

# **Oncology professionals' perceptions and recommendations to improve wellbeing and health at work in times of crisis: Qualitative thematic analysis from the ESMO Resilience Task Force survey series**

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**ABSTRACT**

**Purpose:** The ESMO Resilience Task Force (RTF) was established to address burnout and wellbeing issues among oncology professionals. Here, we present findings on shared perceptions and recommendations to support and improve oncology professionals' wellbeing and health at work.

**Methods:** Inductive thematic analysis of qualitative responses from three global ESMO RTF surveys (2020-2021) was conducted using Braun and Clarke's six-step approach. Open-ended questions elicited suggestions, including descriptions of "pleasant physical working conditions" in the third survey. Respondents (n=989) were gender-balanced, from 90 countries, with half practising in Europe. Most were of White ethnicity, worked in medical oncology, and had over 10 years of experience.

**Results:** Six main themes described help and support needs from oncology professionals: *Training, education, information and learning; Wellbeing; Activism and advocacy; Financial support; Safety; and Opportunities and career*. Six additional themes described factors contributing to a "pleasant physical working environment": *Physical working environment; Working conditions and job role; Safety; Wellbeing and coping; Working relations and support from others; Career and professional development*.

**Conclusions:** This is the largest global qualitative analysis of oncology professionals' needs during the COVID-19 pandemic, offering actionable recommendations for ESMO and other stakeholders to address work-related issues. Addressing these needs can foster resilience, improve working conditions, and promote better health and wellbeing.

**Keywords:** oncologists; wellbeing; COVID-19; burnout; resilience

## HIGHLIGHTS

- The COVID-19 pandemic highlighted oncology professionals' need for enhanced support during times of crisis.
- Open-ended responses from nearly 1,000 oncology professionals from over 90 countries were qualitatively analysed.
- Key needs include training/information, wellbeing, advocacy, financial aid, safety, career and better working environment.
- The qualitative findings from this study on oncology wellbeing offer actionable evidence-based steps for all stakeholders.

## INTRODUCTION

The ESMO Resilience Task Force (RTF) was established in 2019 to address burnout and poor wellbeing issues among oncology professionals [1]. In response to the COVID-19 pandemic, three global surveys (2020-2021) were conducted to assess its impact on oncology professionals, revealing high levels of burnout and poor wellbeing, despite sustained resilience [2-4]. Here, we present a qualitative analysis of these surveys' open-ended responses, offering insights into these professionals' experiences and providing recommendations for improving wellbeing at work. The key objective is to explore key wellbeing factors and provide evidence-based actionable recommendations for ESMO and other stakeholders.

## MATERIAL AND METHODS

Thematic analysis (TA) was performed on qualitative responses to optional open-ended survey questions included in three ESMO RTF online surveys [2-4]. Questions asked, *"What would help you? Do you have any suggestions about how ESMO can help support you during COVID-19?"*. Due to frequently occurring responses in surveys I and II [2,3], an additional question asking what aspects of the *"pleasant physical working conditions"* would help was also asked in the final survey [4]. Responses from these anonymous surveys were imported into QSR NVivo (version 12) for analysis.

Following Braun and Clarke's [5] six-step approach, TA involved familiarisation with the data, initial coding, theme development, theme review, theme definition, and reporting. Themes were considered as "summaries of what participants said in relation to a particular topic or data collection question" [6, p. 5]. Adopting essentialist theoretical stance, data analysis was conducted at an explicit, surface-level meaning, assuming a unidirectional relationship between language and experience [7]. An inductive, data-driven approach was used to determine themes based on their prevalence. The TA was led by an

experienced organisational health and wellbeing researcher (ET), who developed initial codes and themes. These were reviewed and discussed with other ESMO RTF members experienced in qualitative research (KHJL, CH, SB) to ensure consistency of interpretation. Themes were then shared with the entire ESMO RTF for additional input and discussion. ESMO RTF members' positionality are summarised in Supplementary Table S1, which aided reflexivity in the analysis process.

## RESULTS

In total, there were n=989 respondents from the three surveys who provided text responses to the open-ended survey questions, as summarised in Table 1 (see Supplementary Table S2 for detailed breakdown) (response rate 26.5%, n=989/3,731). The age distribution was wide, with the largest representation between 31-40 years. Gender was evenly split between males (49%, n=485) and females (51%, n=502). Almost two-thirds of respondents identified as White (57%, n=575), and a quarter as Asian (26%, n=266). Respondents were uniformly distributed between Europe and non-European countries, spanning n=90 countries (n=28 in Europe, n=62 outside). Nearly 20% of respondent were trainees (n=160), with nearly two-thirds (n=548) having had over 10 years of professional practice experience in oncology. Most were practicing medical oncologists, with majority working in general hospitals or cancer centres.

Six themes were identified regarding how oncology professionals could be supported. Six additional themes were developed from Survey 3 to include key influential aspects of these workers' "pleasant physical working environment". Figure 1 illustrates these themes and provide example quotes. Below, each theme is discussed in order of their prevalence.

***Training, education, information and learning***

The most prevalent theme identified was the need for education, information and training support from ESMO so oncologists can continue learning. Respondents suggested several ways ESMO could assist them, including online learning materials, webinars (including webinars on COVID-19 and cancer), preceptorships and advanced online courses, research methodology training, educational materials in various languages, Continuing Medical Education (CME), podcasts, hosting congresses and other conferences/events online to improve accessibility to such resources.

Additionally, many respondents indicated that updates on current research regarding the interaction of COVID-19 and cancer, as well as general cancer treatments, would be beneficial. They particularly valued critical appraisals of research and condensed research summaries. Evidence-based guidelines and recommendations from ESMO on treatment protocols for patients with cancer, including those with COVID-19, were among the most requested forms of support. Guidance on research and clinical trials was also sought.

Respondents also highlighted the importance of opportunities to share experiences and information on how members are managing cancer treatment in different regions with other oncologists and healthcare professionals. They suggested that ESMO could facilitate this exchange of information, as well as share results from ESMO surveys to aid learning.

Many members expressed concern about ESMO providing further educational and learning opportunities, such as online courses on topics like CME. They suggested that learning or training be provided in the form of videos, online content, and webinars, as these formats are the most accessible

during the COVID-19 pandemic. There was also a preference for holding ESMO meetings, conferences, and exams in a virtual/online format.

Respondents emphasised the need to stay updated with the latest developments in evidence-based COVID-19 and oncology research, particularly through short, easy-to-read summaries. Expert-led, evidence-based guidance and recommendations from ESMO regarding treatment guidelines for oncology patients during the COVID-19 pandemic were also requested. Sharing knowledge and experiences between countries and oncology professionals, as well as disseminating learning from ESMO surveys, was deemed crucial.

### ***Wellbeing***

This theme of wellbeing included different ways ESMO could support the emotional, psychological, and physical health of members. Respondents suggested that ESMO could provide information on managing burnout and stress, relaxation strategies, effective communication with colleagues and patients, peer-to-peer mentoring, positive and motivational messages, psychological support and online counselling, online support programs, motivational apps, yoga and meditation online classes, mindfulness practices, and information on adjusting to a 'new' normal.

Respondents also emphasised the importance of relationships with others, suggesting that sharing experiences and coping strategies with other oncologists, and having online mentors for young oncologists, would be beneficial. They highlighted that sharing experiences and coping strategies with others would be helpful for mutual learning and support.

### ***Activism and advocacy***

Respondents suggested that ESMO should advocate for the oncology profession by providing correct, scientific evidence-based information and guidelines for treating patients with cancer, and highlighting the impact of stopping treatment. Additionally, advocating for the welfare and wellbeing of the oncology workforce was deemed important. It was suggested that ESMO could address discrimination and stigma among healthcare professionals, such as dispelling myths about the origins of COVID-19 and supporting more female doctors in decision-making roles.

Furthermore, respondents recommended that ESMO acknowledge the contributions made by members during the pandemic, particularly the roles played by charities, nurses, and pharmacists, as some felt these groups were overlooked.

Respondents also proposed that ESMO could advocate for members in various areas, such as workloads at their organisations, by engaging with governments and participating in climate change discussions. Many respondents felt that appropriate working hours and workloads were not being implemented at their institutions and that guidance from ESMO would be beneficial. Additionally, they suggested that ESMO engage with governments on behalf of members to advocate for healthcare professionals' needs and provide expert-led information on COVID-19.

### ***Financial support***

This theme included suggestions such as decreasing or deferring membership fees, free event registration for training and the ESMO congress, research grants, free access to oncology journals, and fellowship funding. There were also specific suggestions to provide financial support to individuals from developing countries.



***Safety***

This theme included suggestions for ESMO to support members by donating PPE, providing evidence-based and timely updates on safety protocols, educating individuals on safety precautions such as wearing masks and vaccinations, and pushing for access to COVID-19 testing. Additionally, respondents suggested that ESMO provide updates regarding changes to the safety of oncology services in relation to COVID-19.

***Opportunities and career***

Although the smallest theme, suggestions for opportunities and career development were raised. It was suggested that ESMO create more opportunities for online networking, socialising, involvement in research and clinical trials, and activities for young oncologists. Additionally, respondents suggested postponing fellowships, assisting with the recruitment of oncologists, and providing virtual networking opportunities.

***“Pleasant physical working environment”***

Six additional inter-connected themes included reflections on influential factors related to their working environment and how to make it more “pleasant” (Figure 1).

***Physical working environment***

Respondents reported several changes to the physical environment of their workplaces that would contribute to a more pleasant working environment. They emphasised the importance of access to outdoor spaces and well-ventilated indoor areas with fresh air. Many respondents highlighted the significance of ample natural light, well-designed wall spaces, and artwork indoors, along with the ability to control temperature settings. Noise levels were also a concern, with many suggesting the need for designated quiet spaces for focused work and relaxation.

The most frequently suggested improvement for a pleasant working environment was having more space. Respondents expressed concerns about social distancing requirements and the need for adequate space to work efficiently, see patients, and relax during breaks. Many felt that current workplaces were overcrowded and noisy, which hindered their effectiveness.

Respondents also proposed several amenities they would find beneficial in their workplaces, such as designated areas for relaxation, rest, or even sleeping. These areas were envisioned as calm, clean, and quiet spaces, possibly offering access to refreshments like tea and coffee. Additionally, there was a desire for convenient access to healthy meal choices. Lastly, respondents highlighted the need for private areas where they could work independently, discuss sensitive topics with patients, or simply relax.

Lastly, access to suitable equipment and furniture was identified as crucial. Some respondents expressed dissatisfaction with their current IT systems, describing them as inadequate and lacking sufficient support. They emphasised the importance of reliable Wi-Fi, laptops, and teleconferencing software. Ergonomic furniture, including comfortable chairs and properly adjusted computer setups to prevent injury, was also suggested.

### ***Working conditions and job role***

Respondents highlighted factors in their work conditions and job roles that contribute to working environments being “pleasant”, including control over workload, adequate staffing, flexible working patterns, and sufficient breaks. Many face challenges such as staff shortages, longer hours, and high patient volumes, which contribute to stress and burnout. They emphasised the need for flexibility in work hours and location, such as blended home and workplace arrangements, to manage workloads

effectively and reduce overtime. Lastly, taking adequate breaks for refreshments, relief from PPE, and socialising with colleagues during the workday was emphasised as important.

### ***Safety***

Safety and access to hygienic spaces were major concerns for respondents. Many emphasised the importance of adequate access to personal protective equipment (PPE) for creating a safe working environment. They also stressed the need for sufficient space for social distancing, facilities for personal hygiene (such as hand washing stations), regular COVID-19 testing, and vaccinations for all healthcare professionals to maintain safety.

### ***Wellbeing and coping***

Respondents emphasised that measures to support health and wellbeing would help create pleasant working conditions. They suggested that psychological and emotional support, including access to counsellors and psychologists, mindfulness programmes, self-care strategies, and online support groups, would be beneficial. Physical wellbeing suggestions included time and space for exercise at work, and activities such as yoga, gym sessions, and aerobics classes were proposed. Respondents further stressed the importance of respecting individuals' time off and maintaining clear work-life boundaries to allow for uninterrupted leisure and family time.

### ***Working relations and support from others***

Developing positive relationships with colleagues, managers, and institutions was highlighted as crucial for creating pleasant working conditions. Respondents stressed the importance of having time and space to socialise with colleagues both inside and outside of work to debrief, discuss clinical matters, and share experiences. This was seen as essential for fostering teamwork, combating loneliness, and reducing stress. Additionally, support from managers and senior management in institutions was cited

as beneficial. Feeling supported, respected, and listened to by leadership contributed significantly to respondents' overall sense of support in their workplaces.

### ***Career and professional development***

Respondents highlighted several factors contributing to pleasant working conditions related to education, training, and professional development. They emphasised the importance of financial rewards such as better pay, as well as opportunities for education and training. A primary concern raised was the lack of time available for professional development activities.

## **DISCUSSION AND CONCLUSIONS**

This study represents the largest global qualitative analysis of oncology professionals' perceptions and needs during the COVID-19 pandemic. These findings present comprehensive recommendations for ESMO and policymakers at national and international levels, complementing quantitative data from member surveys through richer, in-depth insights into their findings [2-4]. It offers actionable recommendations for ESMO and policymakers to improve workplace conditions and enhance resilience in the oncology workforce. Addressing the identified needs—such as flexible work conditions, mental health support, and safety protocols—can help create more supportive and pleasant work environments for oncology professionals. Although some recommendations, particularly those at institutional or societal levels, pose challenges, they represent crucial areas for protecting and retaining aspects of oncology professionals' work post-pandemic and during future crises or high-pressure situations.

While limitations exist, such as potential selection bias, the study's credibility is strengthened by rigorous methodology and stakeholder engagement (see Table 2). Additionally, while the COVID-19 pandemic is hopefully a unique event, the findings may provide valuable insights applicable to other

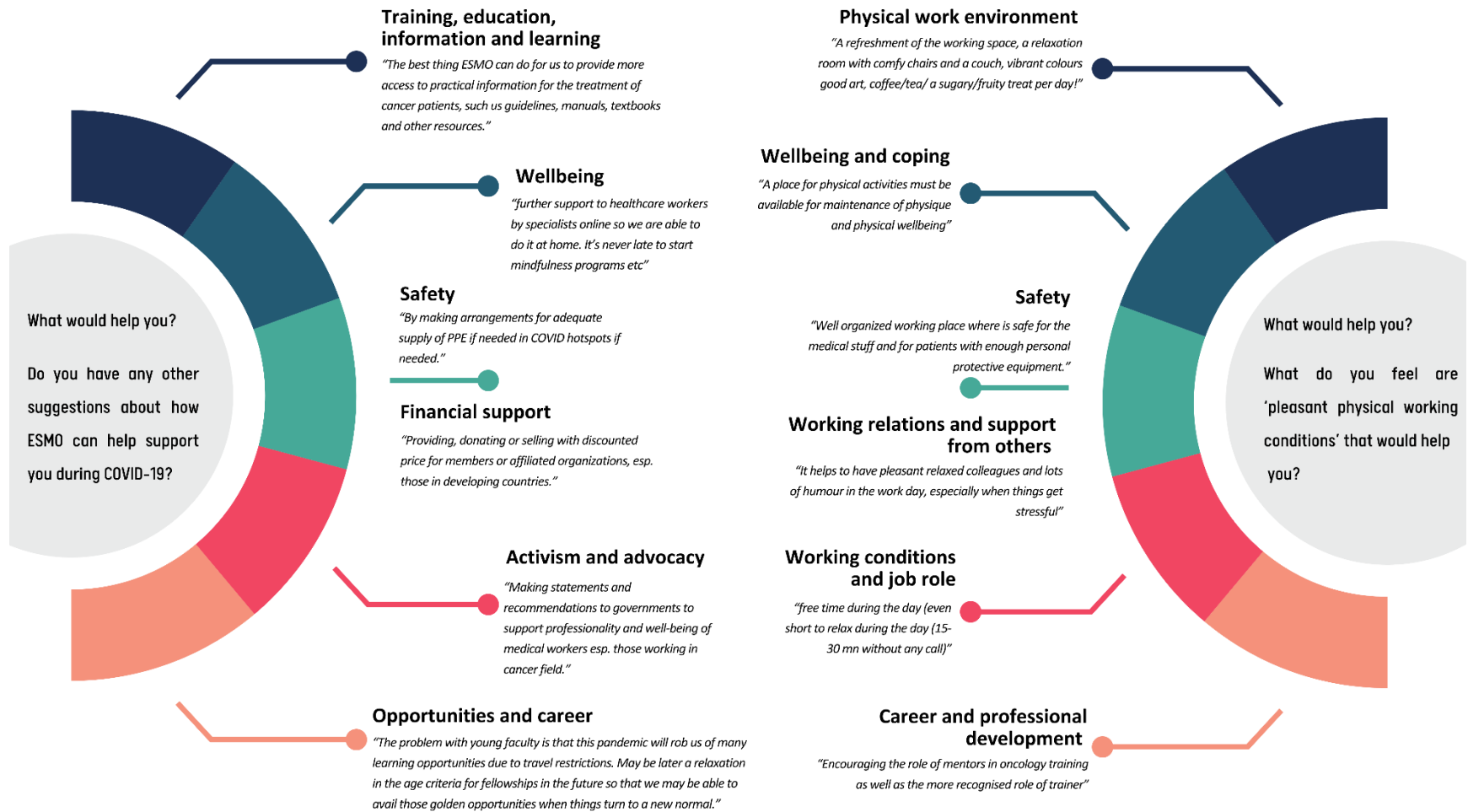
high-stress situations faced by oncology and related fields. The findings align with international standards for Occupational Health and Safety Management Systems (ISO 45001) [8]. Integrating our insights into policies will be crucial for ESMO and other stakeholders to protect oncology professionals from ongoing stressors and future crises, fostering resilience within the workforce [9]. Notably, the recommendations offered by respondents have already been incorporated into the ESMO Resilience Task Force's guidance for managing psychosocial risks, optimizing well-being, and reducing burnout in oncology. This paper outlines detailed suggestions for individual healthcare professionals, institutions, ESMO, and policymakers at national and societal levels [9].

**Table 1.** Demographics of respondents (n=989)

<b>Characteristic</b>	<b>Overall % (n)</b>
Age group in years (yrs)	21-25 yrs: 1.0% (n=9), 26-30 yrs: 5.0% (n=50), 31-35 yrs: 15.9% (n=155), 36-40 yrs: 17.4% (n=168), 41-45 yrs: 13.3% (n=132), 46-50 yrs: 12.7% (n=128), 51-55 yrs: 11.7% (n=117), 56-60 yrs: 11.7% (n=117), 61-65 yrs: 6.1% (n=61), 66-70 yrs: 3.1% (n=30), >70 yrs: 2.2% (n=22)
Gender/Sex	Female: 50.8% (n=502), Male: 49.0% (n=485), Other:0.2% (n=2)
Ethnicity	Arab: 3.2% (n=32), Asian: 26.4% (n=266), Black: 2.4% (n=24), Mixed: 2.0% (n=20), White: 57.1% (n=575), Other 3.2% (n=32), Prefer not to say: 0.8% (n=8)
Country of practice	Europe=48.7% (n=480), Outside Europe= 51.3% (n=506)
Trainee Status	No=84.0% (n=829), Yes=16.0% (n=160)
Experience of oncology practice	<5 years: 17.4% (n=154), 5-10 years: 19.1% (n=173), >10 years: 63.5% (n=548)
Specialty	Medical oncology: 81.9% (n=676), Clinical/Radiation oncology: 28.7% (n=237), Surgical oncology: 3.0% (n=25), Hemato-oncology: 11.3% (n=93), Palliative Care: 7.9% (n=65), Nursing: 1.3% (n=11), Laboratory-based: 4.6% (n=38), Other: 9.7% (n=80)
Primary place of work	Cancer Centre (cancer patients only): 38.2% (n=378), General Hospital (cancer patients and other specialties): 48.0% (n=475), Healthcare organisation: 1.4% (n=14), Pharmaceutical/biotechnology company: 2.2% (n=22), Private outpatient clinic: 4.7% (n=46), Other: 5.5% (n=54)

Note. %'s calculated on the number of respondents for the survey question; some categories allowed respondents to select multiple options and total % may therefore equal over 100 (e.g. Specialty).

**Figure 1.** Perception and recommendations for help and support oncology professionals and pleasant physical working conditions (themes and example quotes)



**Table 2.** Main strengths and limitations of the paper

<b>Strengths</b>	<b>Limitations</b>
<p><b>Comprehensive data collection:</b> The paper benefits from a substantial volume of qualitative data gathered from multiple waves of surveys conducted among ESMO members. This extensive dataset allows for a thorough exploration of oncologists' perceptions and recommendations regarding their wellbeing during the COVID-19 pandemic.</p>	<p><b>Sampling and response bias:</b> Potential biases may arise from the reliance on voluntary responses from ESMO members and non-members, which could skew findings towards individuals with specific perspectives or experiences within the oncology field.</p>
<p><b>Thorough thematic analysis:</b> The paper employs Braun and Clarke's six-step approach for thematic analysis, ensuring a systematic exploration of qualitative data. This methodological rigor enhances the credibility and robustness of the findings.</p>	<p><b>Contextual specificity:</b> Findings may be contextually bound to the experiences of oncology professionals within the ESMO network (majority) and the respective country they work in, limiting generalisability across diverse global healthcare settings or non-ESMO member populations.</p>
<p><b>Methodological transparency:</b> The paper demonstrates transparency in its methods, detailing the process of data collection, coding, and theme development. This transparency enhances the trustworthiness of the findings by allowing readers to evaluate the reliability and validity of the interpretations.</p>	<p><b>Temporal constraints:</b> The focus on data collected during specific waves of the COVID-19 pandemic (2020-2021) may restrict applicability to ongoing or future challenges faced by oncologists beyond the acute phases of the pandemic.</p>
<p><b>Researchers' reflexivity:</b> The inclusion of the team's reflexivity, as evidenced by the discussion of positionality and reflexivity in S1, acknowledges potential biases and enhances the interpretative credibility of the work.</p>	<p><b>Interpretative subjectivity:</b> Despite efforts to mitigate subjectivity through team discussions and consensus-building, interpretative biases among members could influence the identification and interpretation of thematic patterns.</p>



<p><b>Expertise and collaboration:</b> Led by experienced researchers in organisational health and wellbeing, the study benefits from interdisciplinary collaboration within the ESMO Resilience Task Force. This expertise contributes to nuanced insights and robust interpretation of findings.</p>	
<p><b>Original contribution:</b> The paper represents a novel and significant contribution to the field by providing the largest qualitative analysis to date of oncologists' perspectives during the COVID-19 pandemic. It offers insights into the multifaceted factors that impact on oncology professionals' wellbeing and identifies actionable recommendations for different key stakeholders.</p>	

## REFERENCES

1. Banerjee S, Califano R, Corral J, *et al.* Professional burnout in European young oncologists: Results of the European Society for Medical Oncology (ESMO) Young Oncologists Committee Burnout Survey. *Ann Oncol* 2017; 28(7): 1590-6.
2. Banerjee S, Lim KHJ, Murali K, *et al.* The impact of COVID-19 on oncology professionals: results of the ESMO Resilience Task Force survey collaboration. *ESMO Open*. 2021;6(2):100058.
3. Lim KHJ, Murali K, Kamposioras K, *et al.* The concerns of oncology professionals during the COVID-19 pandemic: results from the ESMO Resilience Task Force survey II. *ESMO Open*. 2021;6(4):100199.
4. Lim KHJ, Murali K, Thorne E, *et al.* The impact of COVID-19 on oncology professionals-one year on: lessons learned from the ESMO Resilience Task Force survey series. *ESMO Open*. 2022;7(1):100374.
5. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006 Jan 1;3(2):77-101.
6. Braun V, Clarke V, Hayfield N, Terry G. Answers to frequently asked questions about thematic analysis. Retrieved from <https://cdn.auckland.ac.nz/assets/psych/about/our-research/documents/Answers%20to%20frequently%20asked%20questions%20about%20thematic%20analysis%20April%202019.pdf>.
7. Byrne D. A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & quantity*. 2022 Jun;56(3):1391-412.
8. British Standards Institution. BS ISO 45001: 2018: Occupational Health and Safety Management Systems-Requirements with Guidance for Use. BSI Standards Limited; 2018.
9. Lim KHJ, Kamposioras K, Élez E, *et al.* ESMO Resilience Task Force recommendations to manage psychosocial risks, optimise well-being, and reduce burnout in oncology. *ESMO Open*. 2024;9(10):103634.

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