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Systematic Review

Care of transgender patients by diagnostic radiographers: What can be learnt from the literature

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ABSTRACT

Introduction: Transgender patients have described negative healthcare experiences, including discrimination and feeling unwelcome. Additionally, these patients are at risk of inadequate or unsafe care due to healthcare providers being unable to obtain and record transgender patients' correct gender and assigned birth sex. This literature review aims to review radiology and radiographer articles published since 2018 about transgender healthcare issues and make recommendations that can be applied by diagnostic radiographers, their managers and diagnostic radiography programme providers.
Method: A literature search used multiple databases containing peer-reviewed articles. Boolean operators and key words were utilised. Identified articles were searched to identify any articles not found by searching the databases. Themes and sub-themes from each paper were identified and discussed.
Results: Three key themes were identified: education, systems and environment. Education sub-themes were knowledge and awareness. Systems sub-themes were recording gender correctly and discriminating/stigmatising policies. Environment sub-themes were transgender-friendly symbols and environmental dysphoria.
Conclusion: Transgender patients still face barriers to equitable care. Several recommendations were made based on the thematic discussion that could be applied by diagnostic radiographers, student radiographers, radiology managers, University training providers, and professional body organisations. Diagnostic radiography programmes should include training on both clinical topics and cultural competence. Radiology managers should display transgender-positive symbols in their departments and ensure their policies are non-discriminatory and non-stigmatising. Radiology hardware and software providers should provide the ability to record non-binary genders and birth-assigned sex.
Implications for practice: Transgender patients have the right to receive equitable care from diagnostic radiographers during their imaging examination and radiology attendance, and that any risks relating to their transgender status should be correctly managed with appropriate sensitivity.

Introduction

The term transgender describes a person whose gender identity differs from the sex they were assigned at birth.[1] The acronym LGBTQ+ is the most frequent and well-known umbrella term used to refer to people who are lesbian, gay, bisexual, transgender, queer or questioning, intersex, or asexual,[2] with the plus symbol for inclusion of other categories such as pansexual, nonbinary, and genderqueer.[3] Although it is accepted, the lexicon is constantly evolving. Transgender patients face negative health outcomes compared to cisgender (a person whose gender identity is the same as the sex they were assigned at birth[2]) patients, for example, increased prevalence of stigma and discrimination,[4,5] mental health problems, and substance abuse.[6]

Improving the experiences of LGBTQ + patients is one of the equality objectives identified by National Healthcare Services (NHS) England,[7] aligned to the six NHS values[8] of working together for patients, respect and dignity, commitment to quality of care, compassion, improving lives, and everyone counts. Research[9] commissioned by the United Kingdom (UK) Government Equalities Office identified that there had been little research into health equality related to gender identity.

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Bolderston and Ralph[10] have previously reviewed the literature on the care experiences of transgender patients within the same group as lesbian, gay, and bisexual people. However, specific issues related to transgender people may not have been considered fully. Bolderston and Ralph's[10] recommendations for radiology departments included improvements to the clinical environment, radiographers' awareness training, and inclusive language in patient information leaflets and forms to include a representation of non-heterosexual families. Further reports by Watts and Hirsch,[11] Cates,[12] and Custer et al.[13] echo the recommendations of Bolderston and Ralph's[10] awareness training for radiographers.

However, there could still potentially be implications for clinical practice[14] where a pregnant transgender man does not realise the need to volunteer his pregnancy status before a Computed Tomography[15] (CT), X-ray[16] or Nuclear Medicine[12] (NM) examination and unbeknown to them place their unborn child in a radiation risk.[17]

A study by Aarne Grossman[18] describes the negative healthcare experiences transgender patients have received from nurses and other health care employees, including discrimination, feeling unwelcomed, assumptions and negative judgment.[18] This issue is often exacerbated due to data held by healthcare organisations that have not been updated with gender status.[10,19] Hammond et al.[19] highlight an example of how this might occur by a healthcare organisation that recorded the patient's assigned sex at birth which did not correspond with their transgender status causing the technologists difficulty for their bone densitometry examination.

Outside of radiography, published literature on improving healthcare for transgender patients by Neira[20] advocates two fundamental aspects to improve nurses' care of transgender patients' education and communication. Within healthcare, Wanta and Unger[21] reviewed the literature on transgender patient experiences and found a general paucity of primary research, measurement of long-term outcomes and prospective studies.

This literature review aims to consider the care by diagnostic radiographers of transgender patients in radiology departments to identify areas for improvements in clinical practice and the training of diagnostic radiographers and students. It is hoped that these findings will ensure transgender patients to receive equal quality of care in imaging examinations and reduce discrimination and unfair treatment.

Method

Ethical approval was not required as this literature review did not involve human participants or sentient animals, and data were collected through publicly available data.[22]

Between October 2022 and February 2023, a literature search was carried out using a mix of subject relevant sources (radiography specific and healthcare databases and online repositories): ScienceDirect, ERIC, Embase, CINAHL, MAH Complete, Medline, PubMed, Google Scholar, and SAGE Journals. The keywords and Boolean operators used for each search were "Transgender" OR "trans" OR "non-binary" AND "diagnostic radiography" OR "radiography" OR "radiology". Advanced search tools were used to limit the searches to article titles only. Filters were used to limit the results to contemporary English-language primary research articles published since 2018 to define the field and locate relevant, relevant, up-to-date studies.[23] The titles of these results were manually filtered using inclusion and exclusion criteria (Table 1). These criteria excluded articles about therapeutic radiography and duplicate articles, with the process documented on a search tree using a PRISMA flow chart.[24]

Titles and abstracts of the identified articles were read and filtered for inclusion or exclusion dependent on relevance to imaging examination content. Articles related to healthcare professionals and not specifically to diagnostic radiography were included to evaluate their use during the critiquing process.

Table 1
Inclusion and exclusion criteria.

Inclusion	Exclusion
Published 2018 or later	Non-English language
English language	Full article unavailable
Diagnostic radiography	Therapeutic radiography
Radiography	Other healthcare professions
Radiology	
Subject contains "transgender" or "trans" or "non-binary"	

The articles identified were critiqued using the framework devised by Benton and Cormack.[25] This method does not provide a quantitative score for each article but provides information to identify the research quality, rigour, and transparency.[26]

The articles selected for inclusion in the literature review were assessed to determine the main findings and conclusions and identify strengths and limitations. A thematic analysis synthesised, appraised, and coded the qualitative data into a summary format (thematic analysis matrix results) to allow links between the findings (thematic matrix), and themes and subthemes (table) to address the topic.[26]

Results and discussion

The results of the database searches are shown in Fig. 1. A total of ten articles with relevance to the care of patients in radiology ($n = 7$) and the care received when accessing healthcare ($n = 3$) with useful findings for radiographers were identified following database searches and presented in a thematic matrix of findings (Table 2), with the strengths and limitations identified by the framework critique.[25]

Three main themes identified in the articles comprised: education, healthcare record systems and environment. Sub-themes identified in each article were organised under these domains. The themes and sub-themes are presented in Table 3. A discussion of each theme and sub-theme follows.

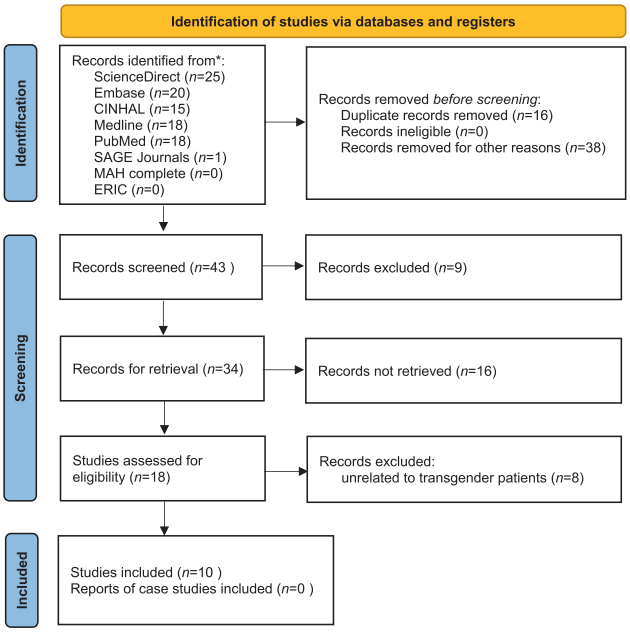

Figure 1. PRISMA[24] Flow diagram of searches of databases for literature.

Table 2
Summary of articles included in literature review.

Citation	Aims	Methodology	Main findings/conclusions	Strengths and limitations
White Hughto et al. (2018)[29]	Study incarcerated transgender women's healthcare experiences	Semi-structured interviews ($n = 20$)	- Lack of access to gender transition-related healthcare. - Lack of provider knowledge about transgender healthcare issues.	- Provides insight into a particularly disadvantaged subset of transgender patients. - Limited to New England area of USA.
Clark and Vealé (2018)[27]	Assess teaching of transgender-related content in radiography programmes	Survey ($n = 325$)	- Limited and inconsistent teaching of transgender-related content in radiography programmes.	- Small sample size. - Limited to USA. - Self-reported data.
Floyd, Martin and Eckloff (2020)[16]	Assess transgender patients' lived experiences when accessing radiology services	Semi-structured interviews ($n = 6$)	- Lack of knowledge about transgender healthcare issues by healthcare professionals. - Inclusive language and environment conducive to positive experiences.	- Small sample size.
Matoori et al. (2022)[33]	Determine whether radiology hardware and software providers include the ability to record non-binary gender data	Survey ($n = 13$)	- Most radiology hardware and software providers provide the ability to record non-binary gender data.	- Simple study design with easy to interpret results. - Responses from the largest suppliers. - Almost half of suppliers did not provide a response.
Tabaac et al. (2018)[31]	Evaluate cancer screening rates for different gender identities	Quantitative analysis of population-level data ($n = 443{,}600$)	- Significant differences in cancer screening rates between cisgender and transgender population.	- Population-level data provides large sample size. - Considers differences between transgender men and transgender women. - Self-reported data.
Perry et al. (2021)[32]	Identify evidence-based recommendations to improve imaging healthcare of transgender patients	Literature review	- The environment should have symbols and representation of equality. - Correct pronouns should be used. - Gender identity information is important for patient representation.	- Methodology not described. - No results section. - Discussion section unclear.
Ussher et al. (2022)[28]	Investigate oncology healthcare professionals' attitudes, knowledge and behaviours when caring for LGBTQI patients	Survey followed by semi-structured interviews ($n = 357$)	- Healthcare professionals' lack of knowledge on LGBTQI issues could be remedied through education.	- Mixed methods allowed for a variety of information to be collected including information that was not asked for in the survey. - Conflates sexual preference and gender.
Yan et al. (2022)[38]	Assess the adoption of gender-inclusive naming of radiology fellowships and continuing medical education courses	Cross-sectional analysis of publicly available information	- Most radiology fellowships and continuing medical education courses had gender-inclusive names.	- Only used publicly available information. - Gender-exclusive names might be appropriate if it is necessary to be very specific.
Macdonald et al. (2019)[37]	Find out about transgender patients' experiences of oral health care providers	Semi-structured interviews ($n = 36$)	- Transgender patients mostly reported neutral or positive experiences and little difficulty in accessing oral health care. - Changes to the healthcare environment could improve patient experience.	- Some participants were accompanied by caregivers which might have introduced bias.
Hendrickson et al. (2020)[30]	Explore the healthcare experiences of transgender patients in Texas	Survey followed by semi-structured interviews ($n = 26$)	- Healthcare providers need education on transgender issues. - Correct pronoun use is important.	- Small sample size limited to Texas.

Education

Education was identified as a central theme, with sub-themes of knowledge and awareness of healthcare workers. The theme of knowledge is linked but distinct from that of awareness. One can be aware of something without being knowledgeable about it.

Knowledge

Over half of the articles in the literature review included knowledge-related content. The survey of $n = 325$ radiography educators by Clark and Vealé[27] identified that most recognised the importance of teaching about issues faced by transgender patients.

Table 3
Domains and themes identified in the articles included in the literature review.

Citation	Theme	Sub-theme
Clark and Vealé[27]	Education	Knowledge
		Awareness
Ussher et al.[28]	Education	Knowledge
	Environment	Awareness
		Transgender-friendly symbols
White Hughto et al.[29]	Education	Knowledge
	Systems	Discriminating/stigmatising policies
Tabaac et al.[31]	Education	Knowledge
	Healthcare record systems	Recording gender correctly
Floyd, Martin and Eckloff[16]	Education	Knowledge
	Environment	Transgender-friendly symbols
Yan et al.[38]	Environment	Transgender-friendly symbols
Macdonald et al.[37]	Environment	Transgender-friendly symbols
		Environmental dysphoria
Hendrickson et al.[30]	Healthcare record systems Education	Discriminating/stigmatising policies
		Knowledge
Matoori et al.[33]	Healthcare record systems	Recording gender correctly
Perry et al.[32]	Environment	Transgender-friendly symbols
	Healthcare record systems	Environmental dysphoria
		Recording gender correctly

However, around three-quarters of those surveyed felt that they were either not knowledgeable or only slightly knowledgeable regarding these issues. Ussher et al.[28] surveyed $n = 357$ Australian healthcare professionals (allied health practitioners, managers, oncology practitioners, and nurses), identifying a lack of knowledge about LGBTQ + healthcare issues. Ussher et al.[28] highlight the importance that gender knowledge is a separate entity to sexuality, and the two should not be conflated. It is possible for someone to be knowledgeable about non-heterosexual issues whilst being unknowledgeable about transgender issues. White Hughto et al.[29] identified a lack of knowledge on transgender issues among healthcare providers caring for $n = 20$ transgender female prisoners. One White Hughto et al.[29] interview participant described a feeling of being 'studied' by healthcare providers who did not know how to provide appropriate transgender care. Floyd, Martin and Eckloff[16] interviewed $n = 6$ transgender radiology patients and identified examples of a lack of knowledge among healthcare professionals. Floyd, Martin and Eckloff[16] provide an example involving a transgender female describing a situation where she had to explain to a healthcare professional that there was no chance of pregnancy. In addition to a lack of knowledge, the sub-theme of recording gender data (healthcare record systems theme) is relevant. Perhaps if the patient's demographic information included her assigned birth sex, the issue might never have arisen. A study by Hendrickson et al.[30] which described $n = 26$ transgender focus group participants, provided a situation where a General Practitioner (GP) told a patient that he did not know anything about transgender issues, which showed a lack of awareness and knowledge. As well as helping to provide equitable care for transgender patients seeking treatment, knowledge could contribute to improved screening programmes. Tabaac et al.[31] recommended that clinicians involved in screening programmes, such as those for cervical cancer or prostate cancer, should receive cultural and clinical competency training to ensure that transgender patients receive the screening tests they need. In order to increase radiographers' clinical knowledge related to transgender patients, Universities could include relevant patient gender awareness and knowledge content in their training programmes.

Awareness

Even when there was a lack of transgender knowledge reported by the participants in the found studies, awareness of transgender patients should have alerted healthcare professionals of the potential need to adapt their care, even if they did not know what that adaptation might be. Clark and Vealé[27] reported a mixed level of awareness among their survey of $n = 325$ radiography educators, with 98 % being familiar with the term 'transgender' but only 29 % being familiar with the gender-confirming surgical term 'bottom surgery'(phalloplasty). Being aware of terminology could provide better awareness and likely more fluent communication with this patient group. Ussher et al.[28] found that more than half of the $n = 357$ healthcare professionals surveyed would assume that a person's gender matched their birth-assigned sex. A lack of awareness could lead to embarrassment or offence, for example, if a transgender patient were not asked about their pronouns because the healthcare professional was unaware that non-binary pronouns exist. It could also lead to safety issues, for example, if a radiographer is not aware that a transgender man could potentially become pregnant. Awareness could be increased through education and having transgender symbols visible in departments.

Healthcare record systems

Healthcare record Systems were identified as a central theme, with sub-themes of recording gender data and stigmatising or discriminating policies.

Recording gender correctly

Found articles[29,30,32] included the issue of recording gender correctly, including non-binary options, and recording assigned birth sex. Perry et al.[32] discussed healthcare forms and records and argued that in addition to the patient's legal name, forms and records should include the patient's chosen name, their pronouns and gender identity. Perry et al.[32] argued that patients should be asked for their pronouns at each interaction as the stored information might be incorrect. Several participants in the study by White Hughto et al.[29] responded that they resented being misgendered. There should be a balance between repeatedly asking for pronouns despite having the information recorded and risking misgendering the patient. One participant in the study by Hendrickson et al.[30] described being pleased to see a form that allowed a patient to record their gender as 'male', 'female' or 'other'. In the same article, Hendrickson et al.[30] argued that the use of 'other' could be debasing. Matoori et al.[33] surveyed radiology hardware

and software providers to investigate whether they allow users to record non-binary genders. Five of the six largest hardware providers allowed 'male', 'female' or 'other' (the 'other' field could be amended). Matoori et al.[33] noted Philips Medical Systems (Netherlands), the sixth provider, allowed 'male', 'female', or 'phantom', explaining that on their healthcare record systems, the 'biological sex' should be selected. Hence, it is possible to record non-binary genders without using 'other', which would alleviate the concerns raised by Hendrickson et al.[30] Although, this is not congruent with the conclusions of Hammond et al.,[19] who argued that healthcare organisations did not have the ability to correctly record patients' transgender status.

Tabaac et al.[31] analysed 2014–2016 population-level data from $n = 32$ North American states and found significant differences in the rates of uptake/engagement of cancer screening tests in transgender patients. Tabaac et al.[31] identified the need for further research on the effect of the disclosure of transgender identity and cancer screening within cancer and health-related population data records. They also concluded that data on gender identity could be helpful in studying the epidemiology of cancers and thus useful for screening programmes. Tabaac et al.[31] did not focus on recording gender identity; however, a national database of patients could include gender, with binary and non-binary options being valid. However, if the assigned birth sex is not included, some patients may fail to be picked up by a screening programme. For example, a transgender man might not be invited for a cervical smear test because his assigned birth sex is not on his record. It is important that radiology administrative staff know how to input non-binary genders. Also, radiology software providers should ensure that fields for recording assigned birth sex are included in radiology healthcare record systems.

Discriminating and stigmatising policies

Discrimination and stigmatisation were common topics in the found articles; however, in two articles, this was driven by institutional policy. Hendrickson et al.[30] found evidence that some health insurance providers in North America refused to provide coverage to transgender patients, with one participant stating that they received written confirmation that their insurance would not cover them because of their transgender status. White Hughto et al.[29] described how transgender women were placed in male prisons because they had not undergone gender-confirming 'bottom surgery' surgery (phalloplasty). White Hughto et al.[29] detailed those participants further described difficulties in accessing hormones due to institutional policies during incarceration. With those who had not yet started prescribed hormones or who had been accessing them via illegitimate sources had them denied.

Within healthcare scenarios such as radiology, managers should ensure that policies are assessed to ensure that they are non-discriminatory and do not risk stigmatisation of transgender patients. The literature discussed in the introduction[10–13,18,19] of this review identified negative experiences of transgender patients related to ignorance and lack of awareness, such as staff being unaware of how to record a patient's gender correctly. However, they did not identify deliberate and unwelcome discriminating and stigmatising policies. The Society and College of Radiographers[34,35] (SCoR) within the UK have published guidelines for ascertaining pregnancy status in an inclusive way to assist safe medical imaging examinations. The SCoR has publicly had to defend its guidance in the face of media criticism which it described as 'irresponsible and inaccurate',[36] showing that there is still progress within society regarding the acceptance of transgender individuals.

Environment

The environment was identified as a main theme, with subthemes of transgender-friendly symbols and environmental dysphoria.

Transgender-friendly symbols

Four of the articles discussed the use of transgender-friendly symbols to create a positive environment. Ussher et al.,[28] Floyd, Martin and Eckloff,[16] Macdonald et al.[37] and Perry et al.[32] all agree that symbols such as rainbow flags, the transgender symbol and non-cisgendered representation on leaflets and posters are conducive to creating a positive environment for transgender patients. The SCoR[35] in the UK has produced an inclusive pregnancy poster aimed at pregnant patients for display in radiology departments featuring multiple languages and transgender-friendly symbols to produce a transgender-positive environment.

Yan et al.[38] argued that radiology fellowships and courses in Canada and North America should have gender-inclusive names. Yan et al.[38] gave examples, including a programme such as 'Breast Radiology' instead of 'Women's Radiology'. However, not a perfect solution; a transgender man could feel dysphoric if a mammographer uses medical words such as 'breast' when they might use transgender accepted terms or words such as 'chest'.

Environmental dysphoria

Perry et al.[32] discussed how some radiological examinations require patients to change into a gown which might cause a transgender patient to feel anxious. Sometimes a patient expresses their gender by wearing specific clothing and accessories. If a patient must remove their clothing and jewellery as part of their examination, they might have feelings of dysphoria, unease, or anxiety. Some participants in the study by Macdonald et al.[37] described an 'open bay' system with a lack of privacy. Because patients might not have felt comfortable discussing issues of gender identity in public, they might have chosen not to disclose their gender, which could lead to feelings of dysphoria. Macdonald et al.[37] study participants also objected to gendered terms of endearment, such as 'dude' or 'sweetheart'. Even though they might be meant as endearing, they could lead to feelings of dysphoria if they do not correspond with the patient's gender identity. Cultural competence training specific to transgender patients could be incorporated into radiographer training (undergraduate education/preceptorship/mandatory training) to increase clinical knowledge. All patients should be offered privacy, regardless of their transgender status. However, radiographers could acknowledge that gender identity is a sensitive topic that might be best discussed privately.

Limitations

This literature review was limited due to the sources from several different countries, which may introduce possible cultural differences that were not discussed, as well as different laws in each jurisdiction. Additionally, it is acknowledged the problem inherent in any literature retrieval is the possibility of influence on findings from publication bias and date of publication inclusion criteria. Future research would do well to explore transgender patient perspectives and needs of all ages in the radiology department that can in turn inform radiographer training on gender-affirming culturally competent care to reduce anxiety and improve the patient experience.

Conclusion

This review has shown that transgender patients still face some barriers to care. Healthcare workers demonstrated a lack of awareness of transgender issues and terminology. They also lacked knowledge of clinical care related to transgender patients. As well as personal barriers, this review identified systemic barriers to equitable care. Although radiology hardware and software mostly allowed operators to record non-binary genders, some healthcare providers had policies that discriminated against transgender patients or stigmatised them. Environmental barriers to equitable care were also identified. Multiple sources called for displaying transgender-friendly symbols in healthcare settings to foster a transgender-friendly environment. Transgender patients also need to feel that the environment welcomes them and avoids unnecessarily causing feelings of dysphoria.

These findings promote several recommendations for diagnostic radiographers, their managers and education programme providers, including training on clinical topics and cultural competence. Radiology managers should display transgender-positive symbols in their departments and ensure their policies are non-discriminatory and non-stigmatising. Radiology hardware and software providers should provide the ability to record non-binary genders and birth-assigned sex.

Conflict of interest statement

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