The relevance of skin tones in the diabetic foot

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Key words

- Dark skin tone
- Diabetic Foot
- Foot care

Article points

1. Incorrect use of assessment tools in people with dark skin tones has to led to discrepancies in wound care.
2. A validated classification tool, such as the skin tone tool, needs to be used to determine an individual's skin tone at baseline.
3. It is easy to miss erythema in patients with dark skin tones, so clinicians should make full use of the senses and assess for cardinal signs other than redness.
4. Clinicians need to use inclusive, person-first language, and they shouldn't be afraid to ask if they are unsure of something.

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It is important for clinicians to understand the implications of skin tone in diabetic foot ulcers as it can influence various aspects of wound care, including early detection, assessment, management and overall outcomes. Greater awareness and education in dark skin tones is needed and the purpose of this article is to give clinicians the confidence, knowledge and skills required to care for patients with both dark skin tones and diabetic foot.

A major contributing factor to morbidity and mortality in people with diabetes is inadequate foot care and its associated complications (NHS England, 2017). Approximately 60,000 people with diabetes present with diabetic foot ulceration (DFU) every year in England, and the 5-year mortality rate for these patients is around 50% (NHS Digital, 2023). Relevant assessment and proactive foot care has the potential to ease the burden of diabetic feet, increase quality of life for patients and reduce healthcare costs (Abraham et al, 2022). Therefore, a thorough foot examination is essential to detect the disease early (Mishra et al, 2017).

However, the challenges of assessing the skin of patients with dark skin tones is widely acknowledged (Fletcher, 2022), and failure to recognise early signs of disease can have significant consequences, leading to more serious stages of ulceration (Black and Simende, 2020). Variable knowledge around assessment exists, as well as a lack of confidence in assessing patients with dark skin tones (Enwezor, 2021). In particular, evidence shows that discrepancies in wound care exist in many areas due to variation in skin tone (Oozageer Gunowa et al, 2017). This is due to a lack of accurate assessment and early identification, and evidence-based practice is needed is needed to ensure that patients receive the best possible care.

Establishing baseline skin tone

It is important to determine an individual's baseline skin tone as part of the initial skin inspection and holistic wound assessment, so that any changes to the person's skin can be monitored regularly and identified early (Dhoonmoon et al, 2021). Skin changes in people with dark skin tones fail to be observed quickly enough on a global scale, and this is usually due to a lack of accurate assessment and early identification (Wounds International, 2023).

A validated classification tool, such as the skin tone tool (*Figure 1*; adapted from Ho and Robinson, 2015), should be used to determine and describe an individual's skin tone. It is paramount that clinicians avoid using metaphors or similes when describing skin tone, such as comparing skin tones to foods – especially those that were fuelled and continue to fuel the slave trade (e.g. cocoa and coffee). Therefore, the skin tone tool supports clinicians to use respectful language when establishing baseline skin tone. It is also more effective than asking patients to describe their own skin using terms that could be subjective and potentially harmful (Dhoonmoon et al, 2023). Particularly in cultures where there may be bias towards light skin, or colourism is an issue, this may affect how patients view and describe their own skin tone (Everett et al, 2012).

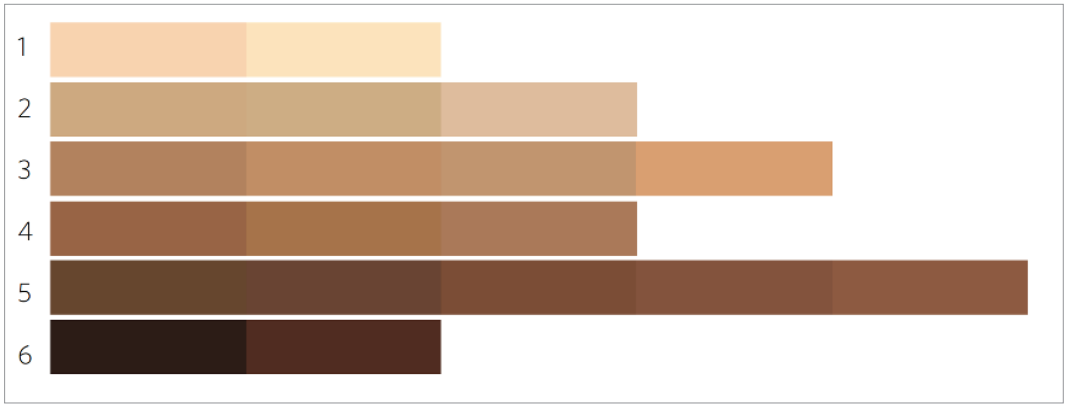

Figure 1. Skin tone tool (adapted from Ho and Robinson, 2015).

Furthermore, skin tone usually differs across different areas of the body; therefore, a patient's tone needs to be selected that most closely matches their upper inside arm.

Assessment and diagnosis of diabetic foot in dark skin tones

In DFUs, changes in colour and pigmentation in people with dark skin tones may be difficult to spot; therefore, diagnosing infection or ischemia in these individuals can be challenging (Dhoonmoon et al, 2021). In addition, any initial 'redness' seen on light skin may not be present in dark skin and thus be missed in the initial assessment.

It is very easy to miss erythema in dark skin since it can be difficult to predict exactly what colour erythema will look like in varying skin tones. Therefore, clinicians should use other cardinal signs — e.g. warmth and swelling (Wang et al, 2020; *Figure 2*) — and ask patients about symptoms that may not be visible (e.g. pain or feeling unwell).

Where access to a clinician is limited (e.g. in rural/remote areas), clinicians must advise patients with diabetes to check their entire foot, including the underside, with a mirror on a regular basis, noting any redness, changes in colour or bleeding between their toes (Khunkaew et al, 2019). Clinicians also need to bear in mind that age-related pigmentation may be misdiagnosed in dark skin tones — it is not uncommon for dark skin to present with age-related dark patches on the soles of the feet (*Figure 3*). Therefore, full use of the senses — especially touch and hearing — is valuable in assessment of all patients. Clinicians need to ask the patient about their skin and listen to their perspective about what they consider to be a problem — e.g. tightness and changes in feeling. Further tips for assessment in dark skin tones are shown in *Box 1*.

Influence of cultural considerations and practices on foot care

Across the globe, there may be variations in practice depending on local cultural and geographical factors. Clinicians need to be culturally aware and recognise that different climates and cultures may have to be considered in different areas (Dhoonmoon et al, 2023).

Climate can affect wounds and dressings, especially in parts of the world where the climate is hot and humid. Moreover, many hot and humid countries have a barefoot culture; however, walking barefoot on hot surfaces (e.g. sand) can cause people to injure their feet and develop foot ulcers (Harkin, 2010), and this is particularly the case if they have diabetes. Clinicians need to encourage patients to wear appropriate, properly fitted footwear, to avoid shoes that are too small, tight or rub against a specific area of the foot, and to avoid walking barefoot on hot surfaces and indoors, where feet can be exposed to potential trauma — e.g. splinters from hardwood flooring (Harkin, 2010; Gulf Diabetic Foot Working Group, 2017).

The importance of individualised care

A 'one size fits all' approach fails to cater to the needs of individual people; therefore, implementation of personalised treatment plans based on skin tones is essential. Care needs to be

Figure 2. As there is no visible redness in the image, erythema was identified using cardinal signs. The limb was warm to the touch and slightly swollen due to thrombophlebitis, and the patient also complained of pain, particularly when the area was touched (photograph courtesy of Simone McConnie).

Figure 3. Hyperpigmentation due to normal ageing in this patient (photograph courtesy of Simone McConnie).

Box 1. Key tips for assessment in dark skin tones.

1. **Use good lighting to see the skin:** In the examination area, place the patient in a position where natural light will fall directly onto their skin. If this isn't possible, use a bright, focused light source (e.g. a pen light or a mobile phone's torch) to see the skin. Use of fluorescent light should be avoided as they can cast a blue tone on dark skin tones (Black and Simende, 2020)
2. **Examine the skin:** Observe the foot for general signs and symptoms – e.g. swelling, redness, warmth and changes in skin texture
3. **Make full use of the senses – sight, touch, hearing and even smell:** To assess the patient's wound, check for temperature, firmness, inflammation or pain. Check that the patient can differentiate between different levels of pressure, and compare against another area of the patient's body as a reference
4. **Assess the pulses:** Place first and second fingers lightly on the patient's skin with the aim to find at least one pulse in each foot (Baker, 2020). A regular light beating under the pulps of the fingers should be felt and recorded as either 'present' or 'absent'. If doubtful or a lack of a pulse can be felt, use Doppler. Make sure to also check for other signs of ischemia
5. **Check for signs of infection:** Avoid over-reliance on 'redness' as a symptom of infection and consider other signs – e.g. warmth, swelling, new or increasing pain, purulent discharge, increasing malodour and delayed healing (IWII, 2022)
6. **Document findings:** Take photographs for recording and monitoring, rather than for diagnostic purposes (Dhoonmoon et al, 2021).

Box 2. Questions to consider as part of a skin assessment (Dhoonmoon et al, 2021).

- What is the wound/periwound skin like in comparison to the surrounding skin?
- Are there any differences in colour?
- Does the skin feel warm or cool? Are there any changes in temperature?
- Does the skin feel spongy or firm?
- Does the skin look or feel shiny or tight?
- Is there any swelling or inflammation?
- Are there any changes in the texture of the skin and underlying tissue?
- How is the overall condition/integrity of the skin?
- Is there any pain, itchiness or change in sensation?
- Have you moved the dressing? If yes, why?
- If compression therapy is used, how has the compression changed between the last skin assessment and now? Did you feel like you wanted to remove the bandages?
- Are you able to apply dressings at home with the guidance of a clinician?

tailored to the individual patient in a way that considers their distinctive needs, concerns and circumstances (WUWHS, 2020). Since dark skin tones present unique challenges in the assessment, diagnosis and management of DFUs, the need for individualised care is even more urgent in this patient population. Furthermore, it will likely ensure the early identification of complications and improve outcomes for patients.

Inclusive language and raising patient awareness

Inclusive, person-first language sets the right tone from the outset and can help patients to maintain a positive outlook. It is important for clinicians to avoid thinking of dark skin tones as 'difficult' or 'challenging', and to use respectful, simple, professional and neutral language when communicating with patients (*Box 2*; Dhoonmoon et al, 2023). When using skin tone descriptors, clinicians must use clear and up-to-date language. There is a difference between skin tones and ethnicity, and not all black people have dark skin tones. Clinicians need to use terms like 'brown' or 'black' to describe skin tones rather than 'darker', which implies that white skin is the baseline or norm.

Clinicians should also aim to support patients to familiarise themselves with their own skin, so that they can notice any changes and take action, especially if they are at risk of foot damage (Dhoonmoon et al, 2023). Evidence shows that involving patients in their treatment and explaining the rationale for a particular dressing/treatment option has the potential to radically improve patient outcomes (Sandy-Hodgetts et al, 2022).

Addressing biases and improving diabetic foot care practices

It is evident that there is a lack of research in relation to skin care that involves patients with dark skin tones, lack of diversity in clinical photos and case studies, and lack of black or brown teaching aids in clinical settings (Nursing Times, 2021). Moreover, white bias in education has been identified, with information and illustrative images overwhelmingly focused on white skin, and this has contributed to a lack of knowledge of assessment and diagnosis in dark skin tones (Mukwende, 2020; Oozageer Gunowa, 2022). Ongoing education and training for healthcare professionals on the relevance of skin tones to their individual specialties will further improve diabetic foot care practices. Further aims for the future in the field of diabetic foot care includes the need to (Dhoonmoon et al, 2023):

- Build evidence and research in wounds in a range of skin tones

- Increase awareness around signs and symptoms in a range of wound types — not just pressure ulcers
- Improve inclusive care, cultural awareness and outcomes for all patients.

Conclusion

Individuals living with diabetes are at an increased risk of developing chronic DFUs, which significantly impact patient quality of life and cause financial stress for healthcare systems. It is evident that systematic change is required to eradicate health inequalities, disparities and biases that affect people with dark skin tones. Ultimately, it is the clinician's responsibility to keep in mind that language is constantly evolving, and to foster an environment in which patients feel supported and safe in communicating and reporting changes to their own skin.

It is important to note that assessing diabetic foot complications in dark skin tone can be challenging due to the limited visibility of certain skin changes, such as early signs of erythema or ischaemia. Therefore, clinicians should be vigilant, rely on a combination of clinical signs and symptoms, and consider an assessment tool, such as the skin tone tool described in this article, to provide tailored, individual assessment. Cultural sensitivity and effective communication with the patient are also crucial to ensure accurate assessment and diagnosis. ■

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