

Introduction

- Wikipedia is one of the most popular websites and may be a go-to source of health and dermatology education for the general population¹.
- Prior research indicates poor skin of color (SOC) photo representation in printed dermatology textbooks and online medical websites^{7,8}.
- There has been no assessment performed to determine whether this discrepancy also exists for Wikipedia.
- The aim of this study was to investigate the number and quality of SOC photos included in Wikipedia's skin disease pages and to explore the possible ramifications of these findings.

Methods

- Photos of skin diseases from Wikipedia's "List of Skin Conditions" were assigned by three independent raters as SOC (Fitzpatrick skin types 4-6) or non-SOC (Fitzpatrick skin types 1-3) and were given a quality rating (1-3) based on sharpness, size/resolution, and lighting/exposure.
- Quality and quantity of images were compared between SOC and non-SOC using a t-test.

Results

- 421 skin disease Wikipedia pages and 949 images met inclusion criteria.
- 20.7% SOC skin disease images (196/949 images).
- 79.3% non-SOC skin disease images (753/949 images) (P<0.001). (Figure 1)
- Skin photo number and percentage by Wikipedia skin categories. (Table 1)
- No significant difference in the average quality of SOC (2.05) and non-SOC (2.03) images (P=0.81). (Figure 2)

Number and Percentage of Skin Photos

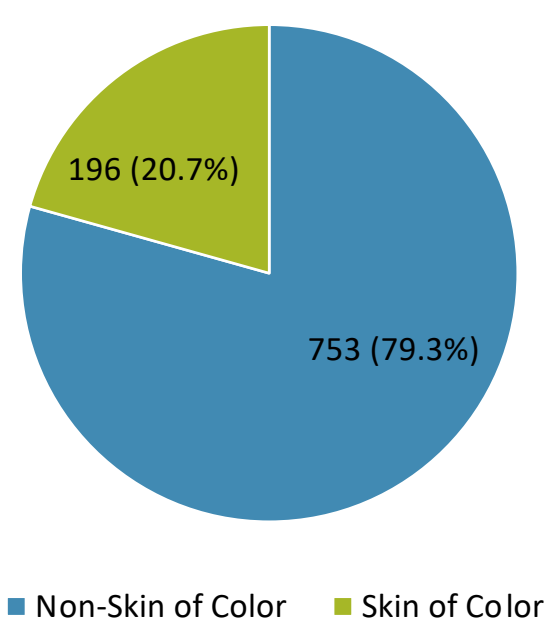


Figure 1. Number and percentage of skin photos (P<0.001).

Table 1. Number and percentage of non-SOC to SOC skin photos on Wikipedia's List of Skin Conditions (abbreviated).

Skin conditions	Non-SOC photos		SOC photos		Total photos (n)
	n	%	n	%	
Acneiform eruptions	13	81%	3	19%	16
Chronic blistering	11	92%	1	8%	12
Conditions of the mucous membranes	30	91%	3	9%	33
Conditions of the skin appendages	43	78%	12	22%	55
Congenital anomalies	9	82%	2	9%	11
Connective tissue diseases	48	92%	4	8%	52
Dermal and subdermal growths	45	66%	23	34%	68
Dermatitis	32	84%	6	16%	38
Disturbances of pigmentation	12	71%	5	29%	17
Drug eruptions	11	79%	3	21%	14
Epidermal nevi, neoplasms, and cysts	45	88%	6	12%	51
Erythemas	11	92%	1	8%	12
Genodermatoses	31	74%	11	26%	42
Infection-related	146	67%	71	33%	217
Lymphoid-related	11	92%	1	8%	12
Melanocytic nevi and neoplasms	36	92%	3	8%	39
Neurocutaneous	11	79%	3	21%	14
Papulosquamous hyperkeratotic	12	100%	0	0%	12
Pruritic	8	67%	4	33%	12
Psoriasis	15	100%	0	0%	15
Resulting from errors in metabolism	10	100%	0	0%	10
Resulting from physical factors	65	88%	9	12%	74
Vascular-related	45	90%	5	10%	50

Photo Average Quality

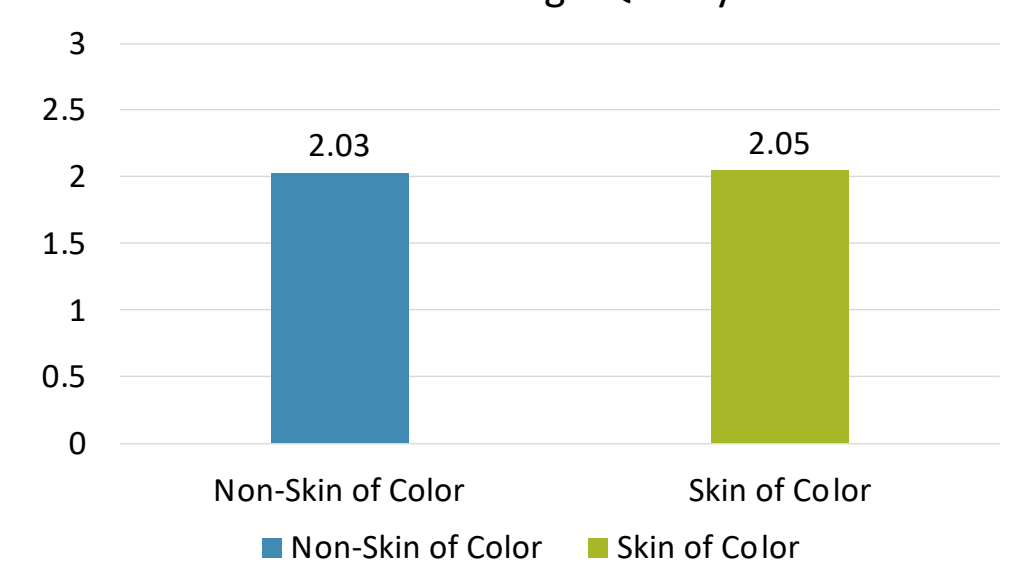


Figure 2. Photo average quality (P=0.81).

Discussion

- DermNet NZ - 2.8% dark skin images (Fitzpatrick types 5,6)⁷.
- VisualDx - 28.5% dark skin images (Fitzpatrick types 5,6)⁷.
- Wikipedia - 20.7% SOC images (Fitzpatrick types 4-6).
- US internet traffic and engagement rankings: VisualDx (113,182), Dermnet (26,412) and Wikipedia (8)¹.
- Wikipedia is arguably one of the main sources of dermatology information for the general public, and the discrepancies in SOC representation have a larger influence on the public's perception of dermatologic disease and care compared to other dermatology resources.
- Possible ramifications of inadequate Wikipedia SOC photo representation:
 - Decreased access to accurate information for patients with SOC.
 - Skewed societal perceptions of dermatologic disease presentations for patients with SOC.
- Study limitations include the subjective nature of the Fitzpatrick skin typing system and a narrow photo quality criteria.

Conclusions

- There is SOC underrepresentation in the gross number of SOC images for dermatologic conditions on Wikipedia.
- Specific dermatology-related Wikipedia pages that need updating with more SOC photographs include hyperpigmentation, acral lentiginous melanoma, melasma, pityriasis alba, acne, and atopic dermatitis.
- Improving SOC photo representation on Wikipedia will ameliorate general public access to accurate dermatology information and improve health equity.

Conflict of Interest

- Dr. Robert P. Dellavalle is the Editor in Chief for JMIR Dermatology and receives editorial stipends from JMIR Dermatology.

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