

## Letter to the Editor

## Gender disparity regarding work-life balance satisfaction among German neuro-oncologists: a YoungNOA survey

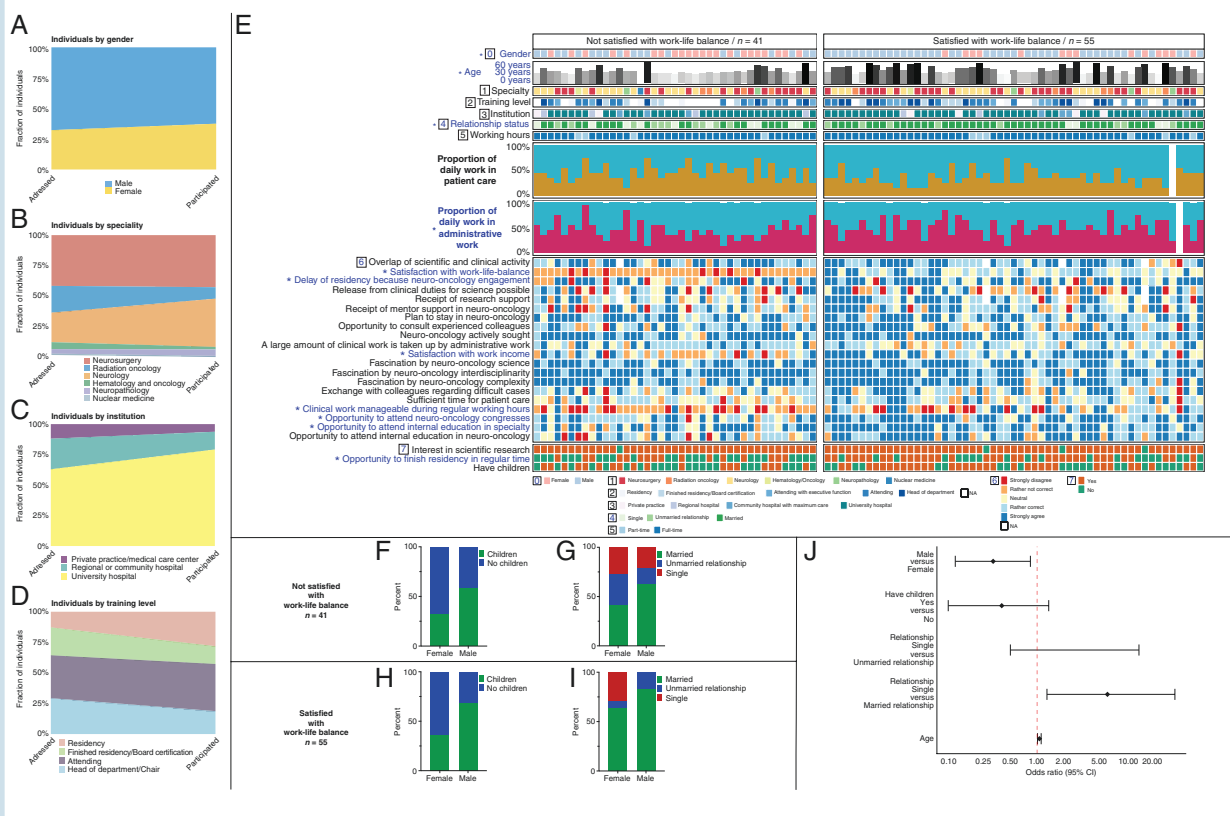
Satisfaction with work-life balance (WLB) is an essential factor for persistent motivation of early career researchers. WLB satisfaction was strongly related to planned reduction in practice times among US medical oncologists.<sup>1</sup> The neuro-oncological landscape, however, is sparsely characterized in this regard. We present the results of an interdisciplinary anonymous survey focusing on WLB among neuro-oncologists in Germany which are members of the Neuro-oncology Working Group “Neuroonkologische Arbeitsgemeinschaft” (NOA) of the German Cancer Society (Deutsche Krebsgesellschaft, DKG) (<https://www.neuroonkologie.de/>). The questionnaire sent to 351 physicians covered personal information and questions aimed to reveal individual motivations, scientific interests and activities as well as individual workload and job satisfaction. The survey was online from 18 March 2021 to 1 April 2021.

Ninety-six physicians (36 female, 60 male, [Figure 1a](#)) participated in this survey. Most participants were neurosurgeons (42.7%) or neurologists (39.6%, [Figure 1b](#)). Furthermore, most participants were university hospital (80.0%, [Figure 1c](#)) attending (38.5%, [Figure 1d](#)) physicians.

When asked to rate their level of agreement with the statement “I am satisfied with my current work-life balance” 21 participants (22.0%) were neutral, whereas 34 (35.0%) either agreed or strongly agreed. In contrast, 43.0% ( $n = 41$ ) disagreed or strongly disagreed with this statement. For simplicity purposes, we summarized the neuro-oncologists who disagreed or strongly disagreed to the above statement into one group (dissatisfied with their WLB) and the remainder were classified as satisfied with their WLB. As such, 57.0% ( $n = 55/96$ ) of the survey participants reported satisfaction with their WLB. Age, gender and relationship status were significantly different between participants who were satisfied and those not satisfied with their WLB (highlighted by blue font and an asterisk in [Figure 1e](#)). Female participants were less likely ( $P = 0.005$ ) to be satisfied (25.0%,  $n = 14/55$ ) with their WLB than their male counterparts (75.0%,  $n = 41/55$ ). Moreover, those satisfied with their WLB were significantly

older (median, 44 years versus 38 years,  $P = 0.031$ ) and more likely married (78.0%,  $n = 43/55$  versus 51.0%,  $n = 21/41$ ,  $P = 0.014$ ). Furthermore—regardless of WLB satisfaction—female participants were less likely to have children and to be in a married relationship as opposed to male participants ([Figure 1f–i](#)). In a subgroup analysis of the association of specialty and WLB satisfaction, sufficient observations were available for the specialties neurosurgery and neurology, where female participants were less likely satisfied with their WLB (data not shown). In a logistic regression model, the finding that female participants were less likely to be satisfied with their WLB than the male counterpart remained statistically significant (odds ratio [OR] 0.32; 95% confidence interval [CI] 0.21–0.84,  $P = 0.023$ ; [Figure 1j](#)) after accounting for possible confounding variables such as age (OR 1.06; 95% CI 1.01–1.11,  $P = 0.025$ ; [Figure 1j](#)), childlessness (children available versus not available, OR 0.40; 95% CI 0.10–1.35,  $P = 0.156$ ; [Figure 1j](#)), and relationship status (unmarried relationship versus single, OR 2.49; 95% CI 0.50–13.98,  $P = 0.275$ ; married relationship versus single, OR 6.18; 95% CI 1.29–35.46,  $P = 0.029$ ; [Figure 1j](#)). Other factors playing into WLB satisfaction included the salary ( $P < 0.001$ , Fisher’s exact test), percentage of working hours dedicated to administrative work ( $P = 0.003$ , Fisher’s exact test), the opportunity to attend neuro-oncological meetings ( $P = 0.012$ , Fisher’s exact test) and whether residency time was delayed because of neuro-oncological subspecialty commitment ( $P = 0.022$ , Fisher’s exact test) ([Figure 1e](#)).

This survey indicates a gender imbalance in terms of WLB satisfaction among neuro-oncologists in Germany in that WLB satisfaction was significantly decreased among female neuro-oncologists and independent of age, relationship status and childlessness. This finding is in line with what has been observed in a survey among US oncologists.<sup>1</sup> It adds to existing reports on putative factors hindering women’s career progression in neuro-oncology.<sup>2</sup> Furthermore, the proportion of neuro-oncologists who were dissatisfied with their WLB (42.0%) was higher than the 37.0% observed in a national sample of 7,000 US physicians from all specialties who rated their WLB using a comparable methodology.<sup>3</sup> The alarming gender disparity in terms of WLB satisfaction is particularly concerning as enrollment of women in US medical schools has surpassed that of men (<https://www.aamc.org/data-reports/students-residents/interactive-data/2021-facts-applicants-and-matriculants-data>). To counter gender disparity and enable equality of opportunities in Germany by establishing programs fostering women empowerment and female leadership, the NOA has founded the initiative “Diversity in Neurooncology” (DivINe,<sup>4</sup>). Of note, there is a gender imbalance in our survey (38% female participants), which is approximately reflective of the NOA gender distribution (about 32% female members). From a statistical viewpoint it would be desirable to have a balanced gender



**Fig. 1** Basal characteristics of the survey participants and influence of various factors on work-life balance satisfaction. Thirty-six women (37.5%) and 60 men (62.5%) participated in our survey (**a**). Most were neurosurgeons (42.7%) or neurologists (39.6%, **b**) and worked at an university hospital (80.0%, **c**) as attending physicians (38.5%, **d**). Fifty-five participants (57.0%) stated to be neutral or either agreed or strongly agreed regarding the statement “I am satisfied with my current work-life balance”, whereas 43.0% ( $n=41$ ) disagreed or strongly disagreed with this statement. Age, gender and relationship status were significantly different for satisfied participants and those not satisfied with their WLB (highlighted by blue font and an asterisk in **e**). Other factors with influence on WLB satisfaction included the salary ( $P<0.001$ , Fisher’s exact test), the percentage of working hours dedicated to administrative work ( $P=0.003$ , Fisher’s exact test), the opportunity to attend neuro-oncological meetings ( $P=0.012$ , Fisher’s exact test) and whether residency time was delayed because of neuro-oncological subspecialty commitment ( $P=0.022$ , Fisher’s exact test) (**e**). Regardless of WLB satisfaction, female participants were less likely to have children and to be in a married relationship as opposed to male participants (**f–i**). In a logistic regression model, the finding that female participants were less likely to be satisfied with their WLB than the male counterpart remained statistically significant (odds ratio [OR] 0.32; 95% confidence interval [CI] 0.21–0.84,  $P=0.023$ ; **j**) after accounting for possible confounding variables.

distribution, which could be accounted for in future surveys about WLB satisfaction among neuro-oncologists world-wide. To allow for a conclusion representative of the neuro-oncology community world-wide, an international survey is desirable and in preparation. WLB satisfaction is crucial to ensure neuro-oncologists remain scientifically engaged in the long run. We identified several factors - other than gender - that may contribute to WLB satisfaction. Most of these factors could be addressed by improving administrative processes in daily clinical routine, e.g. by reducing the administrative workload through hiring physician assistants,<sup>5</sup> by implementing (artificial intelligence based) decision-support systems,<sup>6</sup> and by providing a structured research-friendly environment. In summary, this survey highlights the need to establish programs to improve WLB among neuro-oncologists and to address gender disparities.

## Keywords

neuro-oncology | NOA | work-life balance | YoungNOA | survey

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