Research Article

Professional Pediatric Nursing Interventions Enhancing Adolescent Emotional Resilience, Social Inclusion, And Preventive Healthcare Participation Effectively

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Abstract

Adolescence is a period of physical, emotional and social development which plays a significant role on the health outcomes of life. Anxiety and depression, social isolation and limited engagement with preventive health services are still prevalent issues for adolescents globally. This study compared the efficacy of the pediatric nursing interventions that professionals developed to attain improvements in emotional resilience, social integration and participation in preventive healthcare. The study was a quasi-experimental design with 240 adolescents aged 13 to 18 years engaging in 12 weeks of a resilience training, peer-support, health education and individualized counselling program. The data were gathered with the help of appropriate assessment instruments and analyzed by descriptive and inferential statistical analysis. The results indicated the intervention led to significant post-intervention improvements in emotional resilience, social connectedness, health awareness and engagement with preventive healthcare ($p < 0.05$). The study shows that structured pediatric nursing interventions are effective and can enhance psychosocial functioning which promotes a healthier future for adolescents and their health behaviors.

Keywords: Adolescents, Pediatric Nursing, Emotional Resilience, Social Inclusion, Preventive Healthcare, Adolescent Health Promotion.

1. Introduction

Adolescent health has become an important public health priority because of its important impact on lifetime physical, mental and social health. Adolescence is a time of tremendous development, between the ages of 10 to 19, and has an impact on long-term health behaviors and health outcomes. For many adolescents, this is a time of emotional stressors such as stress, anxiety and a lack of self-esteem, as well as struggles with coping mechanisms when attending school, at home and in social situations. Emotional resilience is a key indicator of healthy adolescent development; it is the capacity to deal positively with the challenges of life and emerge from stressful situations.

Social exclusion is another issue that causes concern to adolescents as well as their emotional issues. Peer rejection, discrimination, bullying and lack of social support have been shown to have negative consequences in psychological well-being, academic achievement, and social functioning. In addition, there are many indicators that teens exhibited low utilization of health care services, such as routine health check-ups, vaccination, mental health counseling, and health education. Poor engagement is due to lack of awareness, social stigma and support systems.

The promotion of health, counselling, emotional support and preventive care interventions of a pediatric nurse are paramount to addressing these challenges. They are in close contact with the adolescents, their families, schools and communities, which puts them in a strong position to build resilience, promote social inclusion and healthy behaviors. Although there is an emerging body of literature on the psychosocial needs of adolescents, there is not a great deal of evidence to explore the effects of nursing interventions that incorporate a structured approach on emotional resilience, social inclusion, and participation in preventive healthcare. This study, then, sets out to assess the effectiveness of professional pediatric nursing interventions to enhance these outcomes among adolescents. The study will in particular

examine changes in resilience, as well as the results of improved social inclusion, rates of participation in preventive healthcare, and factors that could help or hinder the effectiveness of the interventions in implementing.

2. Literature Review

Adolescents are a developmental stage characterized by a number of more complex biologic, psychological and social changes that will impact their health and well-being in the future [2]. The importance of emotional resilience to the ability of adolescents to respond positively to stress, adversity and life challenges is well recognized [9]. Increased levels of resilience have been linked to better mental well-being, educational success, self-esteem and quality of life [14]. However, poor coping skills can lead to greater susceptibility to anxiety, depression, behavioral issues and other psychosocial issues. [13]

Another important factor of adolescent well-being is social inclusion [11]. Likely in school and community activities, positive peer relationships and a supportive family life provide emotional security and a sense of belonging [6]. Conversely, social exclusion, bullying, discrimination and isolation can have a negative impact on the psychological health, social development and educational outcomes [10]. Adolescents with more positive social connections tend to have more positive behavioral patterns and emotional adjustment [1].

Health habits are an important component in sustaining the health of adolescents and decreasing the disease burden they will have in the future [5]. Regular health screening, immunization rates, mental health consultations, nutrition counseling and health education programs identify risk and encourage healthy lifestyle choices [12]. Yet there are many adolescents who do not seek preventive health care services due to poor awareness, geographic accessibility, fear of stigma and inadequate provider and family support [2].

Pediatric nursing interventions have been shifting from ensuring mental health, fostering resilience, social competence to promoting preventive health behaviors [3]. Pediatric nurses play an important role in promoting the health of adolescents in the areas of counseling, health education, emotional support, and family-centered care [4]. School-based and community-based nursing (CBN) programs have shown to be effective in enhancing positive psychological outcomes and health literacy among youth as well as improving healthcare engagement [8].

Previous studies have studied emotional resilience, social inclusion and preventive care separately but not the combined effect of organized nursing care in children on these intertwined concepts [7]. Few studies have explored the integrated effect of organized pediatric nursing care on these concepts [3]. This is where a lack of robust evidence exists to inform the impact of professional pediatric nursing approaches on improving emotional resilience, social inclusion, and engagement in preventative health care services for adolescents exists [11].

3. Materials and Methods

3.1 Study Design and Setting

A pre-test/post-test quasi-experimental design was used to test the effectiveness of the interventions provided by a professional pediatric nurse on the emotional resilience, social inclusion, and involvement in preventive care of adolescents. This research was done among the selected secondary schools and community health centres for 12 weeks in selected location that will allow easy access to adolescents and a setting that is conducive to structured health interventions.

Overall, the research was divided into three phases: baseline assessment, implementation of the intervention, and a post-intervention evaluation. Participants first participated in a standardised assessment of emotional resilience, social inclusion, healthcare participation in prevention and health knowledge. Resilience training, peer support activities, preventative health education, individual counseling, and parent–teacher awareness sessions, conducted by trained pediatric nurses, made up the intervention program.

Attendance and participation of the participants were tracked during the intervention. The same assessment tools were administered after 12 weeks to determine the changes in outcome variables. The gained data using pre-test/post-test comparison test situation allowed the assessment of the effectiveness of the intervention and the role of pediatric

nursing practices in adolescent psychosocial wellness and health care involvement.

3.2 Study Population and Sampling

The study population was adolescent children aged 13–18 years in selected secondary schools and community health programmes in the study area. The age group was selected because adolescence is a time of ongoing and dynamic development of emotional resiliency, social relationships and health behaviors. The participants were chosen from educational and community healthcare facilities to provide diversity in terms of demographics and social backgrounds. Adolescents were included if they gave informed consent and written consent from their parents/legal guardian. To minimize the potential for confounding factors, participants were excluded from the study if they had an incomplete baseline assessment record, a chronic debilitating illness, a cognitive impairments that impacted on communication, or a severe psychiatric disorder.

To ensure statistical power for detecting meaningful differences between pre intervention and post intervention outcomes, a total sample size of 240 adolescent was found to be appropriate. Stratified random sampling was used to ensure that the sample was representative across the spectrum of age, gender and level of education. This sampling option contributed to the study population being more representative, and improved the reliability and generalizability of the study results.

3.3 Variables and Intervention Framework

A Professional Pediatric Nursing Intervention Program (PPNIP) was explored as the independent variable in the study. The intervention was designed and structured to address important psychosocial and health related issues faced by adolescents. Emotional resilience, social inclusion, and participation in the use of preventive healthcare services were used as the primary outcome measures in assessing the effectiveness of the interventions, and were considered dependent variables.

The intervention involved several evidence-based components and was implemented for a 12 week timeframe. Stress management, emotional regulation, problem-solving and emotional coping training sessions were conducted to enhance emotional resilience. Adolescents actively engaged in peer-support activities had positive social interaction skills, team-work, communication abilities, respect for others and a sense of belonging. Health education sessions conducted were aimed at providing information on Health screening practices, vaccination, Mental health awareness, Nutrition and healthy lifestyle behaviors. One-on-one counseling provided personalized guidance and emotional support, meeting individual needs and addressing concerns and enhancing adaptive behaviors. Also, parent–teacher awareness workshops were organized to encourage co-operative support system for adolescent development.

Trained pediatric nurses conducted all components of intervention, following standardized procedures to assure consistency and quality. The framework was intended to promote psychosocial wellbeing, social cohesion, and awareness of health and engage adolescents in preventive health services.

3.4 Data Collection and Statistical Analysis

A structured demographic questionnaire, Adolescent Emotional Resilience Scale, Social Inclusion Assessment Scale, Preventive Healthcare Participation Checklist and Health Knowledge Questionnaire were used to collect data. The instruments chosen to capture as a whole demographic characteristics, psychosocial wellbeing, social connectedness, health awareness, and health care engagement among adolescents. Pre and post intervention assessments were carried out in the same order, for the same amount of time, using the same assessment tools to provide consistency and comparable findings.

The study was approved by the Institutional Review Board (IRB). Parents/legal guardians gave written informed consent and all participating adolescents gave assent. The confidentiality, anonymity and data protection of participants was ensured during the research process.

IBM SPSS Statistics software was used for data analysis. Participant characteristics and the outcome variables were presented in tabular form in the form of descriptive statistics such as frequencies, percentages, mean and standard deviations. Paired t-tests were used to compare pre- and post-intervention results; independent t-tests were used to examine group differences; chi-square tests were used to determine the association between categorical variables and

logistic regression analysis was used to determine pre- and post-intervention success predictors. The p-value of less than 0.05 was considered to be statistically significant. The percentage improvement was derived based on Equation (1):

$$\boldsymbol{PI}(\%) = \frac{\boldsymbol{S_{post} - S_{pre}}}{\boldsymbol{S_{pre}}} \times \mathbf{100} \quad \textbf{(1)}$$

where $\boldsymbol{PI}$ denotes percentage improvement, $\boldsymbol{S_{post}}$ represents the post-intervention score, and $\boldsymbol{S_{pre}}$ represents the baseline score. A logistic regression model was used, as in Equation (2), to assess the contribution of emotional resilience, social inclusion and participation in preventive healthcare to the effectiveness of interventions.

$$\ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 ER + \beta_2 SI + \beta_3 PHP \quad (2)$$

where P is the probability of a successful intervention outcome, ER denotes the Emotional Resilience Score, SI represents the Social Inclusion Score, PHP indicates the Preventive Healthcare Participation Score, β_0 is the intercept, and β_1, β_2, and β_3 are the regression coefficients associated with the predictor variables.

4. Conceptual Framework

The conceptual framework (figure 1) shows the relationship between the interventions of pediatric nursing and outcomes of adolescent's health. The framework consists of three key elements: inputs, processes, and outputs. The inputs include nursing education, counselling services, peer engagement activities and family involvement and together form the basis for promoting the health and well-being of adolescents. These inputs are provided by organised practices in paediatrics, providing care to adolescents in the field of emotional, social and preventive healthcare.

This will encompass health promotion activities, social skill development and emotional support in the process. Emotional support promotes good coping and resilience skills among adolescents in the face of personal, school and social issues. Social skill development promotes communication, social interaction, teamwork and community belonging in school and societal context. Health promotion efforts help raise awareness about healthy habits, preventive health services, screening, immunization, and psychosocial health services.

The output is the intended results of the intervention program. These are a reduction in emotional vulnerability, improved social integration and greater uptake of prevention health services. Developing resilience helps adolescents to cope better with stress and improved social inclusion helps to build better interpersonal relationships and greater community involvement. Better participation in preventive health care promotes healthy behaviors and supports positive lifelong physical and mental health.

In general, the development of the framework highlights the ability of pediatric nursing interventions to positively influence adolescent psychosocial development and engagement with health care services when they turn supportive inputs into measurable health-related outcomes as seen in Figure 1.

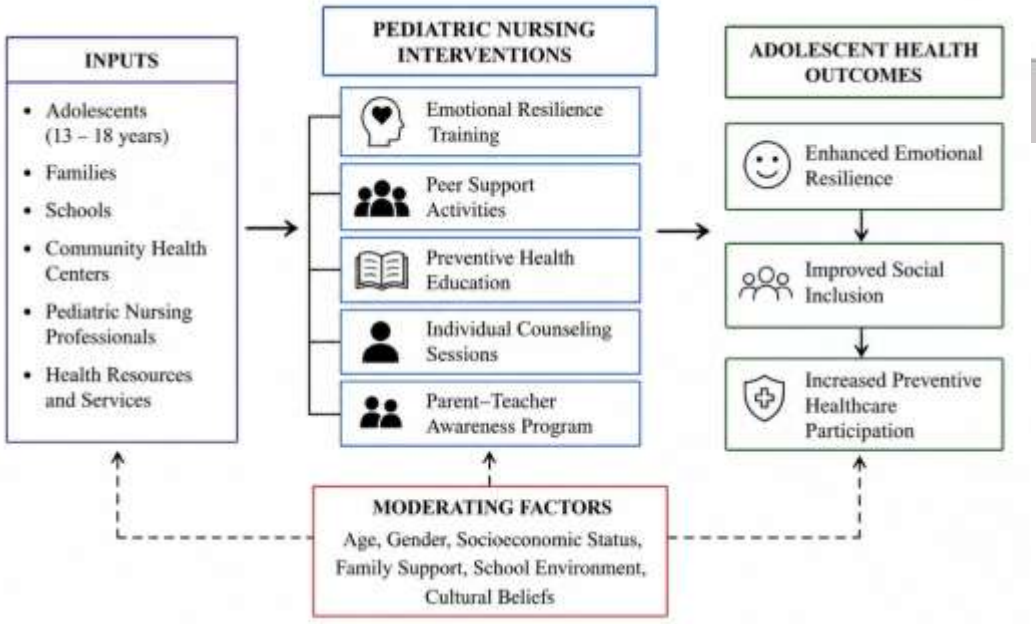

Figure 1. Pediatric Nursing Intervention Framework

5. Results

5.1 Participant Characteristics and Baseline Assessment

A total of 240 adolescents participated in the study. Table 1 shows the demographic information of the participants. The total number of samples consisted of 13–18 year old adolescents in a balanced ratio between genders and educational levels. The majority of participants were between 15 and 16 years of age (37.5%), followed by those aged 17–18 years (31.3%) and 13–14 years (31.2%). Of the study population 52.1% were female and 47.9% were male. The distribution according to demographic variables revealed that the sample of adolescents studied fairly represented the educational and social backgrounds of adolescents.

Table 1. Demographic Characteristics of Participants (N = 240)

Variable	Category	Frequency (n)	Percentage (%)
Age Group	13–14 years	75	31.2
	15–16 years	90	37.5
	17–18 years	75	31.3
Gender	Male	115	47.9
	Female	125	52.1
Educational Level	Middle School	92	38.3
	High School	148	61.7
Residence	Urban	138	57.5
	Rural	102	42.5
Family Support Level	Moderate	101	42.1
	High	139	57.9

Table 2 shows the baseline measurements of emotional resilience, social inclusion, participation in preventive health services and health knowledge. Before the nursing intervention for children, the subjects had moderate scores of emotional resilience and social inclusion, and high scores of participation in preventive healthcare and health knowledge.

Table 2. Baseline Emotional Resilience, Social Inclusion, and Preventive Healthcare Participation Scores (N = 240)

Outcome Variable	Scale Range	Mean ± SD	Minimum	Maximum
Emotional Resilience Score	0–40	21.4 ± 5.8	10	35
Social Inclusion Score	0–50	26.7 ± 6.2	12	44
Preventive Healthcare Participation Score	0–20	8.3 ± 3.1	2	16
Health Knowledge Score	0–30	14.2 ± 4.7	5	25

The emotional resilience scores were moderately high with the mean score being 21.4 ± 5.8 as seen in Table 2. The mean social inclusion score was 26.7 ± 6.2 (moderate level of social connectedness and peer engagement). The lowest baseline performance was seen in the preventive healthcare participation with a mean score of 8.3 ± 3.1 and the health knowledge score was 14.2 ± 4.7. Baseline results suggest that children's nursing interventions are needed to enhance their social and emotional health and facilitate engagement in preventive healthcare for adolescents.

5.2 Effect of the Pediatric Nursing Intervention on Emotional Resilience and Social Inclusion

The results of the pediatric nursing intervention program were compared with scores before the program and after the program, in order to evaluate the results of this program on emotional resilience and social inclusion. As indicated in Table 3, there was significant improvement after the 12-week intervention period with both outcomes. The mean emotional resilience score rose from 21.4 ± 5.8 at baseline to 31.8 ± 4.9 at the end of the intervention (48.6% increase). The same happened with the mean score of social inclusion, which rose from 26.7 ± 6.2 to 39.5 ± 5.6 (47.9%). These improvements were statistically significant ($p<0.001$) and the results of the paired t-test showed that the professional pediatric nursing interventions had a positive effect on adolescent psychosocial well-being.

Table 3. Pre- and Post-Intervention Emotional Resilience and Social Inclusion Scores (N = 240)

Outcome Variable	Pre-Intervention (Mean ± SD)	Post-Intervention (Mean ± SD)	Percentage Improvement (%)	p-value
Emotional Resilience	21.4 ± 5.8	31.8 ± 4.9	48.6	< 0.001
Social Inclusion	26.7 ± 6.2	39.5 ± 5.6	47.9	< 0.001

These results are presented in the figure (Fig. 2). A clear increase in both the mean scores of emotional resilience and social inclusion after the intervention program is evident. The higher scores following intervention compared with the scores at baseline suggest that adolescents' coping skills, emotion regulation skills, positive peer relationships, and effectiveness in social settings meaningfully improved. The sizeable gains found in both areas demonstrate the effectiveness of the framework of nursing interventions in modifying emotional and social factors affecting adolescent health.

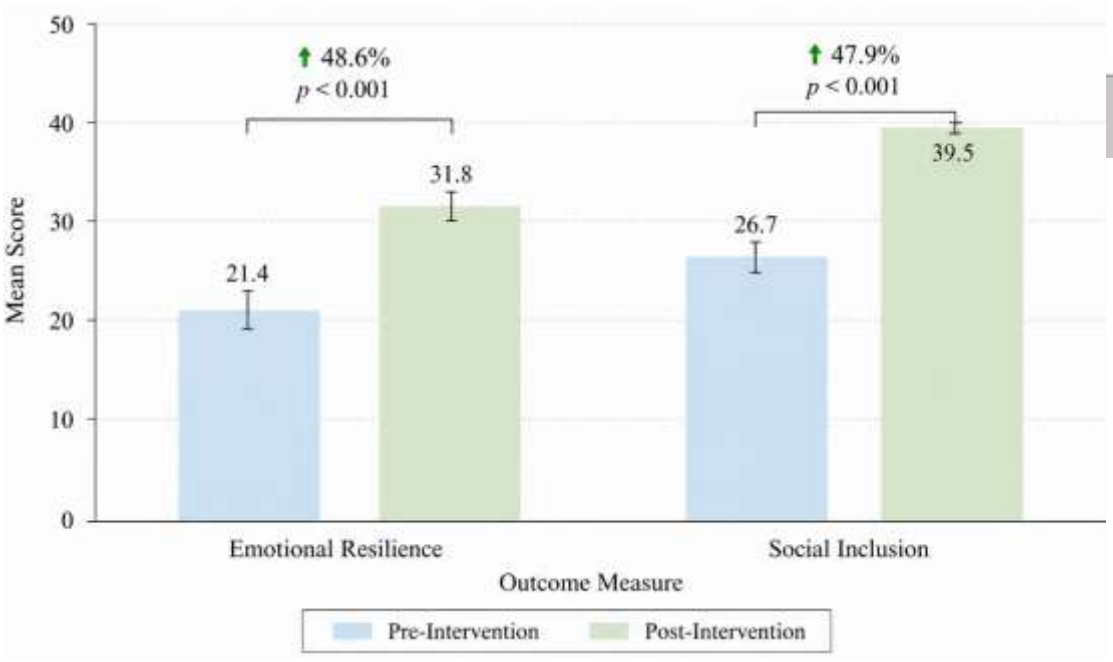

Figure 2. Changes in Emotional Resilience and Social Inclusion

The figure shows results of the nursing intervention carried out with children on the parameters of emotional resilience and social inclusion, demonstrating statistically significant gains in both. There was an increase of 48.6 points (+21.4 to +31.8) in emotional resilience; an increase of 47.9 points (+26.7 to +39.5) in social inclusion. All error bars indicate standard deviation and significance testing was carried out using paired t-tests ($p < 0.001$). The results suggest that pediatric nursing interventions which are structured can have great impact to improve the psychosocial development and social connectedness in adolescents.

5.3 Effect of the Pediatric Nursing Intervention on Preventive Healthcare Participation

The effect of the pediatric nursing intervention on participation in preventive healthcare was evaluated by examining the outcomes of the participants before and after the 12-week intervention program. As displayed in Table 4, significant enhancements were seen with regards to all preventive healthcare markers. There was a significant improvement in the mean score of preventive healthcare participation from 8.3 ± 3.1 at baseline to 15.6 ± 2.8 after intervention (87.9%). Likewise, the mean health knowledge score rose from 14.2 ± 4.7 to 24.8 ± 3.9, which equates to a 74.6% increase. The participation in preventive health visits rose from 42.5 to 78.3% and the acceptance of counseling rose from 36.4 to 72.6%. The adolescent utilization of all preventive healthcare services improved significantly ($p < 0.001$), and the intervention was effective for adolescents to engage in preventive services.

Table 4. Preventive Healthcare Participation Outcomes Before and After Intervention (N = 240)

Outcome Variable	Pre-Intervention	Post-Intervention	Improvement (%)	p-value
Preventive Healthcare Participation Score	8.3 ± 3.1	15.6 ± 2.8	87.9	< 0.001
Health Knowledge Score	14.2 ± 4.7	24.8 ± 3.9	74.6	< 0.001
Preventive Health Visit Participation (%)	42.5	78.3	84.2	< 0.001
Counseling Acceptance (%)	36.4	72.6	99.5	< 0.001

The improvements in the intervention are represented visually in Figure 3 in a multi-dimensional manner. The graph shows a clear increase in indicators of preventive health care after the intervention. A larger post-intervention profile of the profile compared to baseline profile shows greater engagement with healthcare systems, health literacy, and acceptance of counseling services and uptake of preventative health visits. Counselling acceptance and participation in preventive health care services, and/or the use of preventive health visits were the most notable improvements. The results of this study revealed that the professional efforts of pediatric nurses could be effective in enhancing the level of preventive health behaviors and provision of opportunities for young people to actively engage in health care services as necessary for long-term physical and mental health.

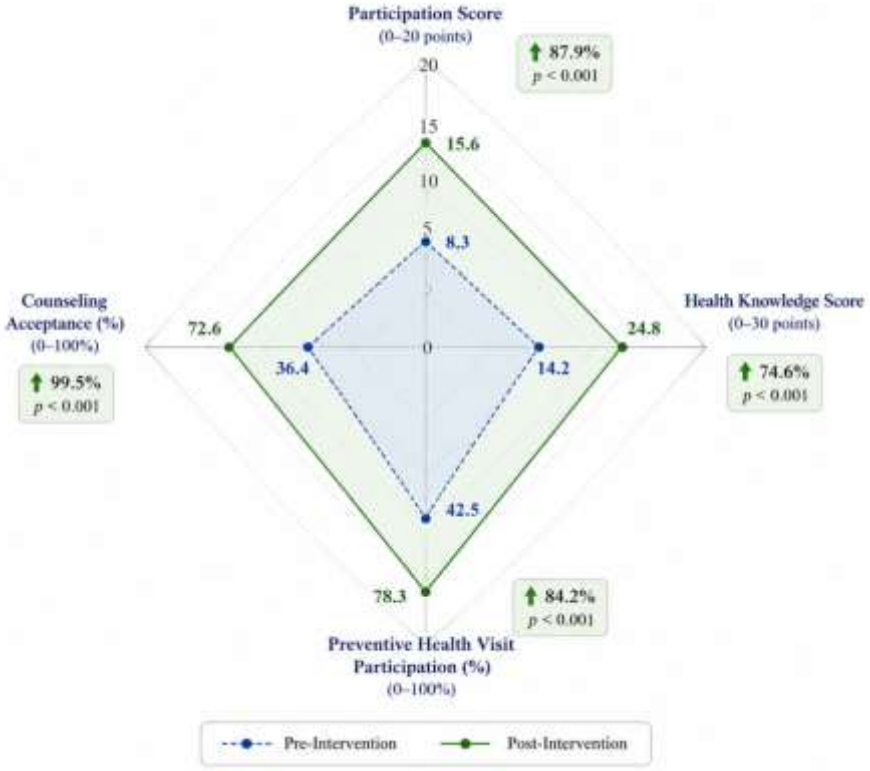

Figure 3. Improvements in Preventive Healthcare Participation

Figure 3 illustrates a radar chart that shows the scores obtained in pre-intervention and post intervention on four components of preventive healthcare: preventive healthcare participation score, health knowledge score, participation in health visit, and health counseling acceptance. Throughout the expanded post intervention polygon, the increases in each indicator are 87.9%, 74.6%, 84.2% and 99.5%, respectively, which is an improvement. These findings thus show that the pediatric nursing intervention did indeed improve the awareness about preventive health care of the adolescents involved, as well as their healthcare utilization and positive health seeking behaviors.

5.4 Predictors of Intervention Success

The logistic regression was used to determine variables associated with successful intervention outcomes with predictor variables of emotional resilience, social inclusion, involvement in preventative healthcare, and health knowledge. The results are presented in Table 5. The results of the analysis indicated that all predictors ($p < 0.05$) were significantly related to the successful outcome of intervention. The most predictive factors were preventive healthcare participation, emotional resilience and social inclusion, among the factors analysed. The results indicate that psychosocial well-being and healthcare engagement variables contributed to a better likelihood of positive intervention outcome among adolescents who demonstrated greater changes.

Table 5. Logistic Regression Analysis of Factors Associated with Successful Outcomes (N = 240)

Predictor Variable	Regression Coefficient (β)	Standard Error	Odds Ratio (OR)	95% CI	p-value
Emotional Resilience Score	0.42	0.11	1.52	1.23–1.88	< 0.001
Social Inclusion Score	0.38	0.10	1.46	1.20–1.79	< 0.001
Preventive Healthcare Participation Score	0.51	0.12	1.67	1.32–2.11	< 0.001
Health Knowledge Score	0.35	0.09	1.42	1.18–1.71	0.002

Increased participation in preventive healthcare activities had the greatest OR (1.67), as displayed in Table 5, suggesting that the odds of successful intervention outcomes were strongly associated with participation in preventive healthcare. Both emotional resilience (OR = 1.52) and social inclusion (OR = 1.46) were great predictors, underlining the significance of psychosocial development in providing adolescent health promotion. Better general knowledge about health was found to be positively associated with intervention success, and this relationship was also significant (OR = 1.42, p = 0.002), indicating that more comprehensive knowledge and understanding of health related issues led to a better overall result of the intervention.

In general, the results of the logistic regression show that the pediatric nursing intervention framework is effective, and that when the four categories of facilitators for adolescents' health outcomes are combined, the interventions are collectively beneficial. These results further validate the results of the tables 3 and 4 and show the multidimensional effect of structured pediatric nursing interventions.

6. Discussion

The results from this study show that interventions by a professional pediatric nurse make a tremendous difference for emotional resilience, social participation, and participation in preventive health care among adolescents. After the 12-week intervention program, there were significant improvements in all the primary outcome measures, reflecting the effectiveness of an integrated nursing intervention program that encompasses emotional support, health education, peer involvement and family involvement. This improvement in emotional resilience indicated that adolescents had enhanced coping mechanisms, emotional regulation, and self-efficacy in handling personal and social issues, underscoring the significance of pediatric nurses in fostering adolescents' psychological well-being.

Significant gains were also found with regards to social inclusion, suggesting that there was a positive effect after the intervention of the structured peer-support activities and counselling session on the interpersonal relations and a sense of belonging. In addition, considerable improvements in preventive health care participation, health knowledge, health counseling acceptance, and health service utilization prove that pediatric nursing interventions can be effective at promoting positive health behaviors and increasing access to health care services.

These results are similar to other research that demonstrates a positive impact of school and community nursing on adolescent mental health, social functioning and preventive health. The present study builds upon previous evidence and provides information regarding the cumulative effect of multiple intervention components when presented together in an integrated program.

Results from a clinical and public health focus highlight the need for pediatric nurses to be involved in adolescent health promotion programs. This has been well done for the structure of the intervention, the adequate sample size, validated assessment instruments and assessment of a number of outcomes. Nevertheless, its drawbacks consist of brief intervention period, self-reporting data and the restriction to specific schools and community health centers. Further research is needed on longer-term sustainability of interventions using larger populations. In all, the results indicate that interventions by professional pediatric nursing are an effective approach to enhance adolescent psychosocial outcomes and increase their use of preventive care.

7. Conclusion

The present study was able to show that the professional interventions carried out by pediatric nurses had a positive impact on the emotional resilience, social inclusion and participation in preventive healthcare of the teens. After 12 weeks of intervention, the participants experienced significant improvements in coping skills, social connectedness, health knowledge, acceptance of counseling, and utilization of preventive health services. The results show that the planned nursing action can be successfully used to solve such important problems on the social and health aspects of adolescence.

The findings underscore the importance of pediatric nurses in supporting the health of adolescents through engagement in activities that build resilience, offering health education, counselling, peer support services and engaging families. Incorporating such interventions into school and community health care systems could help alleviate poor mental health, enhance social relationships, and promote better preventive health care. At a policy level, there is a need to encourage and assist the development of comprehensive pediatric nursing training programs which emphasize adolescence psychosocial development and prevention of health promotion.

The intervention yielded promising results, but further studies with larger and more diverse samples are suggested to improve the generalizability of the results. Further evaluation of intervention effects over long term is also recommended through longitudinal study designs with longer follow-up. In general, professional pediatric nursing interventions are an effective and feasible approach to enhancing the psychosocial well-being of adolescents, to social inclusion, and to encouraging proactive engagement in preventive care.

References

1. Arslan, Gökmen. "Psychological maltreatment and spiritual wellbeing in Turkish college young adults: exploring the mediating effect of college belonging and social support." Journal of religion and health 60.2 (2021): 709-725.
2. Azzopardi, Peter S., et al. "Progress in adolescent health and wellbeing: tracking 12 headline indicators for 195 countries and territories, 1990–2016." The Lancet 393.10176 (2019): 1101-1118.
3. Dray, Julia, et al. "Systematic review of universal resilience-focused interventions targeting child and adolescent mental health in the school setting." Journal of the American Academy of Child & Adolescent Psychiatry 56.10 (2017): 813-824.
4. Fenwick-Smith, Amanda, Emma E. Dahlberg, and Sandra C. Thompson. "Systematic review of resilience-enhancing, universal, primary school-based mental health promotion programs." BMC psychology 6.1 (2018): 30.
5. Gore, Fiona M., et al. "Global burden of disease in young people aged 10–24 years: a systematic analysis." The Lancet 377.9783 (2011): 2093-2102.
6. Jose, Paul E., Nicholas Ryan, and Jan Pryor. "Does social connectedness promote a greater sense of well-being in adolescence over time?." Journal of research on adolescence 22.2 (2012): 235-251.
7. Joyce, Sadhbh, et al. "Road to resilience: a systematic review and meta-analysis of resilience training programmes and interventions." BMJ open 8.6 (2018): e017858.
8. Kidger, Judi, et al. "The effect of the school environment on the emotional health of adolescents: a systematic review." Pediatrics 129.5 (2012): 925-949.
9. Masten, Ann S. "Global perspectives on resilience in children and youth." Child development 85.1 (2014): 6-20.
10. Moore, Graham F., et al. "School, peer and family relationships and adolescent substance use, subjective wellbeing and mental health symptoms in Wales: A cross sectional study." Child indicators research 11.6 (2018): 1951-1965.
11. Patton, George C., et al. "Our future: a Lancet commission on adolescent health and wellbeing." The Lancet 387.10036 (2016): 2423-2478.
12. Sawyer, Susan M., et al. "Adolescence: a foundation for future health." The lancet 379.9826 (2012): 1630-1640.
13. Theron, Linda C. "Toward a culturally and contextually sensitive understanding of resilience: Privileging the voices of black, South African young people." Journal of Adolescent Research 31.6 (2016): 635-670.
14. Ungar, Michael. "The social ecology of resilience: addressing contextual and cultural ambiguity of a nascent construct." American journal of orthopsychiatry 81.1 (2011): 1.
15. Naren Swamy Jamithireddy, “An Integrated TQM–Digital Innovation Framework for Enhancing Organizational Performance: A Data-Driven Evaluation Using EFQM-Based Metrics”, National Journal of Quality, Innovation, and Business Excellence, pp. 1–9, Feb. 2026.

16. N. Arvinth and T M Sathish Kumar, “AI-Augmented Bioinformatics Framework for Predicting Protein–Protein Interactions in Complex Diseases”, Frontiers in Life Sciences Research, pp. 36–40, Dec. 2025.
17. Raj, L. V., Sasi, S., Rajeswari, P., Pushpa, B. R., Kulkarni, A. V., & Biradar, S. (2025). Design of FBG-based optical biosensor for the detection of malaria. Journal of Optics, 1-10.
18. Rajeswari, P., & Chandra, S. T. (2017, December). A survey on an optimal solution for VLSI circuit partitioning in physical design using DPSO & DFFA algorithms. In 2017 International Conference on Intelligent Sustainable Systems (ICISS) (pp. 868-872). IEEE.