

Application of Health Action Process Approach Theory in Patients with Type D Personality Psoriasis

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Abstract

Objective: To explore the effect of Health Action Process Approach (HAPA) theory in patients with type D personality psoriasis. **Methods:** A total of 66 patients with type D personality psoriasis admitted to the dermatology department of a top-three hospital in Jingzhou City from November 2022 to July 2023 were selected and divided into control group and test group with 33 cases in each group by random number table method. The control group received routine health education, and the experimental group received health education based on the HAPA theory. Chronic disease self-efficacy scale, hospital anxiety and depression scale and skin disease quality of life scale were used to evaluate the effect of intervention. **Results:** After 3 months of intervention, the scores of self-efficacy in experimental group were higher than those in control group ($P < 0.05$), and the scores of negative emotion and quality of life in experimental group were better than those in control group ($P < 0.05$). **Conclusion:** Health education based on the theory of HAPA can enhance the self-efficacy of patients with type D personality psoriasis, relieve negative emotions and improve their quality of life.

Keywords

Health Action Process Approach Theory, Type D Personality, Psoriasis, Self-Efficacy, Negative Emotions, Quality of Life

1. Introduction

Psoriasis is a common immune-mediated chronic skin disease characterized by a

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long course, recurrent and diverse complications [1]. Prolonged skin damage and continuous treatment and medication not only affect patients' work life, but also increase the risk of anxiety and depression, leading to decreased quality of life. In foreign studies, type D personality as a psychosocial factor has been included as a risk factor for psoriasis. "Type D personality" is a new normal personality trait characterized by negative affect and social inhibition, and Wiencierz *et al.* [2] showed that negative affect and social inhibition were negatively correlated with self-efficacy, and that patients with type D personality had a more pessimistic attitude toward disease control and treatment outcomes, and had an unobjective perception of the disease, and develop non-objective perceptions of the disease, which may lead to more negative coping strategies in psoriasis patients with type D personality, which in turn affects their self-efficacy and self-management skills [3]. Since these patients are relatively weak in self-management, lack confidence and motivation to manage their disease scientifically, and find it difficult to cope with changes and recurrent episodes of their disease, health education needs to be further strengthened. However, most of the domestic and international studies on psoriasis patients with type D personality are correlation studies, and there is a lack of more scientific health education programs supported by theoretical frameworks to help patients manage their diseases. Health Action Process Approach (HAPA) theory is a health psychology theory of health behavior change proposed by Schwarzer in Germany based on Bandura's "self-efficacy model", which suggests that human health behavior change can be classified into There are three dynamic stages: intention forward, intention, and action stage [4]. The intention forward stage is also known as the motivation stage, which refers to the time when behavioral intentions have not yet begun to be formed; the intention stage refers to the period when there is an actual intention to act, but it has not yet been put into practice, and during this period, the main focus is on how individuals can turn their personal intentions into actual actions; the action stage refers to the formation and maintenance of healthy behaviors. The HAPA theory focuses on the transformation of behavioral patterns and stages, and it aims to implement a menu of interventions for the human body through different stages in order to better be able to transform healthy behavioral intentions into concrete external motivation, and thus develop healthy behavioral habits. Currently, this theory has been widely used in health education for chronic diseases such as asthma [5], rheumatoid arthritis [6], diabetes mellitus [7] and other chronic diseases, and positive feedback has been obtained. Based on this, this study investigates the application effect of health education based on HAPA theory on patients with psoriasis with type D personality, which in turn provides guidance for clinical care.

2. Objects and Methods

2.1. Objects

Sixty-six patients with D-type personality psoriasis admitted to the Department of Dermatology of a tertiary hospital in Jingzhou City from November 2022 to July

2023 were selected as the study subjects, and they were divided into 33 cases each in the control group and the experimental group according to the method of randomized numerical table. Inclusion criteria: 1) Meet the diagnostic criteria for psoriasis in Dermatology [8]; 2) Age ≥ 18 years; 3) Patients identified as D-type personality; 4) Patients with clear consciousness, normal reading ability, and no communication disorders; 5) Voluntarily participate in this study. Exclusion criteria: 1) Patients with mental illness or intellectual disability; 2) Patients with other malignant diseases in combination; 3) Patients who refused to participate in this study.

2.2. Methodology

2.2.1. Control Group

Health education was provided in accordance with routine methods, with admission counseling given to patients at admission, an introduction of the ward environment to patients and their families, and an explanation of disease-related knowledge. Routine discharge instructions were given at the time of discharge, including taking medication on time and regular review.

2.2.2. Test Group

Health education based on HAPA theory was given to the control group. Firstly, the HAPA theory intervention program was developed by the departmental professionals by combining clinical experience and reviewing the literature. Organize the training of the personnel on HAPA theory, related knowledge, intervention plan and survey scale, and finally, the HAPA intervention team was composed of 6 trained dermatologists and 1 psychological counselor, who provided HAPA health education guidance to the patients during the hospitalization period and followed up the patients once every 2 weeks for 3 months after the discharge from the hospital.

1) Intentional forward phase

In this stage, the main purpose is to help patients form health behavior beliefs, and the intervention time is the first to second day of admission. a) Establish a good nurse-patient relationship. Medical staff should serve with a smile, strengthen communication, listen to the patient's inner feelings, and win the patient's trust with solid and easy-to-understand professional knowledge and skills. b) Understand patients' problems in disease cognition, explain disease-related knowledge and prognosis knowledge, and distribute "Health Education Manual for Psoriasis Patients" and diet cards. c) Assess the psychological condition of the patients, explain the characteristics of type D personality to the patients, and encourage the patients to talk about their emotional changes. d) Cite specific cases around the patient to positively motivate the patient, stimulate the patient's intrinsic motivation, establish confidence in overcoming the disease, and face the disease with a positive attitude. e) Set up a patient club in the form of a micro-letter group, invite patients and their families to join the group, and provide a platform for communication between doctors and nurses and patients.

2) Intent phase

The purpose of this phase is to transform beliefs into actions to develop

behavioral plans and coping plans to promote the emergence of healthy behaviors, and the intervention time is during hospitalization. The intervention was carried out in a group teaching mode, divided into two parts: PPT lectures and panel discussions, which included diet, exercise, medication, psychology, family support, etc. After the lecture, patients were asked questions about the content to determine their mastery of it. At the end of the lecture, patients were asked questions about the content of the study to determine the patients' mastery, and if they still had any questions, they were given a clear explanation in time to help them solve their problems. At the same time, patients were told about the harm of bad mood on the prognosis of the disease, encouraged to take the initiative to vent, and listed their own merits, so that patients feel their own value. Combined with the video, patients were taught to use progressive muscle relaxation, breathing relaxation and other emotional relaxation methods, and were asked to demonstrate and listen to their feelings. Encourage family members to participate in the patient's self-health behavior management, strengthen their social and emotional support, and promote the patient's confidence. Thematic discussion is mainly for patients and their families to speak and conduct group discussion and analysis to propose improvement countermeasures for the Reference Table of Health Behavior Standards for Self-Management of Patients with Psoriasis in light of their current problems in self-management. Patients with high self-care ability are used as case models to emphasize the benefits of implementing a proper self-management plan. Help patients to make their own self-management plan and encourage them to follow the plan, record it in the self-management diary and check the implementation regularly.

3) Action phase

Maintaining health behaviors, implementing behavioral plans, and enhancing patients' self-efficacy, the intervention times were before and after discharge, respectively. Before discharge, patients and their families were assessed for their knowledge of disease self-health management, and those who did not understand were patiently explained to them, assisting them in formulating short-term goals and long-term plans for out-of-hospital management. After discharge, push the daily punch card in the WeChat group to supervise and encourage patients to adhere to self-management, and regularly send psoriasis-related knowledge, knowledge of health behaviors, and methods of emotional relaxation. Every 2 weeks, patients were followed up through the WeChat group or by phone to see how they had accomplished their goals and to reinforce the good behaviors they had established. Every two weeks, from 20:00 to 21:00 on Friday is the regular Q&A time, and the online communication meeting is organized through WeChat, with family members accompanying the patients; for patients who are unable to participate in the meeting on time, they can communicate with each other through WeChat or by phone. Any questions during the rest of the time can also be communicated at any time in the WeChat group or by phone. If patients show negative emotions and resist or interrupt health behaviors during the process of health behavior maintenance, we should analyze the reasons for the interruption in a timely

manner, instruct the patients to self-regulate, and contact their families to provide more encouragement and support to the patients, so that the patients can quickly resume health behaviors in the case of behavioral interruption.

2.3. Observation of Effects

2.3.1. Self-Efficacy

It was evaluated by the Chronic Disease Self-Efficacy Scale (CDSSES) [9], which has a Cronbach's alpha of 0.87, before the intervention and after 3 months of the intervention. The scale consisted of 6 items, and was rated on a scale of 1 to 10, with the average of each item being the final score, and the higher the score indicated that the patients had a higher sense of self-efficacy.

2.3.2. Negative Emotions

The Hospital Anxiety Depression Scale (HADS) developed by Zigmond *et al.* [10] and translated by Leung *et al.* [11] was evaluated with the pre-intervention and 3 months after the intervention. The scale consists of two subscales, depression (HADS-D) and anxiety (HADS-A), with 7 entries each and a total of 14 entries, and is scored on a Likert 4-point scale (0 - 3 points), with a subscale score of >8 considered to be the presence of anxiety or depression.

2.3.3. Quality of Life

The quality of life of patients in both groups was assessed using the Dermatologic Quality of Life Inventory (DLQI) developed by Finlay *et al.* [12]. The scale includes symptom feelings, daily activities, leisure and recreation, socialization and other aspects, with a total of 10 entries, using a score of 0 - 3, with a higher total score indicating a poorer quality of life for the patients.

2.4. Statistical Methods

Using EXCEL2019 double entry of data, using SPSS26.0 for data analysis, conforming to the normal distribution of the measurement data expressed as the mean \pm standard deviation ($\bar{x} \pm s$), the comparison between the groups using the *t* test; counting data expressed as the frequency (%), the use of χ^2 test, to $P < 0.05$ difference is statistically significant.

3. Results

3.1. General Information

In this study, a total of 66 cases of valid patient data were collected, and the general data such as age, gender, marital status, education level, and per capita monthly family income of the two groups were compared, and the differences were not statistically significant ($P > 0.05$), and were comparable. See **Table 1**.

3.2. Comparison of Self-Efficacy Scores between the Two Groups of Patients

Before the intervention, there was no significant difference in self-efficacy scores

Table 1. General information of the two groups of patients.

Sports event	Control group (n = 33)	Pilot group (n = 33)	<i>t/χ²</i>	<i>P</i>
Age (years)	49.97 ± 12.41	46.67 ± 10.95	1.147	0.256
distinguishing between the sexes			1.668	0.196
male	24 (72.7%)	19 (57.6%)		
daughter	9 (27.3%)	14 (42.4%)		
Marital status			2.788	0.248
married	30 (90.9%)	25 (75.8%)		
unmarried	1 (3.0%)	2 (6.1%)		
divorced from (one's spouse)	2 (6.1%)	6 (18.2%)		
Educational attainment			1.215	0.876
secondary schools	5 (15.2%)	7 (21.2%)		
junior high school	10 (30.3%)	12 (36.4%)		
high school or junior college	11 (33.3%)	9 (27.3%)		
three-year college	5 (15.2%)	3 (9.1%)		
undergraduate and above	2 (6.1%)	2 (6.1%)		
Monthly per capita household income (yuan)			1.896	0.387
<3000	3 (9.1%)	6 (18.2%)		
3000 - 5000	20 (60.6%)	15 (45.5%)		
>5000	10 (30.3 %)	12 (36.4%)		
Duration of illness (years)			4.998	0.082
<5	7 (21.2%)	12 (36.4%)		
5 - 10	7 (21.2%)	11 (33.3%)		
>10	19 (57.6%)	10 (30.3%)		

between the two groups of patients ($P > 0.05$); after 3 months of intervention, the experimental group showed a certain level of improvement in scores, which was significantly better than the control group, and the post-intervention scores of the experimental group were significantly higher than the pre-intervention scores, and the difference was statistically significant ($P < 0.05$). See **Table 2**.

3.3. Comparison of Negative Mood Scores between the Two Groups of Patients

Before the intervention, there was no significant difference between the anxiety and depression scores of the two groups of patients ($P > 0.05$); after 3 months of intervention, the anxiety and depression levels of the two groups of patients were alleviated to a certain extent, in which the scores of the experimental group were significantly lower than those of the control group, and the scores of the experimental group after the intervention were lower than those before the intervention, and the difference was statistically significant ($P < 0.05$). See **Table 3**.

Table 2. Comparison of self-efficacy scores between the two groups ($\bar{x} \pm s$, points).

groups	number of examples	pre-intervention	post-intervention	<i>t</i>	<i>P</i>
control subjects	33	5.58 ± 1.40	5.79 ± 1.18	-0.679	0.500
test group	33	5.70 ± 1.19	6.93 ± 0.85	-4.849	0.000
t-value		-0.379	-4.474		
<i>P</i>		0.706	0.000		

Table 3. Comparison of anxiety and depression scores between the two groups ($\bar{x} \pm s$, points).

groups	number of examples	HADS-A (anxiety)		HADS-D (depression)	
		pre-intervention	post-intervention	pre-intervention	post-intervention
control subjects	33	10.06 ± 2.14	9.15 ± 2.03	9.73 ± 1.70	8.67 ± 1.71
test group	33	10.12 ± 1.63	6.18 ± 1.83	9.91 ± 2.11	5.88 ± 2.13
t-value		-0.129	6.240	-0.385	5.862
<i>P</i>		0.897	0.000	0.701	0.000

3.4. Comparison of Quality of Life Scores between the Two Groups of Patients

Before the intervention, there was no significant difference in the quality of life scores of psoriasis patients with type D personality between the two groups ($P > 0.05$); after 3 months of intervention, the scores of the two groups showed a certain degree of improvement, in which the experimental group was significantly lower than the control group, and the scores of the experimental group were significantly lower than those of the pre-intervention group, and the difference was statistically significant ($P < 0.05$). See **Table 4**.

Table 4. Comparison of quality of life scores between the two groups ($\bar{x} \pm s$, points).

groups	number of examples	pre-intervention	post-intervention
control subjects	33	18.42 ± 4.15	15.24 ± 3.60
test group	33	18.79 ± 4.09	12.85 ± 3.02
t-value		-0.359	2.927
<i>P</i>		0.721	0.005

4. Discussion

4.1. Health Education Based on HAPA Theory Enhances Self-Efficacy in Psoriasis Patients with Type D Personality

Self-efficacy is one of the important influencing factors to improve patients' self-management ability [13]. The results of this study showed that the self-efficacy

scores of the experimental group were significantly higher than those of the control group 3 months after the intervention ($P < 0.01$), similar to the results of the study of Wang Peng *et al.* [14], which indicated that health education based on the theory of HAPA could improve the self-efficacy of the patients and help the patients better self-management. Health education based on the HAPA theory incorporates the enhancement of patients' self-efficacy throughout the entire process of health behavior implementation, and provides specific self-efficacy in the 3 stages of behavior change, thus effectively maintaining patients' health behaviors. In the pre-intentional stage, we help patients establish correct cognitive patterns and generate self-efficacy for action through conveying psoriasis knowledge information, positive examples, and providing patient exchanges to facilitate the formation of intentions. In the intention stage, the patient is helped to develop a behavioral plan to maintain self-efficacy. The action stage helps patients carry out self-supervision and management and psychological adjustment through follow-up supervision and family support, and use self-efficacy to rapidly restore healthy behaviors in case of behavioral interruption [15]. Patients mastered self-management methods and gained psychological and emotional support from the whole intervention process, thus having more confidence and belief to face the disease.

4.2. Health Education Based on HAPA Theory Improves Negative Emotions in Psoriasis Patients with Type D Personality

Studies have shown that patients with type D personality psoriasis have higher levels of negative emotions such as anxiety and depression, resulting in patients being more likely to adopt negative and unhealthy behavioral coping styles, exacerbating disease deterioration and leading to a decline in quality of life [16]. The results of this study showed that the anxiety and depression scores of the experimental group were significantly lower than those of the control group after 3 months of intervention ($P < 0.01$), which was similar to the findings of Zhang Xiangjing *et al.* [17], indicating that health education based on the HAPA theory can help improve patients' negative emotions. The HAPA theory belongs to the category of psychology, which believes that each stage has different psychological states, and that these different psychological factors will promote the change and maintenance of patients' health behaviors. In this study, we assessed the patients' psychological state in the forward stage, guided the patients to talk about their emotional feelings, made the patients realize the harm of bad emotions, and stimulated the patients' behavioral intentions; we helped the patients to find out the causes of anxiety and depression and analyze them in the intention stage, emphasized the influence of emotions on the disease, and encouraged the patients to engage in self-catharsis, make psychological adjustments through emotion relaxation. In the intention stage, we help patients identify the causes of anxiety and depression and analyze them, emphasize the impact of emotions on the disease, encourage patients to self-expression, make psychological adjustments through emotional relaxation methods, etc., and alleviate negative emotions; at the same

time, we also help patients obtain social support from their families and peers. support, which can further reduce their anxiety and depression, enhance their confidence in overcoming the disease, and prompt them to adopt positive behaviors to cope with the disease.

4.3. Health Education Based on the HAPA Theory Improves the Quality of Life of Patients with Psoriasis with Type D Personality

Quality of life is one of the most important indicators for predicting patients' physical and mental health and disease regression [18], and the higher the quality of life, the better the treatment and recovery of patients. It has been shown that patients with psoriasis with type D personality have a lower level of quality of life compared to non-type D personalities, which can have more adverse effects on patients and seriously affect their physical and mental health [19]. The results of this study showed that the quality of life scores of the experimental group were significantly higher than those of the control group after 3 months of intervention ($P < 0.01$), which was similar to the results of Li Liu's [20] study, indicating that health education based on the HAPA theory is beneficial to improving the quality of life of patients. In this study, the health behavior program based on the HAPA theory was used throughout the patient's self-management process. Nurses fully understood the patient's nursing needs through one-on-one communication with the patient, paid attention to the patient's psychological state while providing knowledge about disease-related management, and provided timely guidance and psychological support, so that the patient could face his/her own disease with a more optimistic and positive attitude; in addition, by helping the patient to develop a self-management In addition, by helping patients formulate self-management plans, making patients clear about the goals and contents of self-management, guiding patients to take the initiative to carry out self-management, and encouraging family members to participate in the implementation of patients' self-health management plans, in order to break the patients' sense of loneliness in facing the disease alone, enhance the patients' confidence and beliefs in overcoming the disease, and effectively promote the This effectively promotes the maintenance of self-health behaviors of patients with psoriasis of type D personality and improves their quality of life.

5. Summary

Health education based on the HAPA theory can effectively enhance the self-efficacy of patients with psoriasis of type D personality, reduce the negative emotions of patients, improve the quality of life, and provide new ideas for the future clinical care of patients with psoriasis of type D personality. However, this study has limitations such as a single research center, a small sample size, and a short follow-up time, and only collected data after 3 months of intervention without verification of long-term effects; it is necessary to expand the sample size for further

justification and extend the follow-up time in future studies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Zhang, Q. (2019) Research on REL, TNIP1 Gene Polymorphisms and Correlation between Negative Emotions and Psoriasis. Southern Medical University.
- [2] Wiencierz, S. and Williams, L. (2016) Type D Personality and Physical Inactivity: The Mediating Effects of Low Self-Efficacy. *Journal of Health Psychology*, **22**, 1025-1034. <https://doi.org/10.1177/1359105315622557>
- [3] Cao, X., Wang, X.H., Wong, E.M., *et al.* (2016) Type D Personality Negatively Associated with Self-Care in Chinese Heart Failure Patients. *Journal of Geriatric Cardiology*, **13**, 401-407.
- [4] Talk Dixin (2017) Evaluation of the Effect of Tuberculosis Self-Management Intervention in the Elderly Based on HAPA Theory. Huazhong University of Science and Technology.
- [5] Berle and Yan, W.H. (2019) Research on Health Behavior Management of Asthma Patients Based on Health Action Process Model. *Modern Preventive Medicine*, **46**, 4328-4331.
- [6] Asgari, S., Abbasi, M., Hamilton, K., Chen, Y., Griffiths, M.D., Lin, C., *et al.* (2020) A Theory-Based Intervention to Promote Medication Adherence in Patients with Rheumatoid Arthritis: A Randomized Controlled Trial. *Clinical Rheumatology*, **40**, 101-111. <https://doi.org/10.1007/s10067-020-05224-y>
- [7] Yan, J.J., Shen, H.Y., Li, J., *et al.* (2023) Self-Management Intervention under HAPA Theory in Elderly Patients with Diabetes Mellitus Combined with Debility. *Qilu Nursing Journal*, **29**, 84-87.
- [8] Zhang, X.J. and Zheng, J. (2018) Dermatologic Venereology. 9th Edition, People's Health Press, 133.
- [9] Lorig, K.R., Sobel, D.S., Ritter, P.L., *et al.* (2001) Effect of a Self-Management Program on Patients with Chronic Disease. *Effective Clinical Practice*, **4**, 256-262.
- [10] Zigmond, A.S. and Snaith, R.P. (1983) The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, **67**, 361-370. <https://doi.org/10.1111/j.1600-0447.1983.tb09716.x>
- [11] Leung, C.M., Ho, S., Kan, C.S., *et al.* (1993) Evaluation of the Chinese Version of the Hospital Anxiety and Depression Scale. A Cross-Cultural Perspective. *International Journal of Psychosomatics*, **40**, 29-34.
- [12] Finlay, A.Y. (2001) Quality of Life in Atopic Dermatitis. *Journal of the American Academy of Dermatology*, **45**, S64-S66. <https://doi.org/10.1067/mjd.2001.117010>
- [13] Zhang, H., Chen, X., Xie, F., *et al.* (2022) Research Progress and Insights on Self-Management in Patients with Atrial Fibrillation. *Nursing Practice and Research*, **19**, 1152-1157.
- [14] Wang, P., Du, X.F., Xie, X.P., *et al.* (2023) Research on the Application Effect of Health Behavior Process Orientation Theory in Patients with Liver Cirrhosis. *Journal of Nursing Management*, **23**, 423-428.
- [15] Zou, J.Q. (2019) Application of Menu-Based Care Based on HAPA Model in Hemiplegic Patients with Stroke. Nanhua University.

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- [16] Sánchez-Díaz, M., Montero-Vílchez, T., Quiñones-Vico, M.I., Sierra-Sánchez, Á., Ubago-Rodríguez, A., Sanabria-de la Torre, R., *et al.* (2023) Type D Personality as a Marker of Poorer Quality of Life and Mood Status Disturbances in Patients with Skin Diseases: A Systematic Review. *Acta Dermato-Venereologica*, **103**, adv00846. <https://doi.org/10.2340/actadv.v103.2741>
- [17] Zhang, X.J., Yue, J.H. and Lin, R. (2021) The Effect of Health Behavior HAPA Model as a Guide to Improve Self-Efficacy, Mental Health and Medication Adherence in Elderly Hypertensive Patients. *Chinese Journal of Health Psychology*, **29**, 1199-1204.
- [18] Tax, Y.P., Feng, X.Q., Zeng, J.H., *et al.* (2021) Progress in the Study of Quality of Life in Patients with Thyroid-Related Eye Disease. *Nursing Research*, **35**, 273-276.
- [19] Molina-Leyva, A., Aguayo-Carreras, P. and Ruiz-Carrascosa, J. (2020) Type D Personality Is Associated with Poor Quality of Life, Social Performance, and Psychological Impairment in Patients with Moderate to Severe Psoriasis: A Cross-Sectional Study of 130 Patients. *Indian Journal of Dermatology, Venereology and Leprology*, **86**, 375-381. <https://doi.org/10.4103/ijdv.ijdv11419>
- [20] Li, L. (2021) Analysis of the Application of Health Education Model Based on HAPA Theory in Patients with Type 2 Diabetes Mellitus. *General Practice Nursing*, **19**, 2954-2958.