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Predictors of Quality of Life in Adults with Acne: The Contribution of Perceived Stigma

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Abstract

As dermatology patients complain that their psychological distress is extensive and often overlooked, it is concerning that there is a paucity of research investigating factors associated with acne-related QOL. This study, therefore, aimed to compile a preliminary list of risk factors for psychosocial distress as a result of having acne in adulthood, while specifically examining the role of an under investigated variable - perceived stigma – due to the high levels of stigmatization reported by these individuals. Adults with acne (*N*=119, M/F: 38/81; mean age: *M* = 26.37, *SD* =7.97), recruited from private dermatology offices in Athens were administered the Feelings of Stigmatization Questionnaire (FSQ; Ginsburg & Link, 1989) and Acne-Specific Quality of Life Questionnaire (Acne-QoL; Botek, Girman, Light, Lookingbill, Martin, & Thiboutot, 2001). Multiple regression analyses were conducted in order to assess the capacity of various psychosocial and demographic variables to predict acne-related QOL. While participants' gender, age, history of acne and self-rated severity of acne emerged as significant predictors of acne-related QOL, perceived stigma made the largest contribution to the regression model. This research study provides preliminary evidence that adults who feel stigmatized are at risk for experiencing a poor quality of life as a result of having acne. Potential risk factors of secondary importance, which can aid the screening of psychological distress in these individuals, may also include one's self-rated severity of acne, age, gender and previous history of acne.

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1. Introduction

"I don't feel equal to [others] because they are normal and I am not. Would you rather be an unblemished apple or an apple with lots of dents and bruises? Nobody likes damaged goods" (Murray & Rhodes, 2005, p18). This statement comes from a young male, Karl, who belongs to 1% of the adult population (Kent & Thompson, 2001) that bears the mark of a scar, blemish or disfigurement which constitutes a visible difference. As a type of visible difference, dermatological conditions are amongst the most common health problems worldwide associated with psychological, social and financial burden, yet they are usually characterized as non-threatening and minor nuisances which constitute more of a cosmetic rather than debilitating health issue (Basra & Shahruck, 2009). The present study will give credence to the gravity of having a dermatological condition, by investigating the factors which predict the quality of life among acne sufferers, in order to create a preliminary list of risk factors to help dermatologists screen for psychological distress in their adult patients.

The limited social psychological research investigating the nature of attitudes towards individuals with visible differences suggests that appearance based prejudice towards these individuals is a pervasive phenomenon (Borah & Rankin, 2003; Del Rosso, La Riche, Ritvo, & Stillman, 2011; Grandfield, Thompson, & Turpin, 2005). Experimental studies have also highlighted participants' preferential attitude towards clear skin and aversion towards blemished ones (Del Rosso et al., 2011; Grandfield et al., 2005). Worryingly, negative attitudes towards blemished skin may translate to stigmatizing behavior and discriminatory practices, the most prevalent of which are negative attention - e.g. staring as well as rude comments - and avoidance - e.g. avoiding eye contact, conversation, physical closeness (Adams, Heading, Magin, Pond, & Smith, 2008).

Although the effects of prejudice and discrimination have been mainly studied for stigmatized individuals with contagious physical diseases, mental illnesses and minority groups, investigating dermatological stigma is important because of its documented association with psychological distress and disability in patients with psoriasis, eczema, vitiligo and atopic dermatitis (Griffiths, Main, Richards, & Wittowski, 2007). Indeed, it has been reported that dermatological conditions prevent an individual from being socially accepted, and the lack of inclusion results in lowered self-esteem (Amir, Besser, Biton, Buskila, Gesthalter, & Vardy, 2002), depression and loneliness (Papadopoulos & Walker, 2005). Gilbert and Miles (2002) further highlight that feelings of shame may result as a consequence of being devalued by others, and losing one's social status. This may be especially true for patients whose dermatological conditions appear in adulthood, who not only have to cope with the loss of their former personal but also social identity (Amir et al., 2002).

The appearance of skim conditions has also been association with lowered quality of life, concerns about body image, interpersonal difficulties and psychological co-morbidities such as anxiety and depressive disorders (Harcourt & Rumsey, 2012). Despite the fact that quality of life measures have been introduced to dermatological research for over 20 years, they are not often used by dermatologists in clinical practice to guide treatment planning (Butler, Gupta, Huynh, Leon, Levin, & Koo, 2011). In fact, patients have reported that their dermatologists often fail to recognize the negative impact of their skin diseases on their lives (Butler et al., 2011). Yet, research contradicts the widespread belief that acne is just a trivial problem, by demonstrating that patients with acne report similar levels of social and emotional problems compared to other chronic physical conditions such as asthma, arthritis, epilepsy and diabetes (Finlay, Klassen, Mallon, Newton, Ryan, & Stewart-Brown, 1999).

As the psychosocial impact of attaining a visible difference is extensive, researchers have attempted to identify both the factors which protect but also make these individuals more vulnerable to psychological distress (Harcourt & Rumsey, 2012; Papadopoulos & Walker, 2005). In particular, those with visible cutaneous pathologies are better adjusted than others with concealable blemishes; the latter have been found to behave more competently in social situations as they believe that others are not aware of their skin condition (Kent, 2002). In relation to age, even though research has indicated that teens suffer as a result of their acne, it has been reported that older adults become greatly distressed as well (Clark-Carter, Grogan, Hassan, Richards, & Yates 2009). As acne is usually associated with adolescence (Papadopoulos & Walker, 2005), it may comprise a more normative experience for teens who also observe that their peers also bear the marks of the skin condition. Women have also been found to cope less well with visible differences compared to men (Clark-Carter et al., 2009); these gender differences may relate to the social norms, and resulting cultural pressures, of women needing to look attractive and presentable (Harcourt & Rumsey, 2012). Lastly, individuals who rate their skin condition as more severe, have been found to more self-conscious and socially avoidant, while also have a lower self-esteem (Clark-Carter et al., 2009).

Although the existing literature is informative, it is limited in scope as (a) it outlines predictors of adjustment to visible differences in general and not specific to adult acne; (b) there is an omission of other potentially influential factors of psychological adjustment such as one's level of perceived stigma, educational status, and whether one's history of attaining a skin condition influences an individual's adjustment when it re-emerges. Furthermore, a review of the extant literature revealed a scarcity of studies investigating the effects of perceived stigma among acne patients. The Feelings of Stigmatization Questionnaires (FSQ; Ginsburg & Link, 1989) which was originally constructed to measure feelings of stigmatization among individuals with psoriasis and eczema, and was later adapted by Kent (1999) for patients with vitiligo, has also yet to be modified for individuals with acne.

2. Problem Statement

As dermatology patients complain that their psychological distress is extensive and often overlooked (Basra & Shahruck, 2009; Bor, Legg, & Papadopoulos, 1999; Butler et al., 2011), it is concerning that there is a paucity of research investigating factors associated with acne-related quality of life (Chren & Larsek, 1998; Clark-Carter et al., 2009).

3. Research Questions

What is the predictive capacity of perceived stigma, self-rated severity, location and previous history of acne, gender, age, relationship status and education for the quality of life of adult dermatology patients?

4. Purpose of the Study

This study aimed to compile a preliminary list of risk factors for psychosocial distress as a result of having acne in adulthood, while specifically examining the role of an under investigated variable - perceived stigma – due to the high levels of stigmatization reported by individuals with visible differences (Borah & Rankin, 2003).

5. Research Methods

5.1 Participants

The participants of this study (*N*=119; F/M: 81/38) constituted dermatology patients who were recruited from six private dermatology offices from both the center and suburbs of Athens, Greece. Their ages ranged from 18 to 56 (*M*= 26.37, *SD*=7.97). A convenience sampling technique was used as a recruitment strategy, where six certified dermatologists acquainted with the principal investigator were approached and asked to distribute 30 questionnaires each to their patients. The two inclusion criteria required was for patients to currently have acne and be 18 years or older; however, participants were excluded from the study if they reported a current diagnosis of mental illness. Of the 180 questionnaires distributed, 130 were returned completed.

5.2 Measures

5.2.2 General Background Questionnaire

A 9-item General Background Questionnaire was constructed to collect data regarding participants' age, gender, education, relationship status, location of acne, history of acne, self-rated severity of acne, doctor-rated severity of acne and current diagnosis of mental illness.

5.2.3 Feelings of Stigmatization Questionnaire (FSQ; Ginsburg & Link, 1989)

The FSQ, originally designed to measure feelings of perceived stigma in individuals with psoriasis and eczema, was adapted to measure feelings of stigmatization in individuals with acne. This self-report questionnaire consists of 32 items which reflect six factors of perceived stigma: anticipation of rejection; feelings of being flawed; sensitivity to the opinions of others; guilt and shame; positive attitudes; and secretiveness. The questionnaire is scored on a six-point scale from one (strongly agree) to six (strongly disagree). Scores range from 32 to 192, where a low score indicates a high level of perceived stigma. Items 9,11, 12,16, 17, 20, 23 and 25 are reverse scored. The six factors, described above, have been shown to attain good internal consistency scores ranging from .65 to .81, as measured by Cronbach's alpha coefficient (Griffiths et al., 2007). The culturally adapted Greek version of the total instrument also showed high internal consistency for the sample of this study (Chronbach's α =.85)

5.3.3 Acne-Specific Quality of Life Questionnaire (Acne-QOL; Botek et al., 2001)

The Acne-QoL, originally designed to measure health related quality of life among patients with facial acne, was modified to measure the quality of life in patients with multi-domain acne. This self-report questionnaire contains 19 questions which relate to four domains- self-perception, role-social, role-emotional and acne symptoms. The score for each domain is calculated by adding all items within the domain. The responses for each item ranges from 0 (extremely) to 6 (not at all). Higher scores for each domain reflect better quality of life. The questionnaire has been shown to attain good internal consistency scores ranging from α= .70 to α=.95, as measured by Cronbach's alpha coefficient (Botek et al., 2001). The culturally adapted Greek version of the four domains also showed high internal consistency for the sample of this study, ranging from α=.84 to α=.94

5.2 Procedure

5.2.1 Test modification and adaptation process

Firstly, the FSQ and Acne-QoL were modified in order to increase their relevance to the topic of the study. Specifically, for the FSQ the words "psoriasis/eczema" in each statement were replaced with "acne". Also, for the Acne-QOL, the words "face" or "facial" were removed as this study included location of acne as a predictor, consisting of both single and multi-domain acne.

Subsequently, both questionnaires were culturally adapted to the Greek language, by adhering to the World Health Organization guidelines for test adaptation (World Health Organization [WHO], 2012). The first step of test adaptation involved forward translation – that is, translating the English version of both questionnaires to the Greek language in a culturally sensitive manner as to ensure their conceptual equivalence. When the forward translations were completed, the principal investigator presented the first Greek versions of the questionnaires to a panel of experts, consisting of 3 graduate psychology students, who reviewed the translated instruments for conceptual, cultural and linguistic errors. Subsequently, the revised version of the forward translation was given to an independent translator for a back-translation, or translating the Greek forward translation back to English. The back translation was compared to the original English version of the questionnaires, and inconsistencies were noted and changed. The refined Greek translation of the questionnaires were then administered to a pilot group of 10 adults with acne for pre-testing, where group members were asked to identify any items that were confusing, particularly words or expressions that they did not understand.

The final translated versions of the questionnaires were given to six certified dermatologists who administered them to their patients. Once 35 questionnaires were collected, the reliability of the culturally adapted versions of the FSQ and ACNE-QoL was assessed by estimating the internal consistency of the scales via a Chronbach's alpha analysis. Chronbach's alpha for the total FSQ scale (α =.84) and the four domains of the culturally adapted Acne-QoL (from α=.84 to α=.94) were in the acceptable range.

5.2.2 Data Collection

Data collection took place during two months until the required sample size to attain significant effects was reached. This was calculated by Cohen's formula (50 + 8 × k, where k represents the number of predictor variables). Although the questionnaires were given to six certified dermatologists, their secretaries recruited the patients who fulfilled the inclusion criteria - being18 or older and currently having acne. All questionnaires were administered and completed in the waiting room. Therefore, the participants remained anonymous to both the dermatologists and the principal investigator of the study.

5.2.3 Data Analysis

Preliminary analyses were conducted to assess that there were no violations to the assumptions of normality, linearity, multicollinearity and homoscedasticity. As the data screening process revealed no such violations, three separate standard multiple regression analyses were conducted in order to assess the capacity of eight independent variables (perceived stigma, self-rated severity of acne, location of acne, previous history of acne, gender, age, relationship status and education) to predict three domains of acne related quality of life (self-perception, role social and role emotional).

6. Findings

6.1 Socio-Demographic Characteristics

The sample consisted of 119 participants, 38 men (31.9%) and 81 women (68.1%). Their ages ranged from 18 to 56 (*M*= 26.37, *SD*=7.97). Of the total sample, 26.1% were High school graduates, 49.6% had earned a Bachelor's degree, and 24.4% completed their Postgraduate education. Furthermore, approximately two-thirds of the participants were either single or divorced (67.2%), while the remaining one-third were either in a relationship or married. Chi-square tests further revealed an association between gender and education, with female participants having attained higher education levels than males χ^2 (2, N = 119) = 10.99, p < 0.01. An association was also found between gender and relationship status, where a higher percentage of males were single or divorced, χ^2 (1, N = 119) = 5.22, p < .05.

6.2 Dermatological Characteristics

On average, participants reported moderate levels of acne (*M*= 2.87, *SD*= .87). A one-way Anova revealed that there was an effect of gender on levels of self-rated severity of acne, *F* = (1,117) = 10.52, p < .01. Furthermore, approximately two-thirds of the participants reported single-domain acne, manifesting in either their face or trunk (64.7%), while the remaining participants reported multi-domain acne, manifesting both in their face and trunk (35.3%). The majority of participants reported a previous history of acne (84%), while the remaining 16% indicated no such history.

6.3 Perceived Stigma and Quality of Life Domains

Overall, participants reported moderate levels of perceived stigma (*M*=116.34, *SD*=19.58). They, also, reported good to very good self-perception ratings (*M*=20.34, *SD*=7.16), as measured by the first domain of Acne-QoL; good to very good role-social ratings (*M*=17.67, *SD*=6.21), as measured by the second domain of Acne-QoL; and good to very good role-emotional ratings (*M*=19.63, *SD*= 6.86), as measured by the third domain of Acne-QoL.

Additionally, a standard multiple regression analysis was conducted to assess the ability of eight independent variables (gender, age, education, relationship status, location of acne, self-rated severity of acne, history of acne and perceived stigma) to predict self-perception, the first domain of acne-specific quality of life. The eight independent variables explained 48.9% of the variance of self-perception, $R^2 = .489$, $F\ (8,110) = 13.17$, $p < .001$. Specifically, four of the independent variables contributed significantly to the prediction of self-perception: perceived stigma (b = .54, $p < .001$); self-rated severity of acne (b = -.25, $p < .01$); gender (b = -.19, $p < .05$); and age (b = .16, $p < .05$). This indicates that perceived stigma made the largest contribution to explaining self-perception scores, when the variance explained by all other independent variables in this model is controlled for. It can further be discerned that the variance uniquely explained by perceived stigma is 26%; the variance uniquely explained by self-rated severity of acne is 5%; the variance uniquely explained by gender is 3%; and the variance uniquely explained by age is 2%. The unstandardized coefficients further indicate that when the perceived stigma score is increased by one unit (indicating lower perceived stigma levels), and the rest of the explanatory variables are kept unchanged, the self-perception score is expected to increase by 0.20 units. Moreover, as the self-rated severity of acne is increased by one unit, indicating that the condition of acne is worse, and given that the rest of the explanatory variables are kept unchanged, the self-perception score is expected to decrease by 2.11 units. Furthermore, female patients are expected to have a self-perception score 2.90 units lower than male patients, given that the rest of the variables are kept unchanged. Finally, as age of the participant is increased by one year, and the rest of the explanatory variables are kept unchanged, the self-perception score is expected to increase by 0.15 units.

An additional standard multiple regression analysis was used to assess the ability of eight independent variables (gender, age, education, relationship status, location of acne, self-rated severity of acne, history of acne and perceived stigma) to predict role-social, the second domain of acne-specific quality of life. The eight independent variables explained 53.5% of the variance of role-social, $R^2 = .535$, $F\ (8,110) = 15.80$, $p < .001$. Specifically, three of the independent variables contributed significantly to the prediction of role-social: perceived stigma (b = .64, $p < .001$); self-rated severity of acne (b = -.24, $p < .01$); and history of acne (b = -.17, $p < .05$). This indicates that perceived stigma made the largest contribution to explaining role-social scores, when the variance explained by all other independent variables in this model is controlled for. It can further be discerned that the variance uniquely explained by perceived stigma is 36%; the variance uniquely explained by self-rated severity of acne is 5%; and the variance uniquely explained by history of acne is 3%. The unstandardized coefficients further indicate that when the perceived stigma score is increased by one unit (indicating lower perceived stigma levels), and the rest of the variables are kept unchanged, the role-social score is expected to increase by 0.20 units. Moreover, as the self-rated severity of acne is increased by one unit, indicating that the condition of acne is worse, and given that the rest of the explanatory variables are kept unchanged, the role social score is expected to decrease by 1.71 units. Finally, patients without previous history of acne are expected to have a role social score 2.90 units lower than patients with previous history of acne, given that the rest of the explanatory variables are kept unchanged.

Finally, a standard multiple regression analysis was conducted to assess the ability of eight independent variables (gender, age, education, relationship status, location of acne, self-rated severity of acne, history of acne and perceived stigma) to predict role-emotional, the third domain of acne-specific quality of life. The eight independent variables explained 52.5% of the variance of role-emotional, $R^2 = .525$, $F(8,110) = 15.17$, $p < .001$. Specifically, three of the independent variables contributed significantly to the prediction of role-social: perceived stigma (b = .57, $p < .001$); self-rated severity of acne (b = -.30, $p < .001$); and gender (b = - .19, $p < .05$). This indicates that perceived stigma makes the largest contribution to explaining role-emotional scores, when the variance explained by all other independent variables in this model is controlled for. It can further be discerned that the variance uniquely explained by perceived stigma is 30%; the variance uniquely explained by self-rated severity of acne is 8%; and the variance uniquely explained by gender is 3%. The unstandardized coefficients further indicate that when the perceived stigma score is increased by one unit (indicating lower perceived stigma levels), and the rest of the variables are kept unchanged, the role-emotional score is expected to increase by 0.20 units. Moreover, as the self-rated severity of acne is increased by one unit, indicating that the condition of acne is worse, and given that the rest of the explanatory variables are kept unchanged, the role-emotional score is expected to decrease by 2.41 units. Finally, female patients are expected to have a role-emotional score 2.75 units lower than male patients, given that the rest of the explanatory variables are kept unchanged.

7. Conclusions

The present study contributes to and extends a growing body of literature which investigates the predictors of quality of life in individuals with cutaneous pathologies (Papadopoulos & Walker, 2005; Harcourt & Rumsey, 2012), by providing preliminary evidence that adults who feel stigmatized are at risk for developing psychological distress as a result of having acne. Making the largest contribution to the regression model, the results of the study specifically suggest that perceived stigma negatively impacts acne-related quality of life. That is, when participants' scores of perceived stigma decreased (indicating higher perceived stigma levels), the self-perception, role social and role emotional scores decreased as well. Participants with higher levels of stigma were, therefore, more likely to indicate feeling unattractive and embarrassed about their acne; were more concerned about socializing and interacting with the opposite sex; while also felt upset for not looking presentable. In tandem with previous research which has highlighted that perceptions of stigmatization are common in individuals with visible differences (Borah & Rankin, 2003; Kent, 2005), participants in this study also reported feeling stigmatized as a result of having acne. The fact that, on average, the participants of this study reported lower (i.e. moderate) levels of perceived stigma may be attributed to the nature of their visible difference. That is, other studies on visible differences have focused on more pronounced appearance altering conditions leading to severe facial disfigurements (Borah & Rankin, 2003); skin conditions, such as acne, may create minor changes in appearance which, in turn, may elicit less negative reactions from others and feelings of stigmatization.

The aforementioned association can be interpreted in the light of Kent's (2002) cognitive - behavioural model, constructed to explain the effects of appearance altering medical condition on well-being. As he posits, afflicted individual utilize unhealthy coping strategies to deal with the activation of their anxiety schema which is triggered because of their anticipation or experience with stigma. That is, to deal with being stigmatized, participants in this study may have used avoidant coping strategies which are linked to poor adjustment, shame, social anxiety and other maladaptive cognitions and emotions. According to Papadopoulos and Walker (2005), avoidant coping strategies, such as the use of concealment, may be effective in the short-run but prevent an individual from facing the reality of their altered appearance. Bandura's (2002) social cognitive theory of mass communication provides an equally plausible explanation for the negative impact of perceived stigma on participants' QOL. As he states, the televised world contributes to a "symbolic modelling of stereotypes", where misconceptions about individuals with visible differences may arise as they are mainly portrayed in a derogatory and negative, and therefore, stigmatizing light. As the public accepts media portrayals of people as "the authentic state of human affairs" (Bandura, 2002, p.281), they learn to view and treat people with visible differences in a prejudicial manner. The implication for this with individuals afflicted with skin conditions, such as the participants in this study, is that they receive the message that their altered appearance constitutes an undesirable and shameful difference.

Furthermore, the risk factors of secondary importance to the participants of this study were the self-rated severity of acne, gender, age and not having a previous history of acne. The results specifically indicated that as participants' self-rated severity of acne increased (indicating that their skin was perceived to be worse), self-perception, role social and role emotional scores decreased. These results are consistent with previous findings (Clark-Carter et al., 2009; Harcourt & Rumsey, 2012), which demonstrated that the perceived severity of skin conditions is both highly associated with, while also predicts, poorer social outcomes and quality of life. Therefore, participants in this study who perceived their acne as worse may have been more self-conscious about their skin, developing many avoidant behaviours which could have affected their QOL.

Gender further emerged as a significant predictor of the first and third domains of acne-related quality of life. The results specifically indicated that female participants were more likely to have lower self-perception and role emotional scores than male participants. Therefore, female participants were more likely to feel unattractive, embarrassed and dissatisfied with their appearance due to their acne; they were also more likely to report feeling annoyed with having to spend time treating their face, while were more concerned with having medication and cover-up available at all time. These findings are consistent with previous literature which found that female participants are more self-conscious and embarrassed about their skin than males (Clark-Carter et al., 2009; Gawkrodger & Kellet, 1999). It has been suggested that these gender differences relate to the social and cultural pressures of women needing to look attractive and presentable (Clark-Carter et al.; 2009; Harcourt & Rumsey, 2012).

Participants' age and history of acne also emerged as significant predictors of the first and second domains of acne-related quality of life respectively. Specifically, the results indicated that as the age of the participant increased, the self-perception score increased as well. Rating their self-perception more highly indicated that the older adults of the sample felt less unattractive, self-conscious and dissatisfied with their appearance as a result of having acne. This is inconsistent with the findings of Chren's and Lasek's (1998) study, who found that their older participants, aged 30 and above, were more bothered about the appearance of their acne compared to the younger participants who were in their late teens. However, the finding that older participants in this study were less affected by their skin condition can be explained by recent research that has focused on age differences in appearance investment, where it has been found that "the importance attached to physical appearance tends to decrease with age" (Harcourt & Rumsey, 2012, p.146). By placing less emphasis on their looks, therefore, older participants of this study may have felt less threatened by their altered appearance as a result of having acne. Yet, the fact that participants' age was a significant predictor of QOL suggests that the adults of this sample could be at risk of developing psychological distress due to their acne, a skin condition which is usually associated with and comprises a more normative experience for adolescents (Papadopoulos & Walker, 2005).

In addition, the results of this study indicated that participants without a previous history of acne attained lower role social scores than those with a previous history of acne. This means that participants without a previous history of acne were more likely to indicate a concern about going out in public, socializing and meeting new people as well as interacting with the opposite sex as a result of their newly experienced skin condition. Although no previous literature investigating history of acne as a predictor of QOL was found, the results of this study could be explained by the process of desensitization which typically occurs with individuals that have episodic skin conditions (Kent & Thompson, 2001; Papadopoulos & Walker, 2005). That is, participants with previous episodes of acne may have been given the opportunity to get accustomed and develop healthier coping strategies to deal with the alteration of their skin, resulting in their higher acne-related quality of life levels. The fact that the majority of adult participants in this study did have a history of acne could also explain this study's findings that older participants attained better QOL scores. That is, it could be hypothesized that the older participants had more previous episodes of acne which could be have contributed to their increased desensitisation of and better adjustment to their altered appearance. A future research study could collect more background information regarding the number and length of participants' previous episodes of acne as to further investigate whether there is an interaction effect between age and history of acne in relation to levels of QOL.

In contrast, the variables of educational status, relationship status and location of acne did not appear to significantly contribute to participants' Acne-QoL, which is inconsistent with previous findings in regards to the latter two variables (Bor et al., 1999; Harcourt & Rumsey, 2012). In terms of relationship status, perhaps having a satisfying and supportive social network was more important in buffering participants' psychological distress, rather than merely being partnered. Also, being in a relationship does not necessarily guarantee an increase of support, as intimate relationship may also be a source of anxiety for individuals with skin conditions (Papadopoulos & Walker, 2005). It may have also been more meaningful to investigate whether participants' acne was visible or not and if this affected their Acne-QoL levels, as it has been found that the visual salience of people's acne, irrespective of its location on the body, increases their vulnerability to psychological distress (Finlay & Motley, 1989).

As an adjunct to this study, future researchers could also add other psychosocial variables to their regression model, such as self-esteem and coping styles, in order to attempt to explain the remaining variance of Acne-QoL. Also, following the footsteps of Hrehorow, Mutusiak, Reich, Salomon, & Szepietowski (2012) recent research, other studies could attempt to discern the most prominent aspects of the stigmatization experience in individuals with skin conditions, in order to gain a better understanding and create more appropriate interventions addressing the nature of their stigmatization. To this end, future researchers could assess which of the six factors of the FSQ (i.e., anticipation of rejection, feelings of being flawed, sensitivity to the opinions of others, guilt and shame, positive attitudes and secretiveness), best predict acne-related QOL. As the cross-sectional design of this study also limits the findings to a certain point of time in participants' lives, more longitudinal research is required to assess people's adjustment to this episodic and unpredictable skin condition which is thought to contribute to a “fluid identity” (Murray & Rhodes, 2005).

Although it is important to take into account the individual differences of adults with acne, the preliminary list of risk factors of psychological distress for afflicted individuals compiled in this study could be clinically useful in providing red flags for dermatologists treating adults with acne. That is, by being informed of the factors which place adults with acne more at risk of being handicapped by their skin condition, dermatologists can provide more holistic treatment by referring them to a mental health professional when needed. The introduction of QOL measures to dermatologists in this study was also helpful in increasing their awareness of the possible uses of such instruments in clinical practice.

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