

Perceptions and psychosocial judgement of patients with acne vulgaris

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ABSTRACT

Introduction: People often judge others and make decisions based on the physical appearance of an individual. This study assesses the perception and psychosocial judgment on patients with acne vulgaris compared to those with clear skin.

Methods: This survey was conducted in Penang from October 2016 to June 2017. Respondents were those who were ≥ 18 years. The survey was conducted using a questionnaire which consists of three randomly selected facial pictures, with at least one acne skin and one clear skin picture.

Results: A total of 435 respondents were recruited. Two third of the respondents (76%) suffered or had suffered from acne. The skin was the first thing noticed by 76.1% respondents when viewing pictures with acne compared with 24.8% with clear skin ($p < 0.05$). People with acne were perceived as being unattractive, sad, lonely, distant, unhealthy, disheveled and shy as compared to people with clear skin ($p < 0.05$). People with clear skin were perceived to be healthier, confident, happy, attractive, successful and intelligent ($p < 0.05$). Respondents were more willing to engage socially with people with clear skin rather than those with acne skin. A significantly higher proportion of respondents were likely to hire or vote for those with clear skin as compared to acne skin. People with acne were also perceived to have a lower educational level and poorer leadership quality.

Conclusion: The results of this survey showed that there were significantly negative perception and psychological judgement toward individuals with acne vulgaris. These negative impacts may affect social life of the acne sufferers, their prospect of employment and career opportunities.

KEY WORDS:

Acne, perception, psychosocial judgement

INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of pilosebaceous unit encompassing comedones, papules, pustules, nodules and even permanent scars.¹ Mechanisms responsible for the development of acne include androgen-induced seborrhoea, altered keratinisation process, bacterial

proliferation of *Propionibacterium acnes* and inflammation.^{1,2} Acne vulgaris is most commonly encountered among adolescents.³ The prevalence of facial acne among adolescents in Malaysia was 67.5%.⁴

Acne is not only physically scarring, but also causes psychological and emotional distress. In addition, the psychosocial and emotional problems experienced by individuals with acne can be worse than those experienced by individuals with other limiting long-standing illness, namely asthma, epilepsy and arthritis.⁵ Acne can also produce negative emotions such as anger, embarrassment and humiliation.⁶ Skin is one of the most aesthetic organs of the body. People often judge others and make decisions based on an individual's physical appearance.⁷ Clear, healthy skin that is free of acne contributes to our positive perceptions toward them and vice versa. Teenagers with acne were usually perceived as being shy, nerdy, stressed and lonely.⁸

We hypothesized that the presence of acne would elicit negative impression and perceptions towards them. Therefore, our survey was to assess the perception and psychosocial judgment among the public on patients with acne skin as compared to clear skin. Our secondary objective was to evaluate the experiences of having acne among respondents.

MATERIALS AND METHODS

This survey was conducted in Hospital Penang between October 2016 and June 2017. Inclusion criteria were Malaysians aged 18 and above who were able to read and understand English or Malay. Respondents answered the survey based on three randomly selected pictures, with pictures of a combination of at least one clear and one acne person. The combinations (of pictures) consisted of people of different races and gender to reduce bias. In an attempt not to suggest or lead the responses, the term acne was not specifically stated to respondents during the survey.

A total of 12 pictures were used in this survey. Six patients with moderate acne (male and female from each of Malays, Chinese and Indians) were chosen from Dermatology Clinic Hospital Penang and photographed in a standardised manner. Comprehensive acne severity scale (CASS) was used to define moderate acne. Moderate acne is defined as half of the affected area is involved with numerous comedones,

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papules and pustules.⁹ The facial acne pictures were then digitally modified using Photoshop Adobe CS6 to produce another six clear skin pictures in order to create total 12 pictures (Figure 1).

The first questionnaire was adapted from a survey developed by members of the Global Alliance to Improve Outcomes in Acne group.¹⁰ The permission to use the questionnaire was obtained from the authors. The second questionnaire was adapted from the study on Psychosocial judgements and perceptions of adolescents with acne vulgaris: A blinded, controlled comparison of adult and peer evaluations.⁸ Our teams evaluated the questionnaires for its content and face validity. The questionnaire was translated into the Malay language with forward and backward translation. A pilot study (n=12) was carried out for test-retest and inter-rater reliabilities. Cohen's κ was run to study the agreement between English and Malay version.¹¹ The results showed that there was a high agreement between the two versions ($\kappa=0.824$, $p=0.004$). Sample size estimation was calculated using two population proportions formula.¹² Total respondents needed was 435. Each respondent answered three set of questionnaires to generate total of 1305 samples. The Type I error probability associated with this test of this null hypothesis was 0.05. Pearson Chi-square was used to evaluate this null hypothesis. All analysis was carried out using SPSS version 23.

RESULTS

Demographic of the respondents

A total of 435 respondents were recruited in this study. Youngest age of the respondents was 18 years old while the oldest was 71 years old. The mean age of the respondents was 35.5 (SD 13.0). There were 50.6% male and 49.4% female respondents in this study. Majority of the respondents were Malays (57.2 %), followed by Chinese (28.7%), Indians (13.1 %) and others (0.9%). In regard to education level, 70.1% of the respondents had tertiary education, 28.8 % had attended secondary school whereas 1.8% of respondents had attended primary school. Regarding their occupations, our respondents ranged from managers and professionals (29.9%), technician and associate professionals (22.1%), students (15.4%), housewives (5.3%) and retirees (4.6%). In all 331 respondents (76%) suffered or had suffered from acne whereas 104 respondents (24%) never had acne. Among those who had acne, 71% of respondents reported had acne scar.

First Impressions of others

When viewing a person with acne, almost two-third (76.1%) of the respondents focused on the skin followed by the eyes (12.0%), nose (2.7%) and mouth (2.0%). When viewing a person with clear skin, almost half (43.1%) of respondent focused on the eyes. This is followed by the skin (24.8%), hair (22.8%), nose (4.6%) and mouth (4.6%). The differences in all facial features between the two groups were statistically significant ($p<0.05$) (Figure 2). The association between first impression and acne status of the respondents was then assessed. Interestingly, our study found that more respondents with no acne noticed the skin as the first thing for acne skin as compared to respondents with acne (80.9% vs 74.1%, $p<0.05$). Individuals with acne were perceived to be

older than his or her age while clear skin individuals were perceived to be younger than their age ($p<0.05$).

Emotional and Personal Attributes

People with clear skin were perceived to be healthier, confident, happy, attractive, successful, intelligent, cool, helpful, fun, reliable and trustworthy as compared to those with acne skin. ($p<0.05$). Attributes for honest, athletic, sexy were not significantly different between the two groups. People with acne were perceived as being unattractive, sad, lonely, distant, unhealthy, dishevelled, shy, insecure, boring and nerdy as compared to people with clear skin ($p<0.05$). There was no significant difference for dishonest, suspicious, unreliable, rude and dangerous (Table I). Our study found that acne status of the respondents did not influence how the respondents perceived acne skin or clear skin for personal attributes.

Social Aspects

The presence of acne was seen to have an impact on what individuals would do on a typical weekend. They were perceived to be more likely to spend time with only a few close friends as opposed to individuals with clear skin (42.5 vs 36.3%, $p<0.05$). Individuals with clear skin were perceived to spend time more in a large group of friend (38.7% vs 25.0%, $p<0.05$). More respondents felt that individuals with acne skin were more likely to stay at home by themselves (15.8% vs 6.6%, $p<0.05$). Interestingly, acne also influenced how people reacted interpersonally and socially. Respondents were more likely to add people with clear skin as friends in Facebook's or follow their Twitter than acne skin ($p<0.05$). Respondents were more likely to introduce individuals with clear skin to close friends and family as compared to acne skin ($p<0.05$). Individuals with clear skin were also perceived to be able to give a better career ($p<0.05$), dating and relationship advice ($p=0.015$) than those with acne. (Figure 3) The result showed that clear skin makes people feel more comfortable as compared to acne skin (83.0% vs 54.3 %, $p<0.05$). Having acne skin was perceived to be stressed up when compared to clear skin (65.1% vs 23.3%, $p<0.05$).

Future Prospects

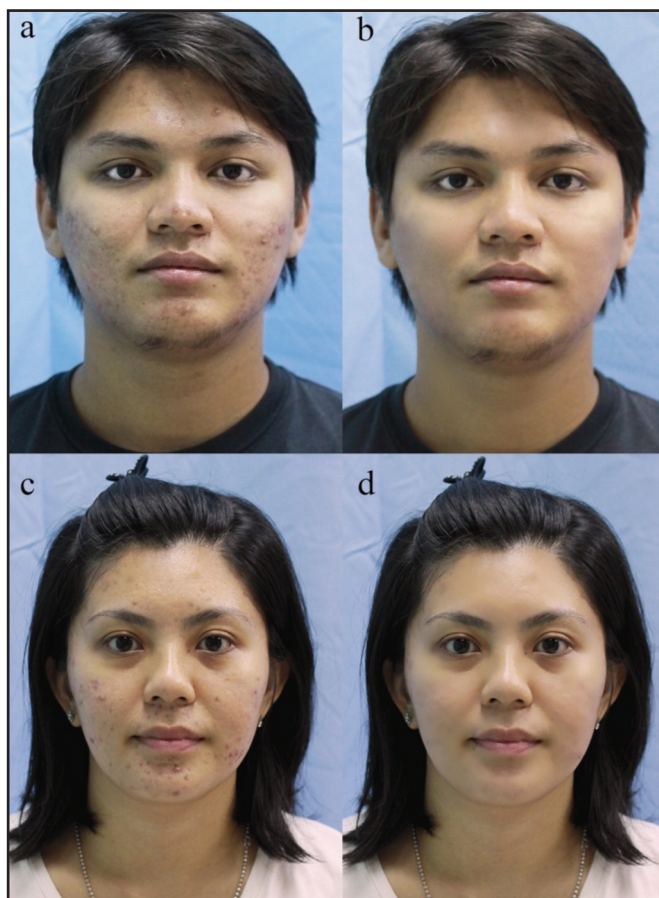
More respondent perceived individuals with clear skin had attended university as compared with acne skin. (60.5% vs 50.1%, $p<0.05$). Hence, acne had a negative perception of an individual's education level. The presence of acne was noted to cause negative impact during a job interview. When asked on the willingness to hire an individual based on the picture, a higher proportion of respondents answered likely to hire those with clear skin as compared to acne skin (88.6% vs 73.5%, $p<0.05$). Similarly, more respondents were willing to vote for those with clear skin in an election for a post (74.3% vs 51.3%, $p<0.05$) (Figure 4). Individuals with acne skin were perceived as a follower while those with clear skin as a leader ($p<0.05$). Most of the respondents perceived that a person with clear skin has a promising future than those with acne skin; but the difference was not significant (89.8% vs 85.2%, $p=0.068$). Having acne or clear skin did not influence the respondents' perception of whether the individuals were happy with their life ($p=0.187$) and whether their parents are proud of them ($p=0.230$).

Table I: Traits of individuals based on picture of acne skin and digitally created clear skin

Traits*	Positive traits			Negative traits			
	Acne skin (%) n= 657	Clear skin (%) n=648	P value**	Traits	Acne skin (%) n=657	Clear skin (%) n=648	P value**
Healthy	13.5	47.5	<0.05	Unattractive	24.4	4.2	<0.05
Confident	18.0	46.1	<0.05	Sad	21.2	4.2	<0.05
Happy	22.2	47.1	<0.05	Lonely	23.3	6.5	<0.05
Attractive	4.1	25.6	<0.05	Distant	22.5	8.2	<0.05
Successful	17.6	35.6	<0.05	Unhealthy	17.2	3.1	<0.05
Intelligent	18.3	29.9	<0.05	Dishevelled	17.0	3.4	<0.05
Cool	13.2	24.4	<0.05	Shy	31.4	18.4	<0.05
Helpful	19.3	28.4	<0.05	Boring	17.2	5.7	<0.05
Fun	11.7	20.7	<0.05	Insecure	19.9	9.1	<0.05
Reliable	18.1	25.9	<0.05	Nerdy	12.8	4.5	<0.05
Trustworthy	12.9	20.1	<0.05	Sympathetic	11.6	3.4	<0.05
Creative	6.2	12.5	<0.05	Clumsy	8.8	2.2	<0.05
Outspoken	6.5	12.2	<0.05	Mean	2.4	0.3	<0.05
Sexy	0.9	2.0	0.099	Dangerous	3.2	1.7	0.080
Honest	16.9	19.0	0.326	Dishonest	2.4	1.4	0.168
Athletic	13.7	13.4	0.886	Suspicious	7.3	5.6	0.198
				Unreliable	4.4	3.1	0.207
				Rude	2.4	1.7	0.349

* Respondents were able to choose all that applied.

** Pearson Chi-Square test



*Permission obtained for images publication

Fig. 1: Facial pictures of an individual with acne skin (a & c) and digitally created clear skin (b & d).

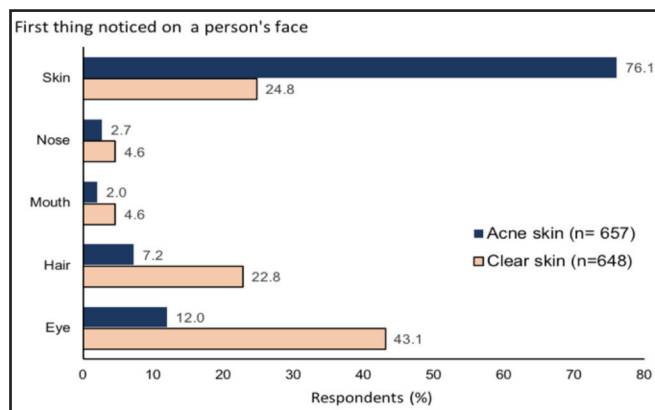


Fig. 2: First thing noticed about a person's face when viewing pictures with acne skin and digitally created clear skin (P<0.05) for each facial features.

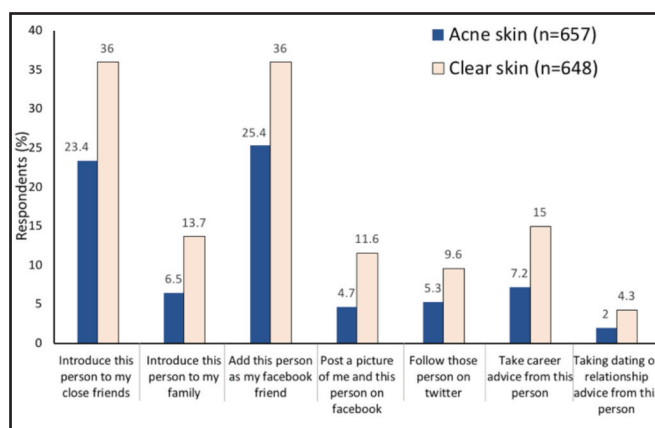


Fig. 3: Perception of social aspects for acne skin vs clear skin (p<0.05 for all groups).

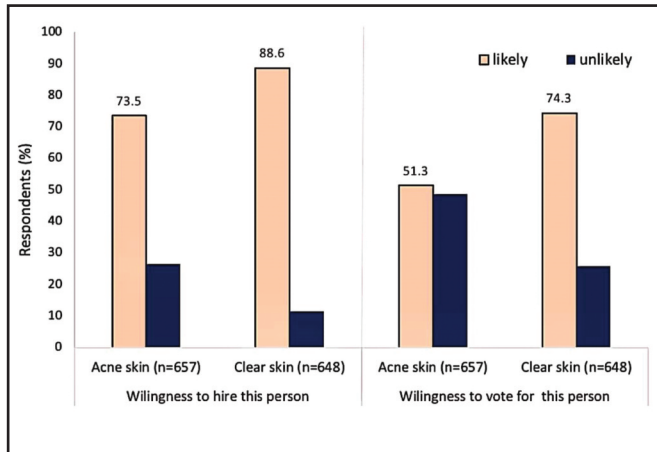


Fig. 4: Willingness to hire a person with acne skin and clear skin during a job interview and willingness to vote for a person with acne skin and clear skin ($P < 0.05$ for both groups).

Skill sets

Perception of skills was assessed in our study. Interestingly, skills requiring performance and showmanship such as singing ($p < 0.05$), public speaking ($p = 0.008$) and playing musical instruments ($p = 0.016$) were statistically significant different and higher between clear skin vs acne skin individuals. Other skills were not significantly different between the two groups such as writing ($p = 0.971$), mathematics ($p = 0.608$), sports ($p = 0.479$), technology ($p = 0.195$), video games ($p = 0.489$), cooking ($p = 0.832$) and cleaning ($p = 0.665$). Of note, more respondents perceived no skills in acne skin than clear skin (9.4% vs 4.6%, $p < 0.05$).

Habits that needed improvement

Skin care was seen to be the most important habit that needed improvement among individuals with acne as compared to clear skin (79.3% vs 13.3%, $p < 0.05$). While for those with clear skin, most respondents chose exercise (40.4%) and sleeping (25.6%), only 13.3% chose skin care.

Experiences of Acne Among Respondents

A total of 165 (38.1%) of respondents had acne then, 166 (37.9%) had had acne previously, and 104 (24.0%) never had acne. Among those respondents who had acne ($n = 331$), 71.0% has acne scars and 67.4% were embarrassed by their acne.

When asked how they deal with acne, 74.0% of the respondents would have popped or picked it. There were 57.4% of the respondents who applied over-the-counter acne medication and less than half of the respondents (48.3%) used prescription medication. Of note, there were a high proportion of the respondents who applied hot water or steam (18.1%) or used another substance not intended for their acne (15.1%) and 7.6% of them did nothing about their acne. Majority of them used 3-4 acne treatments or products (30.2%) at one time. Surprisingly, at least 11.5% of them did not use any treatment or products at all, and 4.2% of them used more than ten types of treatment simultaneously.

Reasons that made the respondents putting off their acne treatment were because respondent thought acne was not

severe enough (35.3%) followed by afraid of side effects of acne treatment (22.1%), acne treatment used in the past have not worked (19.3%) and expensive acne treatment (13.3%). Besides, 6.3% of the respondents thought acne treatment does not work and 5.5% of them thought acne does not need treatment.

Less than half of the respondents (46.8%) had sought treatment from a doctor for their acne. There is a significant association between ethnicity and respondent who sought treatment from a doctor for acne. Fewer Malays (41.1%) were asking the treatment from a doctor for their acne problems compared to Chinese (53.3%) and Indians (54.3%) ($p = 0.031$). There were a higher proportion of female respondents (50.0%) who sought treatment from a doctor for their acne than male respondents (43.6%). However, the difference was not significant ($p = 0.271$). There is no association between age, marital status, occupation, income, education level with the experience of seeking treatment from doctor acne.

DISCUSSION

Acne imparts emotional and psychological burden on patients that may be far worse than the physical impact. Acne disrupts the development of self-identity, and often leads to anxiety, anger and decreased self-confidence especially among the adolescent.^{14,15} Depression was reported two to three times more prevalent in acne patients than in the general population.⁷ Several studies have shown that acne is at increased risk of suicide ideation and attempts.¹⁶⁻¹⁹ Hence, mental health in acne must be greatly emphasized. A study by Yap FB in Malaysia showed that quality of life impairment correlated poorly with acne severity.²⁰ Thus, quality of life should not be judged based on severity.

Appearance is the first piece of information available to others. Appearance has much influence, and can powerfully influence perceivers' subsequent judgement.²¹ It is crucial to know how acne generates its effects on one's first impression. Two-third of respondents (76%) noticed skin first when viewing the acne skin pictures. In contrast, eyes were the first thing noticed in clear skin. Our results were more significant than the similar survey by Ritvo E et al. and Dréno B et al.^{8,10} Hence, we can conclude that acne can influence one's first impression. Surprisingly, our study found that respondents without acne would be more aware of acne in others. This may be due to reducing acceptance or empathy as they have not had experience of having acne.

People with acne were perceived as unattractive, sad, lonely, distant, unhealthy and dishevelled. In contrast, the top five positive personalities perceived in clear skin were healthy, confident, happy, attractive and successful. These results are consistent with the previous studies done with the same methodology.^{8,10} Perception of one's health is most significant as 47.5% of respondents perceived clear skin was healthy as compared to acned skin (13.5%). Most significant negative perception for acne skin was shy and unattractive. Our study showed a 20.2% reduction of perception of attractiveness in acne skin compared to clear skin. Patients with facial acne felt that they were unattractive, reluctant to engage in

dating, and were socially isolated.^{22,23} A diminished perception of attractiveness can be detrimental to one's social life. Acne had the most substantial adverse impact on finding a partner among seven facial disfigurements.²⁴

Youngsters nowadays are so preoccupied with social media such as Facebook, Twitter, and Instagram. Sadly, the perfectionism of the look is being advocated via social media especially among millennials. Our study significantly showed that respondents were more likely to add people with clear skin as friends in Facebook or follow their Twitter as compared to people with acne skin. Furthermore, acne skin was also significantly perceived as shy, boring, nerdy and insecure whereas clear skin was perceived as fun, creative, cool and helpful in our study. This will undoubtedly translate into a unhappy outcome for those youngsters who has acne in the social aspect.

Acne is known to be associated with decreased performance in work and school.¹⁵ Of note, bad skin can reduce the chances of obtaining a job, and attractive applicants were more likely to be employed.^{7,25} The unemployment rate is significantly higher among acned patients.²⁶ Interviewers including experienced managers rated applicants with scars and blemishes lower than applicants with good skin during a face to face interviews.²⁷ Our study showed that respondents were less willing to hire those with acne skin. Acne skin was also perceived to have a lower educational level. Similarly, respondents were more reluctant to vote for those with acne skin in an election for a post. These results are parallel to previous studies.^{8,10} Thus, the negative impacts of acne may translate into difficulty in one's career in the future.

In our study, 76 % of the respondents suffered from acne. Two-third of the respondents (67.4%) acknowledged that acne had been a source of embarrassment. Of note, less than half of the respondents (46.8 %) had taken the initiative to seek doctors for consultation for their acne. There is a need to look into the reasons why people are not seeking treatment for their acne. A Malaysian study showed a lack of awareness of the acne treatment was one of the reason.²⁸

Acne scar was a common finding among our respondents (75%). Acne scars can be a source of frustration and are also perceived negatively by society.¹⁰ A delay in starting appropriate treatment will result in scarring and post inflammation hyperpigmentation.²⁹ Acne scar and post inflammation hyperpigmentation are also known to impair one's quality of life.^{30,31} Acne scar can be due to inappropriate treatment such as picking of the acne.³² There were as many as 74% of the respondents with popped acne or picked their acne.

Many of the respondents had the wrong perception of acne treatment. Up to 22% of respondents stopped their acne treatment because of fear possible side effects of the treatment. This is partly due to clinicians' perceptions of the irritation potential of topical retinoids can limit their use in practice.¹ A large scale study reported that dermatologists only prescribed retinoids for just 58.8% and non-dermatologists prescribed them for only 32.4% of cases.³³ The evidence suggests patients who are more adherent to

treatment have a better quality of life.³⁴ A study in Sarawak showed a positive correlation between quality of life and adherence to treatment.³⁵ The public should be educated acne can be treated early in order to reduce all the psychosocial impact.

LIMITATION

Ours is a single centre and hospital-based study. Language barrier is another limitation. Only those who could communicate and read in either English or Bahasa Malaysia were screened for the study.

CONCLUSION

The results of this survey showed there was a significant negative perception and psychological judgement toward individuals with acne vulgaris. They were often perceived to be unattractive, unhealthy, lonely, shy, insecure, to have a lower educational level, poorer leadership quality and socially isolated. These negative factors may also affect the prospect of employment and career opportunity of the acne sufferers. This is not only due to their lower self-esteem and performance but also due to a negative perception among interviewers or managers and thus less willing to hire candidates with acne skin.

This survey also showed that most individuals with acne did not seek treatment and many ended up having scars. We would recommend more awareness and counselling programs to educate adolescents and their parents regarding acne, it is a potential physical and psychosocial complication with a negative impact.

ETHICAL APPROVAL

This study was registered with the National Medical Research Registry (NMRR-16-1241-31508). Ethical approval for the study was obtained from the Medical Research and Ethics Committee, Ministry of Health, Malaysia.

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