

# Evaluating Skin Color Diversity in the Validation of Scar Assessment Tools

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## Background

- Across scar studies, there is a lack of dark-skinned individuals included
- Darker-skinned patients have a predisposition for keloid formation, altered pigmentation, and poorer quality-of-life
- Currently, more than 10 scar assessment scales exist in literature to date. The first validated scar assessment scale presently known as the Vancouver Scar Scale (VSS), was introduced in 1990
- There is a need for patients-of-color to be included in scar scale development and validation
- In this study, we evaluate the racial diversity of patients included in the validation of scar assessment scales

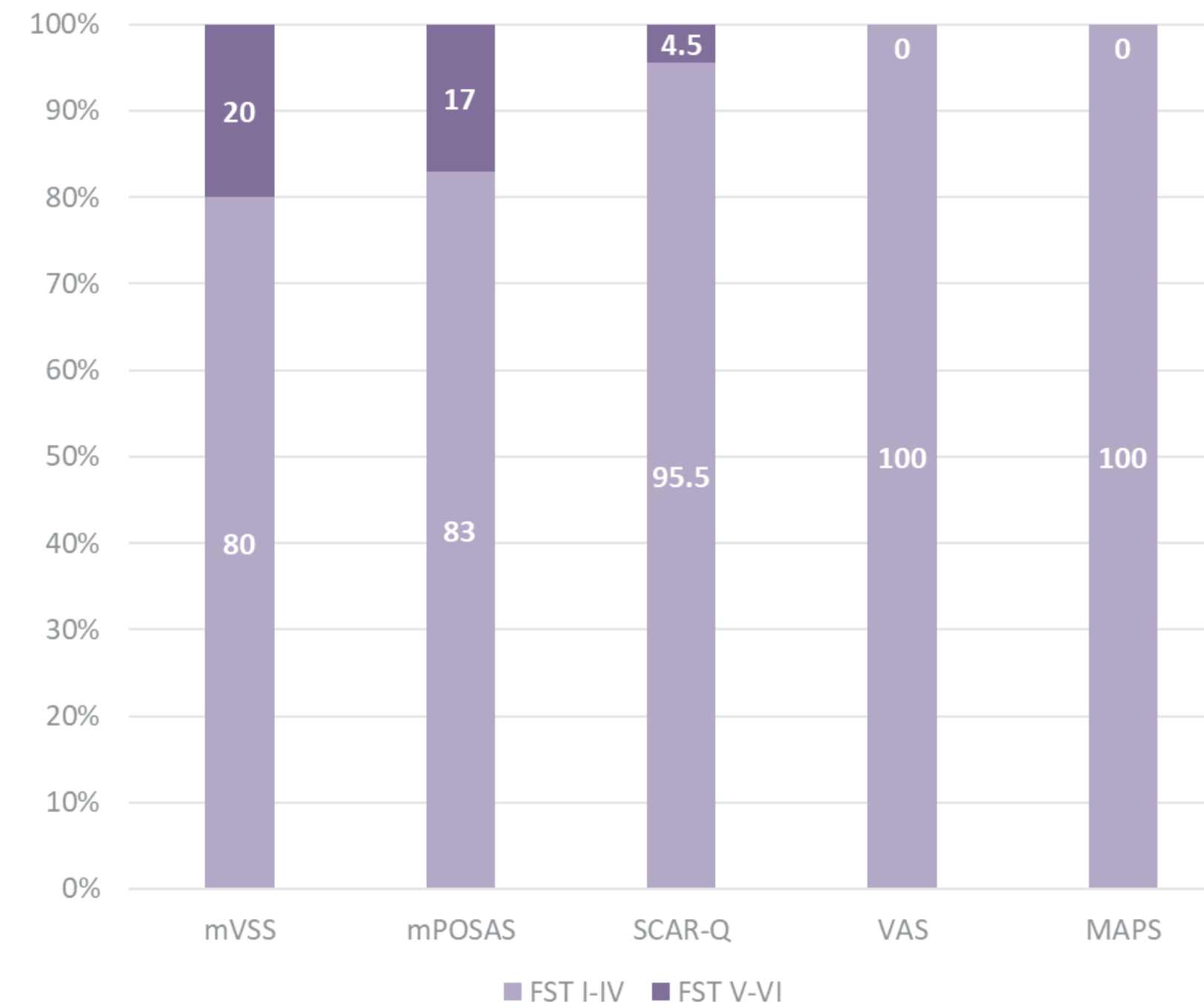
## Methods

- A systematic review was conducted for articles reporting on the validation of a scar assessment tool; racial, ethnic, and Fitzpatrick skin type (FST) data was extracted
- Search terms: (scar) AND ((scale) OR (assessment)) AND (validation)
- Articles were excluded if they were:
  - not a validation study
  - the tool was not for scar assessment
  - reported on a medical device for scar assessment
  - to validate the translation of a scar assessment tool into another language

## PRISMA Flowchart

Identification	Records identified through database searching (n = 1253: Pubmed = 839, Cochrane = 21, Embase = 391)	Abstract and duplicates eliminated (n = 943)
Screening	Records screened (n = 310)	Animal and cadaveric studies excluded (n = 115)
Eligibility	Full-text articles assessed for eligibility (n = 195)	Full-text articles excluded, with reasons (n = 180): 1- Not a scar scale assessment (n = 150) 2- Not a validation study (n = 23) 3- Translational (7)
Included	Studies included in qualitative synthesis (n = 15)	(scar) AND ((scale) OR (assessment)) AND (validation)

## Fitzpatrick Skin Type Breakdown



## Results

- 15 studies were included
  - 13 did not include FST V or VI patients
  - 11 did not report FST
- mVSS
  - 7% and 13% of patients were categorized as Fitzpatrick's type V-VI
- mPOSAS
  - 83% of patients were Caucasian, 14% were African, and 3% were Arabian
- SCAR-Q
  - Fitzpatrick type I 1.6%, type II 18.9%, type III 43.5%, type IV 20.9%, and type V or VI 4.5%

## Conclusions

- In this study, only the modified VSS, modified POSAS, and SCAR-Q provided information regarding FST or race. The percentage of dark-skinned patients was as much as 20% and as little as 4.5%
- Given the susceptibility of darker-skinned individuals to have poorer scarring outcomes, it is critical to include patients-of-color in the very assessment tools that determine their scar prognosis
- Inclusion of patients-of-color in scar scale development will improve assessment of scar pathology and better inform scar care decision-making

## Analysis of Scar Assessment Tools

	VSS/Seattle Scale/MSS/Hamilton Scale/POSAS/SBSES and HWES/Mecott Modified Numeric Scar Rating/VAS/DLQI	MAPS	UNC4P	mPOSAS	Acne Quality of Life Scale	mVSS	SCAR-Q
Darker Skin Used in Validation	✗	✗	✗	✓	✓	✓	✓
Fitzpatrick Scale Specified (I-IV, or I-VI)	✗	✓	✓	✗	✗	✓	✓
Fitzpatrick V-VI included	✗	✗	✗	✗	✗	✓	✓