



Sexual health in women and sexual-gender-minority patients with cancer: A nationwide survey on healthcare professional awareness and attitude on behalf of MITO and AIRO-gynecology group

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ABSTRACT

Background: Compared to male patients, sexual health remains poorly studied in women and sexual gender minority (SGM) patients with cancers.

Material and methods: An online survey was developed by a multidisciplinary team to assess the awareness and attitude of Italian oncological providers facing sexual health during or after cancer treatment. On behalf of the respective scientific committees, the questionnaire was sent to Multicenter Italian Trials in Ovarian cancer and gynecologic malignancies group (MITO) and to Italian Association of Radiation Oncology (AIRO) Group. Four dedicated sections analyzed participants' demographic data, clinical context, communication and assessment practices, possible barriers, and treatment approaches.

Results: A total of 184 clinicians responded to the survey for an overall response rate of 20.8 %. Patient's gender identity and sexual orientation were not routinely assessed, and several barriers were recorded. There was a high attitude to talk about the iatrogenic potential of sexual dysfunction with patients, even if up to 39.7 % of the respondents declared average/extreme difficulty in facing this issue. Radiation and medical oncologists more frequently refer patients to dedicated specialists to manage iatrogenic sexual dysfunctions.

Conclusions: Sexual health is a key component of comprehensive care for female and SGM patients during their oncological journey. Despite the high attitude to talk about iatrogenic sexual dysfunctions in Italian providers, the present study highlighted the need for specific training and guidelines on sex-related health issues encountered by women and SGM patients.

Policy summary: Despite the recognized need for specialized care, there remain significant gap and barriers in knowledge regarding sexual health management in women and SGM patients. Our study highlights the urgent need to enhance healthcare provider training, equipping them with the necessary tools to recognize, discuss, and treat this type of toxicity, which has a significant impact on the social well-being and quality of life of long-term survivors.

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1. Introduction

Sexual health is a key component of the overall health of people, including cancer survivors. Studies have reported varying prevalence rates of sexual dysfunction in gynaecological cancer survivors, ranging from 30 % to 60 % or higher, depending on the specific cancer type and the measures used to assess sexual function [1]. Sexual dysfunctions can lead to decreased quality of life, deterioration of familiar and social functioning and significant short and long-term morbidity, with an overall dissatisfaction with post-treatment life [2]. Moreover, iatrogenic sexual toxicities associated with depression and social isolation are common among LGBTQIA+ (lesbian, gay, bisexual, transgender, queer/questioning, intersex, asexual) communities, also referred to as sexual gender minority (SGM) [3]. Despite it being widely recognized that cancer diagnosis and treatment can impair women's and SGM sexuality, the ability of Health Care Providers (HCPs) to care for patients with sexual health issues is often inadequate. In the gynaecological field, less than 30 % of women treated for cervical or ovarian cancer received adequate information with regard to sexual function before surgical, medical or radiation treatment [4–6] and the situation is not different for other oncological settings such as breast, head and neck or gastrointestinal diseases [1]. Frequently mentioned obstacles encompass concerns about lack of specific training, causing distress to patients, the perception that addressing sexuality is not within the HCP's responsibility, insufficient time, the belief that discussing sexuality is not crucial during the initial oncology visit, and the expectation that patients themselves will bring up these issues if they are concerned.

That being so, we conducted a comprehensive nationwide study on behalf of *Multicenter Italian Trials in Ovarian cancer and gynecologic malignancies group* (MITO) and Gynecology Study Group of the *Italian Association of Radiation Oncology* (AIRO)- to delineate the awareness of Italian medical oncologists (Mos), gynaecologists (GOs), and radiation oncologists (ROs) of iatrogenic sexual dysfunctions (also known as sexual toxicities) in the oncologic individuals who are defined as *female at birth*. Furthermore, this study also examined clinicians' attitudes—specifically their willingness and approach- regarding these health-related issues. Understanding both awareness and attitudes can help identify barriers to care, pinpoint areas for enhancing patient engagement, and inform customized interventions aimed at improving health outcomes.

2. Material and methods

2.1. Design and setting

Through a population-based online questionnaire, this study gathered information regarding the attitude and awareness of Italian oncological HCPs toward the sexual health of women and SGMs. The questionnaire was an open survey written in English adhering to the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) [7].

Starting from a review of the literature, the principal investigators (AB and CC) designed the first draft of the questionnaire. The first draft was submitted, examined and checked by two experts in the field of medical oncology (LDL) and gynecology/sexual health (REN). LDL, EO, and REN participated in the online survey as a pilot test to identify potential errors and assess user-friendliness. AB and CC collected feedback from the pilot test, reviewed comments, and implemented adjustments to enhance clarity, relevance, and the overall structure of the questionnaire. The revised version was then re-administered to the panel of three experts (EO, LDL and REN) to reach a consensus. Following this phase, the questionnaire was submitted to the MITO (a collaborative research organization focused on gynecological oncology) Directorship and the AIRO Scientific Committees for broader validation, ensuring that the questions accurately reflected the intended constructs, and for authorization. Considering the endpoints of the study and the participants, the approval of the Institutional Review Board (IRB) was not

needed. MITO group and the gynecological research group of AIRO endorsed the survey. The approved version of the survey ([Supplement 1](#)) remained available from August 2023 to December 2023 through the Google Forms platform.

AIRO and MITO Secretaries sent through the official newsletter to each of the AIRO and MITO members the survey link (two reminders) to complete the inquiry. On the MITO website, the link remained available for MITO centres until the end of the survey. For the AIRO members, we required that the form be filled out by the radiation oncologists specialized in gynecological treatments. The participants were not pre-selected and the newsletters described the objective and rationale of the study as well as the possibility to disseminate the results. It was requested that each participant should respond to the questionnaire only once.

The investigator centers were not given any incentives to submit results and participation was entirely voluntary. Both of the answers, as well as the identity of the investigators, were kept confidential. Before the responses were submitted, the platform verified that the questionnaire was entirely complete.

2.2. Survey structure

The structure of the questionnaire consists of 13 items including general questions, to collect the data of the responding physicians, and specific 5As (Ask, Advice, Assess, Assist and Arrange) items, an evidence-based communication model which is extremely valuable in counselling patients [8–10].

Overall, questions were set up in four parts:

- i) General data of the participating physicians (6 questions) investigated the participants' features: gender, age, years of practice as a specialist, medical speciality, geographic location, type of hospital;
- ii) Communication Practice and Barriers - "Ask Part"- (3 questions) aimed at understanding the ease and the possible obstacles to talking with the patients about gender identity, sexual orientation, and sexual dysfunction.
- iii) Assessment Practice - "Assess Part"- (sub-questions within the "ask part" + 3 dedicated questions) focused on the circumstances under which the physician addresses these issues, the ease of doing so, and the potential involvement of the partner.
- iv) Education and Providers- "Advise-Assist and Arrange Part" (1 question): concerned with the perceived willingness to refer patients to specific care and suggestions to improve the management of sexual health care.

2.3. Statistical analysis

Returned questionnaires were collected centrally at the National Center of Oncological Hadrontherapy. After the survey's closure they were downloaded, then anonymized into an electronic database and stored. The data processing occurred in January 2024. Counts and percentages were used to describe the distribution of responses with respect to the variable characterizing the participating physician (part i), while statistically significant differences were explored through the Chi-squared or Fisher test, as appropriate. A stepwise (based on Akaike Information Criteria) multivariable logistic regression was employed to evaluate the variables' relationship with each query (part ii–iv). Odds ratio (OR) and 95 % confidence Interval (95 %CI) were provided for variables in the final multivariable model. The significance level was set to 0.05, and all the statistical analyses were carried out using R version 4.0.1.

3. Results

One hundred and eighty-four questionnaires were completed and

returned. The overall response rate was 20.83 %. The median time for full-filling the questionnaire was 8 min.

3.1. General data of the participating physicians

The sample comprised 63 (34.2 %) MOs, 60 (32.6 %) GOs, 55 (29.9 %) ROs and 6 (3.3 %) other professionals (N = 2 surgical oncologists; N = 1 psychiatrist; N = 1 specialist in palliative care; N = 1 urologist and N = 1 neurologist). The 69 % of respondents were women (127/184). Among the participants, most 53.3 % (N = 98) were under 40 at the time of the survey, came from specialized cancer centres (35.9 %, N = 66) and were distributed throughout the country, with a predominance in the northern region (77.7 %, N = 143). These data are summarized in [Table 1](#).

3.2. Communication practices and barriers

Among the respondents, 58.7 % (N = 108) inquired about the patient's gender identity; physicians with over 10 years of experience found this question easier to address than their less experienced counterparts (at multivariable $p = 0.019$). The 68.5 % (N = 126) of the participants declared not assessing the patient's sexual orientation; a higher attitude was reported among GOs with respect to MO and RO ($p < 0.001$ and $p = 0.030$), clinicians trained for > 20 years (> 50 years old $p = 0.001$) and, consistently, with more than 10 years of practice although reported only at univariable analysis ($p = 0.014$). Prevalent barriers reported by those not assess these issues concern the idea that it is not important to inquire in the oncological consultation such dimension (48.7 % N = 37 for gender identity and 61.9 %, N = 78 for sexual orientation), the lack of personal awareness and preparation (27.6 % for N = 21 and 8.7 % for N = 11, respectively) and the personal embarrassment to bring up the subject (18.4 % for N = 14 and 15.9 % for N = 20, respectively).

There was a high willingness to discuss the potential iatrogenic sexual dysfunction with their patients, reported by 92.4 % of respondents. The remaining physicians listed both patient and medical factors related to barriers to dealing with such issues ([Supplemental Fig. 1](#)). Some physicians (28.6 %; N = 4) regarded sexual toxicity as less

significant than the other factors and therefore chose not to evaluate it. Data are synthesized in [Table 2](#).

3.3. Assessment practices

Among the 63.5 % (N = 108) of participants who included the partner during the counselling about sexual health, the ROs (75.5 %) and the GOs (66.7 %) used routinely to involve him/her compared to the MOs (49.1 %; $p = 0.059$). There was a difference among specialists concerning the time to face this issue. Indeed, ROs had an attitude to counsel before the treatment (94.34 %), whereas GOs and MOs after or if requested (43.86 % and 31.58 %, respectively). At the question "How easy is it for you to actively ask about sexual health issues and problems?", up to 39.7 % (N = 73) of the respondents declared average or extreme difficulty, with less attitude declared by the respondents in Northern Italy. Also, the communication easiness seemed to be related to the specializations both at univariable ($p < 0.001$) and multivariable analysis, with the MOs ($p < 0.001$, 63.49 %; OR = 5.57, 95 %CI = 2.54–12.80) showing less inclination compared to ROs (27.27 %) and GOs (28.33 %).

[Table 3](#) summarises these results.

3.4. Education and providers

Only the 12 % of respondents (N = 22) did not refer to experts in other disciplines the patient with iatrogenic sexual problems ([Table 4](#)). The ROs (98.2 %) had the highest attitude to send patients to dedicated specialists ($p = 0.014$) with respect to GOs (80 %) and MOs (85.7 %). [Supplemental Fig. 2](#) summarises the sexual health care offered to patients according to the specialty of the HCP, with most topical lubricating treatments proposed by ROs and MOs, and more hormonal (topical or systemic replacement) therapies and laser approaches by the GOs.

With regards to the possible solution to improve women's sexual toxicity care management in an oncological setting, the education of professionals (67.9 %) and residents (31 %) appeared of pivotal importance. The inclusion of the topic of sexual health into the multidisciplinary tumour board discussion was reported as a solution both in terms of considering an item to deal with during the discussion (40.2 %) and as a way to easily refer to the dedicated specialists the patients with these problems (56.5 %). To meet the gap, actively engaging patients could be a viable solution. This involves increasing their awareness (56 %), providing educational materials (54.9 %), and including patient's association (23.4 %) ([Fig. 1](#)).

4. Discussion

The present study takes a snapshot of the attitudes and awareness of Italian healthcare professionals who specialize in female cancers regarding sexual health. It specifically explores the limitations in communication with patients and the readiness to investigate aspects related to sexual orientation and gender.

There was a well-balanced stratification of specializations of the professionals that answered the survey (34.2 % MOs, 32.6 % GOs and 29.9 % ROs), with a predominance of female physicians (69 %) and a majority of participants from the northern region centers. Although most respondents (58.7 %) seemed to have comfort in assessing the patient's gender identity, less than half of respondents (31.5 %) expressed confidence in discussing sexual orientations. It should be underlined that several pieces of evidence have shown that SGMs experience inequality in cancer care, treatment, follow-up and outcomes also due to a lack of awareness and attitude of healthcare providers [11]. Prior stigmatizing experiences during access to care lead to stress and medical scepticism in the SGM community and for these reasons they experience high rates of postponing or avoiding the treatments [12–14]. Examining sexual orientation and gender identities (SOGI) is crucial to

Table 1

Demographic characteristics and clinical variables of the health care providers.

	N (%)
Physician gender	
Female	127 (69.02)
Male	57 (30.98)
Physician age [years]	
< 40	98 (53.26)
40–50	46 (25)
> 50	40 (21.74)
Physician Specialty	
Gynecology	60 (32.61)
Medical Oncology	63 (34.24)
Radiation Oncology	55 (29.89)
Miscellaneous	6 (3.26)
Years of practice as a specialist	
< 5	67 (36.41)
5–10	46 (25)
> 10	71 (38.59)
Region of practice	
Northern Italy	143 (77.72)
Central Italy	15 (8.15)
Southern & Islands Italy	26 (14.13)
Practice environment	
Academic general hospital	50 (27.17)
Non-academic general hospital	53 (28.8)
Specialized cancer center	66 (35.87)
Miscellaneous	15 (8.15)

N = Number.

Table 2
Communication practices.

	Do you investigate the gender identity of your patients?					Do you investigate the sexual orientation of your patients?					Do you talk about potential iatrogenic sexual dysfunction?				
	Answers		Univariable	Multivariable		Answers		Univariable	Multivariable		Answers		Univariable	Multivariable	
	No [N(%)]	Yes [N(%)]	p-value	p-value	OR (95 %CI)	No [N(%)]	Yes [N(%)]	p-value	p-value	OR (95 %CI)	No [N(%)]	Yes [N(%)]	p-value	p-value	OR (95 %CI)
Physician gender			0.757					0.855					0.922		
Female	51 (40.16)	76 (59.84)				88 (69.29)	39 (30.71)				9 (7.09)	118 (92.91)			
Male	25 (43.86)	32 (56.14)				38 (66.67)	19 (33.33)				5 (8.77)	52 (91.23)			
Physician age [years]			0.144					0.005					0.776		
< 40	47 (47.96)	51 (52.04)				74 (75.51)	24 (24.49)				8 (8.16)	90 (91.84)			
40–50	16 (34.78)	30 (65.22)				33 (71.74)	13 (28.26)		0.649	1.21 (0.52–2.78)	4 (8.7)	42 (91.3)			
> 50	13 (32.5)	27 (67.5)				19 (47.5)	21 (52.5)		0.001	3.87 (1.70–9.07)	2 (5)	38 (95)			
Physician Specialty			0.312					0.004					0.009		
Gynecology	23 (38.33)	37 (61.67)				32 (53.33)	28 (46.67)				3 (5)	57 (95)			
Medical	31 (49.21)	32 (50.79)				52 (82.54)	11 (17.46)		< 0.001	0.21 (0.09–0.49)	6 (9.52)	57 (90.48)		0.343	0.50 (0.10–1.99)
Oncology															
Radiation	21 (38.18)	34 (61.82)				39 (70.91)	16 (29.09)		0.030	0.41 (0.18–0.90)	2 (3.64)	53 (96.36)		0.721	1.39 (0.22–10.90)
Oncology															
Miscellaneous	1 (16.67)	5 (83.33)				3 (50)	3 (50)		0.699	0.70 (0.11–4.50)	3 (50)	3 (50)		0.004	0.05 (0.01–0.38)
Years of practice as a specialist			0.059					0.014					0.868		
< 5	34 (50.75)	33 (49.25)				49 (73.13)	18 (26.87)				6 (8.96)	61 (91.04)			
5–10	20 (43.48)	26 (56.52)		0.448	1.34 (0.63–2.87)	37 (80.43)	9 (19.57)				3 (6.52)	43 (93.48)			
> 10	22 (30.99)	49 (69.01)		0.019	2.29 (1.15–4.65)	40 (56.34)	31 (43.66)				5 (7.04)	66 (92.96)			
Region of practice			0.262					0.985					0.297		
Northern Italy	63 (44.06)	80 (55.94)				98 (68.53)	45 (31.47)				13 (9.09)	130 (90.91)			
Central Italy	6 (40)	9 (60)				10 (66.67)	5 (33.33)				1 (6.67)	14 (93.33)			
Southern & Islands Italy	7 (26.92)	19 (73.08)				18 (69.23)	8 (30.77)				0 (0)	26 (100)			
Practice environment			0.511					0.042					0.301		
Academic	17 (34)	33 (66)				35 (70)	15 (30)				6 (12)	44 (88)			
general hospital															
Non-academic	24 (45.28)	29 (54.72)				32 (60.38)	21 (39.62)				3 (5.66)	50 (94.34)			
general hospital															
Specialized	30 (45.45)	36 (54.55)				52 (78.79)	14 (21.21)				3 (4.55)	63 (95.45)			
cancer center															
Miscellaneous	5 (33.33)	10 (66.67)				7 (46.67)	8 (53.33)				2 (13.33)	13 (86.67)			

N = Number.

Table 3
Assessment practices.

	When you talk about the sexual impact of oncological treatment?					Do you usually include the partner during the counseling?					How easy is it for you to actively ask about sexual health issues and problems?				
	Answers		Univariable	Multivariable		Answers		Univariable	Multivariable		Answers		Univariable	Multivariable	
	after RT or if require [N(%)]	before RT [N(%)]	p-value	p-value	OR (95 %CI)	No [N(%)]	Yes [N (%)]	p-value	p-value	OR (95 %CI)	Absolute no problem [N (%)]	Average/ Extreme difficult [N (%)]	p-value	p-value	OR (95 %CI)
Physician gender			0.070					0.872					0.539		
Female	38 (32.2)	80 (67.8)				44 (37.29)	74 (62.71)				79 (62.2)	48 (37.8)			
Male	9 (17.31)	43 (82.69)		0.035	2.54 (1.10–6.35)	18 (34.62)	34 (65.38)				32 (56.14)	25 (43.86)			
Physician age [years]			0.814					0.469					0.755		
< 40	26 (28.89)	64 (71.11)				30 (33.33)	60 (66.67)				57 (58.16)	41 (41.84)			
40–50	10 (23.81)	32 (76.19)				15 (35.71)	27 (64.29)				28 (60.87)	18 (39.13)			
> 50	11 (28.95)	27 (71.05)				17 (44.74)	21 (55.26)				26 (65)	14 (35)			
Physician Specialty			< 0.001					0.035					< 0.001		
Gynecology	25 (43.86)	32 (56.14)				19 (33.33)	38 (66.67)				43 (71.67)	17 (28.33)			
Medical	18 (31.58)	39 (68.42)		0.137	1.81 (0.83–4.02)	29 (50.88)	28 (49.12)		0.059	0.48 (0.22–1.02)	23 (36.51)	40 (63.49)		< 0.001	5.57 (2.54–12.80)
Oncology														0.491	1.35 (0.57–3.20)
Radiation	3 (5.66)	50 (94.34)		< 0.001	13.98 (4.38–62.80)	13 (24.53)	40 (75.47)		0.311	1.54 (0.67–3.60)	40 (72.73)	15 (27.27)			
Oncology															0.464
Miscellaneous	1 (33.33)	2 (66.67)		0.557	2.10 (0.19–47.11)	1 (33.33)	2 (66.67)		1	1 (0.09–22.32)	5 (83.33)	1 (16.67)			0.44 (0.02–2.99)
Years of practice as a specialist			0.673					0.317					0.724		
< 5	19 (31.15)	42 (68.85)				18 (29.51)	43 (70.49)				38 (56.72)	29 (43.28)			
5–10	10 (23.26)	33 (76.74)				16 (37.21)	27 (62.79)				28 (60.87)	18 (39.13)			
> 10	18 (27.27)	48 (72.73)				28 (42.42)	38 (57.58)				45 (63.38)	26 (36.62)			
Region of practice			0.254					0.222					< 0.001		
Northern Italy	40 (30.77)	90 (69.23)				46 (35.38)	84 (64.62)				76 (53.15)	67 (46.85)		0.009	16.75 (2.99–316.53)
Central Italy	3 (21.43)	11 (78.57)				8 (57.14)	6 (42.86)				14 (93.33)	1 (6.67)			
Southern & Islands Italy	4 (15.38)	22 (84.62)				8 (30.77)	18 (69.23)				21 (80.77)	5 (19.23)		0.232	4.09 (0.54–85.49)
Practice environment			0.144					0.973					0.408		
Academic general hospital	15 (34.09)	29 (65.91)				16 (36.36)	28 (63.64)				28 (56)	22 (44)			
Non-academic general hospital	16 (32)	34 (68)				17 (34)	33 (66)				31 (58.49)	22 (41.51)			
Specialized cancer center	11 (17.46)	52 (82.54)				24 (38.1)	39 (61.9)				40 (60.61)	26 (39.39)			
Miscellaneous	5 (38.46)	8 (61.54)				5 (38.46)	8 (61.54)				12 (80)	3 (20)			

N = Number.

Table 4
Education and providers.

	Do you refer patients to experts in other disciplines/professions?				
	Answers		Univariable	Multivariable	
	No [N(%)]	Yes [N(%)]	p-value	p-value	OR (95 %CI)
Physician gender			0.187		
Female	12 (9.45)	115 (90.55)			
Male	10 (17.54)	47 (82.46)		0.052	0.38 (0.14–1.02)
Physician age [years]			0.130		
< 40	16 (16.33)	82 (83.67)			
40–50	4 (8.7)	42 (91.3)		0.336	1.81 (0.58–6.94)
> 50	2 (5)	38 (95)		0.076	4.25 (1.04–29.38)
Physician Specialty			0.017		
Gynecology	12 (20)	48 (80)			
Medical Oncology	9 (14.29)	54 (85.71)		0.373	1.56 (0.59–4.28)
Radiation Oncology	1 (1.82)	54 (98.18)		0.014	13.91 (2.53–260.55)
Miscellaneous	0 (0)	6 (100)		0.992	-
Years of practice as a specialist			0.140		
< 5	12 (17.91)	55 (82.09)			
5–10	5 (10.87)	41 (89.13)			
> 10	5 (7.04)	66 (92.96)			
Region of practice			0.123		
Northern Italy	21 (14.69)	122 (85.31)			
Central Italy	0 (0)	15 (100)			
Southern&Islands Italy	1 (3.85)	25 (96.15)			
Practice environment			0.332		
Academic general hospital	6 (12)	44 (88)			
Non-academic general hospital	3 (5.66)	50 (94.34)			
Specialized cancer center	11 (16.67)	55 (83.33)			
Miscellaneous	2 (13.33)	13 (86.67)			

N = Number.

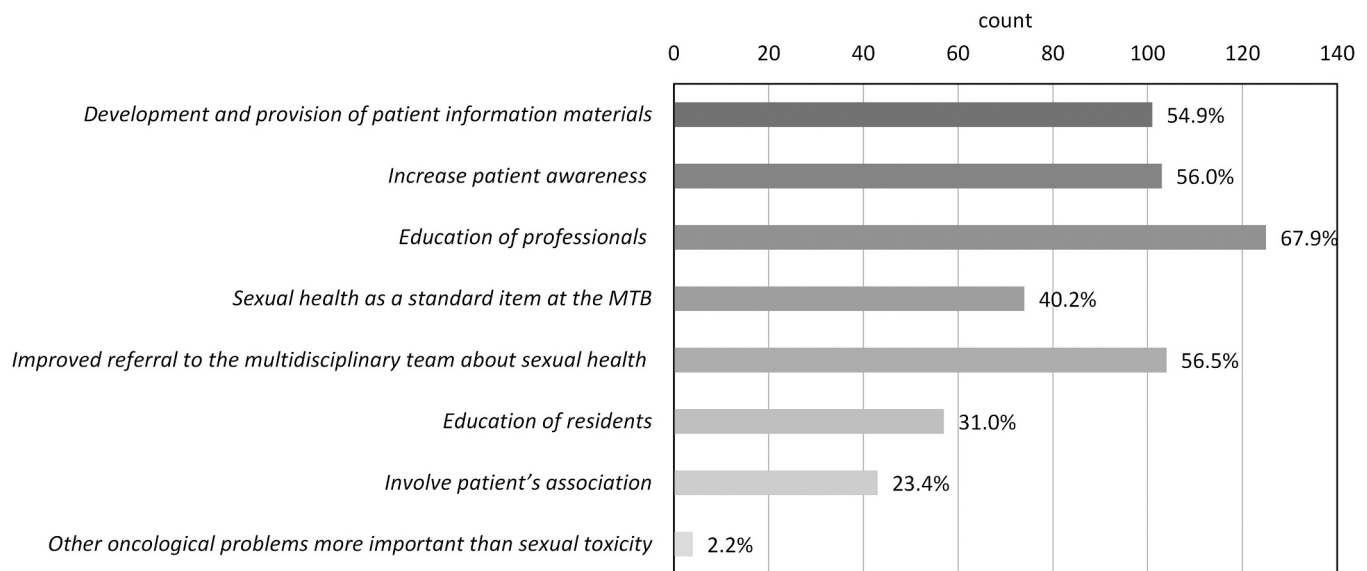


Fig. 1. What of the following suggestions may improve sexual toxicity care in your setting? Each bar reports the percentages and the number of responses (count). MTB = multidisciplinary tumour board.

providing optimal oncological care. However, a recent US survey among ROs unveiled challenges in accurately identifying and addressing the unique needs of the SGM population throughout the oncological journey [15]. In our study, this attitude seemed to be less prevalent among the MITO and AIRO-gynecology communities, where participants believed that knowing a patient's gender (48.7 %) or sexual orientation (61.9 %) is not important for oncological care. However, more experienced physicians (over 50 years old) and gynecologists displayed greater confidence in discussing these topics with their patients.

It is not surprising that our cohort identified a lack of personal awareness and preparation as significant barriers to addressing these issues. In fact, there are currently no curriculum courses dedicated to

sexual health and SGMs within the Italian medical degree programs and oncological residency programs. Thus, learners might follow these topics autonomously during specialized training or throughout the academic journey [16]. Although our data should also be investigated within a broader and more international cohort to draw definitive conclusions, implementing specific training programs for residents and young clinicians, even in the form of webinars and online educational resources, might enhance the inclusivity of counselling, reduce professional discomfort in communication, and increase clinician awareness of potential diverse health needs based on SOGI [17]. This, in turn, may contribute to delivering higher-quality treatment for SGM patients and enable the oncological community to systematically track and monitor

trends and outcomes in the care of SGM individuals, as recently reported by Assisi's recommendations [18].

Clinical practice often collects information about sex, menopause, and reproductive status before starting cancer therapies that may affect sexual health in cisgender patients. Nonetheless, this information is frequently disregarded when referring to transgender and gender diverse (those whose gender identity does not align with society's expectations based on their sex assigned at birth) as well as non-binary individuals (a population whose gender identification transcends the binary distinctions of male and female). Nonetheless, the availability of qualitative information on our patients' regarding sexual orientation, gender identity, gender affirmation, anatomy, and hormonal state is essential for an accurate assessment of the risk of sexual toxicity following oncological medicines and their management [19–22]. However, there are bureaucratic barriers to clinical practice that need to be addressed to allow more inclusive data collection. These include the absence of comprehensive standards for collecting inclusive data, the lack of verified and standardized templates, the necessity of institutional mandates to modify electronic health record fields, the need for specialized training not only for the healthcare but also for administrative staff who interact with the patients [18].

Data appeared more encouraging for the attitude to communicate the potential iatrogenic sexual dysfunctions, with more than 90 % of respondents expressing a readiness to discuss these issues, even extending the conversation to include their partners in 63.5 % of cases. Similar to previous studies, young clinicians more frequently have professional discomfort with facing these issues with their patients [23, 24], suggesting the need to integrate sexual health concepts and soft skills in the curriculum of residency programs and continue education training in this area [25–29]. Among the sexual toxicities following radiotherapy, a particular interest has emerged in recent years regarding vaginal changes, partly due to the EMBRACE data [30–33]. However, there is still a lack of attention on this issue as emerged in an Italian survey directed to Italian radiation oncologists in charge of gynecological treatments, where only 56.9 % said they regularly talked with their patients about the potential vaginal dysfunctions after radiotherapy. This data could lead to further discussion if we consider that 70.7 % of the respondents were female doctors [34].

The recent consensus regarding the communication in oncology of the Italian Association of Medical Oncology (AIOM) reported that patients might not completely understand the potential long-term consequences of oncological treatments, nor may they be fully aware of all potential adverse effects and complications and want better dialogue with their doctors [35]. As stressed in the above-mentioned consensus, physicians ought to acquire the abilities necessary to build trustworthy relationships with their patients. Competence in initiating sexual health conversations, identifying sexual dysfunctions, and providing appropriate therapies may enhance the comfort levels of both clinicians and patients when addressing sexual issues [36]. In our study, these competencies appeared different according to different specialities, with ROs more used to discussing it before the start of treatments, and, as happened for the MOs, frequently referring patients to dedicated clinicians. This tendency to refer patients reflected the necessity to create an integrated team strategy with well-defined roles for various team stakeholders to improve communication and treatment of sexual dysfunctions [37]. In this scenario it falls into place the existence of various approaches suggested for managing patient's symptoms, reminding the absence of definitive guidelines to assist clinicians. To create a shared recommendation, it might be worthwhile to identify members of the multidisciplinary oncology team who possess the necessary training, experience, and soft skills [38]. Moreover, following the concept of "doing with rather than doing for", which means to better include patients as an active and crucial part of their own oncological journey, might increase adherence and compliance to treatments [39]. We should remember that a significant number of patients are sexually active in the year leading up to their diagnosis, and might identify as part of SGMs

[3]. Unfortunately, many of them might have also a history of abuse [38]. Given these considerations, it is crucial not to underestimate the risk of retraumatization due to sexual dysfunctions related to oncological treatments and we should strive to set well-positioned standards for the ethical and humane treatment of our patients [1]. In particular, from an inter-disciplinary point of view, the next steps might be the implementation for HCPs of specific training on sexual health issues encountered by women and SGMs, the promotion of shared *sexual care paths* to offer to the patients and the strong collaboration with the "oncogender" working group worldwide.

5. Conclusions

The present results of our survey in Italy highlight the need for specific training and guidelines on sex-related health issues encountered by female patients, including effective communication strategies to facilitate conversation and SOGI oncological-specific education. A collaborative and integrated approach involving physicians, patients, and women's cancer advocacy groups is essential for crafting shared recommendations, enhancing adherence, and addressing gaps in education and training for healthcare providers

CRediT authorship contribution statement

Laura Deborah Locati: Writing – review & editing, Supervision, Conceptualization. **Sandro Pignata:** Writing – review & editing, Supervision, Investigation. **Rossella Elena Nappi:** Writing – review & editing, Supervision. **Amelia Barcellini:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Giulia Fontana:** Writing – review & editing, Software, Formal analysis, Data curation. **Chiara Cassani:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation, Conceptualization. **Ester Orlandi:** Writing – review & editing, Validation, Supervision, Methodology. **Giorgia Mangili:** Writing – review & editing, Supervision, Investigation. **Gabriella Macchia:** Writing – review & editing, Supervision, Investigation.

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The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Laura Deborah Locati reports a relationship with Eisai Inc that includes: board membership, consulting or advisory, and speaking and lecture fees. Laura Deborah Locati, Sandro Pignata, Rossella E Nappi reports a relationship with MSD Merck Sharp & Dohme AG that includes: board membership, consulting or advisory, speaking and lecture fees, and travel reimbursement. Laura Deborah Locati reports a relationship with Merck Serono that includes: consulting or advisory and speaking and lecture fees. Laura Deborah Locati, Rossella E. Nappi reports a relationship with Eli Lilly and Company that includes: consulting or advisory and speaking and lecture fees. Laura Deborah Locati reports a relationship with Sanofi-Aventis US LLC that includes: consulting or advisory and speaking and lecture fees. Laura Deborah Locati reports a relationship with Sunpharma that includes: consulting or advisory and speaking and lecture fees. Laura Deborah Locati reports a relationship with Ipsen that includes: board membership, consulting or advisory, and speaking and lecture fees. Laura Deborah Locati, Rossella E Nappi reports a relationship with Bayer Pharma AG that includes: board membership, consulting or advisory, and speaking and lecture fees. Laura Deborah Locati, Sandro Pignata reports a relationship with Roche SAS that includes: consulting or advisory, funding grants, and speaking and lecture fees. Laura Deborah Locati reports a relationship with Istituto Gentili S.r.l that includes: consulting or advisory and speaking and lecture fees. Laura Deborah Locati reports a relationship with New Bridge Pharmaceuticals that includes: consulting or advisory and speaking and lecture fees. Laura Deborah Locati reports a relationship with Seagen Inc that includes: consulting or advisory. Laura Deborah Locati, Sandro Pignata reports a relationship with Novartis that includes: consulting or advisory, funding grants, and speaking and lecture fees. Laura Deborah Locati, Sandro Pignata, Rossella E Nappi reports a relationship with Pfizer that includes: consulting or advisory, funding grants, and speaking and lecture fees. Laura Deborah Locati reports a relationship with Gilead Sciences Inc that includes: travel reimbursement. Sandro Pignata reports a relationship with AstraZeneca that includes: consulting or advisory and funding grants. Sandro Pignata reports a relationship with GSK that includes: consulting or advisory, funding grants, and speaking and lecture fees. Rossella E Nappi reports a relationship with Boehringer Ingelheim Ltd that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Palatin Technologies Inc that includes: board membership, consulting or advisory, and speaking and lecture fees. Rossella E Nappi reports a relationship with The Procter & Gamble Company that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Teva Women's Health Inc that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Zambon SpA that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Abbott that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Astellas Pharma Inc that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Besins Healthcare that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Exelitis Pharmaceuticals Holding SL that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Fidia Pharmaceuticals that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Gedeon Richter Italia Srl that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with HRA Pharma SA that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Novo Nordisk that includes: consulting or advisory and speaking and lecture fees. Rossella E Nappi reports a relationship with Organon & Co. Inc. that includes: board

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.jcpc.2024.100556](https://doi.org/10.1016/j.jcpc.2024.100556).

Data Availability

The data underlying this article will be shared on reasonable request to the corresponding author.

References

- [1] S.T. Lindau, E.M. Abrams, A.C. Matthews, A manifesto on the preservation of sexual function in women and girls with cancer, *Am. J. Obstet. Gynecol.* 213 (2015) 166–174.
- [2] S.L. Bober, V.S. Varela, Sexuality in adult cancer survivors: challenges and intervention, *J. Clin. Oncol. J. Am. Soc. Clin. Oncol.* 30 (2012) 3712–3719.
- [3] E.J. Cathcart-Rake, Cancer in sexual and gender minority patients: are we addressing their needs? *Curr. Oncol. Rep.* 20 (2018) 85.
- [4] S. Tangjitgamol, S. Manusirivithaya, J. Hanprasertpong, P. Kasemsarn, T. Soonthornthum, S. Leelahakorn, T. Thawaramara, O. Lapcharoen, Sexual dysfunction in Thai women with early-stage cervical cancer after radical hysterectomy, *Int. J. Gynecol. Cancer J. Int. Gynecol. Cancer Soc.* 17 (2007) 1104–1112.
- [5] A.V. Ospina Serrano, Overview of sexual dysfunction in patients with cancer, *Clin. Transl. Oncol. Publ. Fed. Span. Oncol. Soc. Natl. Cancer Inst. Mex.* 25 (2023) 3369–3377.
- [6] F. Tramacere, V. Lancellotta, C. Casà, et al., Assessment of sexual dysfunction in cervical cancer patients after different treatment modality: a systematic review, *Medicina* (2022), <https://doi.org/10.3390/medicina58091223>.
- [7] G. Eysenbach, Improving the quality of web surveys: the checklist for reporting results of internet E-surveys (CHERRIES), *J. Med. Internet Res.* 6 (2004) e34.
- [8] S.L. Bober, J.B. Reese, L. Barbera, A. Bradford, K.M. Carpenter, S. Goldfarb, J. Carter, How to ask and what to do: a guide for clinical inquiry and intervention regarding female sexual health after cancer, *Curr. Opin. Support Palliat. Care* 10 (2016) 44–54.
- [9] B. Taylor, S. Davis, Using the extended PLISSIT model to address sexual healthcare needs, *Nurs. Stand.* 21 (2006) 35–40.
- [10] A.V. Marcell, G.R. Burstein, Sexual and reproductive health care services in the pediatric setting, *Pediatrics* (2017), <https://doi.org/10.1542/peds.2017-2858>.
- [11] M.L. Pratt-Chapman, A.B. Alpert, D.A. Castillo, Health outcomes of sexual and gender minorities after cancer: a systematic review, *Syst. Rev.* 10 (2021) 183.
- [12] U. Boehmer, R. Elk, LGBT populations and cancer: is it an ignored epidemic? *LGBT Health* 3 (2016) 1–2.
- [13] C. Kamen, O. Palesh, A.A. Gerry, M.A. Andrykowski, C. Heckler, S. Mohile, G. R. Morrow, D. Bowen, K. Mustian, Disparities in health risk behavior and psychological distress among gay versus heterosexual male cancer survivors, *LGBT Health* 1 (2014) 86–92.
- [14] L. Margolies, C.G. Brown, Current state of knowledge about cancer in lesbians, gay, bisexual, and transgender (LGBT) people, *Semin. Oncol. Nurs.* 34 (2018) 3–11.
- [15] B. Gold, P.-J. Lei, S.C. Kamran, D.A. Haas-Kogan, I. Franco, A.L. Zietman, A. C. Smart, J.Y. Wo, A multi-institutional survey of radiation oncology professionals' knowledge, attitudes, and practice behaviors toward sexual and gender minority

- patients with cancer, *Adv. Radiat. Oncol.* (2024), <https://doi.org/10.1016/j.adro.2024.101461>.
- [16] C. Warner, S. Carlson, R. Crichlow, M.W. Ross, Sexual health knowledge of U.S. medical students: a national survey, *J. Sex. Med.* 15 (2018) 1093–1102.
- [17] J. Kacperczyk-Bartnik, K. Nowosielski, Z. Razumova, et al., Clinician attitude towards sexual counseling in women with gynecologic malignancies: European Network of Young Gynaecological Oncologists (ENYGO) survey, *Int. J. Gynecol. Cancer J. Int. Gynecol. Cancer Soc.* (2022), <https://doi.org/10.1136/ijgc-2021-003309>.
- [18] A.G. Leone, R. Casolino, D. Trapani, et al., Position paper of the Italian association of medical oncology on health disparities among transgender and gender-diverse people: the Assisi recommendations, *EClinicalMedicine* 65 (2023) 102277.
- [19] N.T. Katz, A.B. Alpert, M.P. Aristizabal, C. McDaniels-Davidson, B.H. Sacks, T. Sanft, C.L. Chou, M.E. Martinez, Partnering with patients and caregivers in cancer care: lessons from experiences with transgender, hispanic, and pediatric populations, *Am. Soc. Clin. Oncol. Educ. Book Am. Soc. Clin. Oncol. Annu. Meet.* (43) (2023) e397264.
- [20] A.B. Alpert, L. Rivers, C. Manzano, R. Ruddick, S. Adams, J. Obedin-Maliver, R. D. Harvey, J.J. Griggs, D. Operario, Debunking sex and disentangling gender from oncology, *J. Clin. Oncol. J. Am. Soc. Clin. Oncol.* 41 (2023) 3791–3795.
- [21] G.P. Quinn, A.B. Alpert, M. Sutter, M.B. Schabath, What oncologists should know about treating sexual and gender minority patients with cancer, *JCO Oncol. Pract.* 16 (2020) 309–316.
- [22] M.B. Schabath, M.B. Curci, P.A. Kanetsky, S.T. Vadaparampil, V.N. Simmons, J. A. Sanchez, S.K. Sutton, C. Wheldon, G.P. Quinn, Ask and tell: the importance of the collection of sexual orientation and gender identity data to improve the quality of cancer care for sexual and gender minorities, *J. Oncol. Pract.* 13 (2017) 542–546.
- [23] N.N. Frederick, K. Campbell, L.B. Kenney, K. Moss, A. Speckhart, S.L. Bober, Barriers and facilitators to sexual and reproductive health communication between pediatric oncology clinicians and adolescent and young adult patients: the clinician perspective, *Pediatr. Blood Cancer* 65 (2018) e27087.
- [24] E.R. Park, R.L. Norris, S.L. Bober, Sexual health communication during cancer care: barriers and recommendations, *Cancer J.* 15 (2009) 74–77.
- [25] S. Moerdler, A.S. DuVall, B. Hayes-Lattin, A. Grimes, P.K. Prasad, J.C. Molina, V. Monga, D.R. Freyer, M.E. Roth, Gaps in adolescent and young adult cancer education in oncology fellowship training, *J. Adolesc. Young Adult Oncol.* 13 (2024) 97–104.
- [26] M.L. Wright-Nadkarni, L. Nahata, A.N. Audino, Medical trainee education and advocacy regarding sexual health and oncofertility: gaps and opportunities, *J. Adolesc. Young Adult Oncol.* (2024), <https://doi.org/10.1089/jayao.2023.0135>.
- [27] E.M. Krouwel, M.P. Nicolai, G.J. van der Wielen, H. Putter, A.D.G. Krol, R.C. M. Pelger, L. Incrocci, H.W. Elzevier, Sexual concerns after (pelvic) radiotherapy: is there any role for the radiation oncologist? *J. Sex. Med.* 12 (2015) 1927–1939.
- [28] S. Beebe, N. Payne, T. Posid, D. Diab, P. Horning, A. Scimeca, L.C. Jenkins, The lack of sexual health education in medical training leaves students and residents feeling unprepared, *J. Sex. Med.* 18 (2021) 1998–2004.
- [29] V. Kennedy, E. Abramsohn, J. Makelarski, R. Barber, K. Wroblewski, M. Tenney, N. K. Lee, S.D. Yamada, S.T. Lindau, Can you ask? We just did! Assessing sexual function and concerns in patients presenting for initial gynecologic oncology consultation, *Gynecol. Oncol.* 137 (2015) 119–124.
- [30] I. Suvaal, K. Kirchheiner, R.A. Nout, et al., Vaginal changes, sexual functioning and distress of women with locally advanced cervical cancer treated in the EMBRACE vaginal morbidity substudy, *Gynecol. Oncol.* 170 (2023) 123–132.
- [31] M. Pelizzola, K. Tanderup, S. Chopra, I.M. Jürgenliemk-Schulz, R. Nout, K. Kirchheiner, S. Spampinato, Co-occurrence of symptoms after radiochemotherapy in locally advanced cervix cancer patients: a cluster analysis, *Acta Oncol.* 62 (2023) 1479–1487.
- [32] K. Kirchheiner, R.A. Nout, J.C. Lindegaard, et al., Dose-effect relationship and risk factors for vaginal stenosis after definitive radio(chemo)therapy with image-guided brachytherapy for locally advanced cervical cancer in the EMBRACE study, *Radiol. Oncol. J. Eur. Soc. Ther. Radiol. Oncol.* 118 (2016) 160–166.
- [33] E. Perrucci, G. Macchia, A. Cerrotta, et al., Prevention and management of radiotherapy-related toxicities in gynecological malignancies. Position paper on behalf of AIRO (Italian Association of Radiotherapy and Clinical Oncology), *Radiol. Med.* (2024), <https://doi.org/10.1007/s11547-024-01844-5>.
- [34] F. De Felice, L. Vicenzi, G. Macchia, et al., Vaginal toxicity management in patients with locally advanced cervical cancer following exclusive chemoradiation—a nationwide survey on knowledge and attitudes by the Italian association of radiotherapy and clinical oncology (AIRO) gynecology study group, *Medicina* (2023), <https://doi.org/10.3390/medicina59020385>.
- [35] R. Berardi, A. Parisi, M. Maruzzo, et al., Communication in oncology between healthcare providers, patients, the scientific community, and the media: recommendations from the Italian Association of Medical Oncology (AIOM), *Support Care Cancer J. Multinat. Assoc. Support Care Cancer* 32 (2024) 613.
- [36] P. Quarello, A. Toss, P. Berchiulla, et al., Healthcare professional communication on sexual health: a report from the Italian working group on adolescents and young adults with cancer, *Oncologist* 28 (2023) e884–e890.
- [37] H. de Vocht, A. Hordern, J. Notter, H. van de Wiel, Stepped skills: a team approach towards communication about sexuality and intimacy in cancer and palliative care, *Austral. Med. J.* 4 (2011) 610–619.
- [38] L. Åkeflo, E. Elmerstig, G. Dunberger, V. Skokic, A. Arnell, K. Bergmark, Sexual health and wellbeing after pelvic radiotherapy among women with and without a reported history of sexual abuse: important issues in cancer survivorship care, *Support Care Cancer J. Multinat. Assoc. Support Care Cancer* 29 (2021) 6851–6861.
- [39] C. Petersson, P. Batalden, P. Fritzell, S. Borst, B. Hedberg, Exploring the meaning of coproduction as described by patients after spinal surgery interventions, *Open Nurs. J.* 13 (2019) 85–91.