

Scientific Article

Moral Distress in Radiation Oncology: Insights From Residents in Germany

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Purpose: Being challenged by circumstances that force one to act in discordance with one's moral compass can lead to moral distress. The phenomenon has been widely investigated among nurses. This study was designed to shed some light on the situation of resident physicians in radiation oncology.

Methods and Materials: To gain insight into moral distress among residents in radiation oncology, a web-based questionnaire was developed and distributed throughout Germany. Participants were asked to evaluate possible burdensome situations and different options for relief. To outline the main issues of moral distress, an exploratory factor analysis was conducted. Relief options were examined by frequencies.

Results: The factor analysis yielded lack of time, contradiction between patient request and indication, nonmedical interests, and decisions between curative treatment and best supportive care as main issues for the 84 participants. Support from supervisors and senior physicians, as well as exchanges with resident colleagues were indicated as forms of relief. Professional support, such as ethics consultations, structured conversation groups (Balint), or psychological case supervisions, were rated as less helpful, although most participants reported a lack of experience with these.

Conclusions: The results are in accordance with existing assumptions that moral distress among physicians is mainly due to uncertainty. Regarding radiation oncology residents in particular, moral distress seems to be related to uncertainty in decisions and conflicts about treatment options. Although senior physicians and supervisors present important role models in dealing with moral distress, professional services such as ethics consultations offer an opportunity for relief that can still be expanded.

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Introduction

Moral distress is a psychological concept originally established by philosopher and psychologist Andrew

Jameton in 1984. Jameton described moral distress as the mental and physical reaction when “one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action.”¹ Since then, there has been an ongoing debate about moral distress and its precise definition, with some authors criticizing the initial definition as too narrow²⁻⁵ while others defend the original concept.^{6,7} In a broader context, Fourie described moral distress as “a psychological response to morally challenging situations such as those of moral constraint or moral conflict, or both”⁸ emphasizing that moral distress

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according to Jameton's definition is especially relevant for nurses but probably does not cover the situation of other health care professionals.⁸ She later expanded her definition to include situations of moral dilemma, conflicting moral principles, or uncertainty about the morally correct course of action, still without including physicians as an affected group.⁹ Other authors, too, have stressed Jameton's definition as unsuitable for physicians,^{10,11} because established measuring instruments have found significantly higher moral distress levels in nurses than in physicians.^{10,12-14} For example, in the intensive-care context, nurses seem to focus on constraints imposed by the hierarchical health care system, whereas physicians see moral dilemmas and conflicts as the main issues for moral distress.¹¹

So far, research on moral distress specifically among physicians has largely been conducted in intensive-care settings,^{12,13,15} assuming that professionals on these wards are confronted with morally challenging situations more often than elsewhere. Nevertheless, Hlubocky and colleagues listed unique characteristics and difficulties in oncological settings. For example, they named facing divergent values of patients, their relatives, and/or members of the medical team, which may lead to a demand for nonbeneficial treatment or a refusal of treatment that is probably curative.¹⁶ In a subsequent work, they stated, "Oncologists are at high risk for developing moral distress given their role in delivery of serious news and end-of-life decision making."¹⁷ Considering that especially in radiation oncology, there is a need to provide palliative care alongside potentially life-saving treatments, it should be assumed that radiation oncologists are prone to face moral distress, too.

The aim of this study was to gain initial insights in occurrence, relevance, and handling of moral distress among radiation oncologists in Germany. It was decided to start with residents, because a lower position in the hierarchical system or less decision-making authority seems to be associated with increased levels of moral distress, as shown not only for nurses but also for medical students.¹⁸

Established instruments for measuring moral distress were usually created for nurses or intensive-care staff, were not available in German at that time, and commonly used a specific definition of moral distress (which is still up for discussion, especially given the lively controversy about its suitability for physicians). Thus, it seemed most reasonable to develop a German questionnaire independent of a fixed definition of moral distress. An exploratory factor analysis of the responses was conducted to identify the main issues for residents in order to delineate the field of moral distress in radiation oncology.

Methods and Materials

Instrument development

The questionnaire was developed in a multistage process of expert interviews, using a variation of the Delphi technique. Typically, the Delphi technique consists of numerous iterations of anonymous interviews with the same experts to reach a consensus on complex issues.¹⁹ In this study, initially, 5 residents from various radiation oncology departments answered open questions about job-associated moral conflicts or problems, types of distress, and their opinions concerning relief. Examples of topics they mentioned were lack of space for conversations about therapy limitations or end-of-life care, decisions between continuation of therapy and best supportive care, conflict between the patient's wishes and the physician's indication, time pressure due to high documentation effort, increasing influence of economic pressure, or psychologically stressful individual fates (eg, young patients with systemic progressive disease).

In the second phase, items were constructed from issues mentioned by at least 3 participants and verbalized as statements about the regular occurrence of a situation, its moral relevance, and its perceived burden. Agreement with these was rated on a 5-point Likert scale, from 1 ("I don't agree at all") to 5 ("I totally agree"). Additional items describing conditions or actions providing relief were rated on the same scale, supplemented by an indication of the frequency of use ("I use this opportunity regularly," "I use this opportunity rarely," "I have no experience with this opportunity," or "I don't want to make specifications"). The third phase involved discussion and revision of the items by an interdisciplinary focus group (consisting of the first, second, and last authors), anonymous evaluation by radiation oncology residents on site, and finally, further revision. The final version of the questionnaire contained 34 items, 9 of them about stress relief, as well as 4 sociodemographic questions.

Survey design

The web-based questionnaire, using "SoSciSurvey,"²⁰ was distributed between May 20, 2020, and November 20, 2020, by requesting chief physicians of radiation oncology departments throughout Germany via email to forward the link to residents in their institutions. After participants were informed about their data protection rights and assured of anonymity, informed consent was given by ticking a box labeled "I agree." The participating residents were asked to indicate their opinion on situations with moral distress and on different options for relief. This way, given the ongoing discussion, it was possible not to commit to one particular definition. Because the survey

period was in the middle of the COVID-19 pandemic and influences of correspondingly changed working conditions in the daily routine of physicians could not be assessed, participants were asked to respond primarily by recalling the time before the pandemic and were given the opportunity to provide information on their current situation in 3 additional items.

The study was approved by the ethics committee of the Christian-Albrechts-Universität zu Kiel (application number: D 428/20).

Statistical analysis

Statistical analyses were conducted with SPSS for Windows, version 21 (IBM, 2012) in conjunction with R-Factor²¹ and R.²² The previously written R packages psych,²³ polycor,²⁴ ICS,²⁵ NFactor,²⁶ GPArotation,²⁷ and R.utils²⁸ were used for this purpose. To investigate different aspects of moral distress, an exploratory factor analysis (principal axes factoring) based on polychoric correlations was performed on the 21 items concerning moral distress. Initial communalities were estimated through multiple correlations, using preset options in R-Factor.²¹

The data set contained substantial correlations with a Kaiser-Meyer-Olkin criterion (KMO = .616) that can be classified as “mediocre,”²⁹ and the measure of sample adequacy also met standards almost thoroughly (17 of 21 items met the requirement of measure of sample adequacy $\geq .50$; only 1 item failed to meet the absolute minimum requirement of $\geq .40$ according to Basto and Pereira³⁰). Combined with the Bartlett, Jennrich, and Steiger tests, all indicating a significant ($P \leq .001$) difference between the correlation matrix and the identity matrix, the items appeared suitable for an exploratory factor analysis.

After an initial varimax rotation, an oblique promax rotation with ($\kappa = 4$) was performed to allow for inter-related factors. Only important items, which met a significance criterion of $CV = \frac{5152}{\sqrt{(N-2)}}$ by Norman and Streiner,²⁹ were used when naming the factors. To estimate reliability, the internal consistency, namely the ordinal coefficient α (a version of Cronbach’s α for ordinal data),³⁰ was calculated for each factor. According to recommendations from literature, α values of $\geq .70$ for each factor should be achieved for an acceptable factor solution.³¹

For insights into the extent of moral distress and benefit of relief options, absolute and relative frequencies of participants’ agreement and medians, modes, and inter-quartile ranges were calculated.

Results

Informed consent was given by 113 participants in total. Of these, 29 records were excluded from the analysis

because the questionnaire had not been completed sufficiently (11 participants dropped out immediately after giving informed consent). With the remaining sample of 84, a subject-to-variable ratio of 4 was achieved.

Most respondents were between 25 and 35 years old (63 [75%]) and mainly worked about 40 to 50 hours per week (61 [72.6%]). The majority worked at university hospitals (58 [69%]). The distribution of years of training in radiation oncology along with further detailed information can be found in [Table 1](#).

Aspects of moral distress—Exploratory factor analysis

Principal axis factoring revealed 4 factors according to parallel analysis, comparison data, and optimal coordinate (deviating proposals according to Velicer’s minimum average partial [retain 2 factors], acceleration factor [retain 1 factor], and the Kaiser criterion [retain 6 factors] were disregarded). The 4 factors explained 84.68% of the variance ([Table 2](#) shows variance explained by individual factors). Because the first factor comprised 2 significant items (according to the significance criterion by Norman and Streiner²⁹) on lack of time in patient care, it was labeled “lack of time” ($\alpha = .773$). The second factor was built of 4 significant items describing situations with patients who reject curative treatment despite medical indication, with patients who demand curative treatment although there is no medical indication, and with the treatment of terminally ill patients. Therefore, the factor was given the name “contradiction between patient request and indication” ($\alpha = .811$). The third factor was termed “nonmedical interests” because its 4 significant items addressed decisive motives other than the patient’s best interests or economic interests of the hospital ($\alpha = .812$). The 2 significant items of the fourth factor dealt with continuation of curative treatment and delayed decision for best supportive care and with the decision between continuation and limitation of treatment, so it was called “decision between curative treatment and best supportive care” ($\alpha = .732$). Detailed information on factor loadings, eigenvalues, variance explained, and ordinal coefficient α , as well as the median of the responses, can be found in [Table 2](#).

Dealing with moral distress—Relief options

The ratings of the relief options and the indicated frequencies of use are shown in [Fig. 1](#). The participants stated they had the greatest relief by knowing their supervisors were on their side. This was followed by professional support from senior physicians, as well as their support in decision-making situations and case discussions with resident colleagues. These 4 options were indicated to be used regularly by most respondents (41 [48.8%], 53 [63.1%], 52 [61.9%], and 48 [57.1%], respectively). Whereas reducing burdens with the help of

Table 1 Sample characteristics

Variable	No. (%) (N = 84)
Age, y	
20-25	-
26-30	20 (23.8)
31-35	43 (51.2)*
36-40	15 (17.9)
41-45	2 (2.4)
46-50	2 (2.4)
>50	2 (2.4)
Year of training in radiation oncology	
First	9 (10.7)
Second	13 (15.5)
Third	16 (19)
Fourth	13 (15.5)*
Fifth	13 (15.5)
More than five	19 (22.6)
"I don't want to make specifications"	1 (1.2)
Time worked per week, h	
<20	-
~20	2 (2.4)
~25	1 (1.2)
~30	5 (6)
~35	3 (3.6)
~37.5	2 (2.4)
~40	33 (39.3)*
~50	28 (33.3)
~60	6 (7.1)
>60	3 (3.6)
"I don't want to make specifications"	1 (1.2)
Hospital provider	
University hospital	58 (69)*
Public hospital	8 (9.5)
Private hospital	4 (4.8)
Outpatient medical center or doctor's office	12 (14.3)
None of these options	1 (1.2)
"I don't want to make specifications"	1 (1.2)
Respondent worked in a different specialization	
Yes	32 (38.1)
No	52 (61.9)
If respondent had worked in a different specialization, were the	

(continued on next page)

Table 1 (Continued)

Variable	No. (%) (N = 84)
situations of the questionnaire experienced similarly?	
Yes	7 (8.3)
No—less distressing	8 (9.5)
No—more distressing	15 (17.9)
Respondent was never in comparable situations	2 (2.4)

* Median value for the variable.

medical and interdisciplinary colleagues was rated as the next most helpful, there was no clear trend in frequency of use (36 participants [42.9%] stated, "I use this opportunity regularly," and 34 [40.5%] stated, "I use this opportunity rarely"). Moreover, participants declared that experts (eg, psychologists, people from an ethics committee, or palliative care physicians) as well as ethics consultation would be helpful in morally challenging situations but simultaneously clarified that most of them had no experience with these services (40 [47.6%] and 57 [67.9%], respectively). Finally, Balint groups and psychological case supervisions were rated as not very helpful for stress relief, although even more respondents answered that they did not have any experience with these (69 [82.1%] and 78 [92.9%], respectively).

Discussion

This questionnaire-based study aimed to gain insights in moral distress among residents in radiation oncology in Germany. The exploratory factor analysis carried out for this purpose resulted in 4 factors:

1. Lack of time (eg, too high a workload, which means that conversations with seriously ill patients cannot be held in sufficient detail and necessary information is not obtained).
2. Contradiction between patient request and indication (eg, a patient with a metastatic colon carcinoma has unrealistic goals and refuses systemic therapy but asks for radiation therapy, although the tumor has spread widely and itself is not radiosensitive).
3. Nonmedical interests (eg, a patient is treated with chemotherapy without medical indication to justify hospitalization).
4. Decision between curative treatment and best supportive care (eg, a patient experiences immense adverse effects from radiation therapy, and some team members would recommend to stop it and provide best supportive care whereas others still see a relevant chance of recovery).

Table 2 Exploratory factor analysis

Median (IQR)	Item	Factor loading			
		F1	F2	F3	F4
Factor 1: Lack of time					
2 (2)	Time pressure in my work as an assistant physician often prevents me from acting medically according to my own moral standards.	.949* [†]	-.032	-.065	-.188
3 (2)	In my daily routine in patient care, I experience considerable time pressure.	.712* [†]	.167	-.256	-.004
3 (1)	Economic interests of my hospital play a major role in my medical decisions.	.567*	-.303	.328	-.195
4* (2)	When time pressure in my work prevents me from acting medically according to my own moral requirements, I feel very burdened.	.451*	.087	-.075	.223
3 (2)	I find situations where patients disagree with their relatives about their chosen treatment option morally difficult.	.377*	.179	.071	.024
2 (2)	I feel burdened for moral reasons by situations where patients disagree with their relatives about their chosen treatment option.	.315*	.200	.303	.138
Factor 2: Contradiction between patient request and indication					
2 (2)	A patient's wish to forego a possibly curative therapy and decide for best supportive care poses a moral problem for me in everyday life.	-.080	.896* [†]	-.122	-.184
2 (1)	To me, it is very stressful when I find myself in a moral conflict because my patient wants to forego therapy but I consider a potentially curative treatment to be indicated.	-.009	.846* [†]	-.225	.075
4* (2)	To me, it is very burdensome when patients demand curative treatment despite lacking a medical indication.	.166	.644* [†]	.001	.047
2 (2)	I find it hard to bear when no more curative treatment is possible for a patient and palliative treatment is started.	-.038	.618* [†]	.164	-.286
4* (3)	I see myself in a moral conflict when patients demand curative treatment but I see no medical indication for it.	.240	.445*	.095	.110
Factor 3: Nonmedical interests					
2 (1)	In my impression, motives other than the patient's best interests are decisive in decisions between palliative and curative treatment.	-.135	-.172	.982* [†]	.025
2 (1.75)	I feel burdened by the fact that decisions between palliative and curative treatment are often made for reasons other than the patient's best interests.	-.005	.016	.868* [†]	.037
2 (2)	The economic interests of my hospital often prevent me from acting medically according to my own moral standards.	.505	-.276	.726* [†]	-.036
2 (1)	I feel burdened by the fact that the economic interests of my hospital prevent me from doing medical work that corresponds to my own moral standards.	.020	.101	.615* [†]	.120
2 (1)	My patients often disagree with their relatives about the most suitable treatment option for themselves.	-.171	.185	.435*	.064
2 (1)	As a resident, I regularly see patients who reject any treatment, even though a promising curative approach could be taken in their case.	-.233	.239	.311*	-.147

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Table 2 (Continued)

Median (IQR)	Item	Factor loading			
		F1	F2	F3	F4
Factor 4: Decision between curative treatment and best supportive care					
3.5* (2)	Adherence to the curative treatment by senior colleagues and the belated decision, from my point of view, for best supportive care leads to a moral conflict for me.	-.140	-.171	.080	.908**†
4* (1.75)	I often face decisions between continuing vs limiting a treatment in favor of palliative care.	-.207	.024	-.146	.742**†
3 (2)	Part of my daily routine in radiation oncology is that patients wish to continue their treatment although this is not indicated from my medical point of view.	.100	.024	-.146	.483*
3 (2)	For moral reasons, I feel burdened by adherence to curative treatment with the renunciation of best supportive care.	.220	.083	.262	.396*
Eigenvalue		4.823	4.147	4.885	3.927
Variance explained (after rotation), %		22.97	19.75	23.26	18.7
Cumulative variance explained, %		22.97	42.72	65.98	84.68
Ordinal coefficient α		.773	.811	.812	.732

* Factor loadings belonging to each factor and median values >3 (indicating agreement with the statement).

† Significant factor loadings ($P = .001$), according to CV.²³

The factors “lack of time” and “nonmedical interests” have already been described as relevant among nurses.³²⁻³⁴ As for lack of time, this consensus is in line with the widespread phenomenon of lack of time in health care. It can be assumed that this problem affects physicians and nurses alike. However, nonmedical interests seem somewhat different. In the aforementioned studies, nurses

indicated that they experience moral distress due to instructions or decisions they themselves do not support but still have to carry out. In contrast, physicians often have to make quick decisions and balance conflicting interests. These may be, for example, medical versus economic interests. However, the rather low level of agreement with the corresponding statements in this questionnaire

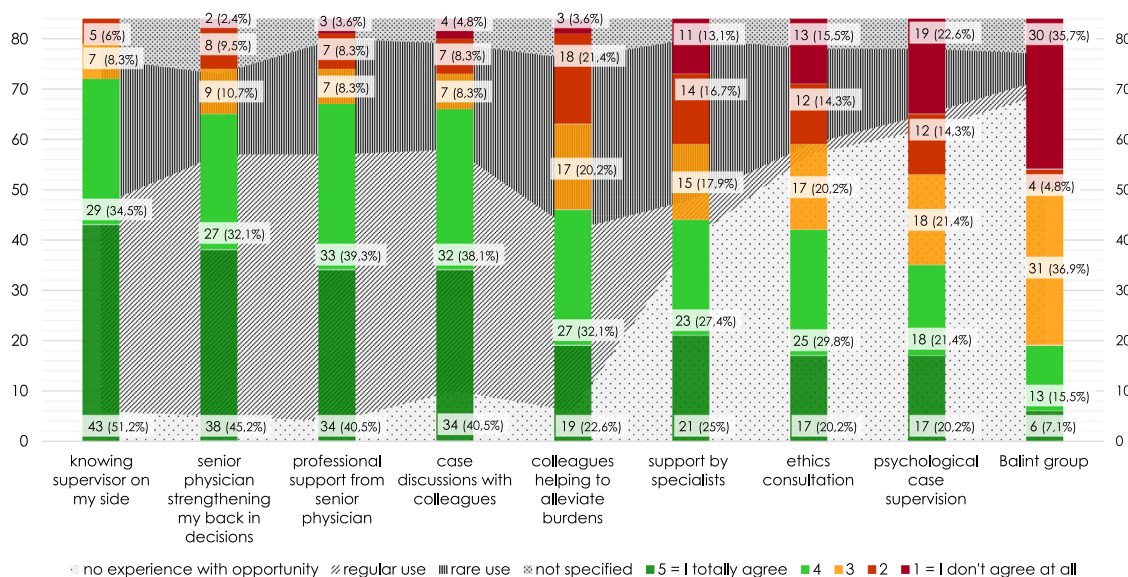


Figure 1 Assessment and use of relief options. Participants’ agreement to statements about relieving situations or actions on a 5-point Likert scale are shown as colored columns, together with the frequency of use indicated in each case as a patterned area (n = 84).

indicates economic considerations were no major source of moral distress in the studied group, presumably because economic issues usually do not have to be considered first by residents in Germany. The other 2 factors, “contradiction between patient request and indication” and “decisions between curative treatment and best supportive care,” encompass common decision-making situations for radiation oncologists that occur right from the start of their career. Unlike situations leading to moral distress in nurses, these situations are not characterized by clear barriers or constraints that prevent taking the right path. Rather, uncertainty about the right course of action is prevalent. This insecurity relates to both the medical and moral assessment, reflecting the difficulty of many medical decisions, namely the numerous dimensions that need to be considered. Consistent with these results, other studies on moral distress among oncologists also identified decision-making under uncertainty as a main cause of moral distress for physicians.^{35,36} The findings here also support the suggestion by Prentice and colleagues that “nurses express a ‘voicelessness’ and ‘powerlessness’ within the constraints of the medical hierarchy [whereas physicians’][. . .] moral distress is described in terms of dilemmas or ethical confrontations.”¹¹

The second objective of this study was to explore the residents’ handling of moral distress. In nursing, it has been an accepted objective to examine the extent, sources, and (primarily negative) consequences of moral distress to discover ways to alleviate and thereby improve and eventually optimize working conditions, personal well-being, and most notably, patient care. In contrast, this approach seems unlikely to change the detected causes of moral distress for physicians.

It has even been suggested that moral distress, especially due to being confronted with difficult medical decisions, may well be an appropriate response.^{5,11,37} It was stated that moral questions, and thereby moral distress, are to some extent unavoidable when facing decisions about ceasing life-sustaining therapies.⁵ Moreover, as some authors have mentioned, considering the complexity of clinical situations together with the uncertainty of outcomes in patient care, moral distress could simply be seen as an expression of the ambiguity in medical decisions.¹¹ Still others regard some constraints, such as economic or distributional considerations, as inherent to health care and hence consider moral distress as an associated part of medical work.³⁷ Furthermore, moral distress resulting from difficult moral conflicts or dilemmas is seen as inappropriate but unlikely to be eliminated by changing the external conditions.³⁷

In this study, participants stated they perceived supervisors and colleagues as particularly relieving. This high estimation of supervisors and senior physicians highlights their importance as role models. In addition to their medical expertise, they could set an example of handling difficult decisions or moral dilemmas, exemplify good moral

distress management, and reduce the burden for residents in challenging situations. Unlike other options rated as helpful, participants reported they would use these options regularly, also indicating them as easily accessible. Contrarily, most participants stated they did not have any experience with professional services such as ethics consultation, psychological case supervisions, or structured conversation groups (“Balint groups”).³⁸ Maybe there is no easy access to these; Balint groups, for example, are not short-term solutions, because one needs to be placed into a group and attend several meetings before being able to report on one’s own difficulties or problematic cases. Moreover, meetings usually do not take place often enough to facilitate quick relief. It therefore remains questionable whether professional services could serve as an additional tool to reduce or prevent moral distress even if used more often. Another conceivable option could be regular rounds with psycho-oncologists on the wards, which could enable better accessibility of interventions in case of moral distress among residents.

Clinical implications

As the reported results show, residents in radiation oncology are repeatedly confronted with morally challenging situations, such as contradictions between appropriate therapeutic procedures and patient wishes, and they feel burdened by them. To ensure good clinical practice, responsible handling of such situations should be an essential part of medical knowledge, in addition to professional competence. This includes not only dealing with one’s own moral distress but also having open communication with patients at eye level—for example, with the help of shared-decision-making.

Study limitations

Major shortcomings of this study are the indeterminate validity of the questionnaire, the minimal estimation of reliability, and the clearly limited generalizability of the sample. Because only first insights into the situation of residents in radiation oncology were intended, no further reliability estimates or validation steps were undertaken. Therefore, the questionnaire cannot be considered a measuring instrument for moral distress. The results refer exclusively to the studied group of radiation oncology residents in Germany, and no extrapolations can be made to other specialties, training levels, or countries. Further research is necessary to reveal whether leading physicians experience comparable moral distress. Moreover, it remains to be seen whether another definition of moral distress more fitting for physicians is necessary as a result of different measuring instruments. For example, a need for various questionnaire items for different disciplines and hierarchical levels should be created.

Conclusion

The results confirm existing assumptions that moral distress among physicians is mainly due to uncertainty. For radiation oncology residents in particular, moral distress seems to be related to uncertainty in decisions and conflicts about treatment options. Senior physicians and supervisors present important role models for dealing with moral distress, whereas professional services such as ethics consultations offer an opportunity for relief that can still be expanded. Overall, according to our results, it seems desirable to put more emphasis on teaching communicative skills, medical ethical viewpoints, and discharge options to medical students³⁹ as well as during training of young physicians in radiation oncology.

Disclosures

The authors hereby declare, that none of them has any competing financial or nonfinancial interests or personal relationships that could have influenced the work.

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