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The Prevalence of Melasma and Its Association with Quality of Life among Adult Male Migrant Latino Workers

Rita Pichardo[1], **Quirina Vallejos**[2], **Steven R. Feldman**[1,3], **Mark R. Schulz**[4], **Amit Verma**[4], **Sara A. Quandt**[3], and **Thomas A. Arcury**[2]

1 *Department of Dermatology; Wake Forest University School of Medicine, Winston-Salem, North Carolina*

2 *Department of Family and Community Medicine; Wake Forest University School of Medicine, Winston-Salem, North Carolina*

3 *Division of Public Health Sciences; Wake Forest University School of Medicine, Winston-Salem, North Carolina*

4 *Department of Public Health Education, University of North Carolina Greensboro, Greensboro, North Carolina*

Abstract

Background—Melasma is a common condition of Latina women that detracts from their quality of life. The prevalence and impact of melasma in Latino men is not well characterized.

Purpose—We assess the prevalence of melasma and its association with quality of life among Latino men from Mexico and Central America working in the U.S.

Methods—The prevalence of melasma was assessed in three studies of Latino men; by direct examination in a study of 25 Latino poultry workers, by direct examination in a study of 54 Latino farmworkers, and by examination of store-and-forward teledermatology images in a study of 300 Latino farmworkers. Quality of life (QOL) was assessed with a Spanish version of the Dermatology Life Quality Index (DLQI).

Results—The prevalence of melasma was 36.0%, 7.4%, and 14.0% in the three studies. Prevalence of melasma was greatest among those aged 31 years and older, who were from Guatemala, and who spoke an indigenous language. Presence of melasma was associated with higher DLQI scores, indicating worse life quality, in the poultry worker population.

Conclusions—Melasma is a common condition in Latino men associated with poor quality of life in some affected individuals. Clinicians should be aware that melasma may be a concern for their male Latino patients. Research on the association of skin conditions with quality of life among minority men is needed.

Keywords

Health services research; epidemiology; pigmentation; quality of life; minority health

Introduction

Melasma is a common skin condition characterized by irregular light brown to dark brown patches of hypermelanosis of the face [1;2]. The etiology of melasma has not been clearly

Address correspondence to: Steven R. Feldman, M.D., Department of Dermatology, Wake Forest University School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157-1071, Phone: 336-716-7740, Fax: 336-716-7732, E-mail: sfeldman@wfubmc.edu.

identified. Factors associated with melasma include exposure to ultraviolet light, genetic influences, hormones associated with pregnancy, oral contraceptives, hormone replacement therapy, thyroid autoimmunity, cosmetic ingredients, and phototoxic drugs, with ultraviolet light exposure and genetic factors being the strongest predictors [3;4]. Melasma is a cosmetic condition; and women with melasma report that their appearance affects their social life, emotional well-being, and leisure activities [5–8].

Most studies reporting the prevalence of melasma are based on clinical rather than population samples [9;10]. However, melasma is generally recognized to be more common among women than men and more common among Latinos, Blacks, and Asians than among Whites [2;6;11–15]. It is more common in persons with Fitzpatrick skin types IV through VI than it is in those with fairer skin [2;6]. An estimated 50% to 70% of pregnant women in the US develop melasma [3]. Estimates of prevalence among pregnant Latina women are between 50% and 80%, and one third continue to have melasma for the rest of their lives [3;9;13;16–19]. Overall prevalence in Latino females varies from 1.5% to 33.3%. A recent study reported a prevalence of 8.8%.[10]

Melasma in men has not been well documented, and we have found no study that has focused on melasma prevalence among Latino males. In clinic-based samples, approximately 10% of White melasma patients are men [2;13;20], and 26% of Indian melasma patients are men [21]. The prevalence in such samples is likely to be subject to selection bias based on how bothersome the condition is in men versus women. The purpose of this paper is to document the prevalence of melasma and its impact on quality of life among Latino men in non-clinical samples.

Methods

Sampling and Data Collection

Data are from three studies of Latino men. The first study included a sample of 25 male Latino employees of a poultry processing plant in western North Carolina in 2005. Data collection included both a physical dermatological examination by a board-certified dermatologist and an interviewer administered questionnaire. Methods for this study have been described by Quandt et al. [22]. The second study used a cross-sectional design and recruited 55 male Latino farmworkers from two camps in eastern North Carolina in 2004. Data collection included a physical dermatological examination by a board-certified dermatologist and an interviewer administered questionnaire. Methods for this study have been described by Krejci-Manwaring et al. [23]. The third study used a longitudinal surveillance design to collect information on the prevalence of skin ailments and risk factors from 300 male Latino farmworkers during the 2005 agricultural season. Data were collected at baseline and at four follow-up assessments, each approximately three weeks apart (May to October). Data collection included a frontal and 2 lateral digital images of each participant's face and an interviewer administered questionnaire. Standard store and forward teledermatology methods were used for the digital images [24]. Digital images were reviewed and dermatological diagnoses were identified and recorded by a board-certified dermatologist. Methods for this study have been described by Arcury et al. [25].

Questionnaires for all three studies included questions on personal characteristics, as well as items to measure quality of life. Protocols for all three studies were approved by the Institutional Review Board of the Wake Forest University School of Medicine.

Measures

Diagnosis of melasma for the poultry worker and cross-sectional farmworker studies was made by direct examination by a board-certified dermatologist. For the longitudinal surveillance

farmworker study, a single board-certified dermatologist viewed and rated each photo set for each participant, recording the presence of melasma; a diagnosis of melasma was made based on its appearance in the photo set from the baseline or any of the follow-up assessments.

The Dermatology Life Quality Index (DLQI) [26] was used to measure quality of life. The DLQI was originally developed in English and has been translated and validated in multiple languages. A Mexican Spanish version of the DLQI, which was translated using methods approved by Dr. Finlay, was used. Total DLQI was computed as recommended [26]. The total scale score has a range of 0 to 30. A score of 0–1 is generally recognized as demonstrating that the patient has experienced no effect on quality of life due to skin conditions. A score of 2–5 represents a small effect, 6–10 a moderate effect, 11–20 a very large effect, and 21–30 an extremely large effect [22;27].

Participant personal characteristics included age, grouped into the categories 18 to 24 years, 25 to 30 years, 31 years and older (maximum age was 70); nationality, with the values Mexican, Guatemalan, or other; and language spoken, with the values Spanish only or indigenous language. Data on language spoken were not collected for the cross-sectional farmworker study. Speaking an indigenous language indicates a greater likelihood of Native American heritage.

Analysis

The personal characteristics and the prevalence of melasma in each study were described with counts and frequencies. One-way analysis of variance was used to evaluate the differences in the mean DLQI score between those with and without melasma within each sample. The F ratio with the alpha value set at 0.05 was used to test whether the differences in the mean DLQI scores were significant with equal variances assumed. The analyses used SAS version 9.1 (SAS Institute Inc.; Cary, NC).

Results

About half of participants in all three studies were age 30 or younger (Table 1). The majority of participants in the poultry worker study were Guatemalan (92.0%), and the majority of participants from the cross-sectional and the longitudinal farmworker studies, 96.3% and 98.7%, respectively, were Mexican. Two (8.0%) of the participants in the poultry worker study spoke only Spanish and the remainder (92.0%) spoke an indigenous language. The majority of participants in the longitudinal farmworker study spoke only Spanish (87.3%), while 12.7% spoke an indigenous language.

Across all three populations, the prevalence of melasma was 14.5% (55 of 379 participants). Melasma prevalence in the poultry worker study was 36.0% (Table 2). The 31 and older age group had the highest melasma prevalence (70.0%). Melasma was not present in the youngest age group (18–24 years); it was present in 22.0% of those aged 25–30 years. Melasma was diagnosed only among the Guatemalan participants. All of the poultry workers who were diagnosed with melasma spoke an indigenous language.

Melasma was present in 7.4% of participants of the cross-sectional farmworker study. Prevalence was higher (11.8%) among those aged 31 years and older, than among those aged 18–24 years (4.3%) and among those aged 25–30 years (7.1%). It was diagnosed only in Mexican participants.

The overall prevalence of melasma was 14.0% among the longitudinal farmworker participants. Prevalence among those aged 18–24 years (10.4%) and those aged 25–30 years (13.0%) was lower than among those aged 31 years and older (16.2%). Melasma prevalence

was higher among Guatemalans (50.0%) than among Mexicans (13.5%). Those who spoke an indigenous language had a higher prevalence (21.1%) compared to those who spoke only Spanish (13.0%).

There was a statistically significant difference between total DLQI among those with melasma and those without melasma in the poultry worker study. Those with melasma had higher DLQI score (7.5 versus 2.8), indicating poorer quality of life (Table 3). The difference between DLQI scores for those with and without melasma was not significant in either of the farmworker studies.

Discussion

These studies indicate that melasma is common in Latino men. The overall rate of 14.5% is somewhat higher than a recently published prevalence of 8.8% in Latina women.[10] Among the male population with the highest prevalence of melasma, we observed a moderate association with quality of life. Latinos associate melasma with ill health and poor nutrition, and melasma is considered disfiguring.[3]

Melasma is more common in older men compared to younger men. The oldest age group (31 years and older) in each of the three studies had a higher prevalence of melasma than the younger two age groups (18–24 years and 25–30 years). These results are consistent with previous studies among Latino women [13], and Southeast Asian women and men[28]. Nevertheless, it is interesting that melasma was present even in the youngest farmworkers, likely indicative of the high level of sunlight to which they are exposed at work.

The majority of participants in the poultry worker study were Guatemalan (92.0%). In contrast, the majority of participants from the farmworker studies, 96.3% and 98.7%, respectively, were Mexican. In the poultry worker study, melasma was diagnosed only in the Guatemalan participants. In the cross-sectional farmworker study, melasma was present only in Mexican participants, but the sample for this study did not include Guatemalan participants. In the longitudinal farmworker study, melasma prevalence was higher among Guatemalans (50.0%) than among Mexicans (13.5%). These results suggest that the Guatemalan population may have a higher predisposition for melasma, which may be influenced by their indigenous heritage. In both the poultry worker study and the longitudinal farmworker study, the prevalence of melasma was higher among those who spoke an indigenous language (39.1% and 21.1%, respectively) than in those who spoke Spanish only (0.0% and 13.0%, respectively).

One limitation of this study is the use of the DLQI to assess the impact of melasma on quality of life. It is possible that the DLQI scores of participants in these studies may have been affected by other skin conditions. Further, the version of the DLQI used was developed for Mexican Spanish, and this version may not be completely appropriate for those who speak Guatemalan Spanish or whose primary language is an indigenous language. Despite these limitations, we found a significant impact of melasma in the poultry worker sample.

Several options are available for treating melasma. A simple and effective option for women is a cosmetic camouflage make up. This effective treatment for melasma improves QOL in women [29]. For men who are bothered by melasma, this approach is generally not practical. Other options include sun protection and topical treatments. Sun protective hats and sunscreen should be encouraged, but strict protection from the sun may be difficult for the farmworker population and others who work outdoors [30]. Hydroquinone preparations can be used. A combination formula of tretinoin, hydroquinone, and a mild steroid for the skin has greater effect in treating melasma on the face than do combinations of two of the above treatments or a single treatment alone [31;32]. Azelaic acid 20% alone or in combination with tretinoin 0.05% or 15–20% glycolic acid may produce lightening. Kojic acid may be effective in the treatment

of melasma. A combination of 2% kojic acid and 5% glycolic acid works as well as low concentration hydroquinone. There are many additional therapies including superficial and medium-deep chemical peels [33;34], dermabrasion and laser therapy [16;17]. These treatments are expensive and only temporarily improve the condition. Such treatments may not be within the financial limits of farmworkers and poultry workers in the U.S., who tend to make little more than minimum wage.

Melasma is a common condition in Latino men associated with quality of life. Clinicians should be aware that melasma may be a concern for their male patients. Research on the association of skin conditions with quality of life among minority men is needed.

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Table 1

Personal Characteristics for Three Latino Male Immigrant Studies

Personal Characteristics	Poultry Worker Study (N=25)		Cross-sectional Farmworker Study (N= 54)		Longitudinal Farmworker Study (N=300)	
	n	%	n	%	n	%
Age						
18–24 years	6	24.0	23	42.6	77	25.7
25–30 years	9	36.0	14	25.9	69	23.0
31 years and older*	10	40.0	17	31.5	154	51.3
Nationality						
Mexican	1	4.0	52	96.3	296	98.7
Guatemalan	23	92.0	-	-	4	1.3
Other	1	4.0	2	3.7	0	0
Language spoken						
Spanish only	2	8.0	-	-	262	87.3
Indigenous language	23	92.0	-	-	38	12.7

*The oldest participant is 51 for the poultry worker study, 55 for the cross-sectional study, and 70 years old for the longitudinal study.

Table 2

Melasma Prevalence for Three Latino Male Immigrant Studies, Total and by Age Group, Nationality, and Language

Melasma Prevalence	Poultry Worker Study (N=25)		Cross-sectional Farmworker Study (N= 54)		Longitudinal Farmworker Study (N=300)	
	n	%	n	%	n	%
Total	9	36.0	4	7.4	42	14.0
Age group						
18–24	0	0.0	1	4.3	8	10.4
25–30	2	22.0	1	7.1	9	13.0
31 and older*	7	70.0	2	11.8	25	16.2
Nationality						
Mexican	0	0.0	4	7.4	40	13.5
Guatemalan	9	39.1	0	0	2	50.0
Other	0	0	0	0	0	0
Language spoken						
Spanish	0	0.0	-	-	34	13.0
Indigenous language	9	39.1	-	-	8	21.1

*The oldest case is 51 for the poultry worker study, 35 for the cross-sectional study, and 51 years old for the longitudinal study.

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Table 3

Total DLQI Comparing Those With and Without Melasma

Study	Mean Total DLQI		F Test Statistic	Significance
	Melasma	No Melasma		
Poultry Worker Study (N=25)	7.5	2.8	6.27	0.02
Cross-Sectional Farmworker Study (N= 54)	3.5	4	0.05	0.82
Longitudinal Farmworker Study (N=300)	1.12	1.09	0.011	0.92