

The Effect of a Bidirectional Quality Feedback Nursing Model on Psychological Resilience in Patients with Facial Vascular Malformations (Post-print)

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Abstract

Objective: To investigate the effect of the bidirectional quality feedback nursing model on psychological resilience in patients with facial vascular malformations.

Methods: A total of 165 patients with facial vascular malformations were selected and randomly divided into a control group (n=82) and a study group (n=83). The control group received routine departmental nursing care, while the study group received the bidirectional quality feedback nursing model in addition to routine care. The Connor-Davidson Resilience Scale (CD-RISC) was used to assess psychological resilience, the Stigma Scale for Chronic Illness (SSCI) was used to evaluate stigma, and nursing satisfaction was assessed.

Results: The CD-RISC score was significantly higher in the study group (81.73 ± 2.48) than in the control group (64.15 ± 3.88) ($P < 0.01$). The SSCI score was significantly lower in the study group (80.4 ± 0.01) than in the control group (95.01 ± 4.05) ($P < 0.01$). The satisfaction score was significantly higher in the study group (95.01 ± 4.05) than in the control group (80.4 ± 0.01) ($P < 0.01$).

Conclusion: The bidirectional quality feedback nursing model can effectively improve patients' psychological resilience, reduce stigma, alleviate disease-related distress, and enhance patient satisfaction.

Full Text

Effect of a Two-Way Quality Feedback Nursing Model on Psychological Resilience in Patients with Facial Vascular Malformations

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Abstract

Objective: To investigate the effect of a two-way quality feedback nursing model on psychological resilience in patients with facial vascular malformations.

Methods: A total of [MATH_0] patients with facial vascular malformations were selected and randomly divided into a control group ($n = [MATH_1]$) and a study group ($n = [MATH_2]$). The control group received routine department nursing care, while the study group received the two-way quality feedback nursing model in addition to routine care. Psychological resilience was assessed using the Connor-Davidson Resilience Scale (CD-RISC), stigma was evaluated using the Stigma Scale for Chronic Illness (SSCI), and nursing satisfaction was measured.

Results: The CD-RISC score in the study group was [MATH_3] points, which was significantly higher than the control group's score of [MATH_4] points ($P < [MATH_5]$). The SSCI score in the study group was [MATH_6] points, significantly lower than the control group's [MATH_7] points ($P < [MATH_8]$). The satisfaction score in the study group was [MATH_9] points, higher than the control group's [MATH_{10}] points ($P < [MATH_{11}]$).

Conclusion: The two-way quality feedback nursing model can effectively improve psychological resilience, reduce stigma, alleviate disease-related distress, and enhance patient satisfaction in patients with facial vascular malformations.

Keywords: facial vascular malformation; two-way quality feedback; nursing model; psychological resilience; chronic illness stigma

Introduction

Facial vascular malformations are congenital vascular developmental anomalies characterized by direct arteriovenous shunts without capillary involvement. These malformations commonly occur in the facial region. Although vascular malformations are congenital, only 40% are apparent at birth, with the

remainder becoming evident during adolescence or adulthood. The lesions typically grow proportionally with physical development, remaining stable for long periods or progressing rapidly within short timeframes. Facial vascular malformations can cause facial, lip, and tongue deformities along with functional impairments. Severe facial disfigurement often leads to inferiority complexes and significantly impacts patients' physical and mental health. Patients with facial vascular malformations frequently require multiple repeated surgeries and endure long treatment cycles, resulting in social withdrawal, substantial psychological pressure, and severely compromised quality of life.

The two-way quality feedback nursing model represents a novel nursing quality control approach. Its intervention strategy involves implementing nursing measures first, then comprehensively evaluating their effectiveness to identify gaps and deficiencies. Simultaneously, through communication with patients and their families, the model identifies patient care issues and needs. Through team meetings, literature review, and integration of previous nursing experience, interventions are refined to comprehensively address patients' physiological and psychological needs. This model facilitates a process where both nursing staff and patients work collaboratively to meet patient needs, thereby enhancing psychological health. This study implemented the two-way quality feedback nursing model in the clinical care of patients with facial vascular malformations and observed its effects, providing a theoretical basis for further optimizing nursing interventions for this patient population.

Methods

Participants and Study Design Using convenience sampling, [MATH_{12}] patients with facial vascular malformations admitted to the vascular surgery department over a two-month period were selected. Inclusion criteria were: (1) diagnosis confirmed according to the "Diagnostic Criteria for Facial Vascular Malformations" ; (2) provision of informed consent and voluntary participation; and (3) ability to communicate normally. Exclusion criteria included: (1) hearing impairment preventing normal communication; (2) cognitive or consciousness disorders; or (3) psychiatric illness.

Patients were randomly divided into two groups using a random number table. The control group included [MATH_{13}] patients (male: [MATH_{14}]; age: [MATH_{15}] years; education level: high school or below [MATH_{16}], undergraduate [MATH_{17}], graduate or above [MATH_{18}]). The study group included [MATH_{19}] patients (male: [MATH_{20}]; age: [MATH_{21}] years; education level: high school or below [MATH_{22}], undergraduate [MATH_{23}], graduate or above [MATH_{24}]). No statistically significant differences were found between groups in gender, age, education level, or other general characteristics ($P > [MATH_{25}]$). This study was approved by the hospital ethics committee, and all patients and their families understood the study purpose and provided informed consent.

Interventions Control Group: Received routine vascular surgery nursing care including: (1) Observation: monitoring facial skin status, compression and circulation of vascular malformations, with particular attention to bleeding and swelling at surgical sites; (2) Dietary care: instructing patients to consume high-protein, high-vitamin, high-fiber foods to improve nutritional status and maintain bowel regularity to prevent postoperative constipation; (3) Health education: routine perioperative disease-related knowledge education; (4) Pain management: conventional analgesic measures based on pain severity; and (5) Psychological care: conducting personality assessments and actively communicating with patients to understand causes of negative emotions, providing psychological guidance, and building treatment confidence.

Study Group: Received the two-way quality feedback nursing model in addition to routine care. (1) **Establishment of a two-way quality feedback team:** The team consisted of experienced clinicians and nurses who summarized and provided feedback on nursing problems to develop personalized care measures and conducted standardized training for team members. (2) **Development of initial nursing interventions:** Health education was enhanced with video materials in addition to written materials. Psychological interventions were tailored to individual patients' psychological resilience levels. Nutritional screening was performed using the Nutritional Risk Screening (NRS-2002) tool, with participation from nationally certified dietitians in developing nutrition plans. Skin care involved infrared physiotherapy for 20 minutes per session to increase circulation and promote wound healing while reducing anxiety and irritability from wound pain. Oral and facial functional exercises including mouth opening and tongue extension were implemented to promote circulation and functional recovery. (3) **Problem identification and feedback:** After two days of intervention implementation, nurses summarized and reviewed the interventions, communicated with patients and families about problems and needs, and held team meetings to discuss patient feedback, review relevant literature, and improve interventions based on clinical experience. (4) **Two-way quality feedback and secondary improvement:** The feedback team informed both healthcare providers and patients about identified problems, engaging patients in the intervention process for mutual supervision and ensuring implementation, with secondary improvement measures developed for identified issues. (5) **Cyclic nursing:** Improved interventions were applied to patients following a “nursing → two-way quality feedback → improvement → nursing” cycle to promote rapid recovery and discharge.

Outcome Measures Psychological Resilience Assessment: The Connor-Davidson Resilience Scale (CD-RISC) was used to evaluate psychological resilience. The scale comprises three dimensions: tenacity (13 items), strength (8 items), and optimism (4 items), with 25 items total. Using a 5-point Likert scale, total scores range from 0-100, with higher scores indicating better psychological resilience. The scale has good reliability and validity (Cronbach's $\alpha = [MATH_{26}]$).

Stigma Assessment: The Stigma Scale for Chronic Illness (SSCI) evaluated patient stigma. The scale includes two dimensions: internalized stigma (13 items) and external stigma (11 items), with 24 items total. Using a 5-point Likert scale, total scores range from 0-96, with higher scores indicating greater stigma. The scale demonstrates good reliability and validity (Cronbach' s $\alpha = [MATH_{27}]$).

Satisfaction Assessment: A self-designed two-way quality feedback nursing model satisfaction questionnaire was used, covering disease knowledge education, rehabilitation guidance, and two-way quality feedback effectiveness. The questionnaire includes $[MATH_{28}]$ items using a 5-point scale, where higher scores indicate greater satisfaction.

Statistical Analysis SPSS $[MATH_{29}]$ software was used for statistical analysis. Measurement data are expressed as mean \pm standard deviation ($\bar{x} \pm s$), with between-group and within-group comparisons using t-tests and repeated measures ANOVA, respectively. Count data are expressed as percentages (%). The significance level was set at $\alpha = [MATH_{30}]$, with $P < [MATH_{31}]$ considered statistically significant.

Results

Psychological Resilience Evaluation After intervention, CD-RISC scores increased in both groups compared to baseline, with the study group' s score ($[MATH_{32}] \pm [MATH_{33}]$) significantly higher than the control group' s ($[MATH_{34}] \pm [MATH_{35}]$) ($P < [MATH_{36}]$).

Stigma Evaluation After intervention, SSCI scores decreased in both groups compared to baseline, with the study group' s score ($[MATH_{37}] \pm [MATH_{38}]$) significantly lower than the control group' s ($[MATH_{39}] \pm [MATH_{40}]$) ($P < [MATH_{41}]$).

Satisfaction Evaluation The study group' s satisfaction score ($[MATH_{42}] \pm [MATH_{43}]$) was significantly higher than the control group' s ($[MATH_{44}] \pm [MATH_{45}]$) ($P < [MATH_{46}]$).

Discussion

Facial hemangiomas are congenital benign vascular tumors or malformations that can occur locally or diffusely in any body part. Facial hemangiomas account for approximately 60% of all body hemangiomas. Early stages may present without obvious symptoms, but most patients show significant lesion enlargement during puberty, with protruding masses and colors distinctly different from surrounding skin. As the condition progresses, hemangiomas invade superficial skin and deep tissue structures, and may enter an ulceration phase with spontaneous skin or mucosal rupture, non-healing, or recurrent bleeding. Beyond affecting

physiological functions, facial hemangiomas primarily cause facial disfigurement and facial feature deformities, readily leading to psychological problems including inferiority, social isolation, and social anxiety. Therefore, timely effective treatment and nursing intervention are particularly important.

The two-way quality feedback nursing model, as a novel approach, focuses greater attention on problems and requests raised by patients and families, incorporating these into nursing strategy development. This meets patients' rehabilitation needs while helping them feel valued and respected, thereby actively engaging them in treatment and recovery. Healthcare providers can also continuously refine nursing details through patient feedback to more effectively improve nursing quality. This model better meets the needs of patients with facial vascular malformations and implements targeted, effective nursing interventions, thereby not only significantly improving quality of life but also enhancing patient and family satisfaction with nursing staff.

Our results show that after intervention, the study group's CD-RISC score was higher than the control group's ($P < [MATH_{47}]$), indicating that the two-way quality feedback nursing model can effectively improve patients' emotional and psychological self-regulation abilities, enabling them to actively cope with various adverse effects of facial vascular malformations and promoting physical and mental health. Psychological resilience, as an active coping ability in adversity, is an important component of mental health maintenance. In modern society, both men and women bear important social and family roles, and facial vascular malformations causing appearance changes create greater life and work pressures, further diminishing psychological resilience. Research indicates that patients with higher education levels have broader access to knowledge, better self-regulation abilities when facing their disease, and can better communicate and cooperate with healthcare providers through the two-way quality feedback nursing model, resulting in relatively higher psychological resilience.

After intervention, the study group's SSCI score was lower than the control group's ($P < [MATH_{48}]$), demonstrating that the two-way quality feedback nursing model enables patients to correctly understand themselves, effectively alleviating stigma from facial vascular malformations and improving psychological status. Furthermore, the study group's satisfaction score was higher than the control group's ($P < [MATH_{49}]$), indicating that the two-way quality feedback nursing model enhances patient satisfaction, which benefits subsequent treatment compliance and confidence in therapeutic outcomes, thereby promoting active disease coping and improved quality of life.

In summary, the two-way quality feedback nursing model transforms traditional nursing approaches by cultivating the ability of patients with facial vascular malformations and their families to participate in nursing care, fully mobilizing their enthusiasm for involvement in nursing measures, achieving continuity of care, enhancing psychological resilience, and promoting rapid patient recovery, demonstrating significant clinical value.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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