

ADOLESCENTS AND EARLY ADULTS WITH ACNE VULGARIS: A SCOPING REVIEW ON PSYCHOLOGICAL AND PSYCHOSOCIAL IMPACTS AND QUALITY OF LIFE

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Abstract

Introduction: Acne vulgaris (acne) is one of the main reasons adolescents and early adults visit dermatology clinics. Several studies have found serious non-physiological effects of acne on adolescents and early adults. **Objective:** This scoping review aims to provide a comprehensive overview of the existing literature on the impact of acne on psychological, psychosocial, and quality of life aspects among adolescents and early adults. **Methods:** The scoping review was enforced based on Arskey and O'Malley's framework. A structured article search was performed on three databases, namely CINAHL Plus with Full-Text, Scopus, and ScienceDirect. Search words were determined based on elements of population, concept, and context. Article selection and reporting were enforced following the PRISMA-ScR pathway and based on inclusion and exclusion criteria. **Results:** This study analyzed thirteen articles (ten primary research articles and three literature study articles) which revealed that adolescents and early adults with acne could experience psychological and psychosocial problems as well as decreased quality of life. **Discussion:** The emergence of psychological and psychosocial impacts of acne was related to one another and could be a predictor of a decrease in the quality of life among adolescents and early adults with acne. Health professionals need to understand the needs of adolescents and early adults regarding the physiological and psychological management of acne.

Keywords: Psychological impact, psychosocial impact, early adulthood, acne, quality of life.

INTRODUCTION

Acne vulgaris (hereinafter referred to as acne) is an inflammatory skin condition that most often appears on the face (but can also appear on the chest, shoulders and upper back). It often occurs due to blockage of the pilosebaceous glands in the skin, increased sebum production, changes in keratinization, and increased colonization of *Cutibacterium acnes* (Patel & Cohen, 2021). Several studies found that this disease was experienced by around 85% of the population aged 12-25 years (Heng & Chew, 2020; Natsuaki & Yates, 2021; Patel & Cohen, 2021; Stamu-O'Brien et al., 2021). It was known to be closely related to an increase in sebum production (Bhate & Williams, 2013) and hormonal changes during puberty (Patel & Cohen, 2021).

A number of studies revealed that acne did not only cause physiological discomfort such as itching and pain on the skin, but acne also psychological and psychosocial consequences, even disrupting the quality of life, due to the decreased physical appearance experienced by sufferers (Stamu-O'Brien et al., 2021). Acne could affect the emotional well-being of adolescents and early adults, could lead to mood disorders of varying severity, and become a barrier to social interactions (Kostecka et al., 2022). In a previous study, it was found that recurrence of acne among adolescents and early adults was associated with impaired quality of life and decreased productivity/absenteeism (Dreno et al., 2019). In extreme cases, acne could cause serious consequences such as severe depression and suicide (Yang et al., 2014). Therefore, the psychological and emotional implications of acne among adolescents and early adults must be considered in the treatment of acne.

This scoping review aims to provide a comprehensive overview of the existing literature on the impact of acne on psychological, psychosocial, and quality of life aspects among adolescents and early adults.

METHODS

This scoping review was conducted based on Arskey and O'Malley's five-stage framework, namely (1) identifying research questions, (2) identifying relevant studies, (3) selecting studies, (4) mapping data, and (5) compiling, summarizing, and reporting results (Aromataris & Munn, 2020).

Identification of Research Questions

The initial question posed in this study was "is there anxiety among adolescents and early adults with acne?" Then since the articles found in the search had other variables studied such as quality of life and psychological and psychosocial problems besides anxiety, we developed the research question in this study to be "are there any psychological and psychosocial impacts experienced by adolescents and early adults with acne?" and "how is the quality of life of adolescents and early adults with acne?"

Identification of Relevant Studies

Article searches were performed in a structured manner through three databases, namely CINAHL Plus with Full-Text, Scopus, and ScienceDirect. Search words were determined based on Population, Concept, and Context (PCC) elements, with the population of "adolescents or teenagers or early adults or teen or youth", and the concepts of "acne" and "anxiety", and we did

not specify time or location as the study context. The inclusion criteria enforced in this study included: (1) articles discussing quality of life and the psychological and psychosocial impacts caused by acne among adolescents and early adults, (2) articles published from 2013-2023, and (3) articles that were written in English. The exclusion criteria set included the psychological problems experienced by adolescents and early adults in the study as a predisposing factor for acne, not as a result of acne.

Article Selection

The article selection process followed the Preferred Reporting of Items for Systematic Reviews and Meta-Analyses Extension for Scoping Review (PRISMA-ScR) as described in chart 1. The article search process yielded 465 articles. A review of the titles and abstracts revealed a large number of articles that were irrelevant to the study objective. Of the fifteen available full texts that met the PCC elements in this study, only thirteen articles met the inclusion and exclusion criteria previously set, which were deserved further analysis.

Data Mapping

The first step we took in the data mapping process was to make a summary table of the characteristics and research results contained in each article (Table 1). This table is filled with the author's name and year of publication, location, objective, design, samples, and study findings. The next step was to group the data based on the themes obtained in the analysis process for all selected articles (Table 2).

Compilation of Summaries and Reporting of Findings

The final stage of this scoping review was to conduct a discussion of the themes obtained in accordance with the theoretical concepts and relevant research results and to prepare a report according to the specified outline.

RESULTS

Characteristics of Articles and Research Samples

This scoping review analyzed thirteen articles of quantitative researches (10 articles) and literature reviews (3 articles) which were published in 2013 to 2023. Table 1 revealed that five out of ten

quantitative research articles applied a cross-sectional approach and five other quantitative studies applied an online survey approach (1 article), prospective, cross-sectional, pre-structured, questionnaire-based study (1 article), prospective, non-randomized, open-label study (1 article), study with data collection using a questionnaire (1 article), and two-group comparative study (1 article). Three studies were conducted in Pakistan and Turkey, two studies were conducted in the United States, and one study each was conducted in Poland, France, Nigeria, China and India.

Tables 1 and 2 showed that all researches were conducted among male and female respondents. Seven studies were conducted among respondents in the adolescent and early adult age groups, five studies were conducted among respondents in the adolescent age group, and one study was conducted among respondents in the early adult age group.

Impact of Acne on Adolescents and Early Adults

The results of data analysis of the thirteen articles revealed that there were three themes found in this scoping review, namely psychological impact, psychosocial impact, and decreased quality of life among adolescents and early adults with acne (Table 2).

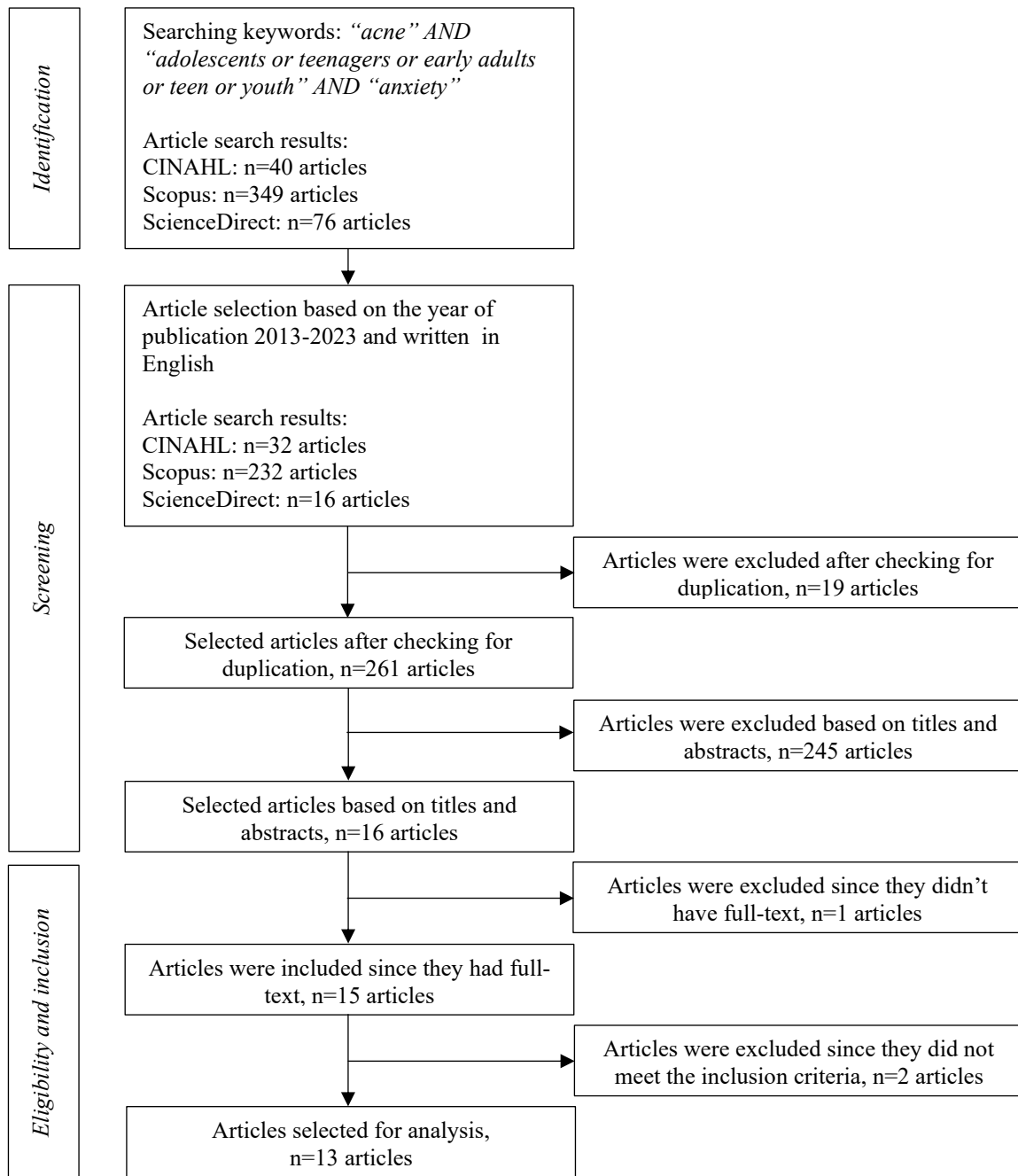


Chart 1. Flow of Article Selection

Table 1. Summary of Selected Articles

Author, Year	Location	Objective	Study Design	Samples	Study Findings
(Kostecka et al., 2022)	Poland	To assess the impact of acne on the daily life and well-being of people aged 15-30 years.	Data were collected using a questionnaire. Research design was not disclosed.	948 respondents on facebook and Instagram and 381 patients at Dermatology Clinics in Lublin, Kielce, and Rzeszów, South East Poland. Age: 15-30 years.	The results of this study indicated that acne on the face was a problem for 81% of respondents. The results of this study also revealed that 57% of female respondents and 22.5% of male respondents experienced moderate level of anxiety, and 24% of female respondents and 22% of male respondents experienced moderate level of depression.
(Ghayas et al., 2022)	Pakistan	To identify the relationship between quality of life, depression, anxiety, and self-esteem among patients with acne.	A cross-sectional study.	200 early adults with acne. Age: 21-26 years.	The results of this study indicated that there was a positive significant relationship between quality of life and self-esteem ($r=0.87$ $p<0.001$) and depression and anxiety ($r=0.79$ $p<0.001$). The results of this study also showed a negatively significant relationship between quality of life and depression ($r=-0.85$ $p<0.001$), quality of life and anxiety ($r=-0.67$ $p<0.001$), depression and self-esteem ($r=-0.67$ $p<0.001$), depression and self-esteem ($r=-0.86$ $p<0.001$), and also anxiety and self-esteem ($r=-0.80$ $p<0.001$).
(Stamu-O'Brien et al., 2021)	United States	To explain the impact of acne on the psychological aspects of adolescents and early adults.	A literature review.	Study results from January 2001 to June 2020.	Acne was known to have a psychological impact in the form of stress, type D personality, social phobia, fear, anxiety, depression, suicidal thoughts/attempts, social or even sexual dysfunction, reduced job opportunities, and stigmatization.
(Natsuaki & Yates, 2021)	United States	To reveal empirical evidence about the nature and significance of the effect of acne on adolescent mental health.	A literature review.	Results of previous studies.	The results of this study revealed that acne could damage self-esteem, cause psychopathology, and affect mental health among adolescents. Teenagers with acne often experienced stigmatization and were judged harshly by others, including being ridiculed, bullied by their peers, and considered as nerdy, stressed, and lonely. In addition, adolescents with acne had difficulty in making friendships, dating, finding a life partner, and getting along well with schoolmates.
(Mehreen et al., 2021)	Pakistan	To compare the level of quality of life and psychopathological symptoms between individuals	A cross-sectional study.	100 early adults with acne from DHQ Hospital of	The results of this study indicated that acne had an effect on the levels of quality of life, depression, and anxiety ($p<0.05$). In addition, it was found that the

		with acne and individuals without acne.		Sargodha, DHQ Mandi of Bahuddin, and Bilal Medicare of Sargodha; and 100 early adults without acne from Sargodha University. Age: 20-25 years.	level of quality of life was significantly higher among respondents without acne while depression and anxiety levels were significantly higher among respondents with acne compared to respondents without acne.
(Turan et al., 2020)	Turkey	To find out significant emotional disturbances among adolescents with acne.	A cross-sectional study.	96 adolescents with acne (patients at the Department of Dermatology Clinic at Dokuz Eylul University Hospital, Izmir, Turkey) and 100 adolescents in the control group (non-patients). Age: 12-17 years.	The results of this study indicated that adolescents with acne exhibited poor emotional regulation problems and psychopathological symptoms compared to adolescents in the control group. Furthermore, it was found that the severity of acne had a significant relationship with emotional symptoms and pro-social behavior. In addition, maladaptive emotional regulation in patients with acne was associated with higher psychopathological symptoms and lower belief in the efficacy of treatment.
(Haroon et al., 2019)	Pakistan	To determine the prevalence of depression and quality of life status among early people with acne.	A cross-sectional study.	74 early adults at the Outpatient Clinic of Dermatology Department of Ayub Teaching Hospital, Abbottabad, Pakistan. Age: 14-28 years.	The results of this study indicated that there was an effect of acne on the quality of life of respondents at the low, moderate, high, and very high levels (31.1%; 31.1%, 24.3%; 1.4%, respectively). In addition, it was known that there was an effect of acne on depression experienced by respondents at a minimal, mild, moderate, and moderate-severe level (23%; 33.8%; 24.3%; 10.8%, respectively).
(Erdoğan et al., 2019)	Turkey	To evaluate quality of life, depression, anxiety, suicide risk, social anxiety, and obsessive-compulsive symptoms among adolescents with isotretinoin and systemic antibiotic treatment.	A prospective, non-randomised, open-label study.	65 adolescents in the isotretinoin group and 50 adolescents in the antibiotic group at the Outpatient Clinic of Dermatology Department. Age: 15-18 years.	The results of this study indicated that there were significant differences in the severity of acne, quality of life, social anxiety, and obsessive-compulsive symptoms between before and after treatment in the two groups. However, there were no significant differences in depression, anxiety, and suicide risk between before and after treatment in the two groups.

(Unal et al., 2018)	Turkey	To determine the level of social anxiety, quality of life, and self-esteem among adolescents with acne.	A study to test the differences between the two groups. The research design was not disclosed.	102 adolescents with acne at the Dermatology Clinic of Bezmi Alem University and 81 adolescents in the control group. Age: 12-17 years.	The results of this study indicated that there were no significant differences in the level of social anxiety, quality of life, and self-esteem between the study and control groups.
(Akinboro et al., 2018)	Nigeria	To identify the psychosocial and self-esteem implications of acne and post-inflammatory hyperpigmentation on the face among newly enrolled students.	A cross-sectional study.	200 undergraduate students at the Outpatient Clinic of Ladoke Akintola University of Technology Teaching Hospital, Ogbomoso, Oyo State, Nigeria. Age: >18 years Mean age: 23.90 ± 3.34 years	The results of this study showed that there was a significant difference in the level of anxiety (p=0.004) and emotional stress (p<0.001) between the acne with hyperpigmentation group and the acne without hyperpigmentation group. In addition, there was a correlation between acne severity and quality of life but there was no relationship between acne severity and respondents' self-esteem. Quality of life was significantly reduced in patients with acne with facial hyperpigmentation (p<0.001) compared to those without hyperpigmentation. Furthermore, all respondents expressed subjective feelings about acne, including being emotionally angry, anxious, depressed, being judged by others, embarrassed, socially unacceptable, being stigmatized, and a decrease in self-esteem due to their acne (24.5%; 19.2%; 14.5%; 12.5%; 10.5%; 8.5%; 7.5%; 6.0% respectively).
(Wen et al., 2015)	China	To identify the relationship between acne and stress among high school and college students.	An online survey.	2,284 high school and university students in China (1,128 in the control group, 1,156 in the acne group). Age: 15-25 years	The results of this study indicated that the group with acne had significantly higher levels of anxiety (p<0.01) and depression (p<0.01) than the control group. The results of this study also revealed that the most frequently reported negative experiences due to acne were stress or academic failure, criticism or discrimination by others, conflicts with parents, and peer bullying/interpersonal conflicts (74%, 66%, 29%, 26% consecutively).
(Revol et al., 2015)	France	To identify the psychological impact of acne among adolescents in the 21 st century.	A literature review.	Results of previous studies.	The results of this study revealed that the impact of acne in the form of depression and low self-esteem among adolescents might be exacerbated by the phenomenon of the sociological evolution of

					adolescents in the 21 st century, such as a higher concern towards appearance compared to adolescents in previous generations.
(Nair, 2015)	India	To determine the impact of acne on the quality of life among adolescents.	A prospective, cross-sectional, pre-structured, questionnaire-based study.	608 adolescents with acne and 261 adolescents without acne at the Gujarat Rural Tertiary Care Center, India. Age: 14-25 years	The results of this study showed that most adolescents with acne experienced mild level of quality of life disturbances (75%). Meanwhile, most of adolescents without acne thought acne as a problem (57.09%) and were disturbed by the idea of having acne (54.02%).

Table 2. Data Extraction

Parameter	Results
Age category	Adolescent (12-18 years) Early adult (19-35 years)
Gender	Female Male
Had acne treatment to a health professional	Yes No
Adherence to acne treatment	Ye No
Impact of acne	(1) Psychological impact Anxiety Depression Decreased self-esteem Stress Embarrassed Angry Fear Difficulty in regulating emotions Type D personality Psychopathology Mental health disorders Obsessive-compulsive symptoms Suicidal thoughts/attempts Academic failure or stres
	(2) Psychosocial impact Social anxiety Stigmatization Feeling of bullied by others Social dysfunction Social phobic disorder Feeling of socially rejected Feeling of being judged by others Feeling of being ridiculed by others Get criticism/discrimination from others Considered nerdy, stressed, and lonely Difficulty in relation with friends at school/making friendships/finding a life partner Conflict with parents Reduced job opportunities
	(3) Decreased quality of life

DISCUSSION

Acne is a chronic disorder of the polysebaceous units in the skin characterized by comedones, inflammatory papules, pustules, cysts and nodules with a high prevalence in adolescents and early adults (Lambert, 2015). Even though acne is not life-threatening or physically debilitating, many studies have shown a relationship between acne and increased psychological, psychosocial burdens, and even decreased quality of life among adolescents and early adults (Haroon et al., 2019; Kostecka et al., 2022; Nair, 2015; Wen et al., 2015).

Psychological Impact of Acne on Adolescents and Early Adults

This scoping review found the psychological impact caused by acne among adolescents and early adults (Tables 1 and 2). Anxiety and depression were the psychological problems most often associated with acne. A study conducted by Mehreen et al., (2021) showed that early adults with acne had higher levels of anxiety and depression compared to the group without acne. They revealed that individuals with acne faced more emotional challenges compared to individuals without acne. Such finding is in line with a study conducted by (Wen et al., 2015) which found a significant relationship between the severity of acne and anxiety and depression among adolescents and early adults ($p < 0.01$). It was concluded that individuals with severe acne were at risk of more serious psychological disorders such as anxiety and depression.

A study conducted by Kostecka et al. (2022) further showed that almost all adolescents and early adults with acne experienced moderate anxiety (female) and mild anxiety (male). In such research, it was found that feelings of unattractiveness and embarrassment due to acne and facial scarring could affect emotional levels and anxiety among adolescents and early adults. In addition, a study conducted by Akinboro et al. (2018) revealed that acne with post-inflammatory hyperpigmentation on the face had a significant impact on the level of anxiety and emotional distress in early adulthood.

The results of the analysis of this study indicated that another psychological impact experienced by adolescents and early adults with acne was a decrease in self-esteem (Akinboro et al., 2018; Ghayas et al., 2022; Natsuaki & Yates, 2021; Revol et al., 2015). Cases of acne that were getting worse could have a worse impact on self-esteem and body image (Revol et al., 2015). A research in Nigeria revealed that decreased self-esteem was more common among early adults with acne with post-inflammatory hyperpigmentation than without hyperpigmentation (Akinboro et al., 2018). However, there were also research results which stated that there was no significant difference in self-esteem between adolescents with acne and without acne (Unal et al., 2018). The authors revealed that the teenagers involved in their research were trying to deal with rapid changes in their bodies during puberty.

Tables 1 and 2 also revealed that adolescents and early adults with acne often experienced stress, embarrassment, anger, fear, difficulties in regulating emotions, type D personality, psychopathology, mental health disorders, obsessive-compulsive symptoms and suicidal thoughts/attempts, as well as academic failure or stress (Akinboro et al., 2018; Erdoğan et al., 2019; Natsuaki & Yates, 2021; Stamu-O'Brien et al., 2021; Turan et al., 2020). In fact,

psychological problems are not only the impact of acne but can also be a risk factor for acne (Wen et al., 2015). It was proven that the higher the severity of acne, the higher the stress level, and conversely, the higher the stress level, the higher the severity of acne.

Psychosocial Impact of Acne on Adolescents and Early Adults

Social anxiety, stigmatization, and being bullied experienced by adolescents and early adults with acne were the most common psychosocial impacts found in this scoping review analysis (Tables 1 and 2). A study conducted by Unal et al. (2018) found more social anxiety among adolescents with acne compared to those without acne. Furthermore, Erdoğan et al. (2019) conducted a study by administering isotretinoin and antibiotics to adolescents with acne to reduce social anxiety. The result of this research showed that there was a significant decrease in social anxiety experienced by respondents in the isotretinoin and antibiotic groups.

Results of study conducted in 2001 to 2020 revealed a high correlation between acne and stigmatization among adolescents and early adults (Stamu-O'Brien et al., 2021). Such finding is in line with a previous study which showed that early adults with acne with or without post-inflammatory hyperpigmentation on the face both experience stigmatization from their environment (Akinboro et al., 2018). In fact, the results of a subsequent study found that adolescents with acne were not only stigmatized but also harshly judged by others, ridiculed, and bullied by their peers (Natsuaki & Yates, 2021). Such finding is also in line with previous research which showed a significant relationship between acne severity and intimidation and criticism/discrimination from others as well as conflicts with parents/family (Wen et al., 2015).

Quality of Life for Adolescents and Early adults with Acne

In a study conducted by Nair (2015), quality of life is defined as an individual's perception of their position in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns. While in the study conducted by Ghayas et al. (2022), self-esteem, depression, and anxiety are known as predictors of quality of life. A good quality of life is easier to find among individuals with high self-esteem and low levels of depression and anxiety. Such study proved that early adults with acne with high self-esteem and low levels of depression and anxiety had a good quality of life. Such finding is in line with the study conducted by Unal et al. (2018) which showed that the higher the social anxiety of adolescents with acne, the lower their quality of life. Such finding was further supported by the study conducted by Mehreen

et al. (2021) which revealed that the quality of life of early adults with acne was lower compared to those without acne. Such finding also stated that the quality of life among women with acne was lower than among men with acne. This is because women are more aware of their appearance and body image, so they are more affected by acne on their bodies. In addition, women with acne are considered less attractive and the presence of acne can be a major obstacle when they are getting married.

Furthermore, a study conducted in Pakistan also found that adolescents and early adults with acne experienced a significant decrease in quality of life (Haroon et al., 2019). The research proved that there was a more significant decrease in quality of life due to acne among adolescents compared to among early adulthood. Such finding supports previous research which found that acne could affect quality of life in early adulthood, and the presence of post-inflammatory hyperpigmentation could exacerbate the decrease in quality of life and caused worse psychosocial consequences among early adulthood with acne (Akinboro et al., 2018). In response to this, a study also proved that administering isotretinoin and antibiotics could improve the quality of life among adolescents with acne (Erdoğan et al., 2019).

Negative attitudes are a problem that may be affected by adolescent actions whether good or poor health behavior. Reproductive health education is expected as a routine program for health professionals to adolescents (Sinaga, S., Josse, V., & Natalia, L., 2011)

CONCLUSION

This scoping review revealed the existence of psychological and psychosocial problems as well as decreased quality of life among adolescents and early adults with acne. Adolescents and early adults along with parties related to their lives such as parents/family, friends, teachers, co-workers, the surrounding environment, and professional healthcare workers can apply the results of this study a guideline to maintain or improve quality of life of adolescents and early adults with acne.

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