



Gender influence on professional satisfaction and gender issue perception among young oncologists. A survey of the Young Oncologists Working Group of the Italian Association of Medical Oncology (AIOM)

Maria Vittoria Dieci,^{1,2} Francesco Massari,³ Raffaele Giusti,⁴ Alessandro Inno,⁵ Giuseppe Lombardi,⁶ Laura Noto,⁷ Antonio Passaro,⁸ Filippo Pietrantonio,^{9,10} Francesca Spada,¹¹ Monica Valente,¹² Massimo Di Maio,^{13,14} Valter Torri¹⁵

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/esmoopen-2018-000389>).

To cite: Dieci MV, Massari F, Giusti R, *et al*. Gender influence on professional satisfaction and gender issue perception among young oncologists. A survey of the Young Oncologists Working Group of the Italian Association of Medical Oncology (AIOM). *ESMO Open* 2018;3:e000389. doi:10.1136/esmoopen-2018-000389

Received 27 April 2018
Revised 19 May 2018
Accepted 23 May 2018



- <http://dx.doi.org/10.1136/esmoopen-2018-000422>
- <http://dx.doi.org/10.1136/esmoopen-2018-000423>

For numbered affiliations see end of article.

Correspondence to

Dr Maria Vittoria Dieci;
mariovittoria.dieci@unipd.it

ABSTRACT

Background The professional gender gap is increasingly recognised in oncology. We explored gender issues perception and gender influence on professional satisfaction/gratification among young Italian oncologists.

Methods Italian oncologists aged ≤ 40 years and members of the Italian Association of Medical Oncology were invited to participate in an online survey addressing workload/burnout, satisfaction in professional abilities and relations, relevant factors for professional gratification, and gender barriers. χ^2 test for general association or χ^2 test for trend was used to analyse the data.

Results 201 young oncologists participated in the survey: 67% female, 71% aged 30–40 years, 41% still in training and 82% without children. Women and men were equally poorly satisfied by the relations with people occupying superior hierarchical positions. There was heterogeneity between women and men in current ($p=0.011$) and expected future ($p=0.007$) satisfaction in professional abilities: women were more satisfied by current empathy and relations with colleagues and were more confident in their future managerial and team leader skills. The most important elements for professional gratification indicated by all participants were, in general, work–life balance (36%) and intellectual stimulation/research (32%); specifically for women, work–life balance (48%) and intellectual stimulation/research (20%); and specifically for men, career (29%) and social prestige/recognition (26%). Heterogeneity within the same gender emerged. For example, the elements indicated by men as the most important were intellectual stimulation/research (39%) and work–life balance (21%) in general, versus social prestige/recognition (24%) and career (24%), respectively, specifically for men ($p<0.0001$). More women versus men perceived gender issue as an actual problem (60% vs 38%, $p=0.03$); men underestimated gender barriers to women's career ($p=0.011$).

Conclusions Satisfaction in professional abilities varied by gender. Work–life balance is important for both women and men. Stereotypes about gender issues may

Key questions

What is already known about this subject?

- Professional gender gap is increasingly recognised in the oncology profession.
- Most of the studies conducted so far explored gender issues and perception by involving women only and in the advanced stage of their career.

What does this study add?

- This survey explored gender issues perception and gender influence on professional satisfaction/gratification among female and male young Italian oncologists.

How might this impact on clinical practice?

- The results of the survey provide suggestive and novel hints to stimulate discussion among young oncologists and to increase the awareness of gender issues and influences on professional satisfaction.
- The improved awareness on gender gap is key to conceive and realise corrective interventions.

be present. Gender issue is an actual problem for young oncologists, mostly perceived by women.

INTRODUCTION

The steady rise in the proportion of women who are accessing the medical profession in the last decades is recognised worldwide.¹

This increase is also marked in the oncology profession. Data presented at the European Society of Medical Oncology (ESMO) Congress in 2016 report a constant increase in the proportion of female ESMO members over the last years, which raised from 20% in 2000 to around 40% in 2015.² The same trend applies to Italy, where 58% of the members

of the Italian Association of Medical Oncology (AIOM) are women, with this proportion increasing over the years (AIOM data, personal communication, 2018).

The existing gap between the continuous increase of female physicians and the still limited access of women to leadership positions^{3–5} has prompted a number of studies that examine the potential barriers women are facing during their career path. Obstacles to gender equality are attributable to two main areas: structural and organisational barriers (organisation models with a prevalent male connotation, work–life balance) and mindset barriers (set of gender assumptions and stereotypes, both at the institutional and individual levels). In this regard, a relevant effort is being pursued by Women for Oncology, which highlighted in several surveys the perception of some of these barriers by female oncologists.^{3,6}

Gender inequality may affect relevant professional aspects such as burnout, satisfaction and confidence in one's abilities and relations, and future expectations. All these factors may have an important influence on the individual perception of job quality and may contribute to determining individual choices in the very early phases of career. The reduced access to leadership positions by women should therefore be regarded as the 'top of the iceberg' of a more complex and pervasive process that starts in the early years of professional life. Moreover, how gender stereotypes and inequalities are perceived and internalised by men has been underexplored so far, but may be relevant in order to start approaching the gender problem from a more comprehensive point of view. The present work has the aim to explore gender issues in the oncology profession among young oncologists, both women and men. Here, we present the results of a survey undertaken by the Young Oncologists Working Group of the AIOM in order to evaluate the influence of gender on professional satisfaction and to explore the perception of gender inequality among young Italian medical oncologists.

METHODS

Eleven oncologist members of the AIOM (of whom 10 were members of the Young Oncologists Working Group) prepared a questionnaire to be submitted to all the young (≤ 40 years) medical oncologists or oncologists in training who were regular AIOM members at the time this survey took place (from now on called 'young oncologists').

The questionnaire included 24 items, organised in the following areas: demographics, workload and burnout, satisfaction in individual professional abilities, satisfaction in interpersonal relations in the professional environment, factors judged relevant for gaining professional satisfaction, gender obstacles and suggested corrective actions.

Demographic items were multiple-choice questions (one option only had to be indicated for each question).

Workload items were organised in open-field questions (ie, participants were asked to indicate the mean

number of hours of work in a week). Regarding burnout, although the 22-item Maslach Burnout Inventory is the gold standard for measuring symptoms of burnout,⁷ its length limits feasibility for use in large surveys exploring multiple content areas. In accordance with previous experiences,^{8,9} in this survey we explored the level of burnout by assessing single items related to emotional exhaustion ('I feel emotionally drained from my work', 'I feel exhausted at the end of the day', 'I feel fatigued when I get up in the morning and have to face another day on the job') and depersonalisation ('I feel I have become more callous toward people since I started this job'). Each question was answered on a 5-point scale with response options ranging from 'never' to 'daily.' Symptoms of high emotional exhaustion and high depersonalisation were defined by a frequency of at least a few times a week on the single items.

To explore the perception of interpersonal relations in the professional environment, participants were asked to indicate on a 4-point scale the level of satisfaction in a list of relations. The scale points were 'very low', 'low', 'sufficient' and 'high'.

A similar method was used to explore the perception of individual professional abilities.

In the subsequent group of items, participants were asked to indicate key elements they judge more important in order to gain satisfaction in their profession. Participants were asked to choose three elements from a proposed list, putting them in a descending rank of importance. All participants were also asked to indicate, with the same method, the key elements they judged more important specifically for women and for men in two separate questions.

A list of potential obstacles to women's career were proposed, and participants were asked to indicate in a 4-point scale, for each item, the level of relevance they feel these items may have. Participants were then asked about their perception of gender issue, and finally they were asked to choose three possible corrective actions from a proposed list (including an open field).

The questionnaire was published online on the AIOM website (www.aiom.it) in a reserved section and was accessible only through a direct link that was sent by email to all ($n=806$) Italian young oncologists aged ≤ 40 years and regular AIOM members. A first email was sent on 14 April 2017, followed by two reminders. Overall, the survey could be accessed online from 14 April 2017 to 21 September 2017.

Statistical analysis

This survey considered the sample of oncologists who answered the questionnaire, and therefore no sample size was calculated for specific hypothesis test. Summary statistical measures for continuous and categorical data were used for describing the sample of doctors' characteristics and their answers to each specific item. Analysis of association between the answers and gender was conducted by means of χ^2 test for general association or χ^2 test for trend,

Table 1 Participants' demographics and characteristics

	Total, n=201	Female, n=135 (67%)	Male, n=66 (33%)	P values*
Age (years)				
<30	59 (29%)	34 (25%)	25 (38%)	0.064
30–40	142 (71%)	101 (75%)	41 (62%)	
Years from training completion				
Still in training	82 (41%)	54 (40%)	28 (42%)	0.460
<2	35 (17%)	22 (6%)	13 (20%)	
2–5	44 (22%)	30 (22%)	14 (21%)	
>5	40 (20%)	29 (22%)	11 (17%)	
Geographical region of practice				
Northern Italy	119 (59%)	79 (59%)	40 (61%)	0.545
Central Italy	46 (23%)	33 (24%)	13 (20%)	
Southern Italy/Islands	3 (15%)	21 (16%)	10 (15%)	
Abroad	5 (2%)	2 (1%)	3 (4%)	
Practice setting				
General hospital	49 (24%)	39 (29%)	10 (15%)	0.050
University hospital	82 (41%)	53 (39%)	29 (44%)	
Cancer institute	61 (30%)	35 (26%)	26 (39%)	
Private clinic	9 (5%)	8 (6%)	1 (1%)	
Marital status				
Married/cohabitant	95 (47%)	72 (53.5%)	23 (35%)	0.047
Unmarried	104 (52%)	62 (46%)	42 (63.5%)	
Separated/divorced/widowed	2 (1%)	1 (0.5%)	1 (1.5%)	
Children				
No	164 (82%)	108 (80%)	56 (85%)	0.947
1	23 (11%)	20 (15%)	3 (4%)	
2	14 (7%)	7 (5%)	7 (11%)	
Work team composed of				
Majority of women	142 (71%)	102 (76%)	40 (61%)	0.027
Majority of men	12 (6%)	6 (4%)	6 (9%)	
Women and men equally	47 (23%)	27 (20%)	20 (30%)	

* χ^2 for trend.

when more appropriate, given the ordinal or continuous nature of the data. An α error <5% was considered for a statistically significant result. Given the descriptive and exploratory intent of the analysis, no attempt to control for multiple tests was pursued.

RESULTS

Demographics

A total of 201 young oncologists participated in the survey: 67% (n=135) were female and 33% (n=66) were male. [Table 1](#) summarises the participants' data.

The majority of participants were aged 30–40 years (71%); 41% were still in training (attending the specialty school). Among the participants still in training, 37% were aged 30–40 years, which is consistent with the timing of training process in Italy. More

than half of young oncologists worked in Northern Italy and 71% in large centres such as university hospitals and cancer institutes. The proportion of young oncologists being married or having an unmarried partner was significantly higher in women (53.5%) versus men (35%) (p=0.047). The vast majority (82%) of participants had no children and there was no difference in women versus men.

Of the subjects, 71% confirmed they worked in a team mostly composed of women.

Workload and burnout

The median working hours per week were 50 (Q1–Q3, 45–55), without difference between women (median 50; Q1–Q3, 42–55) and men (median 50; Q1–Q3, 45–55, p=0.524).

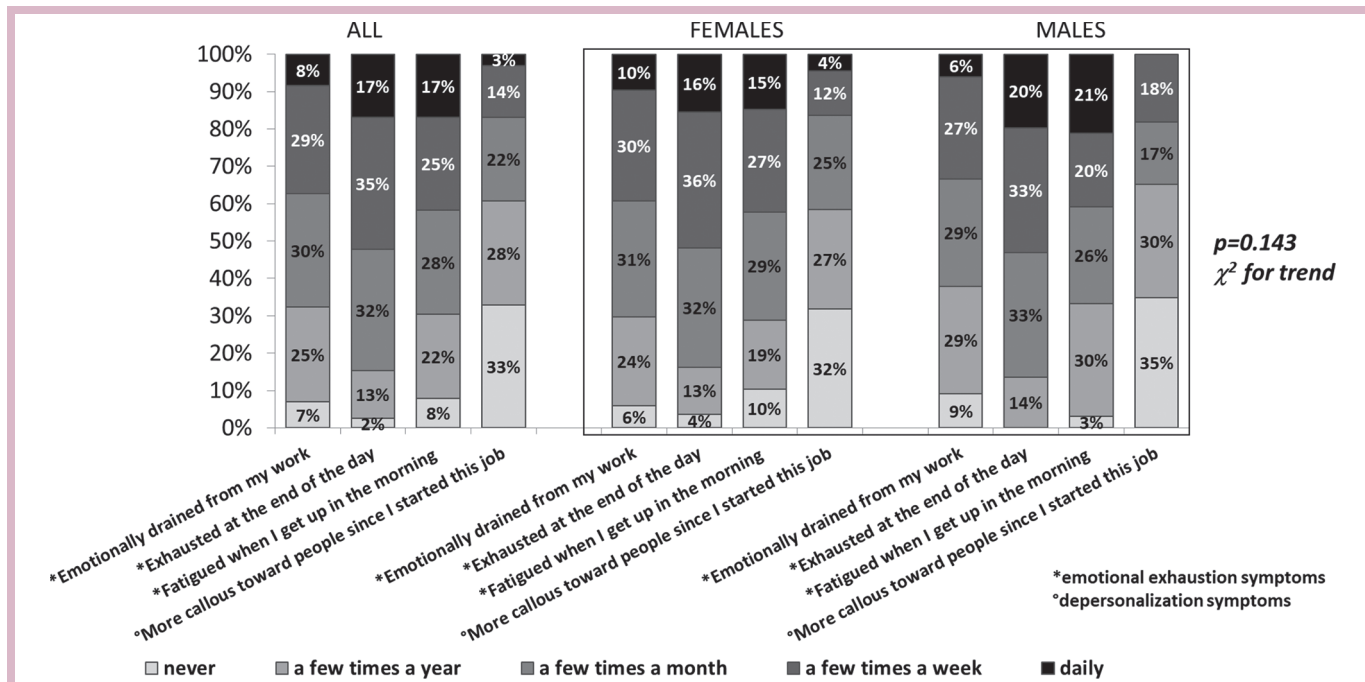


Figure 1 Burnout symptoms.

Figure 1 reports the results for burnout symptoms. Overall, symptoms of emotional exhaustion were present at least a few times a week in 37%–52% of participants, whereas depersonalisation symptoms were present at least a few times a week in 17%. There was no difference in burnout symptoms in female and male participants ($p=0.143$).

Interpersonal relations in the professional environment

Young oncologists presented significantly different levels of satisfaction in interpersonal relations across the proposed people categories (online supplementary table S1; $p<0.0001$). Overall, the satisfaction was poor (very low/low) for 44%–73% (according to the item) when considering the relations with people occupying a superior hierarchical position, such as hospital direction, specialty school direction, tutor during the specialty school and older colleagues. On the other hand, 80% of young oncologists were sufficiently/highly satisfied by the relation with young colleagues. We explored differences according to gender and we found a significant heterogeneity in the pattern of answers provided by women versus men ($p=0.01$). In particular, women were more satisfied than men by their relation with the tutor during the specialty school (who was/had been a woman for 36% of them vs for 18% of young male oncologists).

Individual professional abilities

Table 2 reports the level of satisfaction in individual professional abilities.

In general, more than 80% of participants expressed a sufficient/high level of satisfaction and confidence in the following actual abilities: multitasking, communication with patients, empathy, clinical skills, ability to

establish good relationships with colleagues, team leader skills and organisational skills. There was a significant heterogeneity in answers since, as expected in a sample of young oncologists, the level of satisfaction with regard to actual managerial skills and team leader skills was low ($p<0.0001$). The patterns of answers of female and male subjects were significantly different ($p=0.011$); in particular, women were more satisfied by empathy and skill in establishing good relationships with colleagues, as compared with men. Subjects were then asked to imagine their satisfaction in the same professional abilities projected at 5 years (table 2). Although managerial skills and team leader skills remained the ones with the poorest expected satisfaction, there was an overall improvement, with around 80% of the young oncologists expressing a sufficient/high level of satisfaction. The patterns of answers of female and male subjects were significantly different ($p=0.007$). Of note, the proportion of women expressing a sufficient/high level of confidence in managerial skills was higher than that of men (81.5% and 71.2%, respectively).

Relevant elements for professional gratification

When participants were asked to indicate, in general, the most important elements for professional gratification among a given list, the one that was most frequently indicated as first in order of importance was intellectual stimulation/research (36%), followed by work–life balance (32%), relation with the patient (18%), fight against cancer (7%), social prestige and recognition (3%), remuneration (2%) and career (0.5%). Work–life balance and intellectual stimulation/research were the two elements most frequently indicated as first in importance by

Table 2 Level of satisfaction (actual and projected at 5 years) in individual professional abilities in all participants and in women and men separately

	All (n=201)*				Female (n=135)†				Male (n=66)‡			
	Very low	Low	Sufficient	High	Very low	Low	Sufficient	High	Very low	Low	Sufficient	High
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Actual level of satisfaction												
Multitasking	2 (1)	23 (11.4)	115 (57.2)	60 (29.8)	2 (1.5)	11 (8.1)	81 (60)	41 (30.4)	0	12 (18.2)	34 (51.5)	19 (28.8)
Communication with patient	0	14 (6.9)	105 (52.2)	79 (39.3)	0	9 (6.7)	73 (54)	53 (39.3)	0	5 (7.6)	32 (48.5)	26 (39.4)
Empathy‡	1 (0.5)	14 (7)	107 (53.2)	77 (38.3)	1 (0.7)	4 (3)	79 (58.5)	51 (37.8)	0	10 (15.2)	28 (42.4)	26 (39.4)
Clinical skills	0	33 (16.4)	108 (53.7)	59 (29.4)	0	24 (17.8)	70 (51.9)	40 (29.6)	0	9 (13.6)	38 (57.6)	19 (28.8)
Managerial skills§	14 (6.9)	84 (41.8)	72 (35.8)	23 (11.4)	12 (8.9)	57 (42.2)	48 (35.6)	15 (11.1)	2 (3)	27 (40.9)	24 (36.4)	8 (12.1)
Relationship with colleagues‡	8 (4)	23 (11.4)	97 (48.2)	65 (32.3)	2 (1.5)	12 (8.9)	76 (56.3)	41 (30.4)	6 (9.1)	11 (16.7)	21 (31.8)	24 (36.4)
Team leader skills§	16 (8)	61 (30.3)	82 (40.8)	26 (12.9)	9 (6.7)	43 (31.9)	58 (43)	16 (11.9)	7 (10.6)	18 (27.3)	24 (36.4)	10 (15.2)
Organisational skills	3 (1.5)	27 (13.4)	103 (51.2)	64 (31.8)	1 (0.7)	16 (11.9)	74 (54.8)	42 (31.1)	2 (3)	11 (16.7)	29 (43.9)	22 (33.3)
Projected level of satisfaction at 5 years												
Multitasking	0	20 (10)	98 (48.8)	83 (41.3)	0	12 (8.9)	66 (48.9)	57 (42.2)	0	8 (12.1)	32 (48.5)	26 (39.3)
Communication with patient	1 (0.5)	15 (7.5)	91 (45.3)	94 (46.8)	1 (0.7)	9 (6.7)	64 (47.4)	61 (45.2)	0	6 (9.1)	27 (40.9)	33 (50)
Empathy	3 (1.5)	14 (7)	98 (48.8)	86 (42.8)	2 (1.5)	6 (4.4)	68 (50.4)	59 (43.7)	1 (1.5)	8 (12.1)	30 (45.4)	27 (40.9)
Clinical skills	0	14 (7)	89 (44.3)	98 (48.8)	0	10 (7.4)	61 (45.2)	64 (47.4)	0	4 (6.1)	28 (42.4)	34 (51.5)
Managerial skills§‡	7 (3.5)	37 (18.4)	108 (53.7)	49 (24.4)	5 (3.7)	20 (14.8)	80 (59.3)	30 (22.2)	2 (3)	17 (25.8)	28 (42.4)	19 (28.8)
Relationship with colleagues	3 (1.5)	23 (11.4)	96 (47.8)	79 (39.3)	2 (1.5)	14 (10.4)	67 (49.6)	52 (38.5)	1 (1.5)	9 (13.6)	29 (43.9)	27 (40.9)
Team leader skills§	6 (3)	31 (15.4)	100 (49.8)	64 (31.8)	5 (3.7)	18 (13.3)	74 (54.8)	38 (28.1)	1 (1.5)	13 (19.7)	26 (39.4)	26 (39.4)
Organisational skills	0	22 (11)	100 (49.8)	79 (39.3)	0	13 (9.6)	69 (51.1)	53 (39.3)	0	9 (13.6)	31 (47)	26 (39.4)

*Heterogeneity test (within the matrix of responses, all): $p < 0.0001$ for actual satisfaction, $p < 0.0001$ for satisfaction at 5 years.

†Heterogeneity test of female versus male response matrices: $p = 0.011$ for actual satisfaction, $p = 0.007$ for satisfaction at 5 years.

‡Relevant skills with different levels of satisfaction in women versus men, descriptively defined by at least 10% absolute difference in the proportion of unsatisfied (very low+low) in women versus men.

§Skills with the lowest level of satisfaction within the matrix of responses, all.

women and men, respectively. The overall patterns of answers provided by women and men were not significantly different (figure 2A,D).

In the subsequent question, all participants (women and men) were asked to indicate the elements they judge most important specifically for women (figure 2B). In this scenario, work-life balance was indicated as first in importance by almost half of young oncologists (48%), followed by intellectual stimulation/research (20%) and relation

with the patient (13%). The other elements were indicated as the most important by less than 10% of participants each. The answers provided by women and men were not statistically different ($p = 0.065$; figure 2B,D); in particular, in both groups, work-life balance was by far the most frequently indicated as the most important element (by 50% of women and 44% of men).

Lastly, all participants (women and men) were asked to indicate the elements they judge most important

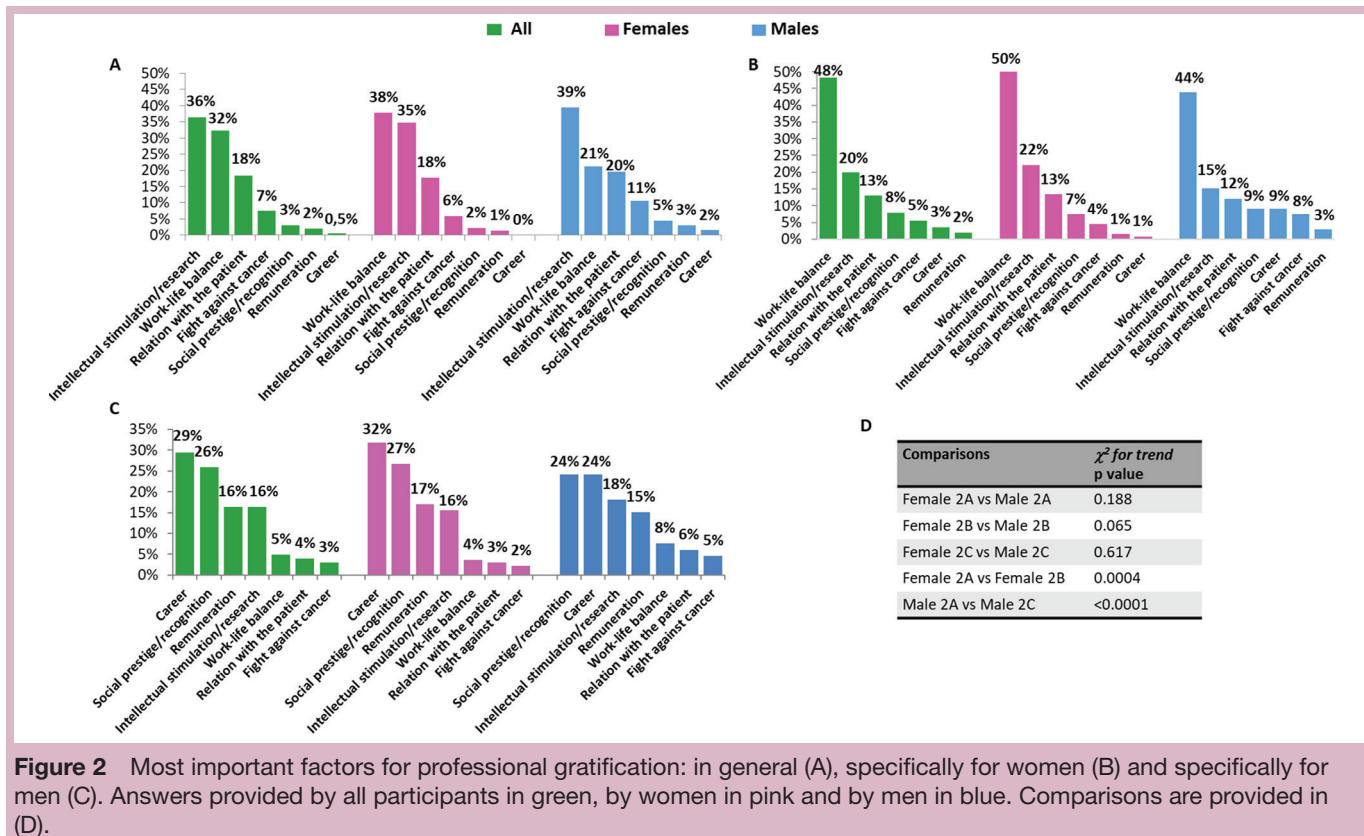


Figure 2 Most important factors for professional gratification: in general (A), specifically for women (B) and specifically for men (C). Answers provided by all participants in green, by women in pink and by men in blue. Comparisons are provided in (D).

specifically for men (figure 2C). In this scenario, the pattern of answers was soundly different from that of the two previous questions. Career was the most important element for 29% of the participants, followed by social prestige and recognition (26%), and remuneration and intellectual stimulation/research (16% each). Work-life balance, relation with the patient and fight against cancer were considered the most important elements for $\leq 5\%$ of subjects, respectively. The answers provided by women and men were similar ($p=0.617$; figure 2C,D).

In order to explore heterogeneity within the same sex, we analysed the answers provided by women and men separately.

We compared the answers provided by women when they were asked to indicate the most important elements in general versus specifically for women and found a significant difference ($p=0.0004$; figure 2A,B,D). In both cases work-life balance was indicated as the first element of importance with the highest frequency. However, this item became largely predominant over the other elements when the question was specifically related to women. Conversely, 35% of women indicated intellectual stimulation/research as the most important element in general, but this proportion was far reduced (22%) when the question concerned specific elements for women.

Similarly, we compared the answers provided by men when they were asked to indicate the most important elements in general versus specifically for men. In this case, the heterogeneity was even more striking ($p<0.0001$; figure 2A,C,D). Regarding the question on specific elements for men, men

indicated as first in order of importance elements such as social prestige/recognition, career and remuneration with quite high rates (24%, 24% and 15%). The same elements were judged, in the general question, as the most important by only $\leq 5\%$ of men each. To the opposite, 39% and 21% of men indicated intellectual stimulation/research and work-life balance, respectively, as the most important elements in general, but the same were judged as most important elements specific for men by only 18% and 8% of men, respectively.

Barriers to women's career, gender issue perception and corrective actions

Thirty-nine per cent of the participants reported to recall direct or indirect knowledge of male attitudes towards women which made them feel uncomfortable, and 12% recall direct or indirect experience of distressful attitudes of women towards men.

Each of the specific proposed obstacles to women's career was acknowledged as sufficiently/highly relevant by at least half of the participants (figure 3A). However, women and men gave heterogeneous answers ($p=0.011$). As an example, lower remuneration, reduced possibility to travel, more limited opportunities to spend a period abroad, cultural prejudice and stereotyped perception of roles were judged less relevant by men than by women.

Overall, 53% of young oncologists consider that gender issue is an actual problem in this profession (60% of women vs 38% of men; $p=0.03$; figure 3B). These young oncologists indicated flexible working time, facilities/

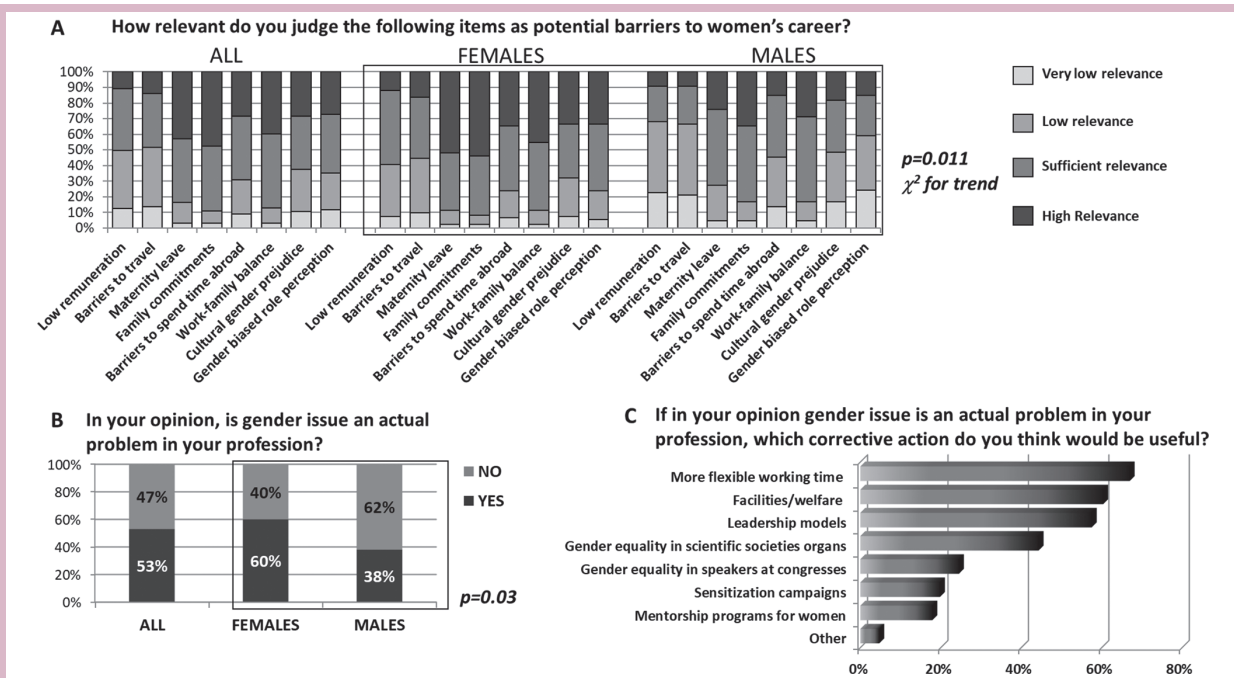


Figure 3 Barriers to women's career (A), gender issue perception (B) and corrective actions (C).

welfare, female leadership models and gender equality in scientific society organs among the most useful corrective actions to be pursued (figure 3C).

DISCUSSION

The survey presented has some peculiarities that make it unique in the field of surveys exploring gender issues in the medical oncologist profession. First, this survey was specifically addressed to young oncologists. This aspect is relevant, since most of the surveys conducted so far involved oncologists of all career ages,^{6,10} thereby providing a more general overview. Second, the same studies included women only.^{6,10} The present survey involved young oncologists of both sexes, in order to appreciate the level of agreement in the responses provided by the two groups and explore the presence of gender stereotypes. Third, the present work is focused on the Italian setting, where no previous exploration of gender issues has been conducted so far specifically among oncologists.

Overall, 201 young oncologists participated in the survey, 67% female and 33% male. This is consistent with a previous Italian survey conducted among intraining medical oncologists in 2014.¹¹ This gender distribution is representative of all Italian young oncologist AIOM members. Indeed, at the time the survey was conducted, there were 806 Italian young oncologist members of AIOM, 70% of them were female. With respect to age, participants of the survey tended to be younger (<30 years: 29%) than overall young AIOM members (<30 years: 15%). More than half of the participants worked in Northern Italy, as compared with 45% of young AIOM members. These data might suggest that the theme of

the survey stimulated the interest especially of young oncologists aged <30 years and working in Northern Italy.

A relevant result to be discussed is the high proportion of young oncologists without children (82%). These data compare unfavourably with data from the ESMO Young Oncologists Committee Burnout Survey: among the 595 young European oncologists who participated in the ESMO survey, 57% did not have children.¹² Moreover, a recent survey on barriers to women's career has been conducted among 1027 Italian medical doctors (any specialty and any age): among the subjects aged ≤40 years (the vast majority being aged 30–40 years), around 35% did not have any children.¹³ Although 29% of young oncologists in our survey were aged less than 30 years, the proportion of those not having children is still high.

Declared workload was heavy, with a median of 50 hours per week and similar between women and men. We found rates of high emotional exhaustion symptoms, concordant with the results of the ESMO Young Oncologists Committee Survey (especially with the results from southwestern Europe where Italy was included), although methods of burnout symptoms assessment did not fully overlap.¹² Overall, the risk of burnout is confirmed as a significant problem in young Italian oncologists, affecting equally both women and men.

With regard to interpersonal relations in the professional environment, the most relevant result is the high level of dissatisfaction in the relationship with people occupying superior hierarchical positions, which characterised both women and men (although some heterogeneity was observed). Therefore, there seems to be a gap in interpersonal relationship suffered by both young female

and male oncologists, which might affect the overall perception of work quality.

It is generally assumed that women are less confident in their abilities as leaders, and this has been suggested as one of the relevant barriers to women's career in different professional fields. In this survey, both female and male young oncologists were poorly satisfied by their managerial and team leader actual skills, which is expected for professionals in the early phases of career. It was however surprising to see that, contrary to the expectations, women were more confident in their future managerial abilities as compared with men. On one hand this might reflect that women's self-awareness is not inferior to that of men, at least in young oncologists. On the other hand, this might also put in discussion the need for specific leadership programmes addressed specifically to women, since young male oncologists may also benefit.

The main core of the survey includes the questions on the elements judged more important to gain professional gratification, which allows to explore the presence of gender stereotypes.

With regard to the general question 'which elements do you think are more relevant to gain professional gratification', 36% of young oncologists indicate in the first place work-life balance. This result confirms that balancing professional responsibilities and personal life is a main necessity. It is recognised that medical oncologists often struggle to maintain a healthy work-life balance, which becomes more difficult if the workload is heavy, as the one declared by young oncologists in this survey.¹⁴

When the participants were enquired about the elements judged relevant to gain professional gratification specifically for women and for men, substantial gender differences emerged.

Both women and men agreed in indicating work-life balance as the most relevant element specific for women. Interestingly, women provided a significantly different pattern of answers to the general question versus the question addressing specific elements for women; for example, work-life balance was the most important element for 38% and 50% of women, respectively, and intellectual stimulation/research was the most important element for 35% and 22% of women, respectively. This result certainly reflects an actual urgent necessity for women to balance work with personal life. However, this might also be the consequence of the gender stereotype and social pressure of women's specific duty to take care of the family. The internalisation of this stereotype by women might also in part explain the different patterns of answers.

Again, both women and men provided concordant answers to the question addressing elements for professional gratification specific for men. In particular, economic and social aspects gained relevance above the others. Interestingly, when comparing the pattern of answers provided by men with the general question versus the question addressing elements specific for men, the difference was striking: in the first case intellectual stimulation/research prevailed, followed by work-life balance and relation with

the patient; in the second case social prestige/recognition and career prevailed, followed by intellectual stimulation/research and remuneration. Two speculative hypothesis may be proposed. On one hand, men might have been more confident in acknowledging their professional objectives when the question concerned elements specific for men. On the other hand, these data may highlight that men have internalised from stereotypes towards their own gender. If this would be the case, young male oncologists could suffer from the pressure of a stereotype that does not reflect their real personal ambitions.

These gender stereotype pressures for both women and men, if unrecognised, may constitute obstacles in the professional life of young oncologists, influencing professional choices and hampering the actual and expected professional satisfaction and gratification.

According to the last part of the survey, focused on barriers to women's career, men do not perceive some of the proposed obstacles as relevant as women do. Overall, fewer men versus women think gender issue is an actual problem in their profession. This difference in gender gap perception is in line with the recent results of a Women for Oncology survey presented at the last ESMO Congress.¹⁵ Actions aimed at improving work-life balance and at including women in leader positions were indicated among the most useful interventions. The main message is that, according to young oncologists, in a condition affected by constant evolution, the organisational models and social context need to evolve.

In conclusion, this survey provides suggestive hints to stimulate discussion and debate among young oncologists and with older colleagues. It is important that young oncologists improve their awareness on the risk of gender stereotypes concerning both women and men in order to recognise their professional objectives and plan their professional career. Moreover, the improved awareness on gender gap is key to conceive and realise corrective interventions. Finally, it would be of value to extend the evaluation of gender gap perception and influence on professional satisfaction to other medical specialties, professionals and other geographical settings.

Author affiliations

¹Department of Surgery, Oncology and Gastroenterology, University of Padua, Padua, Italy

²Medical Oncology 2, Veneto Institute of Oncology IOV – IRCCS, Padua, Italy

³Division of Oncology, S Orsola-Malpighi Hospital, Bologna, Italy

⁴Medical Oncology Unit, Sant'Andrea Hospital of Rome, Roma, Italy

⁵Medical Oncology Unit, Cancer Care Center, Ospedale Sacro Cuore Don Calabria, Verona, Italy

⁶Medical Oncology 1, Veneto Institute of Oncology IOV – IRCCS, Padua, Italy

⁷Oncology Unit, Aziende Socio Sanitarie Territoriali di Vimercate, Monza-Brianza, Italy

⁸Division of Thoracic Oncology, European Institute of Oncology, Milano, Italy

⁹Medical Oncology Department, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy

¹⁰Department of Oncology and Hemato-oncology, University of Milan, Milano, Italy

¹¹Division of Gastrointestinal Medical Oncology and Neuroendocrine Tumor, European Institute of Oncology, Milano, Italy

¹²Medical Oncology and Immunotherapy, Center for Immuno-Oncology, University Hospital of Siena, Istituto Toscano Tumori, Siena, Italy

¹³Division of Medical Oncology, 'Ordine Mauriziano' Hospital, Torino, Italy

¹⁴Department of Oncology, University of Turin, Turin, Italy

¹⁵Laboratory of Methodology for Biomedical Research, IRCCS Mario Negri Institute for Pharmacological Research, Milan, Italy

Acknowledgements The authors would like to thank past AIOM President Carmine Pinto, current AIOM President Stefania Gori, as well as all the members of the AIOM Board of Directors and AIOM Servizi for their support and for the opportunity to conduct this survey among young Italian oncologists.

Contributors All authors contributed to preparation of the survey, data acquisition, data interpretation, work revising and final approval. MVD conceived the survey and the aim of this work, and drafted the manuscript. VT conducted statistical analyses. All authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

© European Society for Medical Oncology (unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

REFERENCES

1. Organisation for Economic Co-operation and Development. http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT (accessed Apr 2018).
2. Peters S. Introduction and results of the 2016 W4O survey. *Presented at the European Society of Medical Oncology 2016 Congress*, Copenhagen, Denmark, 2016.
3. Hamel MB, Ingelfinger JR, Phimister E, *et al.* Women in academic medicine--progress and challenges. *N Engl J Med* 2006;355:310–2.
4. Mayer AP, Files JA, Ko MG, *et al.* Academic advancement of women in medicine: do socialized gender differences have a role in mentoring? *Mayo Clin Proc* 2008;83:204–7.
5. Peters S. ESMO W4O Study on women oncologists in leadership positions. *Presented at European Society of Medical Oncology Congress 2015*, Vienna, Austria, 2015.
6. ESMO Exploratory study on the challenges of female medical oncologists. http://www.esmo.org/content/download/20624/342542/file/W4O_Stats_questionnaire_report.pdf.
7. Maslach C, Jackson SE, Leiter MP. *Maslach burnout inventory manual*. 3rd ed. Palo Alto, CA: Consulting Psychologists Press, 1996.
8. Thomas NK. Resident burnout. *JAMA* 2004;292:2880–9.
9. West CP, Shanafelt TD, Kolars JC, Life Qof. Quality of life, burnout, educational debt, and medical knowledge among internal medicine residents. *JAMA* 2011;306:952–60.
10. Linardou H, Christopoulou A, Agelaki S, *et al.* Women for Oncology in Greece: exploring common challenges. Survey of the Hellenic Society of Medical Oncology among women oncology professionals. *Presented at the European Society of Medical Oncology 2014 Congress*, Madrid, Spain, 2014.
11. Moretti A, Ghidini M, De Angelis C, *et al.* What medical oncologist residents think about the Italian speciality schools: a survey of the Italian Association of Medical Oncology (AIOM) on educational, clinical and research activities. *PLoS One* 2016;11:e0159146.
12. 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;28:1590–6.
13. Sanità24. Ssn a ostacoli per le donne medico. L'indagine di Anaa giovani. http://www.sanita24.ilssole24ore.com/art/lavoro-e-professione/2016-12-12/ssn-ostacoli-le-donne-medico-l-indagine-anaa-giovani-161910.php?uid=AD2ielCC&refresh_ce=1
14. Shanafelt TD, Raymond M, Kosty M, *et al.* Satisfaction with work-life balance and the career and retirement plans of US oncologists. *J Clin Oncol* 2014;32:1127–35.
15. Peters S. Numbers and perspectives: the situation of women medical oncologist. *Presented at the European Society of Medical Oncology 2017 Congress*, Madrid, Spain, 2017.