46.1	1.113 [0.683– 1.814]	0.194	0.659
		≥ 78.25	12	41.4	0.898 [0.551– 1.463]		
Inpatients (%)	P25 = 6	< 6	13	52.0	1.183 [0.760– 1.841]	0.511	0.475
		≥ 6	40	44.0	0.845 [0.543– 1.313]		
	P50 = 34,5	< 34.5	26	44.8	0.963 [0.647– 1.432]	0.035	0.852
		≥ 34.5	27	46.6	1.038 [0.698– 1.544]		
	P75 = 76.75	< 76.75	39	44.8	0.929 [0.596– 1.446]	0.104	0.747

¹Significant at a level of $p < 0.05$ (2-tailed), ² PCU = Palliative Care Unit Activity, ³ SAPV = Spezialisierte Ambulante Palliativversorgung (outpatient palliative care).

	Cutoff/ Categories	Value	N = 53	%	RR [95% CI]	Pearson - Chi	p ¹
		≥ 76.75	14	48.3	1.077 [0.691– 1.677]		
PCU ² (%)	P25 = 7	<7	2	40.0	1.280 [0.350– 4.680]	0.131	0.717
		≥ 7	5	31.3	0.781 [0.214– 2.850]		
	P50 = 18	<18	5	50.0	2.750 [0.679– 11.134]	2.386	0.122
		≥18	2	18.2	0.364 [0.090– 1.472]		
	P75 = 43	<43	5	31.3	0.787 [0.214– 2.856]	0.131	0.717
		≥43	2	40.0	1.280 [0.350– 4.680]		
SAPV ³ (%)	P25 = 6	<6	1	50.0	4.500 [0.447– 45.328]	1.664	0.197
		≥6	1	11.0	0.222 [0.022– 2.238]		
	P50 = 11	<11	1	20.0	0.835 [0.068– 10.20]	0.020	0.887
		≥11	1	16.7	1.200 [0.098– 14.69]		
	P75 = 12	<12	1	12.5	0.375 [0.033– 4.275]	0.637	0.425
		≥12	1	33.3	2.667 [0.234– 30.399]		
Professional experience (years)	P25 = 15–19	<15	16	57.1	1.390 [0.927– 2.084]	2.218	0.139
		≥15	37	41.1	0.719 [0.480– 1.079]		
	P50 = 20–24	<20	25	55.6	1.448 [0.9800– 2.141]	3.329	0.068
		≥20	28	38.4	0.690 [0.467– 1.021]		
	P75 = 25–29	<25	38	53.5	1.677 [1.048– 2.684]	5.336	0.021
		≥25	15	31.9	0.596 [0.373– 0.955]		
Gender	Male		35	43.9	0.997 [0.715– 1.391]	0.000	0.987
	Female		18	43.8	1.003 [0.655– 1.536]		
PCU	Yes		7	33.6	7.11 [0.372– 1.350]	1.280	0.258
	No		45	46.9	1.255 [0.879– 1.372]		

¹Significant at a level of $p < 0.05$ (2-tailed), ² PCU = Palliative Care Unit Activity, ³ SAPV = Spezialisierte Ambulante Palliativversorgung (outpatient palliative care).

	Cutoff/ Categories	Value	N = 53	%	RR [95% CI]	Pearson - Chi	p ¹
SAPV	Yes		2	18.2	0.385 [0.108– 1.372]	3.392	0.660
	No		50	47.2	1.549 [1.112– 2.158]		
Status of employment	Self-employed		9	33.3	0.613 [0.301– 1.251]	1.898	0.168
	Employed		44	48.8	1.148 [0.949– 1.393]		
Board certification	Yes		47	43.1	0.973 [0.861– 1.089]	0.208	0.648
	No		6	50.0	1.283 [0.439– 3.752]		
Board certification internal medicine: hematology/oncology	Yes		34	39.1	0.823 [0.649– 1.044]	2.804	0.094
	No		19	55.9	1.635 [0.916– 2.885]		
Medical field: Internal medicine: Hematology/oncology	Yes		43	43.4	0.971 [.821 – 1.148]	0.123	0.726
	No		10	47.6	1.149 [.528 – 2.499]		

¹Significant at a level of $p < 0.05$ (2-tailed), ² PCU = Palliative Care Unit Activity, ³ SAPV = Spezialisierte Ambulante Palliativversorgung (outpatient palliative care).

Disengagement

The mean value on the disengagement scale was 1.65 ± 0.45 (range, 1.00–2.88). To evaluate the disengagement scale, the range of values was divided into three parts and designated as low (<1.63), medium (1.63–2.24) and high (>2.24). Moreover, 60 (49.59%) physicians showed low disengagement (mean = 1.28 ± 0.153 ; range = 1–1.5), 46 (38.02%) showed medium disengagement (mean = 1.85 ± 0.19 ; range 1.63–2.13) and 15 (12.40%) showed high disengagement (mean = 2.49 ± 0.21 ; range 2.38–2.88). High disengagement was mainly related to men ($n = 12$, 9.9%) and hospital employees ($n = 10$, 8.3%) (Fig. 1).

Correlation analyses, ANOVA, and regression analyses showed no significant correlations between the disengagement scale and other variables.

Exhaustion

Based on a cutoff of $M_{OLBI} = 2.18$, 45 physicians (52.3%) of the total sample had burnout. Focusing on the more specific exhaustion scale with a cutoff of $M_{Exh} > 2.5$, 53 (43.8%) physicians showed increased values in the exhaustion scale as a hint for suffering from burnout.

Pearson's correlation coefficients showed a significant negative correlation between age and exhaustion ($r = -0.183$, $p < 0.01$); that is, the older the physician, the less exhaustion. Using a cutoff at the highest quartile (P75), physicians older than 57 years ($n = 31$) have significantly lower values (mean = 2.09 ± 0.94) on the exhaustion scale than physicians younger than 57 years ($n = 90$; mean = 2.41 ± 0.57) ($t(119) = -2,581$; $p < 0.05$).

A significantly strong positive correlation was observed between age and professional experience ($r = 0.830$; $p < 001$). Kendall's Tau showed a significant negative correlation between professional experience and exhaustion ($r = -0.180$; $p < 0.01$); that is, the less work experience, the greater the exhaustion. Pearson's chi-square test confirmed an association between professional experience of less than 20 years with burnout ($M_{Exh} \geq 2.5$): $\chi^2(1) = 5.176$; $p < 0.05$, $\phi = .209$. The risk of burnout among physicians with a professional experience of less than 25 years ($n = 38$, 53.5%) was thrice higher than that among physicians with a professional experience of at least 25 years ($n = 25$, 31.9%) (RR = 1.677, 95% CI: 1.129–6.419; $p < 0.05$) (Fig. 2).

Pearson's correlation coefficients showed a slightly positive correlation between employment status and exhaustion ($r = 0.232$; $p < 0.05$). The difference in exhaustion between employed (mean = 2.415 ± 0.582) and self-employed (mean = 2.08 ± 0.60) physicians was significant ($t(119) = 2.576$; $p < 0.05$), suggesting that employed physicians describe themselves as more exhausted than self-employed colleagues. The comparison of the mean values of exhaustion showed a significant difference ($t(114) = 2.115$; $p < 0.05$) between physicians treating less than 30% of inpatients ($n = 55$; mean = 2.22 ± 0.593) and physicians treating more than 30% of inpatients (mean = 2.45 ± 0.609). Moreover, 35 (32.4%) employed and seven (9.6%) self-employed physicians showed signs of burnout; the relative risk was insignificant.

Physicians participating in an outpatient palliative care team (SAPV) were predominantly male ($n = 7$, 63.6%) with a mean age of 52.82 ± 5.741 years (range, 41–60 years) and a professional experience between 5 and 34 years (median = 20–24 years [27.3%, IQR = 15–29 years]). They were predominantly haemato-oncology specialists ($n = 9$, 81.8%), self-employed in oncological joint practice ($n = 5$, 45%) or employed in a hospital ($n = 5$, 45%) and predominantly did not work in an inpatient PCU ($n = 7$, 63.6%). Physicians additionally working in inpatient palliative care settings ($n = 4$) on average worked $48.25\% \pm 34.40\%$ (range, 4–81%) of their time on PCUs.

Pearson's correlation coefficients were calculated to evaluate the correlation between exhaustion and the percentage of engagement in an outpatient palliative care team (SAPV). The results showed a strongly positive correlation ($r = 0.607$; $p < 0.05$); that is, the higher the percentage of working time in SAPV was, the higher the level of exhaustion was.

Discussion

In this study, we assessed the prevalence of burnout among oncologists and its possible relation to different sociodemographic factors. Using stringent diagnostic criteria according to the OLBI, more than 43.8% of participating German oncologists showed increased exhaustion rates as a sign of burnout. Though this prevalence is lower than the rate of burnout-affected physicians in other disciplines, such as emergency medicine, general internal medicine and neurology (Shanafelt et al., 2012; Peter Chernoff, Adedokun, O'Sullivan, et al., 2019), our data reflect a public health crisis with a huge negative impact on patient care, physicians' health and healthcare organizations and systems (reviewed by West, Dyrbye, & Shanafelt, 2018).

The analysis of different healthcare systems showed broad variations regarding the prevalence of burnout among oncologists: Using different diagnostic criteria, even higher rates of burnout were reported in a survey among oncologists in the US (Allegra, Hall, & Yothers, 2005) or Korea (Lee, Maeng, Kim, & Kim, 2020), whereas a recent survey involving Italian oncologists has only shown a burnout rate of 10.5% (Cheli, Zagonel, Oliani, Blasi, & Fioretto, 2021).

In this survey, burnout was significantly associated with age and professional experience, with a higher prevalence observed among younger physicians. These data are in line with published results emphasizing the higher risk of burnout among younger physicians at a lower hierarchical level (e.g. residents) (Shanafelt et al., 2012). In contrast, a higher age was associated with a lower prevalence of burnout in this survey, as shown in other surveys involving oncologists in different countries (Alacacioglu, Yavuzsen, Dirioz, Oztop, & Yilmaz, 2009; Shanafelt et al., 2014). Higher weekly working hours, higher rates of emotional labor and more alternating shifts, including night or weekend work, might contribute to this increased prevalence (Panagopoulou, Montgomery, & Benos, 2006). Furthermore, working in an inpatient setting and being confronted daily with severely sick patients in an advanced stage of disease might be additional cofactors. Furthermore, the double burden of managing family life and professional career can cause role conflicts as an additional risk factor for burnout (Linzer et al., 2001; Cheli et al., 2021). Interventions to promote the mental health of oncology workers should address these issues. Several authors (Blanchard et al., 2010; Roth et al., 2011; Shanafelt et al., 2014; Cheli et al., 2021) have proposed a higher prevalence of burnout in female physicians, whereas we and other groups (Wang et al., 2014) could not confirm this observation. However, the number of female physicians participating in this survey was low to draw any conclusions on gender-specific differences.

The decrease in the rate of burnout with advanced age and professional experience probably reflects the capability of physicians to deal with professional requirements and stressors; alternatively, physicians might not work anymore in professional patient care. Moreover, the high level professional role associated with social and financial benefit might be a protective factor against burnout (Cheli et al., 2021).

The work setting of physicians may have a strong impact on professional satisfaction: In contrast to data from the US with higher burnout rates among physicians working in their own private practices than those working in academic medical centers or other practices (Dyrbye et al., 2011; Dyrbye et al., 2013), this survey showed a lower prevalence of exhaustion in self-employed physicians. Given that healthcare systems in Germany are different from those in the US, it can be assumed that physicians in outpatient oncological practices are less confronted with stress factors, such as rotating-shift work or night work. Furthermore, self-employment might allow a better control of the workload leading to less stress and a higher professional satisfaction (Williams et al., 2002). Furthermore, in our cohort, oncologists in

outpatient practices tended to be older; thus, the reduced rate of exhaustion might also be attributed to the higher age and the higher grade of experience. Physicians' psychological burden has a strong impact on medical care. In a comprehensive systematic review in 2016, Hall et al. (2016) have reported a high level of evidence for relations between self-reported medical errors and psychological burden. A possible explanation for this relationship is the emergence of cognitive limitations. These findings stress the importance of physicians' health to ensure quality patient care.

Though the rate of exhaustion was high in this survey, the rates of disengagement were lower than expected with a mean value of 1.65 and less than 10% showing a high rate of disengagement. This prevalence is lower than the prevalence of disengagement of physicians in other disciplines, such as emergency medicine (P. Chernoff, Adedokun, O'Sullivan, McManus, & Payne, 2019) or medical staff in general. These findings imply high demands of physicians to fulfill job requirements despite imminent or actual overburdening in daily work.

Strengths and limitations

This study is the first to examine two dimensions of burnout in a German sample of oncologists. We had the opportunity to reach several oncologists through the cooperation with the AIO. Even though the response rate was below 10%, we could reach a large group with a wide range of professional experiences.

However, this survey has several limitations. First, the number of physicians that responded was limited; physicians with a higher symptom load might have reported at a higher frequency, leading to an overestimation of the prevalence of burnout, though the prevalence of burnout reported here is in line with data published. Second, since the participants were members of a professional society, the work demands, and job characteristics might not reflect clinical routine in Germany. Third, since this survey was conducted in summer 2020 after the first peak of the coronavirus disease 2019 (COVID-19) pandemic, additional stressors associated with this might have influenced the results of this survey. In contrast, during the survey running, the incidence rates of COVID-19 were low in Germany with only few major structural issues occurring in hospitals. The main limitation of this study is related to its cross-sectional design, which does not allow either temporal or causal inferences. Further investigations with consecutive measurements are required to obtain a more detailed understanding of burnout among oncologists.

Conclusion

This survey highlights a high rate of exhaustion among German oncologists, with a focus on professional burden during the early years of career. More support is necessary to mitigate potential stressors for medical personnel within the healthcare system. To ensure high-quality medical care, physicians should be offered preventive mental healthcare services early in their careers.

Declarations

Funding statement

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Conflict of interest

All authors declare no conflicts of interest regarding the publication of this article.

Ethics approval

Positive approval was received in September 2019 from the Ethics Committee of the Medical Faculty in Heidelberg (S-615/2019).

Informed consent

Informed consent was obtained from the participants through the online version of the survey.

Availability of data and material

The datasets generated and/or analyzed during this study are available from the corresponding author on reasonable request.

Code availability

Not applicable.

Author Contributions

MHE: protocol and project development, data collection, data management, first draft of manuscript and manuscript writing. MHA: protocol development, data collection, data analysis, and. DG: manuscript writing, USB: manuscript writing, IM: protocol and project development, data collection, data analysis, and manuscript writing.

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Tables

Due to technical limitations, Table 2 is only available as a download in the Supplemental Files section.

Figures

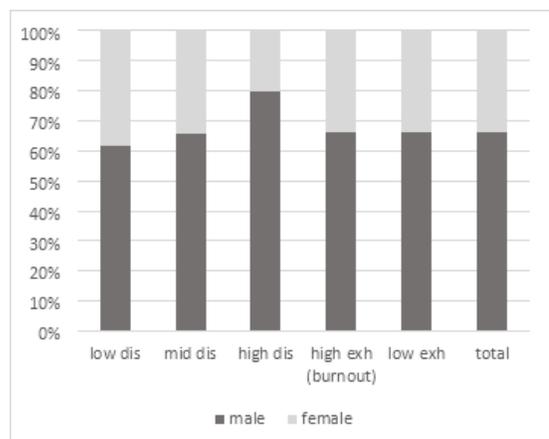


Figure 1

Gender distribution of disengagement (i.e. low, middle and high) and exhaustion (i.e. low and high [burnout])

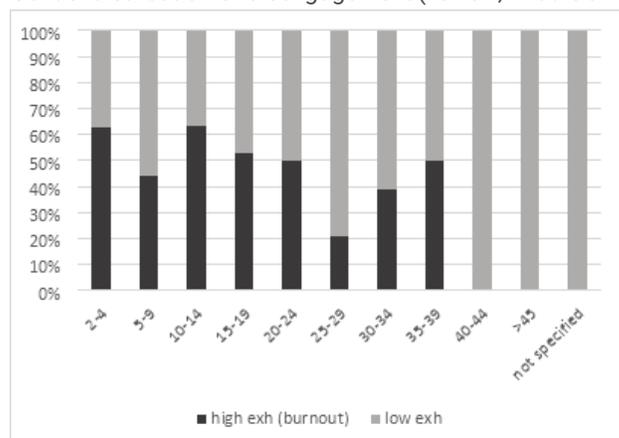


Figure 2

Professional experience and exhaustion (burnout)

Supplementary Files

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