

Collaborative Pediatric Care Models Encouraging Adolescent participation in Preventive Healthcare and Emotional Wellness Education Programs Today

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Abstract

Adolescent access to preventive health care is not ideal and is impacted by health care systems that are fragmented, lack awareness about health, and do not provide adequate emotional wellness care. These difficulties lead to delayed access to health care, greater psychological distress, and poor health outcomes in the long-term. In response, the present study suggests a cooperative model for pediatric care that involves integration between healthcare professionals, schools, families and community-based wellness education programs to increase the involvement of adolescents in proactivity with regard to preventive healthcare practices. A quantitative cross sectional study was carried out on 200 adolescents aged 13-18 years from educational institutions and health centers in the community. Standardized instruments were used to gather data on health care participation, emotional wellness, health literacy, and satisfaction with care, with descriptive statistics, correlation, and regression analysis being used to analyze the data. Results indicated a significant rise in preventive healthcare participation from 58.4% to 81.7% and a significant increase in mean health literacy scores from 61.2 ± 8.4 to 78.6 ± 7.1 after being exposed to collaborative interventions. Emotional distress scores were reduced by 31.5% and there was a significant positive correlation between healthcare participation and emotional wellness ($r = 0.72$, $p < 0.001$). In addition, the level of collaborative care engagement was a strong predictor of better adolescent health outcomes ($\beta = 0.68$, $p < 0.001$). The findings in this study illustrate that integrated pediatric care could be successful in improving the utilization of preventive healthcare services, emotional wellbeing and health literacy in adolescents, which suggests the potential for the implementation of coordinated school-family-healthcare partnerships for sustainable adolescent health promotion. Keywords: Adolescent Health, Collaborative Pediatric Care, Preventive Healthcare, Emotional Wellness, Health Literacy, Health Promotion.

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Introduction

Adolescence is a developmental phase that is crucial for the implementation of preventive health care, which is crucial for the physical, emotional and social wellbeing of the adolescent for a lifetime. Proactive measures like health checks, immunisation, health education and mental health support can have a major impact on reducing the health risks in the future and enhancing quality of life. The involvement of adolescents in preventive health care is still very low, however, because of low health awareness, disconnected health services, and lack of health care decision-making. At the same time, the incidence of emotional and mental health problems, such as anxiety, stress, and depression, has risen significantly among adolescents, with the need for holistic health promotion interventions. Some research has already confirmed the effectiveness of school-based health programs, counseling interventions, family-centered health

care services, and community-based wellness initiatives to positively affect adolescent health outcomes. Interprofessional care (pediatricians, teachers, counsellors, and parents) has also proved to be successful in enhancing the accessibility of healthcare and emotional support. Even with these progressions, interventions are mostly relevant to preventative health care or emotional well-being, with a lack of integration across services. Moreover, young people are sometimes treated as recipients not participants when planning and implementing health care. There are few quantitative studies that assess the effectiveness of collaborative models for integrated pediatric care. This study aims to develop a Collaborative Pediatric Care Model that brings together healthcare providers, schools, families and community groups to promote active adolescent involvement in preventive healthcare and emotional wellness education programs, in order to overcome the aforementioned challenges. The model integrates preventive health services, health literacy programs, emotional wellness education and a health care stakeholder partnership in a single program framework. The aims are to evaluate the effectiveness of collaborative pediatric care in improving the participation in preventive health care, to understand the effects of emotional wellness education on adolescent emotional health, and to examine the association of participation in preventive health care and emotional health outcomes. The study adds value by developing an integrated multidisciplinary approach, quantifying the effectiveness of the interventions, and offering evidence-based recommendations for sustainable adolescent health-promotion initiatives.

2. Literature Review

Integrated models of collaborative pediatric care have been successful in enhancing adolescent health through the coordinated work of multiple health care providers, educators, counselors, and family members. These models place an emphasis on preventive care, early intervention, ongoing health monitoring, and involve adolescents in a more active role in healthcare decision making. Collaborative care interventions have been found to significantly improve pediatric behavioral health outcomes [8] and coordinated health care services have been found to improve the way in which complex pediatric needs are managed [10]. Additionally, progresses in pediatric health care technologies and machine learning have improved health care delivery and decision-making support for adolescents [5]. Health monitoring, nutrition awareness, and healthy lifestyle promotion in preventive healthcare programs have been shown to be a highly effective way of decreasing health risk and enhancing health behaviors. To facilitate proactive management of adolescent health, platforms for big data-driven health monitoring have been created [3]; and smart school-based systems have been used to enhance health awareness and health preventive practices among adolescents [1]. School-based physical activity interventions have also been linked to improvements in children's and adolescents' well-being and in healthier lifestyles [2].

As well as physical health programs, there have been a growing emphasis on programs for emotional health because of the increasing anxiety, stress and depression among teens. School-based mental health education programs have been shown to have a positive effect on psychological well-being and help seeking behaviors [7] and technology used for emotional support systems have been found to be effective in enhancing mental health management [13,14]. School-healthcare partnerships are important to provide accessible health services and wellness programs in school environments. Intersectoral partnerships enhance the effectiveness of health promotion and help to share information with stakeholders [11,12]. Additionally, family involvement in adolescent health has the important function of supporting the health of adolescents through supportive parenting and involvement in health education programs [4,6].

Moreover, mobile health and self-care technology fosters adolescent's participation in preventive health and self-care [9]. Despite these achievements, there is a lack of integration between sectors of the health, educational and community contexts and of information sharing within programs. The current literature tends to focus on interventions independently, leaving a lack of understanding regarding the combined effect of interventions. Hence, the need for multidisciplinary approaches that are integrated to encourage participation in preventive healthcare and emotional wellness among adolescents through coordinated collaborative care approaches.

3. Methodology

3.1 Research Design and Participants

The research design used in this study was quantitative research with a cross sectional approach. The advantage of a cross sectional approach is that they allow for the simultaneous measurement of the engagement with the healthcare system, emotional well-being, health literacy and self care behaviors within a specific population. The study was carried out among 200 adolescent aged 13-18 years drawn from the secondary schools and the community health centres in the study area using stratified random sampling technique. Age group is an important developmental window, as the chosen age group is making decisions about their health and are more susceptible to physical and emotional health issues. The number of samples was judged to be acceptable for achieving sufficient statistical power in detecting moderate relationships among variables as well as correlation and regression analyses.

Table 1. Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Age Group	13–15 Years	96	48.0
	16–18 Years	104	52.0
Gender	Male	101	50.5
	Female	99	49.5
Institution Type	School	130	65.0
	Community Health Center	70	35.0

The demographic characteristics of the participants included in the study is presented in table 1. The distribution shows that the ages, gender and recruitment settings are well balanced. This diversity adds to the findings' reliability and generality of findings with respect to participation in adolescent health care and emotional wellness outcomes.

3.2 Data Collection Instruments

Assessment instruments were used that were standard and validated. The variables of interest in measuring participation in preventive health care and emotional wellness were measured using the Adolescent Health Participation Scale (AHPS) and the Depression, Anxiety, Stress Scale (DASS-21), respectively. Health literacy was assessed with the Health Literacy Questionnaire (HLQ) and satisfaction with the pediatric healthcare services was assessed with the Pediatric Care Satisfaction Survey (PCSS).

Table 2. Measurement Instruments

Variable	Instrument Used	Purpose
Preventive Healthcare Participation	Adolescent Health Participation Scale	Measures healthcare engagement
Emotional Wellness	DASS-21	Assesses psychological well-being
Health Literacy	Health Literacy Questionnaire	Evaluates health knowledge and understanding
Care Satisfaction	Pediatric Care Satisfaction Survey	Measures satisfaction with healthcare services

The standardized instruments used in measuring the major variables in the study are summarized in Table 2. The tools were chosen for their reliability and applicability for measuring the aspects of adolescent health care participation, emotional wellness, health literacy and care satisfaction. These tools were used together to conduct an overall assessment of the impact of interventions for collaborative pediatric care.

3.3 Conceptual Framework

The framework proposed explores the effect of collaborative healthcare interventions on adolescent health outcomes. The independent variables include collaborative pediatric care, family involvement, school–healthcare partnerships, and wellness education programs. All of these factors contribute to increased adolescent engagement, which acts as a mediator between the healthcare interventions and health outcomes. The outcome variables are preventing participation in health care services, emotional health, health literacy, and self-care behaviors.

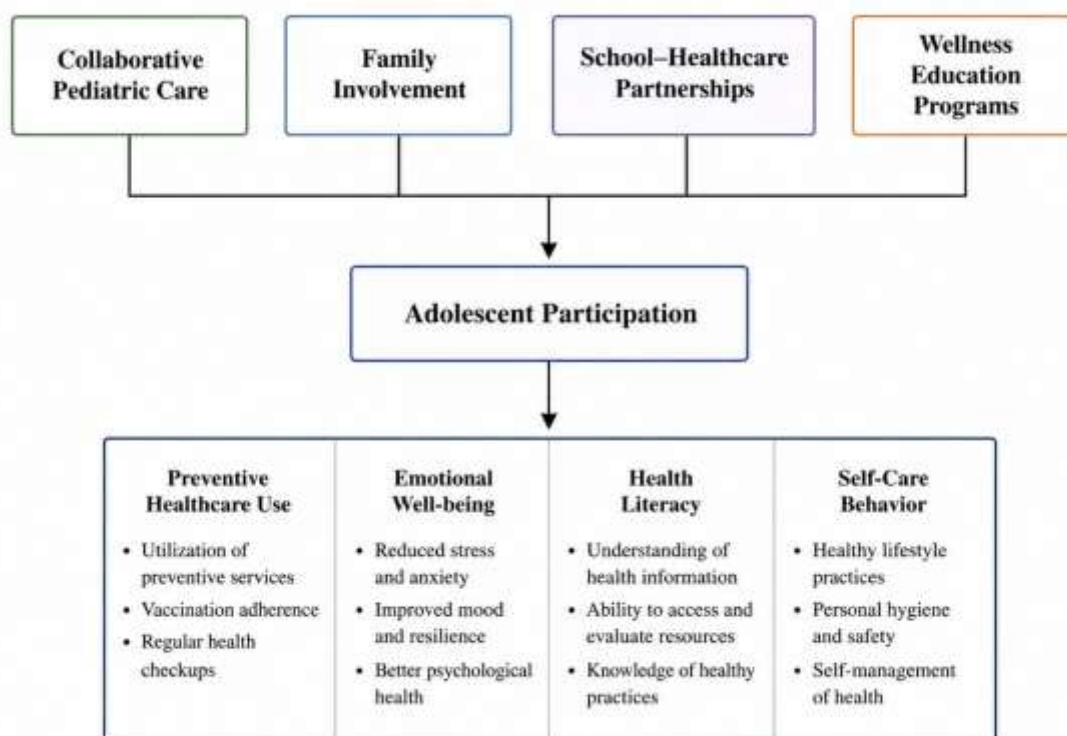


Fig 1 : Collaborative Pediatric Care Framework

Figure 1 depicts the hypothesized relationships among the study variables and shows how adolescent involvement is hypothesized to mediate the relationship between the other variables and health outcomes.

3.4 Statistical Analysis

All the data obtained were coded and analyzed by a Statistical Package for Social Sciences (SPSS). Participant characteristics and study variables were summarized using descriptive statistical methods such as frequencies, percentages, means, and standard deviations and the distribution of these characteristics were assessed. Pearson correlation analysis was used to explore the relationships between adolescent involvement, utilization of health care for prevention, emotional functioning, health literacy, and self-care behaviours. Linear regression analysis was then carried out to identify the predictive role of collaborative pediatric care interventions on adolescent health outcomes.

The regression model measured the impact of adolescent involvement on increased engagement in preventive health services, emotional well-being, and health literacy. The level of statistical significance was set at 95% and p value < 0.05 was deemed statistically significant.

Table 3. Statistical Analysis Framework

Analysis Method	Purpose
Descriptive Statistics	Summarization of demographic and study variables
Frequency and Percentage Analysis	Distribution of participant characteristics
Mean and Standard Deviation	Assessment of variable central tendency and dispersion
Pearson Correlation Analysis	Examination of relationships among study variables
Linear Regression Analysis	Evaluation of predictors of adolescent health outcomes
SPSS Analysis	Data processing and statistical testing

The statistical techniques used in the study are presented here in Table 3. These analytical processes allowed for a thorough examination of the impact of partnership-based pediatric care on increasing adolescent engagement in preventive health and emotional wellness education programs and to determine the strongest determinants of adolescent health.

4. Results and Discussion

4.1 Participation in Preventive Healthcare and Emotional Wellness Outcomes

Collaborative pediatric care resulted in significant gains in adolescent health care engagement and health outcomes. The results of the preventive healthcare participation, health literacy, emotional wellness and self-care behaviour pre- and post-intervention are displayed in Table 2. The overall participation rate in preventive health services rose from 58.4 percent to 81.7 percent which is an improvement of 39.9 percent. Likewise, the mean score on health literacy went from 61.2 ± 8.4 to 78.6 ± 7.1 , which marked better health literacy awareness and understanding among the adolescents. The mean emotional wellness score increased significantly from 61.3 ± 7.8 to 80.6 ± 6.9 and the self-care behavior score increased from 63.8 ± 8.1 to 82.4 ± 7.0 . The results identified that multi-sectoral strategies through health care providers, families, schools and community stakeholders have a positive impact on adolescent health behaviors and emotional well-being.

Table 2. Preventive Healthcare Participation and Emotional Wellness Outcomes

Variable	Pre-Intervention	Post-Intervention	Improvement (%)
Preventive Healthcare Participation (%)	58.4	81.7	39.9
Health Literacy Score	61.2 ± 8.4	78.6 ± 7.1	28.4
Emotional Wellness Index	61.3 ± 7.8	80.6 ± 6.9	31.5
Self-Care Behavior Score	63.8 ± 8.1	82.4 ± 7.0	29.2

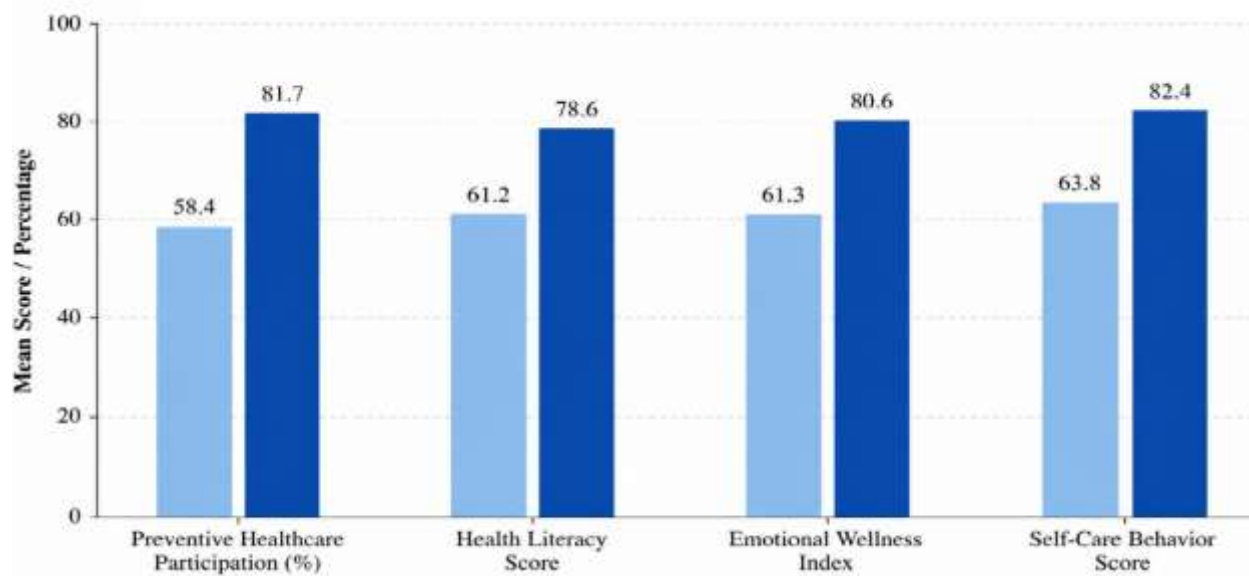


Figure 2. Impact of Collaborative Pediatric Care on Adolescent Health Outcomes

The outcomes of the intervention and comparison are shown in Figure 2. It is evident from the figure that there are significant gains in all of the variables measured, which validates the effectiveness of the collaborative pediatric care strategies in enhancing the participation in preventive health care and education of emotional wellness.

4.2 Correlation Analysis

Pearson's correlation was used to explore the association between adolescent involvement and important health outcomes. Adolescent participation had strong positive correlations with preventive healthcare utilization ($r = 0.81$, $p < 0.001$), health literacy ($r = 0.76$, $p < 0.001$), emotional wellness ($r = 0.72$, $p < 0.001$) and self-care behavior ($r = 0.69$, $p < 0.001$), as shown in Table 3. The results are consistent with an increased participation in health and wellness programmes being linked to better physical and psychological health. Preventive healthcare utilization showed the strongest relationship to the adolescent's participation, indicating that active involvement is important for preventive health behaviors.

Table 3. Correlation Between Adolescent Participation and Health Outcomes

Variables	Correlation Coefficient (r)	p-value
Participation vs Preventive Healthcare Use	0.81	<0.001
Participation vs Emotional Wellness	0.72	<0.001
Participation vs Health Literacy	0.76	<0.001
Participation vs Self-Care Behavior	0.69	<0.001

Table 3 shows statistically significant positive correlations between each of the study variables, which indicates that collaborative healthcare interventions are effective in engaging adolescents in care and improving adolescent health engagement and wellness outcomes.

4.3 Regression Analysis

Factors associated with engagement in preventive healthcare were identified by conducting a linear regression analysis with collaboratives pediatric care, family involvement, school–healthcare partnerships and wellness education programs as predictor variables. The results are presented in a tabular format in Table 4. The strongest predictor of the preventive healthcare was collaborative pediatric care engagement ($\beta = 0.68$, $p < 0.001$), followed by wellness education programs ($\beta = 0.58$, $p < 0.001$), family involvement ($\beta = 0.54$, $p < 0.001$), and school–healthcare partnerships ($\beta = 0.49$, $p < 0.001$).

Table 4. Predictors of Preventive Healthcare Engagement

Predictor Variable	Standardized β	t-value	p-value
Collaborative Pediatric Care	0.68	9.74	<0.001
Wellness Education Programs	0.58	8.05	<0.001
Family Involvement	0.54	7.21	<0.001
School–Healthcare Partnerships	0.49	6.83	<0.001

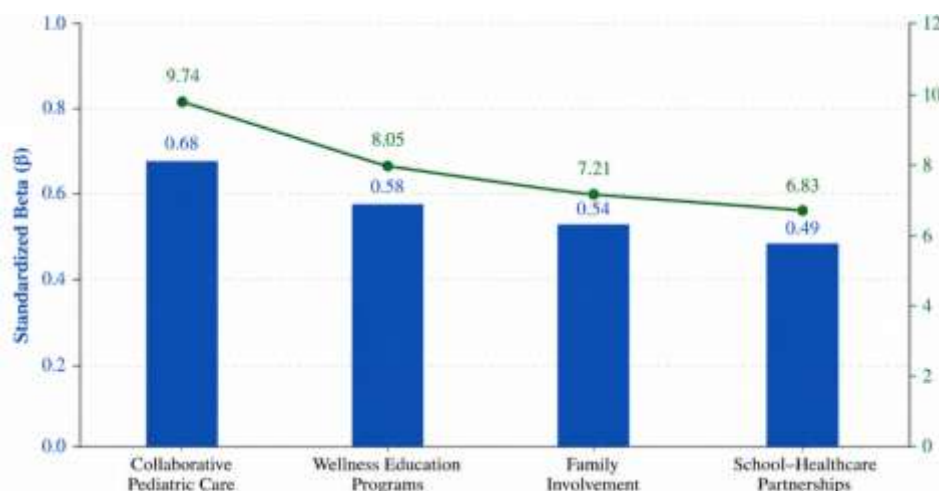


Figure 3. Regression Analysis of Collaborative Pediatric Care Components

The relative effect of each component of collaborative care on preventive healthcare engagement is shown in Figure 3. The figure emphasizes the pivotal role of collaborative pediatric care, and also illustrates substantial impacts from wellness education, family support, and school–healthcare partnerships. The results highlight the importance of multidisciplinary, coordinated approaches to health promotion, involving healthcare systems, schools, families and communities. In general, the findings demonstrate that co-managed pediatric care models can have a significant impact on participation in preventive health care, emotional wellness, health literacy, and self-care among adolescents. The positive results found in all analyses suggest the implementation of a framework that integrates health and wellness education into healthcare as sustainable interventions for improving the health and well-being of adolescents.

5. Discussion

This study's results highlight the potential of cooperative pediatric care to encourage adolescent involvement in preventive health services and emotional wellness initiatives. The integrated interventions yielded meaningful gains

in the use of preventive health care services and in emotional health and self-care, as well as health literacy. The high positive correlations between adolescent involvement and health outcomes also suggest that adolescents' active involvement in health-related activities has a significant impact on health and preventive health behaviors. This study also identifies the benefits that can be gained from emotional health education on the mental health of adolescents. The decrease in emotional distress and the increase in wellness scores indicate that structured wellness programs positively impact coping skills, resilience, and emotional regulation. The results are in line with previous studies that highlighted the need to embed mental health promotion into adolescent healthcare services.

Schools and families clearly became key partners in the successful health engagement. School–healthcare partnerships opened up opportunities to access health education and preventive services, and family involvement meant that health education and preventive services continued to be reinforced. These stakeholders working together established a supportive environment that facilitated adolescents to be actively engaged in health care decision making and wellness activities. Findings from this research have implications for pediatric health promotion strategies. Healthcare systems must have a multi-disciplinary approach with healthcare providers, schools, families and community organisations working together in one framework. These partnerships can enhance access to health services, bolster health literacy, foster emotional health, and encourage sustainable health behaviors for teens, ultimately leading to better health outcomes and quality of life.

6. Conclusion and Future Scope

This study assessed the success of cooperative child health care approaches in the facilitation of adolescent involvement in preventive health care and emotional wellness education. The results showed that integrated interventions had a positive impact on adolescents' utilization of preventive health care services, emotional wellness, health literacy, and behaviors related to self-care. Health outcomes and adolescent involvement were positively correlated, highlighting the importance of adolescent involvement in enhancing health outcomes.

Additionally, the results showed that collaborative care for children, wellness education programs, family engagement, and school – health care partnerships make significant contributions to the engagement in preventive healthcare. The results suggest that a multi-sectoral strategy involving health care providers, schools, parents and families, and community organizations is needed to ensure adolescent health promotion. The education on emotional wellness was especially promising in promoting improved psychological wellbeing and positive emotional experiences, highlighting the importance of comprehensive health care approaches that take both physical and mental health into account. Longitudinal intervention studies to evaluate long-term sustainability of collaborative care outcomes need to be conducted in the future.

Digital health participation platforms and AI-driven adolescent wellness monitoring systems could contribute to further enhancing healthcare accessibility and personalised support. Moreover, there is a need to increase the scope of community-based pediatric health promotion initiatives to include a wider spectrum of adolescent populations and enhance preventive health care practices. This progress can help to develop better, more integrated, and sustainable adolescent health systems in the future.

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