Health Literacy &Nutrition in acne adolescents

Lucas Evans[1, a], Caleb Taylor[1, b, *],

[1]Centre for Longitudinal Studies UCL Social Research Institute20 Bedford WayLondonWC1H 0AL, United Kingdom
a.lucas_evans374646@sina.com, b.taylorcaleb_2009@icloud.com
***Corresponding Author**

Abstract: Objective: To investigate the relationship between health literacy and nutritional cognition and behavior in adolescents with acne. Methods: A convenience sampling method was used to select 362 adolescents with acne as the research subjects. Health literacy and nutritional cognition and behavior were evaluated using a health literacy scale and a nutritional cognition and behavior questionnaire, and the results were analyzed. Results: The health literacy score of adolescents with acne was (72.8±9.6) points, and the total score of nutritional cognition and behavior was (38.6±7.2) points. There was a significant positive correlation overall($P<0.01$). Multiple linear regression analysis showed that the three dimensions of health literacy (health literacy knowledge and concepts, healthy lifestyle and behaviors, and health skills) could jointly predict 55.6%of the variance in nutritional cognition and behavior. Conclusion: The level of health literacy in adolescents with acne is related to nutritional cognition and behavior and can effectively predict their nutritional cognition and behavior.

Keywords: Adolescents, Health Literacy, Acne, Nutrition

1. Introduction

Acne is a common health problem among adolescents during puberty, and it is reported that the incidence of acne among adolescents in our country reaches over 50% [1]. In clinical practice, a comprehensive approach that addresses both internal and external factors is often advocated for adolescents with acne to reduce the various adverse effects caused by recurrent episodes. Good dietary behavior is one of the key factors in the prevention and control of acne, as it directly determines the effectiveness of disease control and the duration of the disease course[2].Health literacy refers to an individual's ability to obtain, process, and understand basic health information and make appropriate health decisions, which is closely related to the accessibility of preventive health services, health outcomes, and the prognosis of chronic diseases[3].However, there are few reports on the relationship between the health literacy level of adolescents with acne and their nutritional cognition and behavior. This study aims to investigate the relationship between the health literacy level and nutritional cognition and behavior in adolescents with facial acne, in order to provide reference opinions for improving the dietary intervention compliance of adolescents with acne.

2. Subjects and methods

2.1. Study subjects

Using a convenience sampling method,336 adolescents with facial acne from Tangshan No.1 Middle School and Longquan Middle School were selected as research subjects during the period from April to July 2015 to investigate their health literacy level and nutritional cognition and behavior. A total of 370 questionnaires were distributed, and 362 valid questionnaires were recovered, with an effective rate of 97.8%. Inclusion criteria: aged 13–18 years; diagnosed with facial acne by a dermatologist; and voluntarily participating in this questionnaire survey.

https://doi.org/10.62852/ytr/2025/178

2.2. Research methods

All research subjects were given a unified questionnaire, and necessary explanations were provided to the respondents using a unified set of instructions. The questionnaires were distributed on the spot, filled out anonymously, and collected immediately.

2.2.1. Health literacy assessment

The Health Literacy Survey Questionnaire for Chinese Citizens [4] was used to evaluate their health literacy. The questionnaire includes three dimensions: health literacy knowledge and concepts (18 items), healthy lifestyle and behaviors (14 items), and health skills (5 items), with a total of 37 questions covering scientific health views, infectious disease prevention literacy, chronic disease prevention literacy, and safety and first aid literacy. Scoring method:(1) Single-choice questions:1 point for a correct answer;(2) Multiple single-choice questions:1 point for each correct answer in the item;(3) Multiple-choice questions:1 point if the correct response rate to the options is≥60%. The scores for multiple-choice questions and ordinal variables were transformed into values between 0 and 3, with a final total score of 100 points. Since the survey population in this study were adolescents, the two questions about "pregnant women and infant feeding" in the questionnaire were changed to "middle school students' sleep and watching TV" to facilitate understanding and answering. No changes were made to the other questions.

2.2.2. Nutritional cognition and behavior assessment

Based on the latest published Dietary Guidelines for Chinese Residents, and using the K-A-P (Knowledge, Attitude, and Practice) nutritional questionnaire as a template, the dietary concepts related to pregnant women were modified to the basic dietary principles for acne, and the sources of nutrients for pregnant women were changed to those related to acne and nutrients. This modified questionnaire was used to investigate the nutritional knowledge, attitudes, and behaviors of adolescents with facial acne. The questionnaire consisted of 30 questions, with each question worth 2 points, for a total of 60 points.

2.3. Statistical analysis

Data were processed using SPSS 17.0 for Windows statistical software. Data are presented as ($\bar{x} \pm s$). Pearson correlation analysis and logistic regression analysis were used, with a one-sided P≤0.05 indicating statistical significance.

3. Results

3.1. Results for acne adolescents are in Table 1.

Table 1: Assessment Results of Health Literacy and Nutritional Cognition and Behavior in Adolescents with Facial Acne ($\bar{x} \pm s$)

Health Literacy	Score
Total Health Literacy Score	72.8±9.6
Health Knowledge and Concepts	26.2±5.3
Healthy Lifestyle and Behaviors	21.8±6.2
Health Skills	23.9±5.8
Total Nutritional Cognition and Behavior Score	38.6±7.2
Nutritional Knowledge	15.8±5.9
Nutritional Attitude	13.3±4.6
Nutritional Behavior	11.5±4.8

https://doi.org/10.62852/ytr/2025/178

3.2. Correlation analysis in acne adolescents

The results of Pearson correlation analysis showed that health literacy (health knowledge, health behavior, health skills, etc.) was positively correlated with the scores of know ledge, attitude, and behavior of nutritional cognition and behavior($P<0.05$), as shown in Table

3.3. Regression analysis of health literacy and nutritional behavior

To further explore the impact of health literacy on the nutritional cognition and behavior of adolescents with facial acne, multiple linear stepwise regression analysis was used to examine the relationship between health literacy and nutritional cognition and behavior, with the dimensions of health literacy as independent variables and the total score of nutritional cognition and behavior as the dependent variable. The results showed that the three dimensions of health literacy entered the regression equation, with a multiple correlation coefficient of 0.736 and a determination coefficient of 0.556. That is, the three dimensions can jointly predict 55.6%of the variance. See Table 3.

Table 2: Correlation Analysis(r)between Health Literacy and Nutritional Cognition and Behavior in Adolescents with Facial Acne

Variable	Nutritional Knowledge	Nutritional Attitude	Nutritional Behavior	Total Nutritional Score
Health Knowledge	0.517[a]	0.516[a]	0.520[a]	0.528[a]
Healthy Lifestyle and Behaviors	0.632[a]	0.722[a]	0.721[a]	0.688[a]
Health Skills	0.518[a]	0.529[a]	0.630[a]	0.686[a]
Total Health Literacy Score	0.562[a]	0.598[a]	0.648a	0.632[a]

Table 3: Multiple Linear Regression Analysis of the Impact of Health Literacy on Nutritional Cognition and Behavior in Adolescents with Facial Acne

Item	Correlation Coefficient	Coefficient of Determination	Regression Coefficient	Standard Error	Std. Regression Coefficient	t	P
Constant			5.321	1.612		4.571	0.000
Health Knowledge	0.533	0.285	4.237	0.587	0.114	7.216	0.000
Healthy Lifestyle and Behaviors	0.558	0.312	3.272	0.832	0.108	3.916	0.000
Health Skills	0.736	0.556	1.783	0.281	0.077	6.344	0.000

4. Discussion

4.1. Health literacy level of adolescents with facial acne

Health literacy refers to an individual's ability to obtain and understand health information and use it to maintain and promote their own health[5].Studies have shown that the level of health literacy can affect the occurrence and development of individual health problems and has been proven to have a significant impact on adolescents' psychological issues, sub-health problems, coping strategies of chronic disease patients, and quality of life[6–8].Therefore, the importance of health literacy is increasingly recognized. The results of this study indicate that the level of health literacy among adolescents with facial acne is not high, which is basically consistent with the current domestic survey results on residents' health literacy. The first national survey on citizens 'health literacy in 2008 pointed out that the proportion of adolescents aged 15–24 with health literacy was 6.3%. A survey on the health literacy of residents aged 15–24 in 31 provinces (autonomous regions, municipalities directly under the central government) conducted by Wei Wei et al. [9]in 2015 showed that only 9.4%of people had health literacy. From the scoring results of each dimension of health literacy in this study, the score of health knowledge is the highest, followed by health skills, and the lowest is healthy lifestyle and behaviors. This indicates that adolescents with facial acne have certain

https://doi.org/10.62852/ytr/2025/178

health knowledge and skills, but there is a gap between these and the actual application to real-life health issues, and they cannot establish good health behavior habits and lifestyles. This suggests that in actual work, medical staff should not only provide relevant health knowledge but also take measures to guide and promote adolescents to develop healthy lifestyles in order to ultimately achieve the goal of maintaining health.

4.2. Relationship between health literacy and nutrition in acne adolescents

Good nutritional cognition and behavior are the foundation of acne treatment, which is conducive to consolidating the therapeutic effect and preventing the recurrence and exacerbation of acne. The total score and individual item scores of nutritional cognition and behavior in this study show that the nutritional cognition and behavior of adolescents with facial acne are not good and need to be further improved. Shi Yun [10] investigated 1,130 adolescents with acne and found that a higher intake of sugar, coffee, and fats are the main risk factors for the formation of acne. Foreign scholar Cordain [11] also pointed out that as a population prone to acne, adolescents have a good understanding of acne-related dietary knowledge and precautions, but their long-term compliance is poor, and the dietary compliance of acne patients changes with time and environment. The results of this study show that there is a positive correlation between the level of health literacy and nutritional cognition and behavior in adolescents with facial acne, and the three dimensions of health literacy can effectively predict the nutritional cognition and behavior of adolescents. Health literacy emphasizes health promotion and is related to individual self-health management and health maintenance [3]. That is to say, when an individual has a higher level of health literacy, they can not only better accept relevant nutritional knowledge information but also take corresponding skills and strategies according to their own characteristics in daily life, gradually form a correct nutritional concept or attitude, and establish correct nutritional dietary behavior. This increases healthy behaviors, reduces risk factors, and promotes problem-solving in the prevention and treatment of acne.

In summary, this study found that health literacy is related to the nutritional cognition and behavior of adolescents with facial acne and can effectively predict their nutritional cognition and behavior. It is necessary to improve adolescents' health literacy level from different aspects and take various measures to enhance their nutritional cognition and behavior in order to effectively solve health problems.

5. Conclusion

In summary, this study, through scientific investigation and analysis, has revealed a significant positive correlation between the health literacy level and nutritional cognition and behavior in adolescents with facial acne. The three dimensions of health literacy can effectively predict the variance in their nutritional cognition and behavior. This finding underscores the importance of enhancing adolescents' health literacy in improving acne issues. Future efforts should be made from multiple aspects, such as strengthening health education, optimizing the supportive environment at home and school, and providing personalized health guidance, to comprehensively improve adolescents' health literacy. This will promote the development of good nutritional cognition and behavior, thereby providing strong support for the effective prevention and control of acne and aiding in the healthy growth of adolescents.

6. References

[1] Qiao Li, Zhou Jun, Ma Huiqun. Analysis of Risk Factors for Acne in Adolescents[J]. Chinese Medical Abstracts (Dermatology),2014,31(5):284-287

[2] Wen Li, Wen Xiaoyi, Xu Chengrong. Analysis of Influencing Factors of Acne Onset after Puberty[J]. Journal of Huazhong University of Science and Technology (Medical Sciences),2011,40(4):441-444

[3] Chang L C. Health literacy, self -reported status and health promoting behaviours for adolescents in Taiwan[J]. Journal of Clinical Nursing,2011,20(1-2):190-196

[4] Yu Xiaoming, Guo Shuaijun, Wang Lu. Structural Framework and Reliability and Validity Analysis of Health Literacy Evaluation Questionnaire for High School Students[J]. Chinese Journal of School Health,2014,35(5):672-675

https://doi.org/10.62852/ytr/2025/178

[5] Yao Hongwen, Shi Qi, Li Yinghua. Current Status and Countermeasures of Health Literacy among Urban and Rural Residents in China[J]. Population Research,2016,40(2):88-97
[6] Liu Liu, Xie Suli, Guo Rui, et al. Study on the Relationship between Health Literacy and Health Service Utilization in Coronary Heart Disease among Middle-aged and Elderly Inpatients[J]. Journal of Nursing Continuation Education,2016,31(2):116-120
[7] Cheng Linan, Li Juan, Cui Wenxiang. Current Status and Progress of Research on Adolescent Health Literacy[J]. Chinese Journal of School Health,2015,36(6):954-958
[8] Wen Xiuqin, Han Zhengzheng, Zhao Jie, et al. Correlation Study between Health Literacy and Utilization of Basic Public Health Services among Community Hypertension Patients[J]. Chinese General Practice,2015,18(13):1518-1522
[9] Wei Wei, Li Yinghua, Li Fangbo, et al. Analysis of the Current Status of Health Literacy among Residents Aged 15–24 in China[J]. Chinese Journal of Health Education,2015,31(2):125-146
[10] Shi Yun, Ding Dapeng, Cui Jianping. Epidemiological Survey and Analysis of Risk Factors of Acne among Urban and Rural Adolescents in Southern Hebei[J]. Chinese Journal of Dermatology and Venereology,2008,22(10):611-613
[11] Cordainl, Lindebergs, Hurtadom, et al. Acnevul garis: a disease of Western civilization[J]. Arch-Dermatol.2002,138(12):1584-1590

https://doi.org/10.62852/ytr/2025/178