Calling for wider skin tone representation in simulation-based learning

Diana De, School of Healthcare Sciences, Cardiff University

Professor Vanessa Heaslip, School of Nursing and Society, University of Salford

Dr Neesha Oozageer Gunowa, School of Health Sciences, University of Surrey

Globally, due to nursing shortages, there have been challenges and pressures on student placement capacity which has resulted in an increased emphasis on simulation-based learning (SBL). This includes augmented, artificial intelligence and virtual reality technologies. It has been well documented that the use of clinical SBL is an effective pedagogical strategy in nurse education (Levett-Jones and Lapkin 2014, Ozarka, 2015, Halabi Najjar et al., 2015). However, most of the literature describing high-fidelity SBL has focused on the manikin type or the impact on learning, rather than diversity, including skin tone (Fuselier et al., 2016, Conigliaro et al., 2020).

Black and White simulation manikins are readily available, however there is a paucity of research regarding the range of skin tones between Black and White (Foronda et al., 2020). More rigorous research into skin tone representation would enable a more critical examination and reflection to the degree to which a potentially biased hidden curriculum 'invisibles' diverse skin tones. This inadvertently promotes racism within Western healthcare practices through typically basing education upon a majority white population. By investing in resources which place more emphasis on SBL resources representative of diverse communities, nurse educators can foster psychologically and culturally safe learning environments as well as focus on nursing diverse groups.

An example of this, is the case of handwashing. The importance of handwashing in nursing is well established, yet have you ever wondered why movement detecting taps or driers are not always effective. The reality is the more melanin pigmentation you have in your hands (i.e., the darker they are), the less effective the in-built scanners tend to be. Similar challenges have been identified with O2 saturation monitoring equipment (Barker and Wilson, 2022). The reason behind such failings is that trials and tests for the technology are modelled upon participants with white skin tones. For improvements to occur, institutional racism in technological simulation testing needs to be recognised and more diverse representation in research and design needs to be incorporated. This not only creates more inclusive prototypes, innovations, and environments but also supports more sustainable developments.

Conigliaro and colleagues, (2020) described how a lack of diversity in simulation technology resulted in educational limitations. SBL scenarios used in contemporary nurse education should reflect the reality of practice and be meaningful to today's diverse students. We argue that it is vital student nurses learn in environments which are representative of the patient caseloads they will encounter when in practice and in their future professional careers. Furthermore, Graham et al., (2018) reported how the presence of manikins of dark skin tone in simulation labs can evoke feelings of belonging. Educational environments which include manikins with a range of skin tones adds authenticity. Learning in monotone and claiming to be 'colourblind' does not foster patient safety or enable students to develop skills in undertaking robust risk assessments, nor does it promote inclusive practice or global citizenship. We assert that every university offering simulation-based education needs to critically examine the range of resources they use including SBL, print, and electronic. This also needs to include critically reflecting upon the language used by manufacturers. For example, many manikin manufacturers have incorrectly used tan as a skin colour. Medically, tan is a change in pigmentation from phototherapy (including sun exposure) and is therefore a temporary condition, as such beige should be used. Materials and language in use requires regular review to ensure they are non-offensive and culturally appropriate. We advocate promoting curiosity and dialogue between educators and students, as well as co-production with service users and students as this would enable the development of more representative, meaningful, and empathetic materials.

In contemporary nursing practice, diversity matters, as such, educational programmes must be responsive and representative if they are to be fit for purpose. As educators, we are accountable for ensuring our programmes are inclusive and non-discriminatory. The language we use is equally significant, therefore we need to critically examine the terminology we use. For example, when teaching about pressure area damage, words such as pinkness, mottling, and redness describe skin deterioration in white skin, but they do not visually describe aetiological changes that occur in patients with dark skin tones (Oozageer Gunowa et al, 2020). Thus, including a more diverse range of skin tone manikins alongside the use of appropriate language would enable a more accurate assessment which, in turn, improves patient safety.

A more diverse and open curriculum is called for and one way of promoting this, is by using cultural safety. Cultural safety originated in New Zealand during the 1990's and aims to elevate the voice of marginalised groups and is embedded within their nurse educational programmes (De and Richardson, 2015). Cultural safety highlights colonialism and structural biases, drawing attention to both the favour and privilege geared towards the 'normative' majority population. It calls for nurse educators to both acknowledge and shift away from 'whiteness' remaining the 'social norm'. Not doing this promotes privilege as well as exclusion of people with different skin tones leading to

misunderstandings and microaggressions both of which are suboptimal to student learning and patient care.

In support of a more inclusive pedagogy, there needs to be a better understanding of the limitations of only presenting learners with homogenous 'white skin tone' products. In addition, the tokenistic inclusion of dark skin tone manikins purely as a 'tick box' measure to demonstrate Diversity, Equality, and Inclusion (DEI) does not support a genuine commitment to improve health equity. The expectation is that best practice environments will feature a range of skin tones across the colour spectrum. Equally, racial profiling and stereotyping are not patient or student-centred (Keeton, 2020). For example, case study characters with an ethnic sounding name could be perceived as half-hearted and superficial which is demeaning and can lead to discomfort amongst those being taught. Instead, we advocate critically analysing SIM learning using DEI evaluation tools as well as working with people and students from diverse groups through co-production to develop resources that respect difference and diversity. Some institutions, for example, Bond University in Australia are leading SBL design through the development of a multidisciplinary DEI debriefing tool.

In configuring SBL algorithms and evaluating case studies, nurse educators must become more culturally cognisant that aetiology presents differently in different skin types and tones which impacts upon care outcomes. For example, noting that people with dark skin tones will not go 'blue' when centrally cyanosed during cardiac arrest, is fundamental to improving emergency assessment, response time and reducing death. Arming students with this knowledge would better support earlier interventions, especially during interprofessional mandatory training (Resuscitation Council UK Guidelines, 2021). Including dark skin tones in CPR manikins could act as a prompt for Basic Life Support (BLS) trainers to start such conversations to highlight differences. Alternate means of assessing could then be shared through facilitator demonstration. This would enable nursing students to undertake a more accurate, comprehensive assessment which could lead to a timelier 'chain of survival' response.

Inclusion does not just relate to skin tone, indeed there is a need to ensure that manikins reflect all types of people, for example gender transitions, larger bariatric bodies, and people with disabilities. Thus, reflecting the wider service users and clinical presentations which students are likely to see in their professional careers. Ultimately, we need to remember that SBL settings are 'mock-up' spaces where our students can learn safely. They are perfect environments to have 'sensitive conversations' to help students become aware of any biases they may have as well as address aspects around care management, and inequity. Here, nursing students can learn from misunderstandings and explore different interpretations enabling them to develop the clinical and interpersonal skills they require for culturally safe practice.

In no way is a dramatic overhaul of all current resources being suggested nor that institutions are called-out for not including diverse SBL resources or case studies. Purchasing high-fidelity life-sized manikins can be extremely expensive; however, we do encourage nurse leaders to consider equity and accessibility in their resource planning and procurement processes. When decommissioning SBL equipment, we ask for a critical examination as to the degree to which the equipment reflects diversity and what replacements could better promote diversity. Until then, single limbs, injection sponges and suture kits which come in a range of skin colours and are inexpensive can be used to heighten awareness and create conversations with nursing students. Ultimately, to bridge the theory-to-practice gap, we assert that skin tone and diversity in general needs to be better incorporated into the curriculum to reflect the patient population more accurately.

References

Barker, S.J., and Wilson, W.C. (2022). Racial effects on Masimo pulse oximetry: a laboratory study J Clin Monit Comput. 2022 Nov 12;1-8.

Conigliaro, R.L., Peterson, K.D., Stratton, T.D. (2020). Lack of diversity in Simulation Technology. Simulation in Healthcare. 2020 Apr 1;15(2):112-4.

De, D., and Richardson, J. (2015). Ensuring Cultural Safety in Nurse Education Nursing. Times 111 (39) 17-19.

Foronda, C., Prather S.L., Baptiste, D., Townsend-Chambers, C., Mays, L., and Graham, C. (2020). Underrepresentation of Racial Diversity in Simulation: An International Study. NEP Online May/June 2020 doi: 10.1097/01.NEP.0000000000000511

Fuselier, J., Baldwin, D., Townsend-Chambers., C. (2016). Nursing Students' Perspectives on Manikins of Color in Simulation Laboratories Clinical Simulation in Nursing, 12(6), 197-201.

Graham, C., Atz, T., Phillips, S., Newman, S., & Foronda, C. (2018). Exploration of a racially diverse sample of nursing students' satisfaction, self-efficacy, and perceptions of a racially. Clinical Simulation in Nursing, 15, 19-26.

Keeton, V. (2020) What's Race Got to Do with It? A Close Look at Race in Case Based Nursing Education Nurse Educator 45(3):p 122-124

Levett-Jones, T., & Lapkin, S. (2014). A systematic review of the effectiveness of simulation debriefing in health professional education. Nurse Education Today, 34 (6), e58-e63.

Najjar, R. H., Lyman, B., & Miehl, N. (2015). Nursing students' experiences with high-fidelity simulation. International Journal of Nursing Education Scholarship, 12(1).

Oozageer Gunowa, N., Hutchinson, M., Brooke, J., & Jackson, D. (2020). Embedding skin tone diversity into undergraduate nurse education: Through the lens of pressure injury. Journal of Clinical Nursing, 29, 4358–4367.

Ozkara S.E (2015) Using clinical simulation to enhance culturally competent nursing care: a review of the literature. Clinical Simulation in Nursing. 11, 4, 228-243.

Resuscitation Council UK Guidelines, 2021 2021 Resuscitation Guidelines | Resuscitation Council UK accessed 08.12.2022