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A mixed methods analysis of experiences and expectations among early-career medical oncologists in Australia

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Abstract

Aim: A viable and sustainable medical oncology profession is integral for meeting the increasing demand for quality cancer care. The aim of this study was to explore the workforce-related experiences, perceptions and career expectations of early-career medical oncologists in Australia.

Methods: A mixed-methods design, including a survey ($n = 170$) and nested qualitative semistructured interviews ($n = 14$) with early-career medical oncologists. Recruitment was through the Medical Oncology Group of Australia. Qualitative data were thematically analyzed and for the survey results, logistic regression modeling was conducted.

Results: Early-career medical oncologists experienced uncertainty regarding their future employment opportunities. The competitive job market has made them cautious about securing a preferred job leading to a perceived need to improve their qualifications through higher degree training and research activities. The following themes and trends were identified from the qualitative and quantitative analyses: age, career stage and associated early-career uncertainty; locale, professional competition and training preferences; participation in research and evolving professional expectations; and workload and career development opportunities as linked to career uncertainty.

Conclusion: Perceived diminished employment opportunities in the medical oncology profession, and shifting expectations to be "more qualified," have increased uncertainty among junior medical oncologists in terms of their future career prospects. Structural factors relating to adequate funding of medical oncology positions may facilitate or inhibit progressive change in the workforce and its sustainability. Workforce planning and strategies informed by findings from this study will be necessary in ensuring that both the needs of cancer patients and of medical oncologists are met.

KEYWORDS

Australia, medical oncology, mixed-methods, workforce

1 | INTRODUCTION

In response to the increasing demands on cancer services and the need for quality cancer care, there has been renewed attention on the sustainability of the Australian medical oncology physician workforce, focused on identifying and addressing issues affecting the delivery of efficient and effective cancer care.¹ Findings from medical oncology workforce studies conducted in Australia^{1,2} and internationally^{3,4} illustrate steady changes to the medical oncology medical workforce, driven by therapeutic shifts, changing burden of disease and wider societal and economic influences.⁵ Of

significance in terms of clinical shifts are the increasing complexity of treatment options⁶; the challenges of survivorship as a result of treatment advances⁷; expanding expectations upon the workforce around each patient-per-clinic; the workforce implications of increased subspecialization; and the complexities of training availability vis-à-vis preferences.⁸ These and other workforce and professional shifts have the potential to profoundly change the character of an oncological career, particularly at the formative stages.

Although previous medical oncology workforce studies provided an overview of the workforce, hitherto they have not melded profile data with subjective experiences of the workforce. The aim of this study was

to meld an understanding of broader trends with exploration of qualitative, individual experiences of Australian medical oncologists, offering the first mixed-methods examination of workforce-related experiences. By exploring the professional structures and conditions that can hinder or foster effective and satisfying engagement in the profession, particularly for medical oncology advanced trainees and early-career consultants, we aimed to offer new insights to inform and potentially improve the sustainability of the medical oncology profession.

1.1 | Demands for cancer care

Cancer is the leading cause of disease burden and cause of death in Australia.^{7,9,10} It has been projected that the number of cancer diagnoses will rise to about 150 000 per year by 2020, an almost 40% increase from 2007.¹¹ Medical oncologists have a crucial function in meeting the healthcare needs of patients with cancer through the delivery of a range of systemic cancer therapies including chemotherapy, hormonal therapy, targeted and immune therapies.¹² Given the expanding role of medical oncologists,¹³ and emerging constraints within and beyond the specialty, it is timely to examine their professional experiences and workforce trends with a focus on sustainability over time and context.

1.2 | Adapting work practices in a transformed professional and medical landscape

In Australia, as in other parts of the world, the medical profession in general has had to adapt and transform in meeting the supply of, and demand for, medical services.¹⁴ Medicine has long been positioned as a competitive profession, shaped by the structure and demands embedded in its training and everyday work practices,¹⁵ and by the perception of it being a “safe” career.¹⁶ Establishing a medical career can be experienced as challenging as evidenced by the competition for acceptance into medical school and further into specialty training programs.¹⁷ Moreover, in meeting ongoing professional demands (e.g., being up-to-date with the latest medical advances and biomedical technologies), medical practitioners—both generalist and specialists—have to give focus to nonclinical activities such as continuing professional development and research.¹⁷ While diversifying medical work to include both clinical and nonclinical activities are construed to maintain individual professional and workforce sustainability, this diversification can also draw doctors away from clinical practice in ways that challenge and in some cases even undermine the development of a sustainable medical workforce in meeting direct patient care.¹⁸ Thus far, exploration of how such dynamics are shaping the evolution of the medical oncology workforce has been limited.

1.3 | Negotiating change in the medical oncology profession: subspecialties and intensification

Recent advances in cancer treatment are fundamentally transforming the medical oncology profession.¹⁹ Medical oncologists' expertise is systemic, and they are often positioned as the primary physician for cancer patients, from diagnosis to palliation²⁰ serv-

TABLE 1 Participant demographics (qualitative study; *n* = 14)

Characteristic		No. (%)
Sex	Female	9 (41)
	Male	13 (59)
Career stage	Advanced trainee	8 (57)
	Early-career consultant	6 (43)
Work location	Capital city/major metropolitan area	19 (86)
	Regional/rural center	3 (14)

ing as the patient interface between patients and other oncology healthcare professionals.²¹ Adding to this already distinctively positioned role of medical oncologists, further subspecialization in specific tumor streams has become common and necessary.²² Yet the impact on the profession as a whole has received limited attention. On a broader professional level, subspecialization has changed workforce experiences leading to greater intensification of the medical oncology labor process.⁵ Intensification combined with subspecialization has produced higher benchmarks for success, and the emphasis on attaining distinction through achievements is now positioned as a way of being sustainable in a changing profession.²³ This is not unique to medical oncology, for attaining a “competitive edge” is embedded in the broader medical profession as the demand for and delivery of healthcare changes.²⁴ However, the competitiveness of the profession has produced a challenging environment, particularly for those who have yet to establish their careers after qualifying or are yet to be qualified.

2 | METHODS

2.1 | Design and participants

This study is part of a larger Australian medical oncology workforce study. It employed an exploratory sequential design incorporating qualitative and quantitative data collection, using the latter to explicate and generalize findings derived from the qualitative data.²⁵ Participants for both phases were recruited through the Medical Oncology Group of Australia (MOGA) – the leading national representative body for medical oncologists. In this paper, we focus on advanced trainees (medical practitioners undertaking a three-year specialty training program in medical oncology), and early-career consultants (registered medical oncologists of <5 years). We note here that MOGA membership is optional, and includes advanced trainees and qualified medical oncologists. The qualitative phase involved the recruitment of 14 participants. For the quantitative survey method, 170 advanced trainee and early career participants were recruited from 308 MOGA members thus representing a response rate of 55.2%. Participant demographics are presented in Tables 1 and 2.

2.2 | Procedure

Ethics approval was received from an Australian University Human Research Ethics Committee [anonymized]. For the qualitative component, participants responded to an email invitation from MOGA

TABLE 2 Distribution of demographic and work situation characteristic (quantitative study) across career stage

Demographic and work situation characteristic	Advanced trainee (n = 73) %	Early-career consultant (n = 97) %	P-value
Sex			
Male	39	52	0.126
Female	60	48	
Age ^a			
<35	68	29	<0.001
35+	32	71	
Primary work location			
Capital city/major metropolitan area	94	77	<0.001
Regional/rural center	6	23	
Role (participants can have multiple roles)			
Clinician	95	99	0.166
Academic teaching	41	61	0.013
Administrator	5	23	0.002
Researcher	51	71	0.010
Other	7	4	0.500

^aNote that the questionnaire item on age gave participants the option to tick one of the predefined age categories: <35, 35–44, 45–54, 55–64, 65+. As no advanced trainees were aged 45+ years, no early-career consultants were aged 65+ years and only 7 were aged 45–54 years, a decision was made to report age as a binary variable (i.e., <35 years or 35+ years).

that included an information sheet and a consent form. Informed by snowball and convenience sampling strategy,²⁶ participants were also recruited through colleagues who either knew of or were participating in the study. All those who indicated an interest to participate were interviewed and provided written consent. Each interview lasted 60–90 min, was digitally recorded, transcribed verbatim and transcripts were de-identified. The interviews were semistructured and canvassed participants' work-related experiences (e.g., workforce-related issues, patient issues). Recruitment for the quantitative survey component involved an invitation pack distributed to all MOGA members via email. The invitation pack included an information sheet and a consent form. All participants were offered the opportunity to complete the survey via online access (SurveyGizmo). A reminder invitation pack was distributed via email, 2 weeks following the initial invitation pack and a final reminder was sent to potential participants via email 1 week prior to closing date of the on-line survey. The COREQ qualitative research reporting checklist was used to ensure comprehensive reporting.²⁷

2.3 | Data analysis

2.3.1 | Qualitative data analysis

We drew on thematic analysis²⁸ to analyze the qualitative data from a phenomenological perspective. This perspective takes interview participants' accounts of their experiences, and the manner in which these experiences are subjectively interpreted and understood, as shaping their worldviews.²⁹ The initial phase of the analysis (immersion)

involved reading and rereading the transcripts to identify emergent patterns. The transcripts were initially coded for specific themes by two members of the research team, and these themes were collated to check for patterns of variability and consistency across all interview accounts. Themes were identified on the manifest level (i.e., able to be read in the transcripts) and on the latent level (i.e., themes that were generated inductively from the transcripts).³⁰ This involved constant discussion with two additional members of the research team, which facilitated the sharing of ideas that were identified in the data, development of themes and examination of their significance in the context of the study. This part of the analysis process was informed by knowledge gained from review of available literature and the research team's subjective understanding of the issues pertaining to the topic. We further drew on extant literature and conceptual tools that were useful in examining and analyzing the identified themes from the data. Following the initial analysis of the interviews with the 14 participants, informed by the concept of saturation in qualitative research,³¹ the researchers agreed that no new themes relating to the topics of study were likely to be identified from further interviews.

2.3.2 | Quantitative data analysis

Data are presented in absolute and relative frequencies for dichotomous or categorical variables. To determine the most important factors associated with concern about career prospects, demographic (age: <35 years or ≥35 years; gender; undertaking a higher degree: yes/no; primary work location: capital city, major metropolitan area, regional or remote area), work-related (career stage: advanced trainee, early-career consultant; roles currently undertaken: clinician, academic, administrator, researcher; patients (on average) they would see per week) and career-related measures (satisfaction with career development opportunities available within their work environment, measured on a 5-point Likert scale ranging from very dissatisfied to very satisfied) that had a bivariate (based on Student's *t*-test, chi-square or Fisher's exact test, where appropriate) *P*-value <0.25, were entered into a logistic regression model. Then a backward stepwise elimination process was employed, using a likelihood ratio test, to eventually produce the most parsimonious model. All analyzed were conducted using the statistical software Stata 14.1.

3 | RESULTS

Here we report on the themes identified from analysis of the individual interviews, alongside analysis of the survey data. The interview participants interviewed offered detailed accounts of their experiences within the workforce, their workforce expectations and their preferences and aims for career development. It was evident from the accounts provided in the qualitative interviews that employment opportunities were perceived as highly precarious, expectations for future appointments in preferred locations or institutions were cautious, and there are implicit, if not explicit, expectations to be "more qualified" in the field of medical oncology through higher degree training and research activities. The survey data then provided additional

TABLE 3 Logistic regression model output identifying the factors associated with concern about career prospects, for the advanced trainees and early-career consultants

Independent variables		Adjusted odds ratio	95% CI	P-value
Age group	<35 years (n = 78)	4.76	1.20, 9.09	0.021
	≥35 years (n = 92)	1.00	–	
Primary work location	Capital City (n = 106)	10.99	2.73, 44.17	0.001
	Major Metro. (n = 38)	2.32	0.60, 9.04	0.222
	Regional/Remote (n = 26)	1.00	–	
Position [career stage]	Advanced Trainee (n = 73)	7.14	2.08, 25.00	0.002
	Early-career consultant (n = 97)	1.00	–	
Undertaking research work	No (n = 64)	9.09	2.44, 33.33	0.001
	Yes (n = 106)	1.00	–	
Career development opportunities	Dissatisfied (n = 43)	6.22	1.79, 21.61	0.004
	Neutral (n = 48)	1.54	0.53, 4.48	0.424
	Satisfied (n = 79)	1.00	–	
Total patients (per week)	Per 10 patients	0.85	0.74, 0.98	0.025

insight into such trends around career and workforce expectations and prospects (which we explore below). Table 2 compares the demographic and work situation characteristics of the advanced trainees and early-career consultants. In comparison to the early-career consultants, the advanced trainees are younger ($P < 0.001$), are more likely to have a primary work location in a capital city or major metropolitan area ($P < 0.001$) and are less likely to undertake academic teaching ($P = 0.013$), administrator roles ($P = 0.002$) or undertake research ($P = 0.010$). Table 3 presents the results of regression modeling that identified the significant factors associated with participants' perceptions of their career prospects. Table 4 presents indicative quotations from the qualitative interviews.

3.1 | Age and career stage: early career uncertainty

Within the qualitative interviews (indicative quotations are shown in Table 4), participants offered accounts illuminating the uncertainty with respect to career prospects they observed and personally experienced within the workforce. There was significant uncertainty in terms of career prospects within both the survey and qualitative interview cohorts, particularly for advanced trainees. The survey data indicated that participants who were younger, and working as an advanced trainee were more likely to be concerned about their career prospects. When compared with early-career consultants, advanced trainees were 7.14 times more likely to be concerned about their career prospects. Participants aged under 35 years were 4.76 times more likely to be concerned about careers prospects, when compared with participants aged over 35 years. Within the qualitative interviews, there were regular and consistent accounts of concern of a perceived disproportionate growth in the number of advanced trainees as compared to employment opportunities. Furthermore, the current economic climate—whereby senior consultants are remaining employed beyond retirement age—was talked about in the interviews as limiting the number of positions available for those entering the workforce³² (a trend not restricted to oncology, or indeed medicine, but worthy of

considering in this context). Contrary to oncological workforce trajectory trends in previous decades where there were reported challenges to filling advanced trainee positions,^{1,33} our findings show a perceived shift in professional opportunities in oncology, with the broad assumption that a career in medical oncology was becoming precarious. Most participants indicated that the current employment situation reflected an unprecedented level of competition for medical oncologist positions.

3.2 | Locale, professional competition and training preferences

Perceived diminished employment opportunities were described by qualitative interview participants as resulting in an increasingly competitive job market, privileging and elevating the significance of certain jobs. As indicative quotations in Table 4 illustrate, the most prominent of these was that of job location. Indeed, all of the interview participants distinguished “city” or urban jobs from regional or rural ones, with city jobs perceived to be much more desirable. The majority of interview participants talked about the greater opportunity for employment in non-city areas, an experience not unique to the medical oncology specialty as these areas were often underserved by medical services and specialists.³⁴ This was also related to expectations for qualifications and/or experience, with city jobs associated with higher expectations for additional qualifications or research experience. That is, a perception that, as one participant put it “PhD in the city, no PhD in the country” (P21, early-career consultant, male, city). The survey data are shown in Table 3. Interestingly, when compared with participants who were working in a regional/remote area, survey participants who were working in a capital city were 10.99 times more likely to be concerned about their career prospects. Participants' qualitative interview accounts suggested that although there was a desire to practice oncology on their own terms and in a setting of their own choosing, the opportunity to do so was less available as a result of the perceived

TABLE 4 Indicative quotations from qualitative interviews

Age and career stage: early career uncertainty
It's a dogfight basically for jobs...As soon as you match up who's coming out at the end with the jobs that are actually available, where is everyone going to go? (P13, early-career consultant, female, city)
We know that the public system is groaning but where are we all going to be sort of working in the future...I think all young oncologist and trainees do know that there's a limited capacity within the public system...and there are many people like myself who are finishing their training and wondering where to next you know... (P18, advanced trainee, male, city)
Obviously, there's far more trainees coming through now and there's more patients but there has not been a reciprocal increase in public hospital positions and funding. That's a source of angst for many people. (P21, early-career consultant, male, city)
Locale, professional competition and training preferences
Everyone probably wanted to work in the city but we're now, in the last few years, there's just not the jobs in the city anymore and that's now being realized by the workforce and so people are now actively moving out of the city for work. (P2, early-career consultant, male, regional)
I wouldn't discount it [practising in non-city areas] mainly because the city jobs are getting more and more competitive and maybe they won't be there when we finish, when I finish. (P5, advanced trainee, female, city)
It's pretty much accepted now that doing three years in [city], three clinical years in [city] and that's it for your training, unless you want to go and work in [a regional area] or somewhere rural full-time, it would be hard to get a job, to get a foot in the door at any [city] teaching hospital. (P13, early-career consultant, female, city)
Research participation and evolving professional expectations
You're pressured into maybe getting a higher degree...because you know that there are not a lot of positions coming up as a consultant...and it's very unlikely that you're going to get a position without some sort of research background...I say the word pressured because maybe I wasn't that motivated to do this before. (P12, advanced trainee, female, city)
To participate in research on the understanding that this is such an incredibly important aspect of our careers and that is almost like an ethos which is drummed down into our throats and it's almost as if people are unemployable if they don't have higher research degrees. I personally think it's a bit of a crock. (P15, advanced trainee, male, city)
Some people have said to us that we need to do projects, we need to do this and that, so it's actually been said to us and also you can see what's happening. People are doing research outside of work or after they finish, they do PhDs and stuff because that's the only way they see themselves getting a job later on. (P22, advanced trainee, female, city)
Workload and career development opportunities
Because of the workload, I'm unable to attend conferences for professional development and learning new medical updates. I'm stuck here, overwhelmed by the number of patients that I have to see day-in-day-out. (P1, early-career consultant, male, regional)
But then from a trainee perspective, or a young oncologist perspective, there are no jobs for starters, but there are jobs in research...most of us are now going into research as a holding pattern for several years and you produce good stuff whilst you wait for something to come up. (P13, early-career consultant, female, city)
The bits that are challenging for me at the moment I think are sort of the work-life balance, the job security, the competition, the having to do research on top of 50, 60, 70 hour weeks, the stress, seeing everyone else stressed and not happy. (P11, advanced trainee, female, city)

hyper-competitive market. In this respect, personal choice in terms of which location to practice is seen to be becoming precarious.

3.3 | Research participation and evolving professional expectations

Within the qualitative interviews, regarding job opportunities and career prospects, there was a significant emphasis on the necessity to gain nonclinical skills—namely, higher qualifications and research-intensive experiences—to achieve distinction from others. As indicative quotations in Table 4 illustrate, there was a broadly taken-for-granted view across the participants that their base qualifications were insufficient for certain career paths. The opportunity to conduct research work as well as direct patient care work was considered by participants to be advantageous with regards to career prospects. When comparing with participants who were undertaking research work, survey participants who were not undertaking research work were 9.09 times more likely to be concerned about their career prospects. Viewing higher degree qualifications as a more secure way forward was contested by a minority of interview participants, who raised questions about the realities of seeking and gaining higher

qualifications, particularly if the purpose of the qualifications was for securing the ideal job rather than benefiting practice. In this regard, a better qualified profession might not necessarily lead to better patient care if the infrastructure required is not available.

3.4 | Workload and career development opportunities

Within the qualitative interview phase, opportunities for career development were talked about as important in leading to career advancement, but were seen to be elusive and predicated on the structure of work settings. As indicative quotations in Table 4 illustrate, opportunities for career support and development were linked to career uncertainty; this was evident in both the survey responses and the qualitative interview data. Participants who were dissatisfied with their career development opportunities were 6.22 times more likely to be concerned about their career prospects, as compared with those who were satisfied. A range of issues, such as the structure of work demands, work settings and appropriate structural resources, were raised within the interviews as necessary for facilitating and developing a sustainable and effective workforce. Consistent with findings

suggesting that training hospitals are not able to meet the demands for training positions,¹⁷ participants perceived government funding to be inadequate in meeting the needs of advanced trainees. As indicative quotations in Table 4 illustrate, a key point raised by several interview participants was the balance between engaging in nonclinical activities and managing patient workload. While engaging in nonclinical activities has been positioned to be a positive transformation in the medical profession,^{17,18} qualitative interview participants talked about the increasing emphasis on “research as a holding pattern.” That is, as a mechanism for managing perceived diminishing clinical opportunities. Indeed, for some qualitative interview participants, the additional pressure to strive for distinction by engaging in non-clinical activities on top of clinical work (or in place of clinical job opportunity) produced stress and dissatisfaction. In this context, although work intensification through achieving distinction was meant to produce sustainability in a profession with perceived diminished opportunities, the pressure to engage in these endeavors can paradoxically serve to entrench professional dissatisfaction and arguably impact the sustainability of the profession. Interestingly, in terms of demands for their services, for every additional 10 patients treated per week by participants, the odds of them being concerned about their career prospects decreased by 15% (i.e., OR = 0.85). This suggests a landscape where there is significant uncertainty for early-career medical oncologists who have not secured full time clinical positions.

4 | DISCUSSION

This mixed methods study provides important insights into the collective and individual experiences of Australian medical oncologists, augmenting previous work on the sustainability of the medical oncology workforce in Australia.^{1,5} The survey and qualitative interview data analysis indicate that issues relating to job opportunities and career prospects have produced uncertainty within the early-career members of the profession, which in turn can potentially impact current and future workforce sustainability. This is a particularly crucial distinction given cancer incidence is increasing and thus not only more oncologists are needed but the required infrastructure needs to be in place in order to deliver efficient and effective cancer care.

For early-career medical oncologists who are embarking (advanced trainees) or have just embarked (early-career consultants) on a career in medical oncology, changes in the structure of the profession and perceived employment landscape seem to have resulted in worker insecurity and uncertainty. This is in contrast to the relative security that characterized the profession reflected in previous workforce studies where, for example, there was an undersupply of advanced trainees.¹ In this context, and from these oncologists' accounts, a medical oncology career may be perceived as increasingly unstable and with greater expectations in terms of qualifications.³⁵ The embedded and potentially enhanced intra-specialty/profession competition has in turn produced a situation where employability and sustainability for individual oncologists have become paramount.⁵ Although nonclinical skills (e.g., higher qualifications, research-intensive experiences) have been

promoted as being crucial in developing a comprehensive oncology career,^{17,18} the data offered here indicates that such activities can also produce negative connotations, including placing unwanted and counter-productive professional pressure on all oncologists. This is particularly evident among early-career oncologists, which paradoxically might reduce their individual professional productivity, longevity and sustainability.

The above issues highlight that the training (supply) of medical oncologists in meeting projected demands of their services is not straightforward. Although it has been clear that the number of trained medical oncologists needs to increase, as appropriate to disease burden,¹ structures also need to be in place to accommodate the increasing number of oncologists and to facilitate their career prospects. Addressing and resolving workforce-related issues need to be about sustaining the individuals who constitute the workforce by affording them the resources to develop—for example, funding of hospital-based facilities and positions.³⁶

One of the strengths of this study was the use of mixed-methods to elicit both qualitative, narrative accounts and quantitative broad workforce trends, offering significant insight into the work experiences of Australian early-career medical oncologists. This study also has various limitations. Participants were self-selected and thus the sample might only reflect particular views about workforce issues. Although our findings provide clarity and insight into the experiences of medical oncologists early in their careers, further research on the impact of increased workload (e.g., increasing patient numbers and treatment volume intensification) on work experiences, the implications of working in different subspecialties, geographic locations and public and private practices is needed to afford deeper understanding of the workforce experience.

5 | CONCLUSION

Medical oncology workforce studies are critical for understanding and positioning workforce needs in relation to those of patients. There are structural factors and dynamics at play that facilitate or inhibit progressive workforce change, and in turn, meet patients' needs. Specific to this study, this includes the provision of resources, such as the crucial issue of adequate funding of medical oncology positions, to deliver quality cancer care.³⁷ A perceived lack of medical oncology positions exposes segments of the profession to career concern and uncertainty. Indeed, whether or not striving to increase the number of trained medical oncologists can potentially and adequately resolve outstanding issues to ensure an effective, efficient and sustainable workforce remains a critical question.³⁸ Workforce planning and strategies informed by findings from this study will be necessary in ensuring that both the needs of patients with cancer and of medical oncologists are met.

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