PEDIATRIC DERMATOLOGIC CONDITIONS AND FITZPATRICK SKIN TONE: ASSESSMENT OF DIAGNOSTIC ACCURACY

Ryan Lucker B.S., Frank Sloan M.D.

RESEARCH QUESTION

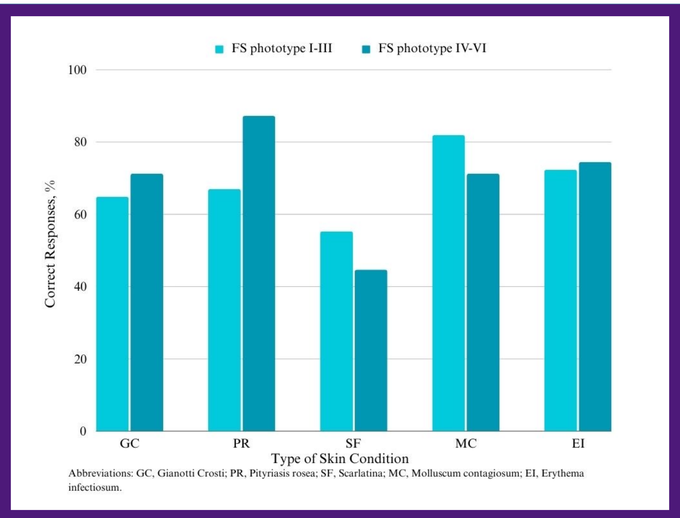
How often do physicians correctly diagnosis pediatric skin conditions between different Fitzpatrick skin types? Further, which skin type(s) have the most correct rate of diagnosis and how is accuracy of dermatological diagnosis in people of color impacted by physicians' skin type?

BACKGROUND

Healthcare disparities in the United States are well documented and disproportionately affect people of color leading to poorer health outcomes across the care spectrum. Dermatology is no exception and has documented delays in care and increased mortality in people of color. Researchers have speculated that lack of familiarity with dermatological conditions in people of primary explanation for this specific issue, as dermatology textbooks often unequally depict fair skin. Two related studies exist which demonstrate poorer diagnostic accuracy in darker skinned models. These studies focus on interdisciplinary health care workers instead of physicians unlike this study.

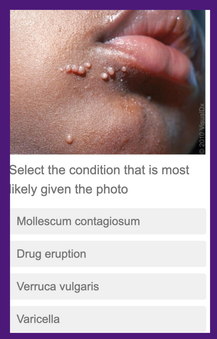
METHODS

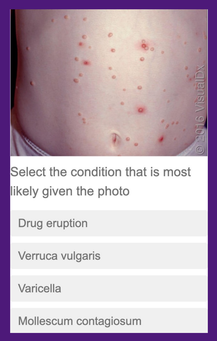
Our survey focused on 5 pediatric skin conditions i.e., Giannotti Crosti, Erythema infectiosum, Pityriasis rosea, Scarlatina, and Mollescum contagiosum. Conditions, ranging from benign to urgent, common to rare, that mostly affect children or adolescents. The survey features different clinical images and associated questions depicting rash presentations in different Fitzpatrick skin types. Ten questions depicting light skin and ten questions depicting darker skin tones. This was sent to pediatricians and urgent care providers across Texas. After completion of the survey, physicians assess their own skin type, as well as provide background information about their familiarity with skin of color.

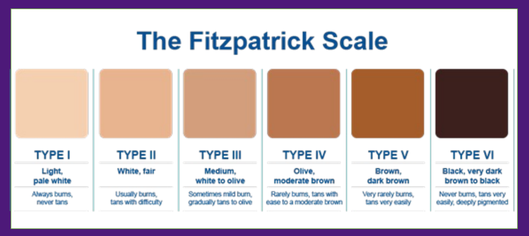


Abbreviations: GC, Gianotti Crosti; PR, Pityriasis rosea; SF, Scarlatina; MC, Molluscum contagiosum; EI, Erythema infectiosum.

Condition	FS phototype I-III % correct	FS phototype IV-VI % correct	χ^2	P value
Giannotti Crosti	61/94 = 64.89%	67/94 = 71.27%	0.88125	0.347856
Pityriasis rosea	63/94 = 67.02%	82/94 = 87.23%	10.8885	* 0.00096
Scarlet fever	52/94 = 55.31%	42/94 = 44.68%	2.12765	0.144660
Mollescum contagiosum	77/94 = 81.91%	67/94 = 71.27%	2.96717	0.084970
Erythema infectiosum	68/94 = 72.34%	70/94 = 74.47%	0.10898	0.741302







RESULTS

There was a significant difference between light and dark skin types with pityriasis rosea. The other skin conditions were not statistically significant in differences.

The group with the most successful rate of diagnosis was Pityriasis rosea specifically in Fitzpatrick skin types 4-6.

The group with the least successful rate of diagnosis was Scarlatina specifically in Fitzpatrick skin types 4-6.

FUTURE DIRECTIONS

The data needs to be further stratified into a familiarity index i.e. Dr's own Fitzpatrick skin tone, race/ethnicity, skin of color education/exposure, comfort diagnosing pediatric rashes on skin of color, and typical patient demographics.

This data did not match similar surveys or national trends. Reasons for this could include; medical students and residents vs doctors completing the study, typical age of presentation of conditions tested, or implicit bias in person vs online survey.

Improvement upon the current model, by changing to more skin of color focused didactics and resources i.e. Visual Dx, Mind the Gap, Brown Skin Matters, could improve diagnostic ability. Ideally, the medical education system could start to teach to the level of familiarity deemed significant