Acne and psychiatric comorbidities in Lomé (Togo): case-control study

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Abstract

Objectif The aim of this study was to investigate psychiatric comorbidities (depression and anxiety) associated with acne in dermatology in Lomé (Togo). Material and methods We conducted a case-control study between July 2017 and February 2018. Each case was matched to two controls by sex and age (± 5 years). The ECLA grid was used for the clinical evaluation of acne, and the GAD-7 and PHQ-9 questionnaires were used for respective screening of anxiety and depression. Results We recruited, with their consent, 900 subjects including 300 patients and 600 matched to two controls according to sex and age (± 5 years). The mean age of the cases was 23.7±5.7 years and that of the controls was 23.6 ± 6.2 years, with no difference between the two groups (p = 0.9362). The overall severity score for acne according to the ECLA grid ranged from 2 to 28 points. The severity of acne was not correlated with anxiety scores (GAD-7: r = -0.02; p = 0.6724) and depression (PHQ-9: r = 0.11; p = 0.0567). The GAD-7 questionnaire allowed us to note 72 cases of anxiety (24%) among our patients and 37 cases among our controls (6.2%). The mean GAD-7 score in the cases was 6.5±4.9 compared with 2.9±3.8 in the controls (p <0.0001). Similarly, the PHQ-9 questionnaire allowed us to detect 92 cases of depression (30.7%) among our patients and 82 cases of depression among our controls (13.7%). The average of the PHQ 9 score in the cases was 7.2 ± 5.2 versus 4.0 ± 4.7 in the controls (p <0.0001). Conclusion: Depression and anxiety are significantly associated with acne, regardless of severity. It is important to look for them in any patient admitted for acne, for a psychological / psychiatric decision.

Introduction

 Acne is a common skin condition that affects the majority of adolescents with prevalence from 70% to 87% [1–3]. This type of skin disorder has a significant impact on the quality of life of patients, ranging from simple withdrawal to suicide [4]. It is associated with many psychological effects, such as low self-esteem, perceived social rejection, social avoidance, anxiety, depression, and even suicidal ideation [5–7].

In Africa, acne is considered by the population as ordinary or even normal; it does not appear likely to impair the quality of life (QOL) and dermatologists tend to underestimate the prevalence of psychiatric comorbidities. However, despite its benignity, acne has a great impact on the psychological state of the patient who suffers. Hence, the need to take into account psychological disorders in the management of acne patients.

Two studies focused on acne in Togo; one aimed essentially at making the clinical description but also the impact of artificial depigmentation on acne [8], the other sought to evaluate the quality of life of acne patients [9]. The purpose of this study was to document the link between acne and depression and anxiety in patients consulting dermatology.

Method

This is a case-control study conducted from July 2017 to February 2018 in the three public dermatology departments of the city of Lomé. The patients were recruited in external dermatological consultation and the controls in external dermatological consultation then in other hospital departments. Each case was matched to two controls by sex and age (± 5 years).

The Acne Injury Rating Scale (ECLA) *[10]* was used for the clinical evaluation of acne, and the General Anxiety Disorder−7 (GAD−7) *[11]* and Patient Health Questionnaire−9 questionnaires (PHQ−9) [12] respectively for screening for anxiety and depression in cases and controls. These 3 questionnaires were completed by the patients at the end of the consultation, and by the witnesses except for the ECLA questionnaire.

Calculation and interpretation of scores

The ECLA grid is composed of factors F1, F2 and F3 which respectively evaluate the type and intensity of acne in the face, the extension and intensity of acne out of the face and the presence of scars. The total ECLA score, obtained by summing the F1, F2, and F3 factors, ranged from 0 to 36. An ECLA score of 12 or less represented mild to moderate acne, a score greater than 12 represented severe acne.

To assess anxiety, each of the items in GAD−7 was 0 to 3: 0 = never; 1 = several days; 2 = more than half the time and 3 = almost every day. The total score was obtained by adding the scores of each item; it ranged from 0 to 21. A GAD−7 score greater than or equal to 10 with a sensitivity of 89% and a specificity of 82% for the diagnosis of anxiety *[11]*. The results were interpreted as follows: score less than 10 = no anxiety and score greater than or equal to 10 = anxiety.

To assess depression, each of the items in HQP−9 was rated from 0 to 3: 0 = never; 1 = several days; 2 = more than half the time and 3 = almost every day. The total score was obtained by adding the scores of each item; it ranged from 0 to 27. A PHQ−9 score greater than or equal to 10 with a sensitivity and specificity of 88% for the diagnosis of depression *[12]*. The results were interpreted as follows: score less than 10 = no depression and score greater than or equal to 10 = depression.

Results

We recruited a total of 900 subjects including 300 cases and 600 controls matched to cases by sex and age (± 5 years). The mean age of the cases was 23.7 ± 5.7 years (range: 12 to 52 years) and controls 23.6 ± 6.2 years (range: 12 to 54 years) (p = 0, 9362). The sex ratio (M/F) of the cases was 0.4.

 The face was affected in 100% of cases, alone or in association with localization of the back (63.3%), neck (46.6%) of the chest (45.3%), arms or shoulders (20.0%). The most common acne lesions were papules (292/300, 97.3%), hyperseborrhoea (277/300, 92.3%), comedones (272/300, 90.7%) and hyperchromic macules (249/300, 83.0%). Papulo-pustular acne was the most common form (200/300,

66.7%). Other clinical forms were retentional acne (58/300, 19.6%), nodular acne (35/300, 11.7%) and acne pigmentary acne (7/300, 2.3%).

The overall ECLA severity score was 12.3±5.0 with extremes of 2 and 28 points. Acne was mild to moderate in 54.0% of patients and severe in 46.0%. The ECLA score averaged 11.7±5.1 (3 to 28) in anxious patients and 12.5±5.0 (2 to 28) in non-anxious patients (p = 0.2183). Similarly, this score averaged 12.4±4.8 (3 to 26) in depressed patients and 12.3±5.2 (2 to 28) in non-depressed patients (p = 0.8038) (Table I). Only 25 of the 72 patients (34.7%) found anxious and 39 (42.4%) of the 92 patients found depressed had severe acne. The severity of acne was not correlated with anxiety scores (GAD−7: r = −0.02; p = 0.6724) and depression score (PHQ−9: r = 0.11; p = 0.0567).

The GAD−7 questionnaire allowed us to note 72 cases (24%) of anxiety among our 300 patients and 37 cases (6.2%) of anxiety among the 600 controls. GAD−7 scores in cases ranged from 0 to 21, with an average score of 6.5±4.9. The mean GAD−7 score in controls was 2.9 ± 3.8 (range 0−21) (p <0.0001). The PHQ−9 questionnaire revealed 92 cases (30.7%) of depression among our 300 acne patients. We found 82 cases of depression among the 600 controls (13.7%). PHQ−9 scores ranged from 0 to 26 in the cases with an average score of 7.2±5.2. The mean PHQ−9 score in controls was 4.0±4.7 (range: 0−27) (p <0.0001) (Table II).

Discussion

We conducted a case-control study including 900 subjects including 300 matched to 600 controls by sex and age (± 5 years). The results of our study show that depression and anxiety are significantly associated with acne, regardless of its severity.

In this study, the papulo pustular acne was the most represented clinical form as in other studies [13−15]. In contrast, we have identified seven cases (2.3%) of pigmentary acne; form constituting a peculiarity of black or pigmented skin. Lesions sat preferentially in the face (100% of cases), as in other series [7, 8, 13, 16, 17]. This localization of lesions on the one hand and the pigmentary forms on the other hand make acne a very forms of other parties make acne a very "afficative" affective difficult to conceal and justifies its impact on the psychological status and the quality of life of the patients who suffer.

The prevalence of anxiety in our acne patients was 24.0%. This result is close to Yazici et al. in Turkey [18] and Lukaviciute et al. in Lithuania [19] who found respectively 26.2% and 38.4% using the HADS questionnaire. The display and unaesthetic nature of this disease would be at the origin of this anxiety. The acne patient would include his acne as a brake to his seduction power and this could be verified in our cases that were represented by young adult women seeking for partners. Kouotou et al. in Cameroon, [13], Bhagwanjee et al. in South Africa [20] and Purvis et al. in New Zealand [21] found a lower prevalence of anxiety in acne patients, respectively 7.7%, 3.7% and 4.3%.

We did not find a correlation between the severity of acne and the anxiety score (GAD−7: r = −0.02, p = 0.6724). Indeed, the ECLA score was higher in non-anxious cases (ECLA average score was 12.5) than

anxious cases (ECLA average score is 11.7). More, only 25 of 72 patients (34.7%) anxious discovered had severe acne. This suggests that the occurrence of anxiety does not depend on the anxiety in any acne. It is therefore important to detect anxiety in any acne patient regardless of the degree of the severity of its acne because even minimal acne can be responsible of an important anxiety. This result is similar to those of Yacizi *et al.* in Turkey *[18]* who had not found correlation between the severity of acne with the HADS-A scale. In the other hand Kouotou *et al.* in Cameroon *[13]* showed that the severity of acne influences the occurrence of anxiety since they found a positive correlation between the ECLA and GAD−7 scores. Awad *et al.* in Egypt *[22]*, Lukaviciute *et al.* in Lithuania *[19]*,Gül *et al. [17]* and Öztürk *et al.* in Turkey *[7]* also found positive correlation between severity of acne and anxiety, hence the importance of taking in charge patient on psychological plan no matter the severity of their acne.

The prevalence of anxiety in cases was 24.0% vs. 6.2% in controls. The average score of GAD−7 in cases and controls were respectively 6,5±4,9 and 2,9±3,8 with the difference between the two groups (p <0,0001). This shows that anxiety in our patients is well linked to their acne. Several case control made using HADS showed the correlation between acne and anxiety. Awad *et al.* found an anxiety rate of 78% in cases against 30% in controls with a HAD-A score higher in cases than in the controls and a significant difference between the two group. Yacizi *et al.* in Turkey [18] also found the anxiety rate of 26, 2% in the case and 0% in control. This results show that the acne is the source of anxiety.

Using the PHQ−9 questionnaires, the prevalence of depression in our study was 30.7%. The prevalence of depression in acneic patients ranges from 23.1% to 34% according to studies [19, 23−25]. Bhagwanjee *et al.* In South Africa had found one of the psychiatric disorders in 81 acneic patients, including 4.8% depression [20]. Our results are also higher than those of Kouotou *et al.* In Cameroon who found 6.1% depression [13]. The look that may be worn on acne-based patients; but also the affluent character with limited patients who can suffer from some social activities can be originally a deployment.

The PHQ−9 questionnaire has allowed us to meet 30.7% depression among acneic patients against 13.7% among witnesses. The average PHQ−9 score average was 7.2 ± 5.2 compared to 4.0 ± 4.7 in witnesses (Extremes 0−27) (p <0.0001). Our results show that acne is associated with psychiatric disorders including depression. There is therefore a correlation between acne and depression. There is therefore a correlation between acne and depression. We can say that acne is associated with a high frequency of depressive symptoms compare to the general population. Uhlenhake *et al.* in their study found that the prevalence of depression is three time higher compared to the general population [26]. Bondade*et al.* in their case-control series found this same difference between the affected patients and non-acne patients24].Others similar studies had noted this high between acne patients and non-acne patients.27, 28]. A study conducted in Turkey [7] had a high prevalence of psychiatric comorbidities among acne patients. They observed in their series of statistically high score in acne patients. The depression would be stronger associated with acne among psychiatric comorbidities in this series.

The severity of acne was not correlated with the depression score (PHQ−9: r = 0.11 and p = 0.0567). The ECL score was average 12, 4 ± 4.8 in depressive patients and 12.3 ± 5.2 in non-depressive patients (p =

0.8038). Only 39 (42.4%) of the 92 outdated dispute patients had a severe acne. Several authors had noted the lack of correlation between acne and depression [18, 29]. Klassen *et al.* had shown that the acne severity was rather correlated with the pain or discomfort in the patient but not to depression [30]. Acne is a clear disease, a very small, lesion has a psychological impact on the patient.

Limitations

The fact that our study is essentially hospital excluded thus excluding the acneic patients who did not have the financial means to consult. Also, this study did not take into account the link between psychiatric personality and development of acne. More factors that can influence the occurrence of depression as the socio-economic situation and the environment have not been taken into account.

Conclusion

Acne is a benign dermatosis but it has a significant impact on the physical and psychic state of the patient. The results of this work have proved that the presence of acne can be source of psychiatric comorbidities such as anxiety in patients who suffer from it. However the degree of anxiety or depression generated by acne is not correlated with the severity of acne. It is important to look for these psychiatric comorbidities associated with acne for accompaniment of the patient during the follow-up by his treating doctor or by the psychologist when necessary and by his entourage is therefore.

Declarations
Ethics approval and consent to participate

This study was approved by the Department of Dermatology of CHU Sylvanus Olympio, Université de Lomé. We obtained the approval from the participants. The participants gave their consent, after the verbal explanation was delivered by the clinicians of the participating hospitals. The survey was anonymous and confidential.

Consent to publish

The Department of Dermatology of CHU Sylvanus Olympio, Université de Lomé authorized the publication of this manuscript.

Availability of data and materials

The datasets supporting the conclusions of this article are included within the manuscript and its supporting material.

Competing interest

The authors declare that they have no competing interests.

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Authors' contribution

BS, JNT, ASA, AMT, PK, GM, PG, TA, and LA: participated in data collection and wrote the manuscript. KK and PP: have revised and finalized the manuscript. All the authors had read and approved the final manuscript to be submitted for publication.

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List Of Abbreviations

QDV : qualité de vie

ECLA : Echelle de Cotation des Lésions d'Acné

GAD–7: General Anxiety Disorder–7

PHQ–9: Health Questionnaire–9

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Tables

Table I: ECLA average scales of depressive and anxious patients

	Number (%)	Mean ECLA score	p
Anxious patients	72 (24.0)	11.7±5.1 (3 to 28)	0.2183
Non anxious patients	228 (76.0)	12.5±5.0 (2 to 28)	
Depressive patients	92 (30.7)	12.4±4.8 (3 to 26)	0.8038
Non depressive patients	208 (69.3)	12.3±5.2 (2 to 28)	

Table II: Prevalence of psychiatric comorbidities in cases and controls

	Cases (**n**=300)	Controls (**n**=600)	p
Anxious patients	*72 (24.0)*	37 (6.2)	*<0.0001*
Non anxious patients	*228 (76.0)*	563 (93.8)	
GAD-7 (average ± SD)	6.5±4.9	2.9±3.8	*<0.0001*
Depressive patients	*92 (30.7)*	*82 (13.7)*	*<0.0001*
Non depressive patients	*208 (69.3)*	*518 (86.3)*	
PHQ-9 (average ± SD)	7.2±5.2	4.0±4.7	*<0.0001*

SD: *standrd deviation*