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Student radiographers' confidence of adapting practice for autistic patients: A qualitative survey on the role of placement experiences

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Abstract

Introduction

Healthcare services can be inaccessible to autistic people without adaptations to clinical practice and the care provided. Therefore, understanding how radiographer education develops students' confidence in adapting care for autistic patients is crucial. This study aimed to explore how placement experience impacts student radiographer confidence in adapting care for autistic patients.

Methods

UK final-year student diagnostic and therapeutic radiographers were invited to complete a qualitative online survey. The survey asked for a description of placement experiences; of observing and/or performing the care of autistic patients and how this impacted confidence in caring for autistic patients. The data was thematically analysed.

Results

43 responses (of 44 received) were included, from which 5 themes emerged. Those who felt placement experiences developed confidence described opportunities to apply theory learnt at university (theme 1) or drew attention to the benefit of prior (external) experience with autistic people (theme 3). However, the balance of power with the supervising radiographer (theme 2), witnessing autistic patients in distress (theme 4), and the heterogeneous nature of autism (theme 5) disrupted students' development of confidence.

Conclusion

Several participants in this study found clinical placement developed confidence with autistic patients through applying knowledge and providing an opportunity for reflexive learning. However, various obstacles hindered this development, such as witnessing distressed patients, limited experiences with autistic patients and difficulty navigating relationships with radiographers.

Implications for practice

To improve student radiographers' confidence of providing care for autistic patients, educators should consider methods, e.g., co-produced simulation, to fill potential gaps in their experience. There is also a pressing need for all radiographers to understand their responsibility in educating students and their impact on student wellbeing.

Keywords:

Radiography Education, Student Radiographer Confidence, Autistic Patients in Radiography, Clinical Placement Experience, Neurodiversity in Healthcare, Person-centred Care

Background

Learning Confidence in Practice

Self-confidence, referred to as *perceived self-efficacy*, is defined by Bandura ¹ as ‘people’s beliefs about their capabilities to produce effects’ (pp. 71). The function of ‘perceived’ is important here as it should be recognised that confidence is individual, subjective and experiential. Bandura states that confidence reflects an individual’s previous experiences and provides the motivation needed to develop further confidence ^{2,3}. Building on this and to aid understanding, developing confidence can be conceptualised as a self-perpetuating cycle, as depicted in Figure 1. However, this simplified model fails to acknowledge knowledge of theory and importantly the input of others on confidence and learning.

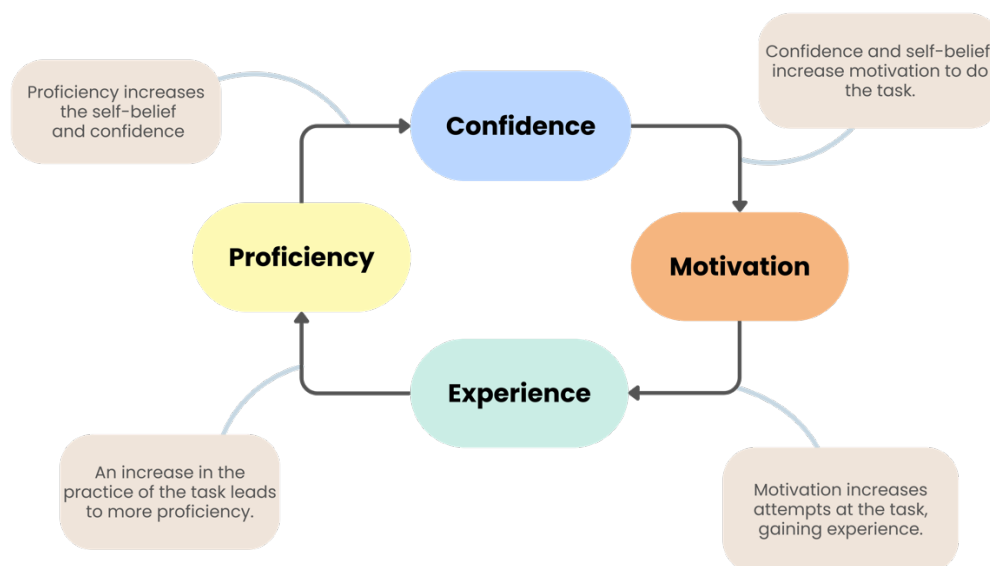


Figure 1. A diagram, simplifying the self-perpetuating relationship between confidence, motivation and proficiency. (Adapted from Bandura ²)

To become a Health and Care Professions Council (HCPC) registered diagnostic or therapeutic radiographer in the UK, theory-based education and practice placements are required ⁴. A function of practice placements is to bridge the gap between theory and practice, giving students real-world opportunities to begin developing confidence ^{5,6}. The act of observing practice can be a useful tool, but experiencing success through performative action is a more effective learning practice ^{2,7,8}. Lundvall et al. ⁸ found that by alternating observation and performance, student radiographers could develop embodied knowledge. Kolb’s experimental learning cycle ⁹ can be used as a framework to understand this as it recognises the continual building upon knowledge through experience and reflection, but it also acknowledges a reflexive approach that is bidirectional. Bidirectional reflexive learning

in this context refers to placement not only functioning as a learning environment in which students apply the knowledge gained from university, but also a place where students build and develop new knowledge gained from their experiences.

Rolfe and Freshwater¹⁰ call this advancement the distinction between a technician and a practitioner. This ability to be reflexive and continuously learn is a vital aspect of an autonomous healthcare professional and an important practice to develop during pre-registration education. In support of this, Ryan and Deci¹¹ argue that the relationship between perceived competence and intrinsic motivation is mediated by the perception of internal causation. Thus, students who experience opportunities to perform actions develop deeper knowledge but also establish a self-perception of proficiency and motivation to further their skills. However, Both Deci¹² and an early proponent of experiential education, John Dewey¹³, state that not all experience is educational. Furthermore, Dewey¹³ states that there is potential for experiences to be “mis-educative” (pp. 25), which Deci¹² suggests diminishes intrinsic motivation and prevents the acquisition of further experience.

Numerous factors can lead to negative experiences, which may result in mis-education, reducing motivation during clinical placements. Clinical environments inherently involve caring for patients with serious health issues, which students can feel unprepared for emotionally and struggle to process^{14–16}. Alternatively, limited scope of practice and lack of experience can prevent students from actively participating, causing distress when they cannot act when observing suboptimal care^{17–20}. Additionally, students can grapple with the pressures of clinical environments, the weight of anticipated expectations, and extended breaks between placement blocks leading to a loss of momentum^{15,21}.

Alternatively, the relationship between the student and the supervising clinical staff is reported as a potential cause of difficulty^{8,22–27}, especially for those entering the healthcare environment for the first time²⁸. The relationship between students and educators is complex, as students must feel comfortable being vulnerable and asking for help while also projecting a hardworking, competent, and professional image. The perception of being hardworking can come from not ‘burdening’ staff or adding to their workload^{22,23,25,26,29,30}. Furthermore, students may face ostracism if they challenge negative practices, which can limit their learning opportunities^{19,20,22,31}. McPake²⁴ and Bäck and Karlström²⁶ stress the importance of a supportive learning environment and the impact on students’ well-being when this is absent. This is echoed by Panda et al³², who carried out a systematic review and meta-synthesis exploring the challenges faced by student nurses and midwives in clinical learning environment, finding that without a support structure students face isolation, fear, lack of self-identity, lack of motivation, disrespect and discrimination.

Some students start with inherent self-confidence, which functions as a catalyst for gaining confidence in a new skill. A source of self-confidence on placement is through previous careers or caring experience³³. This experience may not only increase self-confidence, but aid assimilation into the workplace environment and assist with relationship building³⁴. There is also a benefit of having personal lived experience that is akin to the situation of the person receiving care and allowing that to be a tool for enhanced empathy and understanding³⁵.

Autism, Inequalities and Adaptions

Autism, in the medical model, is a psychiatric diagnosis; however, a neurodiversity model view – supported by autistic academics and self-advocates – sees being autistic as a difference in human experience, arising from the natural variations in the neurobiology of the human species³⁶. Although described in medical literature as deficits in socialisation, communication and behaviour; autistic people have self-identified shared traits, such as strong empathy, uneven skills, chronic social trauma and similar sensory experiences³⁷. The experience of autism is heterogeneous across the autistic population^{38,39}, however, in a society built for non-autistic people, autistic people encounter disability and barriers to equal participation⁴⁰. Each autistic individual may have differing support preferences to reduce these barriers^{40–43}.

There is a wealth of recent evidence showing that autistic people experience higher instances of mental health issues, major physical illness and injury^{44–49}. Furthermore, autistic people die on average approximately 17 years younger than non-autistic people⁵⁰. Underpinning this are the barriers to healthcare autistic people face, such as communication issues with healthcare professionals and sensory overload in clinical environments^{48–52}.

Considering the adaptation of radiography practice for an autistic patient, it is crucial to recognise that needs may vary across different radiographic modalities or treatment methods. The SPACE framework⁵² functions as a fundamental basis for considering adjustments by emphasising sensory requirements, predictability, acceptance (including a neurodiversity-affirming approach), communication, empathy (promoting mutual comprehension without depending on non-verbal cues), and the necessity for supplementary physical, cognitive, and emotional space.

The bulk of the limited radiography research was conducted predominantly in Magnetic Resonance Imaging (MRI)^{53–56}. Despite challenges posed by the loud noise and lengthy scan times, radiographers frequently take control over the environment, such as lighting, choice of music and reduction of the scan time^{54,55}. However, a survey of 112 autistic individuals revealed that the environment was a significant factor contributing to a negative impact, with only 17.1% of respondents reporting environmental accommodations⁵⁵. This conflicts with an earlier study⁵⁴ in which 70% of radiographers said they offer environmental adaptations. Interestingly, the findings by Carlier et al.⁵⁷, omitted environmental adaptations from the radiographers' list of enablers. However, this study was conducted across the imaging modalities, and thus this could be explained by the lack of radiographer control in other imaging areas. A recent study by Harvey-Lloyd et al.⁵⁸, where the experiences of parents of autistic children were explored, also found environmental adjustments to be an area for improvement. The disparity could be explained by radiographers having the awareness that environmental adjustments are useful, but only 17.1% putting that knowledge into action. Equally, this finding could be impacted by only 23.2% of patients disclosing their autistic identity.

Disclosure can be a big decision for autistic people, given the stigma they face ^{40,59}. Thus, to honour and respect a patient's disclosure, a radiographer must have the knowledge and confidence to offer and implement any required adaptations. However, as Stogiannos et al. ⁵⁴ highlighted, the biggest challenge radiographers felt in scanning autistic patients was a lack of relevant training and knowledge (41.5%). This is consistent with Corden et al.'s ⁶⁰ systematic review of 35 quantitative studies which found that medical professionals had limited knowledge and confidence in supporting autistic individuals. Similarly, Abdelrahman et al. ⁶¹ found that 117 radiographers in the United Arab Emirates had a moderate understanding of autism, though the tested knowledge was based on the medical model definition which is widely contested by neurodiversity advocates and autistic rights researchers ^{36,40,62,63}. Mac Cárthaigh and López ⁶⁴ also found that British nursing students had limited knowledge and negative attitudes towards autistic people.

Methods

Design

This study aimed to answer the following research question: what role do placement experiences play in students' confidence to adapt their practice for autistic patients? To do this, data was collected via an anonymous online survey created using the Jisc online survey ⁶⁵. Closed questions were used to gather demographic data and open questions with free-text boxes were used to collect qualitative responses. Although the online method prevents researchers from asking reactive questions, Braun et al. ⁶⁶ argue that by removing the face-to-face interview element, online surveys feel more anonymous. This is important when seeking disclosure of sensitive topics, such as the placement experiences of student radiographers with a potentially vulnerable patient group.

Participants were first presented with an information page (as seen in supporting information [SI1]). This had a brief NHS definition of autism, some examples of the healthcare barriers an autistic person might face, some examples of adaptations that could improve their experience and links to resources for participants to read more. This aimed to ensure a shared understanding of this topic between the researchers and participants. The survey had two sections; firstly, it asked participants to recall experiences of *observing* the care of autistic patients, and secondly, to recall experiences of *performing* the care of autistic patients and for each, the impact the experiences had on their confidence. Participants could participate if they had not had any experiences with autistic people as this may have still provided valuable insight.

When exploring experiences, the participants were asked to detail how adaptations or lack of them had impacted themselves, the patient, the radiographer and the radiotherapy treatment or acquisition of the image. This was influenced by the Johns ⁶⁷ model of reflection, which promotes the consideration of others in a situation as a key to gaining more insight ⁶⁸. However, it should be noted that the participants were not asked to *reflect* on their experiences as this would involve critical analysis not required to answer the research question ⁶⁹. Equally, the confirmation of autism diagnosis for each patient in the experiences was not required. Rather, if the student believed the patient to be autistic and this experience impacted their confidence in caring for the patient, this provided a valid addition to the research study.

Ethical Considerations

Considering the potential emotional consequences of participants revealing distressing experiences, ways to seek support were signposted. It was emphasised that the anonymous nature of the survey precluded action being taken in response to reports of malpractice. The study was granted ethical approval by Birmingham City University on 08/12/2022.

Recruitment

The study was open to final-year, pre-registration, therapeutic and diagnostic radiographer students. The term final-year was chosen to be inclusive of BSc (Hons) and MSc (pre-registration) courses with varying durations. These students were chosen because they are likely to have had several placement experiences to draw from. The study only included those on a traditional university student degree pathway in the UK.

The method of recruitment was via an approved internal Birmingham City University email and through the author's social media (*Twitter* and *Linked In*), which undoubtedly led to opportunistic snowball sampling. It was clear to all potential participants, through the email wording, and social media post and profile that the lead researcher was also a student radiographer, aiding in rebalancing any power imbalance that could have been assumed. The sample that was recruited via social media may be skewed to those following the author or those likely to be engaged in the professional community and seeking further learning opportunities ⁷⁰. Similarly, those who participated may only have done so because they have a special interest in the topic ⁷¹.

Analysis

The data was analysed following thematic analysis based on the philosophy of descriptive phenomenology ⁷². Although Braun and Clarke ^{73,74} argue that subjectivity is a valuable resource, this study aimed to minimise this by following Sundler et al. ⁷², with analysis carried out with an open frame of mind. Identified patterns were reassessed with reflection on the impact of the author's pre-understanding. Nonetheless, the author of this study, as an autistic final-year diagnostic radiography student, cannot ignore the potential benefits and challenges of their positionality.

Results

A total of 44 people completed the survey; one participant was excluded due to their course being post-registration. The general demographic data can be seen in Table 1. The other demographic data gathered is reported descriptively.

CHARACTERISTIC	GROUP	N (= 43)	%
AGE	19-29	27	62.79
	30-39	13	30.23
	40-49	3	6.79
	50+	0	0
PROFESSION	Diagnostic	34	79.06
	Therapeutic	9	20.93
DEGREE LEVEL	BSc	42	97.67
	MSc	1	2.32

Table 1 – Demographic Data

From the data, five themes were generated. These themes were consistent in diagnostic and therapeutic students, showing no noticeable difference relating to the profession the participants were studying. With only 1 MSc participant, there was nothing noticeable to report between degree level. The themes are displayed in Figure 2.

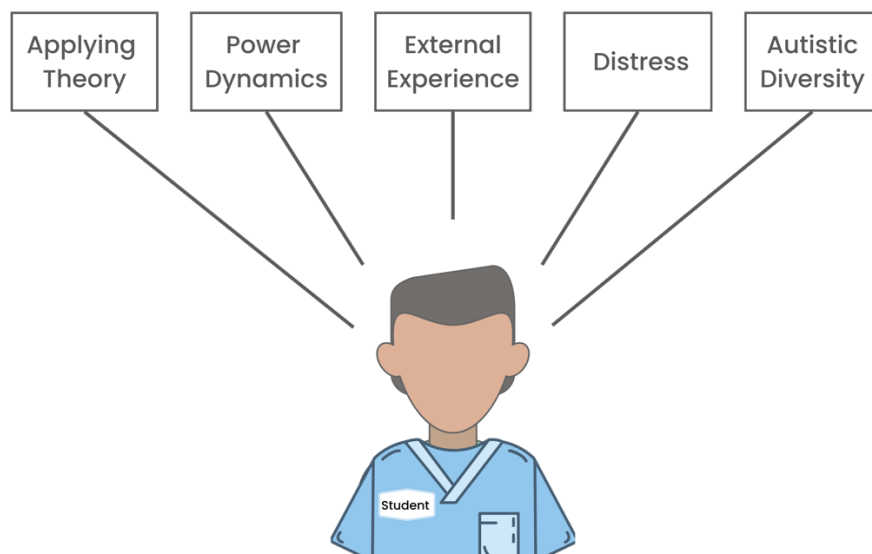


Figure 2 – Graphic of the Themes

Theme 1 – Applying Theory

Some students believed that their placement experiences had reinforced the education they gained from university lectures or external sources. These reinforcing experiences were perceived as positive interactions where patients received suitable care.

“This reinforced the module I had completed on e-learning for Healthcare about patients with ASD.” (P20)

However, a smaller group commented on feeling underprepared for the authentic experience.

“We are not taught how to handle these conditions at university.” (P39)

In addition, others felt they were lacking the opportunities to apply the theoretical knowledge.

“In theory I am knowledgeable about the common experiences and needs of autistic patients, but in practice I would not be confident due to lack of experience with autistic patients, both children and adults.” (P5)

The students who felt the care of autistic patients was not taught at university, or they perceived they had had an insufficient variety of experience, reported low confidence. This included those who reported having no experience. Finding this is unsurprising and outlines the need for more work in this area.

Theme 2 – Power Dynamics

The teacher-student power dynamic between radiographers and student radiographers sometimes resulted in participants feeling unable to intervene in the care the radiographer was giving.

“I would have liked to suggest more adaptations [...] however, as a student I felt like as I was working with someone that had a lot more experience than I did I couldn't.” (P9)

Supervising radiographers acted as a barrier in cases where patients were distressed. Students felt unable to provide care.

“I felt helpless in a way as the radiographer took charge and I couldn't help the patient in distress.” (P29)

Some students recalled how the patient's distress resulted in radiographers becoming distressed too.

“As the student It made me feel bad for the patient and helpless [...] It made me frustrated because the radiographer became tense and demanding.” (P30)

Theme 3 – External Experience

External experience meant many participants felt they had more experience with autistic people than the radiographer supervising them. This resulted in students intervening to help patients receiving poor care, inverting the teacher-student power dynamic.

This included some participants who were autistic themselves:

“I understand and know the condition. I didn't stand for it. I may be a student, but I stepped in and spoke with the patient.” (P40)

Additionally, others had autistic family members and knew how to approach care:

“I stepped in to interact with the patient and make him feel reassured. I do not know what impact the radiographer's lack of adaption would have had on the patient.” (P2)

There was a general feeling among those students with external experience that some radiographers lacked the knowledge to provide appropriate care.

“More training for staff to understand [autistic patient's] needs. [...] I feel confident in my practice due to my knowledge because of my son.” (P4)

Theme 4 – Distress

A common thread through many of the participant's experiences was witnessing distress from the radiographer and the patient, and the impact this had on them.

“The radiographer was also very stressed, you could tell that they lacked experience with this patient group and had no sort of training [...] I was also quite upset, I was a first-year student at the time and so didn't feel comfortable enough to get involved with the situation.” (P42)

Some participants described being confident even though they had observed inadequate care and resultant distressed patients. These students had external experience to draw upon, and thus seeing this made them reflect on their approach and perhaps reinforced their knowledge of how *not* to provide care.

“I feel like I have more confidence as I am aware that the bare minimum adaption or adjustment is not enough.” (P9)

“I feel as though I have a better understanding of autism than the radiographer in that situation so I feel as though I would not be as flustered.” (P29)

A student described observing a distressing encounter, but in a second experience, taking charge. They reflected on what they had observed and then used that learning as an impetus to provide better care.

"The second experience was better. Initially, parents [and the] radiographer were distressed, and [the] patient was confused. When I took over and did adaptations, he fully complied without need to be held by [the] parent and [he] shook my hand after, so I believe it improved the experience." (P14)

In some participants' perceptions, adaptations were made to practice, but the patient became distressed. There are a multitude of possible factors that could have upset the patient, including those not related to the radiography practised. The participants who observed these encounters were left with low confidence.

"Even when observing what would be best practise could result in a patient being distressed and uncooperative. So [a placement experience] doesn't make me more comfortable, just more aware." (P40)

Theme 5 – Autistic Diversity

Some of the participants indicated that because of the wide differences in the challenges autistic people face, there was not enough varied experience gained to develop confidence.

"I feel confident with this person's difficulties but not all patients that come in who are on the spectrum" (P22)

Some participants expressed anxiety about caring for patients who communicate differently, such as patients who speak few or no words.

"It depends on their communication level. The more non-verbal they are, the more I believe I will struggle." (P2)

On the contrary, one participant reported they adapt to the person rather than their autistic identity.

"I don't classify or view them differently from anybody. I just recognise they have more specific needs and adapt and adjust accordingly." (P40)

Discussion

The present study utilised qualitative methods to explore the role of placement experiences on student radiographer confidence of caring for autistic patients, specifically the impact of observing and/or performing care. It is the only study to explore this, however, some of the themes are consistent with previous work exploring the healthcare student experience in practice-based learning.

Applying theory

Several participants felt a benefit to their confidence from the opportunity to apply knowledge gained from university to clinical practice on placement. This included some experiences of the reflexive learning cycle⁹ in which new knowledge was gained through applying theory. In cases where they observed what was perceived as negative, such as seeing a patient in distress, there was potential for the experience to be what Deci¹² called “mis-educative”. Regardless of the negative emotions attached to what they observed, many students gained intrinsic motivation to perform better than their role models and continued to apply theoretical knowledge.

Consistently referred to in the literature, radiographers as well as healthcare practitioners in other professions, feel there is a lack of education or training on caring for the autistic population in their practice^{54,55,57,58,60,61,75–80}. There was a sense of this from participants in this study, both when they observed radiographers with poor knowledge or understanding and when they felt unprepared by their university course. This might point to a need for more of the curriculum devoted to how to meet the needs of the autistic population in radiography practice. Participants felt there were not enough opportunities to practice and a lack of variety in their experiences with autistic patients. Lack of interaction with members of a minority group is a common issue and this can impact the maintenance of knowledge, skills and cultural competence^{80,81}. In recognition of this, training and education on this topic should include repeated CPD activity for students and radiographers⁸⁰.

Power Dynamics

As outlined in many studies^{8,21–25}, the relationship between a student and the supervising healthcare professional has a significant impact on the student’s experience. In the present study, some participants felt unable to challenge the radiographer or even offer suggestions. This acted as a barrier to the students, restricted how much experience they could gain and harmed confidence development. These experiences are consistent with the findings of Harrison-White and Owen²², who identified that for students who were unable to negotiate the power dynamics, placements can become void of learning experiences.

The participants of this study did not expand on what caused the barrier, whether the words, attitudes or actions of their supervising practitioner - which they as students are sensitive to²⁵ – the culture of that department or the structural power balance of the teacher-student relationship. However, there are underlying reasons why a practitioner might be the cause of poor student education or experience without meaning any ill intent.

The practitioner may lack the confidence in the practice required to teach others or be unaware of their teaching obligations^{82,83}. There is also evidence in nursing and radiography of a lack of time and resources needed for providing education^{83,84}. Young et al.⁸³ found that 96.3% of radiographers felt there was scope for improvement in the education being delivered, which is a clear recognition that radiographers also feel their educational skills are lacking^{23,25,85}.

External Experience

This present study showed that the power dynamic described above could be subverted by students with external experience. These participants had the confidence to step in and act in what they perceived to be the patient's best interests. This study outlines how personal or previous career experience can be utilised as a valuable tool, echoing the work by Oates et al.³⁵. Sjølie et al.⁸⁶ conducted 13 in-depth interviews with health professionals in a Crisis Resolution Home Treatment (CRHT) team, exploring how the participants integrate their personal histories into their professional identities. They detail a participant who was energised and impassioned by their understanding of the patient's situation through having a similar experience personally. Sjølie and colleagues find an important distinction between the personal and professional; keeping the personal story close but being aware of its influence on the professional at enough distance to enable reflection.

Distress

Generally, participants who observed patients in distress expressed the substantial upset this caused them, resulting in lowered confidence. Radiographers could become frustrated, and it was suggested that this may have been directed at students, potentially impacting the rest of the participants' placement and their overall confidence in that practice area²⁴. Young et al.⁸³ found that 95.6% of radiographers in their study agreed that talking through reasoning was needed in supervision. However, within this present study, it was evidenced that debriefs were not occurring, with students left without an understanding of how to improve, negatively impacting their confidence. This is consistent with Galvin et al.¹⁷, in which a participant described how none of the staff discussed a distressing event after it had happened, leaving students without any support.

Autistic Diversity

Some participants in this study described feeling confident caring for patients facing some barriers but were unnerved by the variety of ways they may need to adapt to provide appropriate care for an autistic patient. The autistic experience is heterogeneous, and it is not possible to gain experience caring for every person's specific mix of challenges. It is important that students feel confident in the key areas of adaptations, such as those outlined in the *SPACE* framework⁵². In addition, by using adapted communication to understand how to meet a particular patient's needs, they can provide care that is person-centred.

Recommendations

In light of the findings from this study, the following recommendations are proposed to address the gaps in radiography education and practice concerning the care of autistic individuals.

- 1) This study and existing literature evidences that radiographers lack the necessary knowledge and skills for the care of autistic patients. A co-produced radiography-specific training course, leveraging the foundation laid by the Oliver McGowan training ⁸⁷, could address this. By building radiographers' confidence in performing best practices, they can be positive role models to the students they supervise. Similarly, education and training for all radiographers on their educational impact and responsibilities should be provided.
- 2) Radiographers and student radiographers should utilise the SPACE framework ⁵², which is accessible and provides key considerations for working with autistic individuals.
- 3) To better prepare students for working with autistic patients, universities should incorporate more comprehensive training on autism and provide opportunities for simulated practice. This simulated education should be developed in collaboration with autistic individuals to ensure that students gain diverse experiences considering the various barriers faced by the autistic community in healthcare settings.

Conclusion

This present study found that power dynamics within clinical radiography settings played a pivotal role in potentially impeding learning opportunities - and therefore confidence development. The participants' prior career backgrounds or experiences from personal lives appeared as valuable sources of confidence, particularly in examples where supervising radiographers lacked sufficient knowledge or skill. Inadequate debriefing and support mechanisms during instances of patient distress negatively impacted the students' confidence levels. Participants highlighted the advantages of applying theoretical knowledge acquired at university in clinical practice, but others expressed a lack of education specific to the care of autistic patients. Overall, most of the participants felt there was too little experience with autistic patients to build confidence.

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Supporting Information [SI1]

How can autistic people be different?

The differences include social interactions or communication styles, preference towards routines and carrying out repetitive behaviours and being more or less sensitive to sensory stimuli.

([NHS, 2022](#))

Why are adaptations needed?

In clinical/healthcare situations, autistic people may experience:

- Difficulty communicating with healthcare staff (such as booking an appointment or being understood by a doctor)
- Difficulty with healthcare environments (such as crowded waiting areas, noise from other patients and being unexpectedly touched)
- Difficulty with planning and organisation (such as making appointments in advance and prioritising their health issues).

([Doherty et al., 2022](#))

You can read more about this [here](#)

What adaptations are needed?

We should:

1. **Minimise Uncertainty**
e.g., Provide details such as who they will see, how long for, where, whether will this be a one-off or one of a number of appointments, what will happen if the session is late, and what will happen after the appointment.
2. **Minimise Misinterpretation and Miscommunication.**
e.g., Ask specific questions and be explicit in your instructions and expectations
3. **Minimise Sensory Stimulus**
e.g., Ask if there is any sensitivity to noise and explain the different noises that may not be able to be adjusted, such as medical equipment. Adjust the equipment that may be altered according to preference and encourage people to wear headphones or earplugs if noise is distressing.

([Haydon et al., 2021](#)).

You can read more about this [here](#).