Using Social Media to Understand the Patient Perspective and the Emotional Impact of Dermatologic Conditions

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Background: Dermatology patients, consistent with most populations on the planet, use social media to express their feelings and connect with other like-minded individuals. Within these interactions, users occasionally offer insight into their own experiences with treatments and the attitudes they have towards their treatments. Having access to these patient perspectives could help drive a patient-centered approach in determining treatment effectiveness.

Results: Even after separating the relevant social media posts, an astronomical amount of information remains with 688,992 posts associated with the term "alopecia areata", 12,599,313 posts associated with the term "melanoma", and 7,688,621 posts associated with the term "acne". We determined that the most common emotion expressed in posts related to all three conditions was joy, followed by disgust. Of note, our analysis determined the expression of anger in 17.7% of posts related to alopecia and 17% of posts related to acne but only 10.9% of posts related to melanoma were determined to express anger.

Publicly available social media interactions are an **untapped** resource for understanding **patient perspective** on treatment efficacy.

Methods: Our team is devising a way to parse out relevant exchanges from the slew of other interactions that occur on social media. Preliminarily, we have used the informatics capabilities of Crimson Hexagon to retrieve millions of posts associated with specific terminology that identify users as having acne, alopecia areata, or melanoma. Automated sentiment analysis was done utilizing the NRC Word-Emotion Association Lexicon (EmoLex). EmoLex delimits over 14,000 words. Each word in EmoLex is linked to broad associations of positivity or negativity and combinations of 8 emotions, anger, sadness, anticipation, joy, fear, trust, disgust, and surprise. Our team chose to focus on a subset of these, Ekman's six basic emotions, anger, disgust, fear, happiness, sadness, and surprise.

Conclusion: These initial ventures into social media sentiment analysis will be expanded upon to quantify the feelings of patients undergoing specific treatments. As time moves forward, we are working on utilizing machine learning algorithms to better classify social media posts, and then correlate them to the Patient Global Impression of Treatment Satisfaction scale. Social media offers an opportunity to understand one of the most valuable outcome measures, patient perspective.

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