



Patients' perspectives of the skills and competencies of therapy radiographers/radiation therapists (TRs/RTTs) in the UK, Portugal and Malta; a qualitative study from the SAFE Europe project

Flood, T., O'Neill, A., Oliveira, C., Barbosa, B., Soares, M. A. L., Muscat, M. K., Guille, S., Mc Clure, P., Hughes, C., & McFadden, S. (2023). Patients' perspectives of the skills and competencies of therapy radiographers/radiation therapists (TRs/RTTs) in the UK, Portugal and Malta; a qualitative study from the SAFE Europe project. *Radiography*, 29, 1-11. <https://doi.org/10.1016/j.radi.2023.03.002>

[Link to publication record in Ulster University Research Portal](#)

Published in:
Radiography

Publication Status:
Published online: 21/03/2023

DOI:
<https://doi.org/10.1016/j.radi.2023.03.002>

Document Version
Publisher's PDF, also known as Version of record

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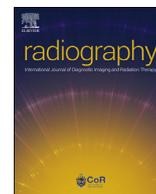
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Contents lists available at ScienceDirect

Radiography

journal homepage: www.elsevier.com/locate/radi

Patients' perspectives of the skills and competencies of therapy radiographers/radiation therapists (TRs/RTTs) in the UK, Portugal and Malta; a qualitative study from the SAFE Europe project

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ARTICLE INFO

Article history:

Received 9 December 2022

Received in revised form

8 February 2023

Accepted 2 March 2023

Available online xxx

Keywords:

Radiographer

Radiation Therapist

Europe

Patient

Experience

Trust

ABSTRACT

Introduction: The role of the Therapy Radiographer/Radiation Therapist (TR/RTT) is to provide radiotherapy to patients with a cancer diagnosis. This includes, not only administration of treatment, but also management of side-effects and provision of support/care. Despite this role being consistent throughout Europe, there is currently no standardisation of education for TRs/RTTs. The SAFE EUROPE project aims to standardize TR/RTT education to enable 'safe and free exchange' of TRs/RTTs across Europe. Consequently, this study aims to explore patients' perspectives regarding the current skills and competencies of TRs/RTTs. **Methods:** From May 2021 to February 2022, semi-structured interviews were conducted with patients who had recently received radiotherapy in the UK, Malta and Portugal. Ethical approval for this study was granted by the NHS Research Ethics Committee with additional local approvals obtained.

Results: Forty-eight participants from the UK (n = 18), Portugal (n = 19), and Malta (n = 11) completed interviews. Participants described high satisfaction with TRs'/RTTs' competence and skills in all three countries. The main theme arising from the analysis was the importance of trust building with TRs/RTTs. Six factors were identified as influencing levels of trust: communication; side-effect management; team consistency; relational skills; patient dignity; and competence. A small number of patients reported feeling rushed and not having their physical and emotional needs met by TRs/RTTs.

Conclusion: This multicentre study demonstrated that patients perceive TRs/RTTs in the UK, Malta and Portugal as highly competent and skilled. Practical recommendations are provided to address identified deficits in practice, which can be addressed through adaptation of TR/RTT education/training and clinical practice.

Implications for practice: Recommendations arising from this study are important to ensure that TRs/RTTs have transferable skills that provide consistently high quality care to patients throughout Europe.

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Introduction

Although the practice of Therapy Radiographers/Radiation Therapists (TRs/RTTs) is relatively homogenous globally, differences exist within the education and training of TRs/RTTs in various countries.¹ Currently, in Europe, there is no standard regulation of training and education for TRs/RTTs, resulting in a variation in skills, knowledge, competencies, attitudes and professional cultures.² Despite these differences, the primary role of the TR/RTT is

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<https://doi.org/10.1016/j.radi.2023.03.002>

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Please cite this article as: T. Flood, A. O'Neill, C.M. Oliveira *et al.*, Patients' perspectives of the skills and competencies of therapy radiographers/radiation therapists (TRs/RTTs) in the UK, Portugal and Malta; a qualitative study from the SAFE Europe project, *Radiography*, <https://doi.org/10.1016/j.radi.2023.03.002>

to deliver radiotherapy to patients with a cancer diagnosis over a period of several weeks, often adjuvant to other treatment modalities.^{3,4} Consequently, TRs/RTTs are aptly positioned to provide support and guidance to patients whose lives are impacted by their diagnosis and treatment. Throughout this period, patients are tasked with developing relationships with TRs/RTTs and a belief that TRs/RTTs will act in their best interests,^{5,6} enabling them to make informed decisions about their healthcare.⁶

The SAFE EUROPE project⁷ was set up with the aid of ERASMUS + funding under Sector Skills Alliance Key Action 2 – Cooperation for innovation and the exchange of good practices.⁸ The project consisted of 12 work packages (WPs) with WP 3–8 specifically aimed at exploring the competencies of TRs/RTTs throughout Europe. This involved an exploration of education and training across different dimensions: linear accelerator skills (WP3 and 4), patient perceptions of the role of the TR/RTT (WP5), green skills related to the environment and circular economy (WP6), digital skills in radiotherapy (WP7), and advanced practice by TRs/RTTs (WP8). The overall aim of the project was to identify variations and offer recommendations to standardise the training and education of TRs/RTTs throughout Europe, ensuring TRs/RTTs are providing optimal care to their patients. The goal of the SAFE EUROPE project was to make recommendations to standardise radiography education to enable 'safe and free exchange' (SAFE) of EU radiography professionals across Europe. Standardisation of competencies will also aid the Health and Care Professional Council (HCPC), the regulatory body for TRs/RTTs within the UK, to more rapidly make decisions regarding applicant eligibility. With an increase of 60% in international HCPC applications within the last 12 months,⁹ this process may help to streamline the HCPC registration process, benefiting the severely understaffed radiography workforce in the UK.¹⁰

This project aligns with recent work undertaken by other Allied Healthcare Professionals (AHPs), whose goals were also to standardise competencies within their professions throughout Europe; the European Federation of Association of Dietitians (EFAD)¹¹; the Tuning Project in Occupational Therapy¹²; and respiratory physiotherapist competencies through The Harmonised Education and Training in Respiratory Medicine for European specialists (HERMES).¹³

This paper presents Phase 2 of WP5 of the project, which aimed to explore patients' perceptions of the role of the TR/RTT and their interactions with the TR/RTTs whom they encountered during their radiotherapy pathway. As stated by the WHO European Programme of Work, 'patient engagement is a critical component of high-quality, integrated and people-centred health services'.¹⁴ WP 5 of the project included patients from three SAFE EUROPE member countries; the UK, Portugal and Malta.

Methods

Study design

The study consisted of 2 phases;

Phase 1: A cross-sectional survey was distributed to patients who were undergoing radiotherapy or had undergone radiotherapy in the preceding 2 years. This survey was distributed in four countries; the UK, Portugal, Poland and Malta.

Part A of the survey requested information relating to participant gender, age, cancer diagnosis, country where radiotherapy was delivered, treatment intent (radical/palliative), length of daily treatment set-up, time spent daily with RTTs and fractionation.

Part B of the survey was a modified Person-Centred Practice Inventory - Staff (PCPI-S).¹⁵ It consisted of 23 statements relating to aspects of person-centred care. Participants ranked their level of

agreement with each statement on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). The survey was translated for use in each of the participating centres by the respective SAFE EUROPE members.

The results of this survey (Phase 1) will be published in a separate publication.

Phase 2: An Interpretative Phenomenological Analysis (IPA) approach was chosen using semi-structured interviews. IPA explores 'how people ascribe meaning to their experiences in their interactions with the environment' (p215)¹⁶ and semi-structured interviews are considered an ideal format to provide this insight.^{17,18} Collation of findings from a systematic literature review and analysis of the Phase 1 data, informed the content of the semi-structured interviews.

The interviewers were qualified TRs/RTTs working in the respective countries and all interviewers completed a qualitative practical skills workshop hosted by Ulster University. This workshop ensured that all interviewers were appropriately trained in conducting interviews to a consistently high standard.

Ethical considerations

Ethical approval, for both phases of this study, was granted by the NHS Research Ethics Committee (IRAS: 277,006) with additional local approvals obtained for each partner site as required. A data sharing agreement was developed to enable sharing of study data between EU sites and the UK. All collated data was securely protected in alignment with the UK Data Protection Act (2018) and GDPR regulations (UK and Europe) alongside additional data protection regulations within Ulster University.

Recruitment

Participants >18 years old were eligible to participate if they had been treated with radiotherapy for a cancer diagnosis within 2 years of the interview.

In Malta and Portugal, participants were recruited into Phase 1 of the study through information provided by gatekeepers who were designated TRs/RTTs who worked on the radiotherapy treatment units, including TRs/RTTs involved in this study. Due to their motivation to complete the research, most participants were approached and recruited by the TRs/RTTs who were involved with this study. In the UK only, the local hospital research ethics and governance approvals were delayed due to COVID-19, and therefore the survey was distributed to eligible patients via the social media platforms Twitter and Facebook, targeting patient groups including @BreastDense, @TargetOvarian, @cancer_stories, @LivingBeyond BC and @OwProstate Ca.

All participants were recruited into Phase 2 of the study through the Phase 1 cross-sectional survey, where they were asked if they would like to participate in a more in-depth interview about their experience with TRs/RTTs during radiotherapy. In the UK, due to the geographical spread of participants and the ethical constraints of COVID-19, interviews were conducted online via Microsoft Teams. In Malta, interviews were conducted face-to-face within the radiotherapy departments. In Portugal participants were interviewed online, face-to-face and over the phone, depending on their preference.

Data collection

A standardised participant information sheet (PIS) and consent form was approved and distributed to all study sites for this phase of the study. Patients were provided with opportunities to have questions or concerns answered prior to providing written consent

for the interview. Interviews in the UK were conducted in English while interviews in Portugal were conducted in Portuguese and translated using a professional translation service. Interviews in Malta were conducted in either English or Maltese and were subsequently professionally translated as required.

Standardised interview questions were provided to each site (Appendix 1). In Portugal, three interviewers conducted the interviews separately, and in the UK and Malta the same local interviewer conducted the interviews. Due to time constraints, the interview was not piloted prior to recruitment.

Data analysis

IPA acknowledges that the interviewer may have preconceived perceptions of the topic which can impact interpretation and therefore it includes strategic steps to eliminate this potential bias.¹⁶ While the reflexivity of the interviewers cannot eliminate bias, IPA encourages bracketing, a reflective method whereby interviewers put aside what they already know about the subject and consciously approach the data mindful of this potential bias.¹⁹ In IPA, thematic analysis is usually applied to the data using an iterative approach.^{18,20,21} As a result, two experienced members of the UK research team independently analysed the data using thematic analysis with the support of NVivo. This involved a 2-stage coding process as described by Toye et al.²¹ In the first phase, line-by-line coding was completed independently by two researchers within the team. One of the researchers was a qualified TR/RTT while the second researcher had a healthcare background but not in radiotherapy. This combination of research backgrounds was deemed most suitable to increase the validity of the findings as the 2nd researcher was not influenced by pre-conceived notions about patients receiving radiotherapy. The 2nd phase of the coding involved connecting codes together and ascertaining links between codes²¹ to ultimately create sub-themes and themes. This was an ongoing process which involved continuous communication between the two researchers until overarching sub-themes and themes were agreed.

Once the full UK data coding was complete, a codebook was generated for coding of interviews from Malta and Portugal (as described by Roberts et al., 2019).²² This deductive approach provided a conceptual framework²³ promoting a consistent approach between all teams during the thematic analysis process.

To further increase consistency, one member of the UK team coded all 48 interviews while second researchers within the European team, coded sets of interviews independently. Any information, which did not fit into the pre-designed codes, was 'inductively' coded with agreement between the two coding researchers and added to the codebook. This practice is commonly accepted in deductive analysis and removes potential limitations imposed by this analysis.²³ The new code was then shared with the whole research team to ensure addition to the codebook. To optimise intercoder reliability, any discrepancies between the 1st and 2nd coding were discussed and agreed. When disagreement occurred, coding was discussed with other team members until consensus was reached.

Results

Forty-eight participants completed interviews (18 males, 30 females). These participants were from the UK (n = 18), Portugal (n = 19), and Malta (n = 11) and interview times ranged from 20 min to 1 hour 20 min. See relevant demographic information in Table 1.

Table 1
Demographics of participants.

Participant ID	Gender	Diagnosis (treatment area)	Number of fractions
Malta (M)			
M1	Male	Chondrosarcoma (Sacrum)	30
M2	Female	Breast cancer (Breast)	5
M3	Male	Colorectal (Rectum)	25
M4	Male	Prostate (Prostate)	20
M5	Male	Melanoma (Neck)	10
M6	Male	Prostate (Prostate)	20
M7	Male	Head and Neck cancer (head and neck)	30
M8	Male	Prostate (Prostate)	20
M9	Male	Prostate (Prostate)	20
M10	Male	Colo-rectal (Rectum)	25
M11	Male	Chordoma (Unknown)	30
United Kingdom (U)			
U1	Female	Breast cancer (Breast)	20
U2	Female	Breast cancer (Breast)	15
U3	Female	Breast cancer (Breast)	15
U4	Female	Breast cancer (Breast)	7
U5	Female	Breast cancer (Breast)	5
U6	Female	Breast cancer (Breast)	5
U7	Female	Breast cancer (Breast)	5
U8	Female	Breast cancer (Breast)	5
U9	Female	Breast cancer (Breast)	5
U10	Female	Breast cancer (Breast)	5
U11	Female	Breast cancer (Breast)	5
U12	Female	Breast cancer (Breast)	5
U13	Female	Breast cancer (Breast)	5
U14	Female	Breast cancer (Breast)	5
U15	Female	Pancreatic cancer (Pancreas)	30
U16	Female	Secondary cancer (Unknown)	1
U17	Male	Brain cancer (Brain)	30
U18	Male	Prostate cancer (Prostate)	20
Portugal (P)			
P1	Female	Breast cancer (Breast)	20
P2	Male	Head & Neck cancer (head and neck)	33
P3	Female	Lymphoma (Unknown)	17
P4	Male	Lymphoma (Unknown)	20
P5	Female	Breast cancer (Breast)	25
P6	Male	Prostate cancer (Prostate)	20
P7	Female	Breast cancer (Breast)	20
P8	Female	Colorectal (rectum)	28
P9	Female	Lymphoma (Unknown)	17
P10	Male	Prostate cancer (Prostate)	33
P11	Female	Breast cancer (Breast)	25
P12	Female	Breast cancer (Breast)	20
P13	Female	Uterine cancer (Uterus)	35
P14	Female	Breast cancer (Breast)	25
P15	Male	Prostate cancer (Prostate)	20
P16	Female	Breast cancer (Breast)	25
P17	Female	Breast cancer (Breast)	25
P18	Male	Secondary cancer (Unknown)	33
P19	Female	Breast cancer (Breast)	25

Throughout all 48 participant interviews, participants spoke about their daily interactions with the TR/RTTs. From analysis of the data, one overarching theme emerged;

'The importance of building trust with TRs/RTTs during radiation therapy treatment.'

Six specific sub-themes emerged which were found to influence patients' trust with their treatment TRs/RTTs. These sub-themes are captured in Fig. 1. These included patients' perception regarding;

1. Communication with TRs/RTTs.
2. TRs'/RTTs' management of their side-effects.
3. Consistency within the TR/RTT team.
4. TRs'/RTTs' relational skills.
5. TRs'/RTTs' protection of patient dignity.
6. TRs'/RTTs' competence.

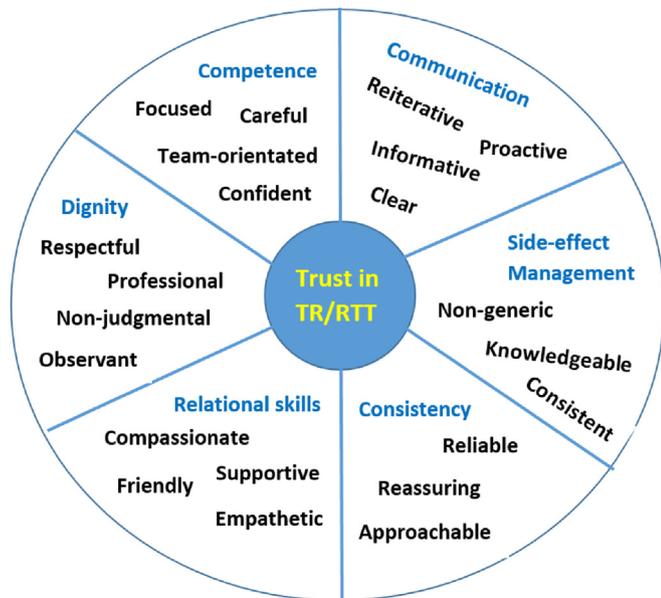


Figure 1. Sub-themes with TR/RTT qualities which are linked to participants' trust in the radiotherapy team.

Communication with TRs/RTTs

Over 83% ($n = 40$) of participants described high satisfaction with TRs/RTTs' communication throughout their radiotherapy pathway. Participants, who highlighted negative aspects of the simulation/treatment process, often indicated that they were experiencing heightened distress/anxiety. Table 2 summarises participants' perceptions regarding positive and negative aspects of communication.

Some identified gaps in information were related to:

- imaging processes, associated rationale and changing phases of treatment;
- rationale for bladder/bowel preparation to improve patient compliance;
- parameters on the display screen; and
- the exact area being treated.

Table 3 captures participants' experiences regarding communication with TRs/RTTs.

TRs/RTTs' management of side-effects

Differences were noted in the provision of information on side-effects and management during radiotherapy between the three

Table 2
Highlights of both positive and negative aspects of communication with TRs/RTTs.

Positive aspects of communication perceived by participants included TRs/RTTs:
<ul style="list-style-type: none"> • Introducing themselves by name and role • Asking patients their preferred name • Clearly explaining the simulation, radiotherapy and verification processes • Allowing sufficient time for questions
Negative aspects of communication perceived by participants included TRs/RTTs:
<ul style="list-style-type: none"> • Failure to address participants by their preferred name • Inadequate provision of information • Lack of clear, continuous communication during the simulation/treatment process

Participants' information needs varied significantly, ranging from those not needing to know anything about the technical side of treatment to those who wanted to understand all aspects of the treatment.

countries. Generally, TRs/RTTs in the UK provide 1st day education (including anticipated side-effects) and dedicated "review" radiographers lead weekly review clinics alone. In Malta, TRs/RTTs complete the 1st day education while review clinics are led by a medical clinician but include a nurse and a TR/RTT. In Portugal, nurses provide the 1st day education and review patients with the oncologists during treatment. TRs/RTTs provide information to patients daily regarding management of side-effects in all three countries.

In Malta and the UK, 73% ($n = 8$) and 67% ($n = 12$) of participants respectively, described high satisfaction with the monitoring and management of their side-effects. In Malta, some participants felt that having three professionals in the review clinics was unnecessary and they lacked awareness of each professional's role.

Portugal had the lowest satisfaction rates with 53% of participants providing positive comments. While these participants felt that the information provided by nurses, TRs/RTTs and doctors was very consistent, many participants felt that TRs/RTTs should provide all the information regarding side-effect management, as they perceived TRs/RTTs as the experts in radiotherapy. They indicated that nurses provided very generic information, which often sounded like a list that they were required to complete rather than adapting their conversation to individuals' needs. Table 4 captures participants' perceptions regarding TR/RTT management of their side-effects.

Consistency within the TR/RTT team

In Portugal, 15 out of 19 participants described having a highly consistent team throughout their treatment with at least one consistent person daily. This provided many participants with comfort/security, while for others this enabled them to form stronger bonds with the TRs/RTTs.

In the UK, all six participants who received longer radiotherapy courses (>10 treatments) placed high importance on having consistency in the TR/RTT team. The 12 participants who had a short course of radiotherapy treatments (<10 treatments) were divided regarding the importance of having daily TR/RTT consistency. Of the five participants who expressed that they would like greater

Table 3
Participants comments regarding TR/RTT communication of information.

Participants' positive comments regarding communication during the radiotherapy pathway
<p><i>'It was like a completely different language that they were talking. It was amazing... they continually were explaining, this is why we are doing this...so although you were hearing all this medical jargon, I didn't feel overwhelmed at all because they were continually coming back and saying, we just need to move you slightly this side. Which I thought was very good.'</i> (U3)</p> <p><i>'I had a sense of well-being because they were excellent communicators. From the moment I arrived until I left...I never felt alone.'</i> (P16)</p> <p><i>'They were always informative. Proactively informative in a sense that I did not have to ask them for feedback myself, they used to provide this information without me even asking. That was excellent. They had no problems taking some time out to speak to you, even if this meant that other patients had to be delayed just that bit.'</i> (M10)</p>
Participants' negative comments regarding communication during the radiotherapy pathway
<p><i>'I was just lying there thinking, what's going on? Why isn't it starting? I did feel really panicked, and I just thought, I just want to get off this bed. They were both in the other room and there was nothing coming on the intercom for quite a while ... and I thought they could have, A, told me earlier, or B, let me know in a slightly different way...'</i> (U2)</p> <p><i>'They called me [first name]. And I hate that. I hate it with a vengeance.'</i> (U16)</p> <p><i>'I couldn't see much and I really like to know what's happening so that's why I felt curious. So maybe first time round if they had explained like 'listen, the machine will be coming down, it will make a slight noise, don't worry, you're not going to feel any effects. I mean they explained literally nothing.'</i> (M5)</p>

continuity in the TRs/RTTs, four indicated experiencing high anxiety during the radiotherapy pathway.

In Malta, all 11 participants described having little or only some consistency in their radiotherapy team. The interviewer did not probe the participants regarding whether they felt consistency was important.

In all three countries, some participants expressed safety concerns when TRs/RTTs changed throughout the treatment due to anxiety regarding the knowledge of other TRs/RTTs about their individual treatment. See Table 5 for specific participant comments regarding this sub-theme.

TRs/RTTs' relational skills

Relational skills refer to how well TRs/RTTs interacted with and related to participants and included compassion, empathy and support.²⁴

Over 83% (n = 25) of participants from Portugal and Malta combined, described TRs/RTTs as having an important role in supporting them psychologically. They described TRs/RTTs as friendly/nice/welcoming/lovely/sweet/cheerful with strong social and listening skills. They felt that TRs/RTTs provided them with support, encouragement and reassurance (especially in times of anxiety), giving them the strength to complete their treatment. These participants described the kindness of the TRs/RTTs, explaining how they felt cared for, and 'pampered' by them. Building rapport with TRs/RTTs was very important to these participants.

In the UK, only 9 out of 18 (50%) participants commented on the importance of TRs/RTTs in supporting them emotionally during the treatment. Patients with short course radiotherapy (<10 fractions) were less likely to view TRs/RTTs as a source of support. Participants who had longer course radiotherapy (≥10 treatments) placed a

Table 4

Participants' comments regarding the management of their radiation side-effects.

Participants' positive comments regarding the monitoring and management of their side-effects during radiotherapy
<i>'They explained everything even if they see any changes with regards to my side effects, especially towards the end of treatment, because of the radiotherapy. They re-assured me and explained in a lot of detail that this is happening because of this and that.'</i> (M10)
<i>'They explained to me about the redness... the burning, the pain would last for a while...when I was feeling that pain, if I wasn't told I'd have probably thought something was wrong. But because they explained to me exactly what was happening, I do not worry about it.'</i> (U10)
Participants' negative comments regarding the monitoring and management of their side-effects during radiotherapy
<i>'I had no idea you can get these pads. I had to find out myself. I asked my local pharmacy for them and they were very good...the whole thing of wearing them and being comfortable with them, that needs to be maybe addressed better you know? Explained what to expect and how to manage this. Definitely something radiographers could have told me, thinking of it.'</i> (M8)
<i>'I had this tingling sensation while it was happening and they went, no you wouldn't. She was quite abrupt. You won't feel anything. And I was getting shooting pains as well. They went no, no, you wouldn't feel any of that. It's totally painless... every time I went, I told them about my experience. And they were saying, oh no, that can't be right. I was so glad by the time day five came...if somebody tells you that you are feeling discomfort, just because your job tells you that somebody shouldn't feel it, don't dismiss it.'</i> (U9)
<i>'after [the 1st treatment] I felt very unwell anyway and I felt very, very dizzy. And they basically hustled me out of the room because they wanted to get on with the next patient.'</i> (U12)
<i>'I think it would be more relevant to have a radiotherapy technician responsible for me than a nursing appointment like I did... to follow you weekly and for you to tell them how you feel. They should replace the nursing appointment with that...there should probably be a technician [TR/RTT] responsible for the patient and making weekly appointments, for as long as the radiotherapy treatment continues.'</i> (P7)

Table 5

Participants discuss the importance of having the same TRs/RTTs every day during radiotherapy.

Participants comment on the importance of consistency of the TR/RTT team on a daily basis
<i>'There were four people who I would say I really got to recognise and to know... There was definitely continuity. I mean, by the end of it they were asking how my dog was!'</i> (U18)
<i>'I think I would have preferred to have the same people, because they would know you and you would know them...It just seemed, some people's methods were different, but you were questioning, because they were so different at times... I hope the other one got it right, or these have got it right, because I feel I'm in a slightly different position or what have you.'</i> (U13)
<i>'...to go into that environment with seeing the same people each day, it was almost like, I'm OK. They were like your cushion and you knew that if there was something you weren't happy about, you could just say look, I'm really worried about A, B or C. And they were very, very approachable in that way...it's such a worrying, worrying time. But the team took all of that away. All of that away. And it is nothing to be scared of at all.'</i> (U3)
<i>'It becomes like a family. You see the same person every day, right? Exactly, so it becomes like a family there. "How are you? Have you had lunch yet?".'</i> (P13)
<i>'I think walking in and seeing a familiar face made a big difference...it was essential for me to get there the following day and find at least one familiar face...that kind of connection... and at that moment, it was vital. It was very positive for me.'</i> (P3)
<i>'The fact that it was always the same faces made me feel a bit more welcomed because some days were emotionally harder.'</i> (P4)
<i>'There was a group of 10 or 12 and I got to know them all more or less. I did feel more comfortable with some more than others but in general, they changed quite a lot. Quite difficult to build a relationship at times with such changing over.'</i> (M4)

high importance on the supportive role of TRs/RTTs. In both the UK and Malta, participants who had a short course of treatment (<10 treatments) seemed to place less importance on building rapport with the TRs/RTTs. No participants received a short course of radiotherapy in the Portuguese group.

While many participants were happy to discuss only superficial topics like the weather or the traffic, approximately 25% of all participants described deep relationships with the TRs/RTTs thinking of them as friends or family. They described talking to them about their family, work or hobbies. They felt that the TRs/RTTs proactively helped to create this bond with them.

Thirty-eight percent (n = 14) of participants in the UK and Portugal described how emotionally vulnerable/fragile they felt starting radiotherapy. These participants consisted almost solely of females undergoing radiotherapy, predominantly for breast cancer. Only one participant from Malta, whose participants were predominantly male, commented using the terms 'vulnerable' or 'fragile'. Participants in all 3 countries described support from TRs/RTTs as being of 'critical importance' to the treatment experience. Table 6 captures participants' perceptions regarding the importance of TR/RTT relational skills.

Seventy-five percent (n = 36) of participants felt very satisfied with the amount of time that they had to talk to the TRs/RTTs during their treatment. The remaining 25% (n = 12) felt that they were rushed and that they would have benefitted from more time to ask questions and express their concerns. They described feeling that they had to take the initiative to ask questions as information was not forthcoming. Some participants did not feel encouraged to build rapport. This was highest in the UK (33%) compared to lower rates in Portugal (21%) and Malta (9%). Table 7 captures participants' thoughts regarding time spent with TRs/RTTs.

TRs/RTTs' protection of patient dignity

Seven out of the 14 UK participants (50%) who were treated for breast cancer, indicated that they felt embarrassed exposing body

Table 6

Participants comment regarding the importance of TR/RTT empathy/support and building rapport with the TRs/RTTs.

Participants' comments regarding positive experiences regarding support, empathy and rapport building during their interactions with TRs/RTTs.

'They knew I was a bit anxious in the beginning and they did such an excellent job to calm me down...I felt so attended to...they were my life savers.' (M1)

'They always asked me if there was anything worrying me...if I seemed a bit down, they always picked it up and asked how I'm feeling...I think the human interaction and making sure we feel good is more important than anything...they are very easily the people I've been in contact with the most throughout my cancer journey to date. The contact with radiographers was very important for me.' (M4)

'I used to enjoy going to the department...thanks to the radiographers...they respected me so much. I joked with them... I loved the time I spent with them...they took so much interest...that's what I loved. I hear about my cancer and radiotherapy all the time, I don't want to hear more about it when I go for treatment so when they speak to me about other things which really matter in my life, I loved it. I miss them as we speak.' (M11)

'you're on day nine, you don't have that many more to do. Keep going, keep going. It was almost like they were personal trainers. They were going to get you to the finish line!' (U3)

'The very last day of my radiotherapy, I cried my eyes out. And I think it was nearly more from like I wasn't going to be seeing them every day and having a bit of banter and a bit of craic as well as the emotion of knowing I was finished my treatment. But part of it was definitely that they were so good and I was going to miss the craic with them.' (U1)

'Showing interest in us, I think is fundamental, because it makes us feel that they are doing something personalised for us, that we are not just another number...we already feel, sometimes, so emotionally fragile, because in addition to it being a physical issue, in my case, also on a psychological level, this really affects us...this care...it's fundamental, I think it's very important.' (P8)

Participants' comments regarding negative experiences regarding support, empathy and rapport building during their interactions with TRs/RTTs.

'I found it different to chemo in that it felt much more ... how do I say it? Practical? ... there wasn't that sort of kindness interaction that I got with my chemo nurses... you went in and you were a body. So that was OK. That didn't bother me...but it was much more a process ...I didn't feel ignored as such, but I think I was very accepting of the fact they were concentrating on what they were doing...my mum is 83 and I would like to think that if it was her going in, that it would be a wee bit of more empathy' (U7)

'It was mostly 'Good morning how are you?', 'Sit down', 'Remove your glasses', 'We're not going to be long', 'Give us a minute', 'Be careful how you get on the couch', yes yes very quick communication... we didn't talk about the weather or anything like that. I think it was very minimal communication from both ends not just from their end.' (M5)

'I didn't have that encouragement, because, you know, there were a lot of people, and they didn't have much time for a lot of things, but I- whatever they could do, I felt that- I really felt that they did it, but they didn't have that much time to talk about anything, really.' (P17)

Table 7

Participants comment regarding how they felt about the amount of time spent with TRs/RTTs.

Participants' comments regarding having sufficient time with the TRs/RTTs

'I didn't feel that it was rushed at all. I knew that there were a lot of people...and for the radiographers to be able to maintain that bit of personal care for each person that was being come through every day, it is really appreciated. But never once did I feel that I was being rushed... never once did they make you feel that you were being too slow.' (U3)

'There was a particularly tough day. I remember there were a lot of emotions that day; I'm not sure why. They asked me, "Is everything all right?" And that's when everything fell apart... they gave me the time I needed before the treatment. They even asked me if I wanted to wait a bit longer, but I told them, "No. Let's do this." I just wanted to get it over with and get out of there.' (P4)

Participants' comments regarding having enough time with the TRs/RTTs

'It would have been quite nice to spend 5 min chatting to them after I'd got dressed again at the end. But you know, quite often that really would be a...well they just have too many people to get through in the day.' (U8)

'...even though they tried not to appear rushed, they were obviously under tremendous pressure.' (U14)

parts during their treatment. Two female participants (>10%) (one breast, one uterine) from Portugal also described their embarrassment at undressing in front of males during the treatment but did not verbalise their concerns to the team. Two males who received radiotherapy for prostate cancer in Malta, described being embarrassed undressing when females were in the room. Many of these participants indicated that having the same TRs/RTTs every day reduced their embarrassment. Almost all participants explained how TRs/RTTs did everything that they could to help patients maintain their privacy and dignity while undressing during radiotherapy, by providing a private space and covering them with a gown when possible. A small number of participants from all three countries indicated that the temperature in the room was uncomfortably cold, while they were in a state of partial undress. See Table 8 for participants' comments regarding maintenance of their dignity during radiotherapy.

Some participants described a failure of TRs/RTTs to address their psychological and physical distress at various stages of the radiotherapy pathway. Fear of tattooing, claustrophobia, hearing impairment, pain and mobility were issues which were not fully explored by RTs. Psychological dissociation and distress were often

Table 8

Participants comment regarding the role that TRs/RTTs played in maintaining their physical dignity.

Participants' comments regarding positive ways in which TRs/RTTs maintained their physical dignity

'I was in a cubicle and she knocked on the door and she said, would you like me to tie the straps up at the back? That was the first time anyone, in all of my going to hospital for the last twenty odd years, anyone has done that... to me that was great... walking from the changing room into the room, I was comfortable, whereas normally my hand is up my back clutching the paper... but to her that was important. And that made me feel important... my dignity was important to her.' (U16)

'You walk into this big, scary room...the first thing is you've got to get your top off... it's very undignified, having to put your arms above your head and everything. However, because they were so professional and nice and didn't bother... you know what I mean... it wasn't an issue. And that reassured me...I was quite impressed at how they handled that. In fact I was very impressed. ... I didn't feel vulnerable, but I could have done. And I thought they handled it brilliantly.' (U14)

'I remember once I told them that I was feeling cold. It was an unusual request but they still went out of their way to make sure they kept me warm and comfortable whilst still doing their job as well as they could.' (M3)

'the one dreadful occasion was when I had to go to the loo halfway through...I hadn't got what they call bowel and bladder preparation quite right on that particular day. That was highly embarrassing. But I must say, they were just brilliant on that occasion.' (U18)

'I was a little afraid because there was a man there, you know? I felt embarrassed because I don't even do it in front of my husband. And- but obviously I know he's a professional so I, you know, felt a little uncomfortable but I got used to it, because he didn't even look at me. He goes there, he does his job, and he was always very respectful. The whole team was like that, always.' (P17)

Participants' comments regarding negative aspects regarding how TRs/RTTs did not always maintain their physical dignity.

'Initially I probably was quite embarrassed because you knew you were stripped to the waist and...it nearly looked like there was three cameras pointing at me...And I was like, I don't know who's looking at the other side of these cameras.' (U1)

'...that was worse, the first day... I didn't have any privacy there. It was the initial impact. Someone came in, and then different people came in. Honestly, the room itself was freezing. Getting the tattoos took a long time. I almost froze.' (P9)

I was sort of expecting a wee cape to put round my shoulders. You know the way they do in the other clinics. But there wasn't any...I was given a sheet of paper, you know, off the roller...I'm not a shy person but I felt vulnerable standing naked from the waist up, you know...I was just newly scarred, so...' (U5)

'I have to say... I did feel that I was like a sacrificial victim, with my arms above my head! Maybe that's just me!' (U4)

Table 9

Participants comment regarding how TRs/RTTs addressed their physical and psychological concerns.

Participants' comments regarding how TRs/RTTs helped to address concerns regarding psychological distress, tattooing, claustrophobia, pain, hearing difficulty and mobility issues.

'I'm a little claustrophobic, but they made me feel comfortable, saying they were on the other side, if I needed anything, I just had to say, they'd come to me. They made me feel comfortable in those first few days and I managed to get through that.' (P8)

'Whenever they set me up they always made sure I was in a comfortable position for those 5 min' (M10)

Participants' comments regarding how TRs/RTTs did not help to address concerns regarding tattooing, claustrophobia, pain and mobility issues.

'I don't have any real hearing problem, but I would have slight loss of hearing frequency at the upper range... there was some interference and I found it [the music] inappropriate anyway. It wasn't anything I would have chosen to listen to. It was probably better for people in their twenties and thirties! How it helped them I've no idea, but it didn't help me.' (U12)

'I felt that I was going to be marked forever with some spots, some spots that cannot be considered tattoos, but are forever unsightly on the chest, in an area that women, especially in summer, show off, that is, a part of the body that is visible to others. This made me very sad.' (P14)

'...when they are asking your date of birth, your age and your address, maybe there should be another question in there – is there anything you would like to tell us that would make your treatment easier?' (U16)

'It was like an out of body experience. This whole situation was certainly not happening to me. I am looking at somebody else having this done...it was quite surreal... they were talking to me and I was talking back to them, but if I made any sense, I have no idea, because like I say, it was like I wasn't actually there. It wasn't me that this was happening to.' (U9)

not recognised by TRs/RTTs. Table 9 summarises participant's feeling regarding this aspect of care.

Forty-four percent (n = 21) of participants in the three countries expressed the importance of having control in the radiotherapy process and wanting a role to enable them to self-manage their recovery. Receiving feedback from TRs/RTTs about their role and self-care was very important to them. They valued praise from TRs/RTTs regarding their adherence to moving or breathing instructions while lying on the treatment couch or correctly managing their preparation and side-effects. Participants, who required bladder preparation, indicated that receiving feedback from the TRs/RTTs was encouraging and helped them to have some control over the process. Some participants felt that TRs/RTTs should provide them with information regarding their holistic wellbeing including healthy diet during treatment. Participants described using social media groups and the internet to acquire information regarding this aspect, often leading to misinformation and feeling that the TRs/RTTs are not aware of the best care management. See Table 10 for participants' comments regarding this sub-theme.

TRs/RTTs' competence

Eighty-one percent (n = 39) of participants from the three countries, commented on their trust in the skills and knowledge of the radiographers. They felt confident that the TRs/RTTs treating them had the appropriate training and qualifications, viewing them as experts. Their beliefs regarding the TRs/RTTs' qualifications were reinforced by the TRs/RTTs' daily actions. Participants described TRs/RTTs as focused, careful, and confident. They had the ability to explain and answer participants' questions in the treatment room. These participants 'didn't judge if they did the treatment well or not' but assumed competence based on TRs/RTTs focus and care during the set-up and verification process. Over 95% of participants commented on how well the TRs/RTTs worked together as an effective team portraying a true sense of cohesion and

professionalism. See Table 11 for participants' comments regarding TR/RTT competence.

Discussion

In this qualitative study, forty-eight participants who had completed radiotherapy discussed their experiences of interacting with TRs/RTTs during this treatment, through semi-structured interviews in the UK, Malta and Portugal.

The overarching arising theme was the importance of the establishment of a trusting relationship with TRs/RTTs, with the majority of participants describing developing strong trust in their TR/RTT team. This is an important finding as high levels of trust encourages patient disclosure of information and increases the likelihood of patients accessing services for support.⁶ Conversely, low levels of trust in the TR/RTT team may reduce compliance with advice and can impact on long-term trust in the healthcare system, having a direct impact on patient health outcomes.^{5,6,25,26,27} Smith et al.'s 2017 study of patient experiences during radiotherapy also concluded that 'Trust was central to their treatment team interactions' (page 102).²⁸ Six sub-themes were developed which highlighted the most importance aspects to building trust between patients and the TR/RTT team; communication, side-effect management, team consistency, relational skills, maintenance of patient dignity and competence.

Participants described communication with their TRs/RTTs as being a central component of trust, with most participants expressing high satisfaction with the information provided throughout the radiotherapy pathway. However, similar to the findings of Smith et al.'s 2017 study, large variations were noted in the information needs of patients.²⁸ Mistry et al.²⁹ agree that predicting information needs during treatment is complex and based on multiple factors including a variety of patient demographics. Patients with cancer, who often experience high anxiety levels or memory deficits,^{30–32} may need more time for discussions regarding potential side-effects and may need this information to

Table 10

Participants comment regarding the role of TRs/RTTs in encouraging their compliance and enabling them to self-manage their care.

Participants' comments regarding how TRs/RTTs helped them to have control of their care and encouraged self-management

'there was reassurance there, because the one thing I was focusing on was holding my breath and whatever. And they were really... it was, gosh, you're doing really well. Better than we normally see. How do you do this? So there was that sort of reassurance there as well.' (U7)

'They were always encouraging me throughout the way saying things like 'that was a very good session', 'your preparation was very good', you know we need this encouragement you know? Because we don't really know.' (M8)

'It's difficult for me to lie down on a hard surface, even though it was just for 10 min. I lack mobility, and they helped me a lot, even with stretching exercises, so that I would be able to stand up after the treatment.' (P7)

Participants' comments regarding ways which TRs/RTTs did not help them to have control of their care or encourage self-management

'I think I had some questions that I didn't really get answered about supplements, whether they help or hinder, whether I should continue with them or not while taking it... I think she sort of said I don't really know.' (U12)

'That's what was missing. The part where the patient can contribute to their well-being so that everything went well, I didn't have it at the hospital... what I felt was missing, and it would be vital for the patient to know what they can do to help things go well. That part failed in the whole process overall.' (P16)

'I know that there are some foods that should be avoided, but I know it because I went looking for information, not because the health professional told me that I had to do it or that I had to avoid it. I also know that I had to drink a lot of water, but I know it because, well, it's normal, but none of the technicians told me that I had to eat this or that type of food, avoid this or that food, nothing.' (P5)

Table 11
Participants comment regarding how TR/RTT competence impacted their trust in the TRs/RTTs.

Participants' comments regarding how highly competent they perceived the TRs/RTTs
<i>'Because they called me by [name] each time. So I was well impressed with that, actually. And also that my surname is [name] even though it's spelt with a CK. They got that right and all that sort of thing. Do you know what I mean? It's the little things that matter. And it's the little things that give you confidence, I think...and they went through each time... you're expecting your left breast, etc, etc. I just thought, yeah, you've read my notes and everything.' (U14)</i>
<i>'I think they conveyed security and confidence that everything would be okay and that it was normal.' (P19)</i>
<i>'The most positive points were the technicians' readiness and knowledge because, even though we don't know much about it, you can see they're competent persons from the way they operate the machines and their readiness.' (P11)</i>
<i>'I trusted that they actually knew what they were doing, because if they didn't, they wouldn't be there' (P18)</i>
<i>'...the team work was fantastic. I said to myself, whoever organised this department has done a very good job through the team workthey work fantastically together. (M8)</i>
Participants express some doubts regarding the competence of TRs/RTTs
<i>'you couldn't tell which actual piece of your breast or whatever, where that machine was actually targeted at... but I got the impression from asking questions, it was set up by somebody else and they sort of just typed in what they'd been told, basically. And that's how it was done.' (U13)</i>
<i>'I saw the figure 106% at one point, and that worries me because I thought, did that mean I got too much radiation? I did think on that first day they may have overdone it, basically because I felt... it could have just... I had explained I hadn't slept well because I was worried. I was anxious... and they said, oh that will be why you'd feel worse now. But actually I wasn't sure it was that at all. I thought it might have been that I'd had too much radiation.' (U12)</i>

be reiterated on a weekly basis. Achieving the correct balance in terms of information provision is essential as it can improve coping ability, reduce anxiety and promote positive attitudes in patients with cancer.²⁹

All participants indicated that TRs/RTTs are best placed to manage radiotherapy side-effects during all stages of treatment. Portuguese participants, whose side-effects were managed by nurses, indicated the lowest satisfaction with their side-effect management, often referring to management as generic and not tailored to their individual needs. While nurse-led radiotherapy reviews have been shown to be valued by patients in comparison to medical led reviews,^{33,34} TRs/RTTs' access to patients on a daily basis during radiotherapy, logically present them with the optimal opportunity to address patient side-effects and concerns.

Consistency of the TR/RTT team was strongly linked to development of relationships with TRs/RTTs with those seeing the same TRs/RTTs everyday feeling more secure, supported and positive about their radiotherapy experience compared to those with inconsistent teams. An inherent link was observed between TR/RTT team consistency and all aspects of care including building rapport, maintenance of dignity and support. This aligns with findings from Egestad's 2013 study which reported that all patients indicated that being treated by the same TRs/RTTs daily was very important to them and led to reduced anxiety.³⁵ The results of these two studies combined clearly demonstrates the importance of a daily consistent team to patients in the radiotherapy setting.

A number of participants commented that the support from TRs/RTTs was 'of critical importance' to them. Emotional and physical vulnerability is strongly associated with a cancer diagnosis³⁶ and therefore patients are likely to place high importance on trust in TRs/RTTs and have a strong emotional response to this relationship.⁶ In this study, a significant proportion of participants described feeling emotionally vulnerable throughout the treatment

pathway. Women in this study were more likely to express vulnerability compared to men, consistent with previous studies.^{37,38} However, Egestad's 2013 qualitative Norwegian study with patients receiving radiotherapy for head and neck cancers, found that all participants reported emotional vulnerability, irrelevant of their gender.³⁵ While Clarke et al.³⁷ noted gender differences in perceptions of what constituted emotional support in their UK study, no such observations were noted in this study. Men appeared to value emotional support from TRs/RTTs just as highly as their female counterparts. As men in this study were primarily not from the UK, this finding could be linked to cultural variations between countries and warrants further exploration.

TRs/RTTs demonstrated excellent skills in rapport building with patients. While definitions of rapport vary, English et al.³⁹ suggest that it 'is considered an antecedent to trust and aligned to empathy and respect' (page 3). As with previous studies,^{35,40} participants valued talking to TRs/RTTs about their lives and interests with some participants describing them as being like friends or family. However, as with other studies,³⁹ patients were reluctant to express their concerns to TRs/RTTs when they seemed rushed or focused on other tasks. A small number of participants described feeling that TRs/RTTs were dismissive of their concerns, which can lead to dissatisfaction, anger, reluctance to ask questions and a loss of trust.³⁹ Workplace pressures have frequently been noted as barriers, making it difficult for healthcare professionals to devote sufficient time to building rapport with their patients.³⁹ Generally, those participants who received less than ten treatments felt that they did not develop rapport with TRs/RTTs and did not view TRs/RTTs as a source of support. Given the recent recommendations in the UK and Europe,⁴¹ the majority of patients with localised breast cancer will now only receive five radiotherapy treatments and therefore TRs/RTTs will play less of a role in their support system unless interventions are implemented to address this gap in care.

Dignity, based on patient perspectives, includes protection of patient privacy, control and independence.⁴² Many participants, especially women being treated for breast cancer, expressed feeling embarrassed being undressed in front of TRs/RTTs. This finding is consistent with Hama and Tate's recent 2020 study which concluded that undressing for radiotherapy to the breast was a mental burden for women.⁴³ Embarrassment was cited more frequently in women who received radiotherapy for breast cancer in the UK. This could be related to lower body image in the UK in comparison to other European countries, as a recent Women and Equalities Committee survey on body image found that over 60% of women in the UK feel negatively about their body.⁴⁴ Patients attending for radiotherapy post-operatively are often experiencing very low self-esteem and body image.⁴⁵ However, almost exclusively participants felt that the TRs/RTTs had done everything that they could to preserve their dignity in this regard. As observed through this study, the use of gowns and the process of undressing varies significantly in radiotherapy practice⁴⁵ and therefore TRs/RTTs must implement all measures possible to ensure the maintenance of patient dignity during the radiotherapy process.

While the majority of participants indicated that TRs/RTTs promoted their independence, many participants expressed a desire for TRs/RTTs to accommodate them to have more control in the treatment process and a greater ability to self-manage during radiotherapy, consistent with previous studies.⁴⁶ Participants desired verbal praise from TRs/RTTs regarding their adherence to instructions and ability to manage their side-effects. While a cancer diagnosis may feel unpredictable and uncontrollable, patients who adapt their lifestyle (e.g. diet, exercise etc) often describe positive life changes as a result of these actions and perceive having a sense

of control.⁴⁷ When TRs/RTTs were not able to provide information about lifestyle aspects related to treatment outcomes or cancer recovery, participants indicated losing trust in their knowledge and sought information through the internet or social media platforms. In order for TRs/RTTs to adopt a patient-centred approach, it is vital that they understand holistic treatment options and make self-management recommendations as practical as possible.⁴⁸ Optimising opportunity for cancer patients to self-manage is of vital importance to maximise health outcomes, accelerate recovery and reduce long-term disability.⁴⁹

A small number of participants indicated reluctance to disclose loss of hearing unless specifically asked. Denial of loss of hearing is relatively common and may be related to embarrassment and stigmatisation over this condition.⁵⁰ This small number of participants also indicated that music in the treatment room interfered with their ability to hear the TRs/RTTs in the room, creating confusion and uncertainty during treatment set-up. Other participants expressed their lack of disclosure regarding distress related to claustrophobia within the CT simulation scanner and/or being immobilised with a beam direction shell (BDS). A recent study by Nixon et al.⁵¹ found that distress is very common among patients requiring BDSs but found that supportive discussions with healthcare professionals helped to reduce anxiety in the majority of these patients.

A small number of women receiving radiotherapy for breast cancer indicated dissatisfaction with the information provided by TRs/RTTs regarding the tattooing process and the TRs'/RTTs' lack of awareness about their distress regarding the permanence of the tattoos. This finding is consistent with results from a recent study by Moser et al.⁵² who reported that approximately 70% of women undergoing breast irradiation had negative feelings about having permanent tattoos. New initiatives like Surface-guided radiotherapy (SGRT) and semi-permanent tattoos, have already started to address this issue by eliminating the need for permanent tattoos^{53–55} and are growing in popularity.

Participants indicated high trust in the competence and skills of TRs/RTTs due to their professional, confident demeanour and ability to address their questions. While participants were not able to assess their competence due to only a superficial understanding of the radiotherapy process, they felt safe and secure in their care. Egstad's 2013 study agreed with these findings reporting that 'when the participants had the impression that the radiation therapists were skilled, they felt safe and were calmer' (p. 584).³⁵ Evidence suggests that trust in healthcare professionals is strongly linked to confidence in competence i.e. skills and knowledge.⁶ Therefore, patients' perceptions of the skills and knowledge of TRs/RTTs is an important factor in trust building between patients and TRs/RTTs during their radiotherapy.

Limitations

While trust emerged as the primary theme in this research, further research could include additional quantitative measures of trust to strengthen the findings e.g. Trust in Physician Scale.⁵⁶ However, one-to-one interviews are an established methodology to explore patient trust.^{25,57,58}

Participants may have been unwilling to criticise TRs/RTTs due to their treatment occurring in a publicly funded hospital⁵⁷ and may have viewed the interviewers as being associated with the radiotherapy departments.

While face-to-face interviews are often considered to be superior to other interview formats,⁵⁹ this format was not always possible due to geographic spread and COVID-19 restrictions. Video interviews are considered to be the most similar to face-to-face interviews and were alternatively adopted where possible.⁵⁹ Telephone interviews are considered to be more open to

misinterpretation due the lack of visible facial gestures and body language cues.⁵⁹ However, a positive aspect of video/telephone interviews is the ability of participants to be interviewed in their own home. Participants usually feel most comfortable in their own home and therefore may have been more likely to open up and speak without apprehension.⁶⁰

The sample from Portugal did not include patients who received a short course of radiotherapy, which affected the analysis regarding the importance of building rapport with the TRs/RTTs for cross-countries comparison.

Conclusion

Participants expressed high satisfaction with all areas of care received by TRs/RTTs and developed trusting relationships with their radiotherapy team. While patient satisfaction is an important marker of service quality, patient trust is thought to be an even more sensitive indicator of TRs'/RTTs' performance.⁶ Factors which influenced trust included TRs/RTTs' communication skills, side-effect management, team consistency, relational skills, protection of patient dignity and competence. Consequently, this study concludes that trust in TRs/RTTs is multi-factorial, aligning to the internationally established and validated Fundamentals of Care Framework.²⁴ This framework established that physical, relational and psychosocial factors all influence the level of trust established between patients and nurses.²⁴

However, some gaps in care were noted; particularly by participants who experienced high levels of distress. To enable all TRs/RTTs to identify patients' individual needs and manage their care holistically, consistent approaches need to be implemented into the education of TRs/RTTs and into the clinical practice setting throughout Europe. These future modifications to the radiotherapy care pathway requires input from all stakeholders including service users/patients, TRs/RTTs and service managers. Patient feedback regarding service quality is of vital importance to encourage improvement in the service provided⁶¹ and ensure that TRs/RTTs are being educated and trained to a consistent standard throughout Europe.

Recommendations

Education/training

Educate TRs/RTTs regarding the impact of lifestyle changes to treatment outcomes, and identification of patients' physical and psychological needs.

Embed service users into training interventions to improve rapport building and interpersonal skills through reflection and practice.²⁶ In the UK, service user involvement in TR/RTT training is mandated by the regulatory body⁶² and this regulation could be further widened to European countries.

Clinical practice

Implement an assessment tool into the pre CT simulation appointment to assess individual psychological and physical needs.

Explore additional support options for patients receiving only five fractions of breast irradiation.

Ensure side-effect management is completed by TRs/RTTs where this is not currently within TRs/RTTs' scope of practice.

Expedite the transition from permanent tattooing to SGRT.

Raise awareness among managers and professionals regarding the importance of maintaining consistency of the TR/RTT team on the treatment units.

Ensure that patients understand the health and safety reasons for any compromises to their dignity.

Support the patient with new tools to provide feedback and maximise access to information, enhancing patient engagement/empowerment e.g. development of an information app to enable patients to review aspects of radiotherapy which are important to them individually.

Acknowledgements

This study formed part of a large study, the SAFE EUROPE project, which was co-funded by the Erasmus + Sector Skill Alliances programme Grant Agreement number 2018–2993/001-001.

The European Commission support for the production of this publication does not constitute endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Conflict of interest statement

The authors have no conflicts of interest to disclose. The authors would like to thank all participants who took part in this study.

Appendix 1

Interview Schedule:

Service Users' Perspectives of Undergoing Radiotherapy – the Patient's Voice

Introduction

Tell me about your involvement with radiotherapy services

1. Is this the first time that you have received radiotherapy?
2. Within which trust did you receive radiotherapy treatment?
3. Did you have any chemotherapy/surgery/other prior to/during your radiotherapy?

Experiences of Radiotherapy treatment

4. Can you provide an overview of your radiotherapy experience highlighting the most positive and negative aspects for you?

Prompts:

- Who attended with them
- Did they have a named therapy radiographer?
- Did they see the same therapy radiographers each day?
- How did they feel in the CT sim/treatment room/on the couch/ during delivery?
- How did they feel about provision made for undressing/dignity/ claustrophobia/needs (if relevant)?
- Did they feel informed about what was happening at each stage of treatment?

Engagement with Therapeutic Radiographers

5. How did therapeutic radiographers engage and communicate with you?

Prompts:

- Did they talk about things that were important to you?
- Did they encourage you to talk openly about your concerns?
- Did you feel that they were informed about your cancer and overall management?

- How important was/is this engagement for you?
 - Did you feel that you had enough time each day with them to express your concerns?
 - Did you feel the treatment team communicated effectively with each other?
6. On completing your radiotherapy, were you encouraged to contact your therapy radiography team if you had any concerns?
 7. Did you see a specialist therapy radiographer before, during or after completing your radiotherapy e.g. I&S, Breast, GI, H&N.
 8. What has been the impact of your engagement experience?
 9. Would you change anything about this engagement?
 10. Were you aware of the role of the therapeutic radiographer prior to having radiotherapy?

(If the participant has previously received radiotherapy, enquire regarding what aspects of their experience with the radiographers was different)

Service User Involvement in Planning/Joint Goal setting for their treatment

11. Do you feel that you made a contribution to the decision-making about your radiotherapy during the radiotherapy treatment? In what way? (Service User knowledge/experience – relationship with staff)
12. Were you able or encouraged to give any feedback regarding the radiotherapy service you attend (ed)?
13. Do you feel that this contribution/feedback is important?

Perceptions of TR competencies

14. Thinking about the experiences that you have had whilst receiving radiotherapy treatment to date, is there any feedback/ advice that you would give to the staff to improve that treatment?
15. Is there any training that you feel would be of use to the staff?

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