



RESEARCH ARTICLE

Characteristics of Physiological Skin Changes in Pregnancy in a Public Maternity in Southern Brazil

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Abstract

Objective: To analyze the characteristics of physiological dermatological changes during pregnancy.

Methods: This is a descriptive study, carried out in a public maternity hospital in southern Brazil, from June to August 2021 through a randomized sample of puerperal women. Through a self-reported interview, maternal-fetal data, sun exposure, photoprotection and skin changes were analyzed. Results: A total of 439 postpartum women were evaluated, 415 (94.5%) of whom presented some dermatological alteration. 237 (54.0) felt uncomfortable, affecting the self-esteem of 182 (41.5) and social interaction of 82 (18.7). However, only 64 (14.5) received medical advice and only 62 (14.1) underwent treatment. Hyperpigmentation affected 345 patients (78.6), starting mainly in the 2nd trimester. The most affected regions were linea alba (68.7), nipples (77.4) and axillae (57.7). Melasma affected 144 women (32.8), and the 2nd trimester was also the most prevalent. Of these, 92 (63.9) had Centropacial Melasma, 19 (13.2) Peripheral and 33 (22.9) Mixed. Stretch marks occurred in 253 postpartum women (57.6), starting in the 3rd trimester. The main regions affected were the abdomen (77.9), hips (49.8) and breasts (28.0). Vascular changes occurred in 123 patients (28.0), starting in the 3rd trimester. The most common presentations were varicosities (86.2) and vascular spiders (22.8). Erythema Palmar affected 77 women (17.5), with onset prevalent in the 2nd trimester.

Conclusion: 94.5% of the patients had some dermatological alteration, with Hyperpigmentation (78.6) and Stretch Marks (57.6) being the most prevalent.

Keywords

Hiperpigmentation, Melanosis, Striae Distensae, Erythema, Varicose Veins, Telangiectasis, Acne Vulgaris, Pregnancy, Dermatology

Introduction

During pregnancy, several changes can occur in the woman's skin, whether physiological, pathological or changes in previous pathologies. As found in the literature, 90% of pregnant women have skin changes during pregnancy [1]. Thus, physiological changes can occur due to several factors, including hormonal changes, especially estrogen and progesterone. In addition, physical transformations for fetal growth also require the adaptation of physiological mechanisms such as vasodilation and skin distension [1,2].

Among the alterations, we can classify them as specific dermatoses during pregnancy, dermatoses altered by pregnancy and physiological dermatological changes during pregnancy, the last being more prevalent in relation to the others. Moreover, specific dermatoses occur only during pregnancy and are triggered by it, such as gestational pemphigoid, gestational prurigo and polymorphic eruption of pregnancy. On the other hand, those altered by pregnancy may have a pattern

of improvement or worsening of the dermatological condition as a result of pregnancy, such as acne, psoriasis, atopic dermatitis and lupus. As for the physiological ones, they are benign changes, sometimes self-limiting, that occur due to hormonal and physical changes during pregnancy [1].

Pigmentary changes are the most prevalent, affecting about 90% of pregnant women. The main representatives of this group are hyperpigmentation and melasma. Vascular changes affect 60% of pregnant women and are associated with physiological vasodilation. These are divided into vascular spiders, varicosities and palmar erythema. Furthermore, stretch marks may be related to maternal weight gain and the size of the newborn, affecting up to 50% of pregnant women [2]. Finally, there are controversies regarding the impact of pregnancy on acne, and improvement can be observed or worsening over the course of the trimesters [1].

Given the high prevalence of skin changes during pregnancy, frequently affecting the face and other exposed areas, it is clear that these can lead to psychosocial discomfort. Thus, 70% report discomfort due to these changes, which can impact on self-esteem and social life. This shows the importance of adequate guidance and treatment in order to alleviate the discomfort [1,3]. Therefore, the present study aims to assess the characteristics of physiological dermatological changes during pregnancy, as well as their impact on the pregnant woman.

Methods

This is a descriptive study focused on analyzing the physiological dermatological changes of pregnancy in a public maternity hospital in southern Brazil. An interview was carried out that included socioeconomic aspects, life habits, personal, family, obstetric and dermatological history, as well as information about the current pregnancy, such as the presence of dermatological changes, adverse perinatal outcomes and characteristics of the newborn. This interview was applied at the Darcy Vargas Maternity Hospital to a stratified random sample of postpartum women over 18 years of age who had their births performed at the Darcy Vargas Maternity Hospital in Joinville - SC.

The research was carried out in 50 randomized days with the "Randomized Research" program in a period of 3 (three) months, from June to August 2021, after authorization by the Research Ethics Committee. All data was obtained through an interview with qualified listening and by the Electronic Medical Record at the Darcy Vargas Maternity 48 hours after delivery.

Data collection began after authorization from the Research Ethics Committee. The research project was approved under the number CAAE 46754921.8.0000.5363 by the Research Ethics

Committee (CEP) of the Hans Dieter Schmidt Regional Hospital, Joinville, SC, Brazil. The study followed the criteria defined by Resolution 466/2012, each puerperal woman signed the Free and Informed Consent Form in person.

Through the interview, maternal data such as age, race, education, remuneration, BMI and weight gain were analyzed. In addition, data relating to personal history, such as sun exposure, photo protection, hydration of the skin, previous dermatological pathologies, diabetes, systemic arterial hypertension (SAH) and hypothyroidism were evaluated. Obstetric characteristics (previous pregnancies, use of contraceptive methods, prenatal care), life habits (alcoholism, smoking and drugs), gestational pathologies (Gestational Diabetes, Preeclampsia and Urinary Tract Infection) as well as the presence of dermatological alterations and other information about of these (classification, emergence, duration, medical orientation, treatment, evolution and social aspects). Even so, through analysis of the Single Patient Record, characteristics of the newborn were evaluated, such as gestational age, weight, Apgar at first and fifth minutes, way of delivery, neonatal ICU need, in addition to adverse outcomes (prematurity, low birth weight and macrosomia).

The dermatological alterations evaluated in the study were recognized with the help of a specialist in dermatology, with a clinical diagnosis, which could only be done with qualified listening. Thus, the evaluated dermatological alterations do not require additional tests or other confirmations for an adequate diagnosis. Therefore, the identification was possible at the time of the interview with the information reported by the patients [3-5].

The dermatological alterations of pregnancy are divided into physiological, altered dermatoses and specific dermatoses [4]. In this context, the physiological dermatological alterations evaluated were hyperpigmentation, melasma, palmar erythema, stretch marks and vascular alterations (spiders and varicosities). All these alterations have a clinical diagnosis, without the need for exams for confirmation [3,5,6]. On the other hand, the main dermatoses affected during pregnancy are acne and psoriasis. However, psoriasis has a low prevalence in the sample and is difficult to diagnose, therefore, only acne was evaluated. Finally, specific dermatoses were not evaluated due to their low prevalence and the need for additional tests for their diagnosis [1].

Furthermore, the patients were evaluated using the Fitzpatrick scale [7], which classifies the skin type of the participants in relation to the skin's sensitivity to the sun (proportion of eumelanin and pheomelanin). The phototypes addressed are classified as: Type I, white and pale skin, with always burning skin and no tanning, approaching women with blonde hair or red hair, with

blue or green eyes; Type II, fair skin with minimal tan and easy burning, also encompassing characteristics of red or blonde hair, brown, green or blue eyes; Type III, in which there is a uniform tan with a slight burning, regardless of hair and eye color; Type IV, referring to individuals with ease of tanning and minimal skin burning; Type V, dark brown skin, tans very easily and rarely burns; and Type VI, in which it characterizes the deep pigmentation of the dark brown of the skin, being insensitive to the sun's rays [7,8].

As determined by the World Health Organization (WHO), BMI was classified as underweight at values below 18.5. Furthermore, values in the range of 18.5 and 24.9 were defined as normal weight. Overweight was classified as a BMI from 25 to 29.9. For obesity, grade 1 was defined as values from 30 to 34.9, grade 2 from 35 to 39.9, and grade 3 for values above 40. The classification of gestational weight gain was determined by the Institute of Medicine. (BMI-2009), which states that underweight pregnant women (BMI < 18.5) should be between 12.5 and 18 kg, while patients with adequate weight (BMI 18.5-24.9) should gain between 11 and 16 kg during pregnancy, while overweight women (BMI 25-29.9) should gain between 7 and 11.5 kg, finally, obese patients should gain 5 to 9 kg during pregnancy.

The inclusion criteria were: Postpartum women over 18 years of age who underwent prenatal care in Basic Health Units of the Unified Health System in the city of Joinville - SC, whose delivery took place at the Darcy Vargas Maternity (MDV) and who voluntarily wanted to participate in this research, by signing a Free and Informed Consent Term. They were informed of their free will to stop participating in the research at any time during the interview. The exclusion criterion was the patient's withdrawal after the beginning of the interview.

Concomitantly with the collection, the data were digitized in an electronic database. The statistical software Statistical Package for the Social Sciences (SPSS), version 21.0, was used for statistical analysis of the data. All variables were analyzed descriptively, thus, continuous (numerical) variables were studied by calculating means and standard deviations. For qualitative variables, absolute and relative frequencies were calculated.

Results

A total of 439 puerperal women were interviewed, 94.5% of whom had some dermatological alteration. Of these, 54% of the patients felt uncomfortable, 41.5% reported that it affected their self-esteem and 18.7% had an impact on their social life. However, only 14.6% received medical advice and 14.1% underwent treatment. In this sense, the objective of the study is to analyze the maternal and fetal characteristics associated with the physiological dermatological changes of pregnancy.

Maternal characteristics are listed in Table 1. The mean age of the patients was 27.2. The predominant race was white (62.4%), followed by brown (25.7%) and black (11.8%). Regarding the Fitzpatrick phototype

Table 1: Maternal characteristics of the evaluated puerperal women.

		Puerperal Women (N = 439)
Age		27.2 (5.8)
Race	White	274 (62.4)
	Black	52 (11.8)
	Brown	113 (25.7)
Phototype	I	5 (1.1)
	II	78 (17.8)
	III	187 (42.6)
	IV	131 (29.8)
	V	27 (6.2)
	VI	11 (2.5)
Pre-Gestational Weight		66.7 (14.2)
Final Weight		78.2 (14.7)
Pre-Gestational BMI		25.5 (5.1)
Classification	Low-Weight	16 (3.6)
	Eutrophic	208 (47.4)
	Overweight	136 (31.0)
	Obesity	71 (16.2)
Weight Gain		11.9 (6.9)
Classification	Below	117 (26.7)
	Adequate	177 (40.3)
	Above	137 (31.2)
Scholarity	Elementary School	91 (20.7)
	High School	277 (63.1)
	Higher Education	71 (16.2)
Remuneration		216 (49.2)
Previous Patologies	SAH	19 (4.3)
	Diabetes	4 (0.9)
	Hypothyroidism	13 (3.0)
	Dermatological Patology	25 (5.7)
Hormonal Contraception		137 (31.2)
Interrupted		89 (20.3)
Substance use	Alcoholism	42 (9.6)
	Smoking	52 (11.8)
	Other Drugs	10 (2.3)

*Mean and Standard Deviation, Absolute Number and Percentage, BMI: Body Mass Index; SAH: Systemic Arterial Hypertension

scale, most patients were phototype III (42.6%), followed by phototype IV (29.8%) and phototype II (17.8%). The mean pre-pregnancy BMI was 25.5. The BMI classification was predominantly eutrophic (47.4%), followed by overweight (31.0%) and obesity (16.2%). The average weight gain during pregnancy was adequate in 40.3% of the pregnant women, followed by above with 31.2% and below with 26.7%.

Regarding social characteristics, most patients have completed high school (63.1%), and 49.2% of patients reported having a salary. In this context, a minority of patients reported having some previous pathology.

Thus, 5.7% had a previous skin disease, 4.3% had previous Systemic Arterial Hypertension (SAH), 3% of the patients had hypothyroidism and 0.9% reported previous diabetes. Regarding the use of hormonal contraception, 31.2% of the patients used it and 20.3% stopped it before becoming pregnant. Furthermore, 11.8% smoked during pregnancy, 9.6% of the patients reported drinking alcohol during pregnancy and 2.3% used other drugs.

The evaluated dermatological alterations are described in [Table 2](#). Hyperpigmentation was reported in 78.6% of the patients, with the main trimester of

Table 2: Characteristics of the evaluated postpartum women's dermatological changes*.

		Puérperas (N = 439)
Hyperpigmentation		345 (78.6)
Onset	1 st trimester	61 (13.9)
	2 nd trimester	170 (38.7)
	3 rd trimester	102 (23.2)
	Before Pregnancy	20 (3.7)
Involvement	Linea Alba	237 (68.7)
	Nipples	267 (77.4)
	Armpits	199 (57.7)
Melasma		144 (32.8)
Onset	1 st trimester	31 (25.0)
	2 nd trimester	53 (42.7)
	3 rd trimester	40 (32.3)
	Before Pregnancy	20 (13.9)
Involvement	Centrofacial	92 (63.9)
	Peripheral	19 (13.2)
	Mixed	33 (22.9)
Stretch Marks		253 (57.6)
Onset	1 st trimester	27 (6.2)
	2 nd trimester	73 (16.6)
	3 rd trimester	87 (19.8)
	Before Pregnancy	66 (26.1)
Involvement	Abdomen	197 (77.9)
	Hips	126 (49.8)
	Breasts	88 (34.8)
Vascular Alterations		123 (28.0)
Onset	1 st trimester	19 (22.9)
	2 nd trimester	29 (34.9)
	3 rd trimester	35 (42.2)
	Before Pregnancy	40 (32.5)
Involvement	Varicosities	106 (86.2)
	Vascular Spiders	28 (22.8)
Erythema Palmar		77 (17.5)

Onset	1 st trimester	11 (14.7)
	2 nd trimester	24 (32.0)
	3 rd trimester	40 (9.1)
	Before Pregnancy	2 (0.5)
Acne		199 (45.3)
Onset	1 st trimester	62 (53.0)
	2 nd trimester	38 (32.5)
	3 rd trimester	17 (14.5)
	Before Pregnancy	82 (41.2)
General Information		
Dermatological Alterations		415 (94.5)
Medical Orientation		64 (14.6)
Treatment		62 (14.1)
Emotional Impact	Felt Uncomfortable	237 (54.0)
	Affected Self-Esteem	182 (41.5)
	Affected Social Conviviality	82 (18.7)

*Mean and Standard Deviation, Absolut Number and Percentage

onset being the second. The sites most affected by hyperpigmentation were nipples (77.4%), followed by the linea alba (68.7%) and finally the armpits (57.7%). Melasma affected 32.8% of patients, with main onset also in the 2nd trimester. Melasma involvement was mostly centrofacial with 63.9% of patients, followed by 22% of patients with mixed involvement and 13.2% with peripheral involvement.

Stretch marks affected 57.6% of the patients, and the trimester with the highest incidence was the third. The main sites of involvement were the abdomen (77.9%), hips (49.8%) and breasts (34.8%). As for vascular alterations, they were reported by 28% of the patients, and of these, 86.2% had varicosities, 22.8% vascular spiders and 9% reported both alterations. The trimester with the highest incidence was the third. In this sense, 17.5% had palmar erythema, and the main quarter of onset was the second. In addition, 45.3% of the patients reported having acne during pregnancy, and of these, 41.2% started before pregnancy. Among those who started during pregnancy, the most frequent trimester of onset was the first.

The gestational and newborn characteristics are described in Table 3. The average weight of the newborn was 3269.2g, with 62.3% classified as AGA, followed by LGA (35.8%). Furthermore, 98.9% of the patients underwent prenatal care and the average number of consultations was 9.1. 61.5% of the patients were exposed to the sun during pregnancy, with an average of 7.6 hours a week. From this perspective, 34.6% of the interviewees used some type of photoprotection, with 27.8% using sunscreen and 6.8% using a physical barrier. Finally, 69.2% of the patients moisturized their skin.

Discussion

Physiological skin changes during pregnancy had a

prevalence of 94.5% in our population, corroborating the prevalence found in the literature of 88.5-100% [2,3,9]. Despite benign, these changes bothered 54% of the patients and affected the self-esteem of 41.5%, in addition, 18.7% reported that social interaction was impacted. Even so, only 14.1% underwent treatment and 14.6% received medical advice, which shows the unpreparedness and lack of knowledge about the changes by doctors who perform prenatal care. Therefore, the study is of great importance to better characterize the changes and professionals knowledge about them.

It was observed that the most significant maternal characteristics in the prevalence of skin changes during pregnancy were phototype, excessive weight gain, sun exposure and previous use of contraceptives. As for phototypes, the most prevalent were III and IV, corresponding to more than 70% of the population. The predominance of light phototypes, as well as high sun exposure, may corroborate the incidence of pigmentary alterations, such as hyperpigmentation and melasma [10]. The use of hormonal contraceptives in our population was 31.2% and, of these, approximately 10% did not discontinue use before becoming pregnant. This fact is associated with the development of melasma and palmar erythema during the first trimester of pregnancy, reported by 25% of patients. Finally, excessive weight gain, which occurred in 31.2% of patients, is related to the occurrence of stretch marks and worsening of acne during pregnancy [11,12].

Hyperpigmentation

Hyperpigmentation affected 78.6% of the patients, compared to the percentage of 87.95% found in a study carried out in the central west region of Brazil. This difference can be explained by regional

Table 3: Gestational and neonatal characteristics of the evaluated puerperal women*.

		Puérperas (N = 439)
GA at birth		38.8 (1.8)
Newborn Weight		3269.2 (534.5)
	SGA	6 (1.4)
	AGA	273 (62.3)
	LGA	157 (35.8)
Way of Birth	Caesarean	171 (39.0)
	Normal Birth	267 (61.0)
Pregnancy Complications	Prematurity	32 (7.3)
	Low Birth-Weight	22 (5.0)
	Macrossomia	35 (8.0)
	Neonatal ICU	32 (7.3)
Apgar	1 st minute	7.7 (1.0)
	5 th minute	8.8 (0.8)
Prenatal Care	Underwent	434 (98.9)
	GA of beginning	8.9 (5.3)
	Number of Consultations	9.1 (3.4)
Pregnancy Patologies	UTI	157 (35.8)
	GDM	93 (21.2)
	Preeclampsia	43 (9.8)
Obstetric History	Previous Pregnancies	2.3 (1.4)
	Normal Deliveries	1.4 (1.3)
	Previous Cesarean Sections	0.7 (0.9)
	Abortions	0.2 (0.7)
Sun Exposure		270 (61.5)
	Hours/week	7.6 (9.1)
	> 5 hours	124 (28.2)
	> 10 hours	62 (14.1)
Photoprotection		152 (34.6)
	Frequency/week	3.8 (2.8)
Type of Photoprotection	Sunblock	122 (27.8)
	Physical Barrier	30 (6.8)
Skin Hydration		304 (69.2)
	Frequency/week	5.4 (2.2)

*Mean and Standard Deviation, Absolut Number and Percentage, SGA: Small for Gestational Age; AGA: Adequate for Gestational Age; LGA: Large for Gestational Age; ICU: Intensive Care Unit; UTI: Urinary Tract Infection; GDM: Gestational Diabetes Mellitus

discrepancies, such as greater sun exposure [2]. In addition, in our study, the main trimester of onset was the second, followed by the third, this may be due to the hypersecretion of estrogen and progesterone by the placenta that begins after 8 weeks of gestation [13,14]. Thus, this hyperhormonal state stimulates melanin synthesis in areas with melanocytes that are more sensitive to estrogen and progesterone. In this context, 77.4% had nipple involvement, followed by 68.7% of the linea alba, in contrast to a study in India of n = 605 with a percentage of 75% and 80% respectively. This can be explained by the difference in the population studied in terms of phototype and time of sun exposure of pregnant women [15].

Melasma

Melasma is a hypermelanosis characterized by a clinical pattern of symmetrical, reticular lesions and light brown to dark brown hyperpigmentation that persist in photoexposed areas, particularly the face [16,17]. The prevalence of chloasma varies between 36.4% and 70% [7,18]. In this study, a prevalence rate of 32.8% was found in the analyzed population, with an inferior rate then found in the literature. Multiple factors are involved in its etiopathogenesis, which have been reported as aggravating the disease, such as: Exposure to sunlight, oral hormonal contraception, hormone replacement therapy, cosmetics, photosensitizers, pregnancy and

stress symptoms [19,20]. In this case, the most common risk factors are genetic influence and sun exposure. Ultraviolet rays can induce an inflammatory response, stimulating melanocytes as reactive oxygen species, thus resulting in the development of solar elastosis, characteristic of referred hyperpigmentation [21,22].

Thus, it was seen that most of the women in the sample developed the condition in the second trimester of pregnancy, differing from that presented in the literature, since the increase in progesterone and estrogen occurs mainly in the third trimester of pregnancy, stimulating melasma [18]. In our analysis, it was concluded that 63.9% of the patients had centrofacial involvement, corroborating the study by Abdalla, et al. [23], which revealed the following distribution: Centrofacial region (65%), with frontal spots, on the nasal dorsum, cheekbones and chin surfaces, followed by the malar region (20%) and, finally, the mandibular region (15%) [24]. Due to the high prevalence of melasma, affecting visible areas, the appearance of hyperchromic spots has an enormous impact on women's quality of life.

Stretch marks

The appearance of stretch marks during pregnancy is mainly related to weight gain [11], tissue connective tissue stress and estrogen action [3].

The increase in corticosteroids and estrogen decreases the adhesion between collagen fibers and promotes the formation of ground substance, which results in striations in areas of distension [25].

Stretch marks affected 57.6% of the patients, in line with the literature, which showed a prevalence of 45 to 79.6% [14,26,27]. Thus, the puerperal women reported the third trimester as the main one at first, with the abdomen being the most affected site. This is believed to be related to the stretching of the skin of the abdomen at the end of pregnancy, due to greater weight gain and fetal growth during this gestational period [2].

Palmar erythema

Palmar erythema in pregnancy is a well-known primary physiological finding, most commonly consisting of a non-painful, symmetrical, non-pruritic, non-scaly, slightly warm erythema, often involving the thenar and hypothenar eminences of the pregnant woman's palm [4]. Of the population studied, 17.5% had palmar erythema. A similar study carried out in Pakistan obtained different results, with a prevalence of 43.5% in the population studied [28]. On the other hand, a study carried out in India obtained more similar results, with a prevalence of 8% [29]. This discrepancy in results can be explained by the different cutaneous characteristics of the populations studied, since palmar erythema is more easily visualized in lighter skin [29]. In the literature, the appearance of Palmar erythema has

been described mainly in the first trimester. However, in our study, the onset of this change was more prevalent in the third trimester, which may be explained by the greater weight gain [11,12].

The pathophysiology of Palmar Erythema during pregnancy seems to be related to increased levels of circulating estrogens, which are known to have a vascular proliferative effect and endometrial capillary density, leading to increased blood volume [4]. The risk factors for the appearance of this dermatological change are: Maternal overweight, use of contraceptives [15], arterial hypertension and possibly Preeclampsia. As for maternal overweight, adipose tissue produces and secretes angiogenic factors, related to the formation of superficial venous and arterial plexuses in the palm [14]. The use of contraceptives, on the other hand, intensifies the vascular effect of estrogen [30]. Finally, the relationship between Palmar erythema with arterial hypertension and Preeclampsia is due to systemic vasodilation [30].

Due to the existence of cases of gestational Palmar Erythema related to secondary liver disease, it is necessary to differentiate between physiological and pathological causes. Among signs and symptoms suggestive of associated liver disease are pruritus, jaundice, nausea and vomiting, fever, pain in the right upper quadrant, among others [30,31]. Palmar erythema during pregnancy must also be differentiated from other etiologies, such as systemic lupus erythematosus and thyroid diseases, especially if the erythema appears after the first trimester or in the presence of other systemic and cutaneous manifestations [4].

Vascular changes

Vascular alterations, specifically varicose veins and vascular spiders, are prevalent observations during pregnancy and tend to decrease in size or even disappear completely after the gestational period. However, because they also manifest themselves in an aesthetic way, they generate concerns in the context of clinical dermatology and in the context of self-esteem and social life. They occur due to physiological changes during pregnancy, such as increased blood volume and vascular dilation resulting from the previously discussed estrogen effect [14].

In the present study, 28% of the interviewed postpartum women had vascular alterations. In different studies, a higher prevalence was found, such as 41.15% [2]. The incidence of manifestations started more frequently in the 3rd trimester, demonstrating a progression as the pregnancy progresses [14]. Among vascular alterations, varicosities had a prevalence of 86.2% and spider veins, 22.8%. According to the study by Panicker, et al. [14], varicosities cover approximately 40% of women during the gestational period, while vascular spiders cover up to 67% of them, mainly in

Caucasian women, showing an inverse distribution to that observed in our study.

The development of varicose veins during pregnancy is related to external compression of the pelvic veins by the developing fetus, as well as pregnancy-related hormones and changes that affect the smooth muscle cells of the veins, resulting in dilation. Although, in most cases, they improve after pregnancy, approximately 82% of these women may later develop varicosities [32]. Spider angiomas, on the other hand, are more frequently observed in regions of the skin drained by the superior vena cava, neck, throat, face (around the eyes), upper chest, arms and hands. They are characterized by small, flat lesions, which may be slightly elevated, slightly pulsating, reddish, associated with small, radiating telangiectatic vessels and may have erythema around them [33].

Acne

Acne is a chronic inflammatory disease of a genetic-hormonal nature caused by pilosebaceous involvement when comedones, papules, pustules and nodulocystic lesions form [34]. This pathology can lead to scarring, skin hyperpigmentation and low self-esteem [34]. The general public often consider acne to be a clinical condition that affects adolescents, studies have shown a significant number of pregnant and non-pregnant women in their 20s and 30s who suffer from acne vulgaris [35]. This clinical outcome is due to hormonal changes of androgens in this period that lead to a worsening of the clinical picture of the disease, such as estrogen, progesterone, glucocorticoids and insulin [36]. Thus, the production of sebum in the skin is increased, leading to colonization by *Cutibacterium acnes* and inflammation [34].

In addition, the prevalence of acne during pregnancy was 45.9%, similar to what was seen in the literature, which revealed that 42% of pregnant women were affected [37]. However, in our study, less than half of the patients had previously had acne, in contrast to 90% in the study by Bechstein, et al. [37]. In this context, during the course of pregnancy, hormonal changes occur that generate not only the aggravation, but also the inhibition of acne [38]. Thus, in the first trimester of pregnancy, there is an increase in human chorionic gonadotropin, stimulating the production of androgens, leading to the induction of acne [39]. In the second and third periods of pregnancy, the increase in estrogen and progesterone leads to sebosuppression [36]. Thus, it is understood that patients may experience improvements, no change or worsening of acne status during this period [36].

In view of the 94% prevalence of skin changes during pregnancy, which commonly affect exposed regions, it is understood that they impact the social sphere of patients. In this sense, it was seen that they

bothered 54% and affected the self-esteem of 41.5%. Similarly, 18.7% had social life impacted, which can influence maternal-fetal health. In addition, about 14% of patients received medical advice or treatment, which indicates unpreparedness of the team responsible for the patients' prenatal care. Since they were not alerted to the benignity, high frequency and possibility of remission of the condition, the changes.

Data collection in this study was performed through a self-reported interview conducted by academics. Thus, the information is subject to memory bias, especially with regard to the beginning of changes and characteristics of these, as well as gestational characteristics. In addition, this is a retrospective study, which may impair the reliability of the information collected. Therefore, there is a need to carry out prospective and multicenter studies in order to evaluate different populations and define more reliably the characteristics of the physiological dermatological changes during pregnancy.

Conclusion

It was found that 94.5% of the evaluated puerperal women reported some physiological dermatological alteration, the most prevalent being hyperpigmentation (78.6%), stretch marks (57.6%) and melasma (32.8%). In addition, 54% of the patients reported feeling uncomfortable, 41.5% had their self-esteem affected, in addition to compromising the social life of 18.7%. However, only 14.6% received medical advice and 14.1% underwent treatment. Therefore, there is a need to guide and indicate possible treatments for the affected patients, in order to minimize the emotional damage, and even possibly prevent its appearance.

Authors Declaration

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