Journal of Community Medicine & Public Health
Rutkowski EM, et al. J Community Med Public Health 7: 312.
www.doi.org/10.29011/2577-2228.100312
www.gavinpublishers.com

OPEN ACCESS

GAVIN PUBLISHERS

Research Article

Emerging Adults Reflect after Completing a Long-Distance Running Program: Were Program Goals Met?

Elaine M Rutkowski[1*], Patricia Calero[2], Cynthia D Connelly[2]

[1]California State University Fullerton, School of Nursing, 800 N. State College Blvd., Fullerton, CA, USA

[2]University of San Diego, Hahn School of Nursing and Health Science, Beyster Institute for Nursing Research, 5998 Alcalá Park, San Diego, CA, USA

[*]**Corresponding author:** Elaine M. Rutkowski. California State University Fullerton, School of Nursing, 800 N. State College Blvd., Fullerton, CA 92831-3599, USA

Citation: Rutkowski EM, Calero P, Connelly CD (2023) Emerging Adults Reflect after Completing a Long-Distance Running Program: Were Program Goals Met? J Community Med Public Health 7: 312. DOI: https://doi.org/10.29011/2577-2228.100312

Received Date: 21 April, 2023; **Accepted Date:** 01 May, 2023; **Published Date:** 04 May, 2023

Abstract

Objective: To examine the potential sustained effects of WeROCK, a structured middle school-based marathon training program, on participants' reported levels of wellness promotion, physical activity, and self-efficacy as they enter early adulthood. **Design and Methods:** A retrospective descriptive mixed methods design. Sample included emerging adults (N=57) who were past middle school participants in WeROCK Orange County, CA. Data were collected via online questionnaires. **Results:** Physical activity contributed to the positive wellbeing for participants in this sample; Physical activity was satisfying, inspirational, and enjoyable; school was considered important; Approximately 77% of participants engaged in a high or moderate levels of physical activity on a weekly basis; A positive correlation exists between participants level of perceived self-efficacy in the area of mental and physical strength, leadership, and ability to overcome difficulties and engagement in physical activity. Indicators for all four goals of the WeROCK program were successfully met by about two-thirds of the participants. **Implications for Public Health:** The intervention of a goal-based, structured, non-competitive, community-led running program potentially informs the ability of adolescents to be inoculated against a sedentary lifestyle as they enter early adulthood. These results include associations between physical activity and increased self-efficacy with positive effects on participants maintaining wellness promotion.

Keywords: Marathon; Physical activity; Self-efficacy; Wellness-Promotion; WeROCK

Introduction

Physical activity (PA) has been shown to moderate negative biopsychosocial issues in adolescents, including obesity, depression, and loneliness. The literature supports findings of positive correlations between PA and positive self-esteem, camaraderie, and healthy weights [1-3]. When adolescents are engaged in physical activities that include their friends, as well as their family members, the commitment to participate is stronger [4].

Logan and Cuff [4] note, "The development of life skills, defined as skills that are required to deal with the demands and challenges of everyday life, is also associated with sports participation." Engaging in age compatible activities is particularly important for facilitating behaviors for long-term engagement in healthy lifestyles [5-7]. The American Academy of Pediatrics (AAP) Council on Sports Medicine recommends enjoyable activities that involve family members and friends, to participate in skill development, tactic and strategy activities, and complex sports including track and field, football, basketball, and ice hockey [7-9]. Despite this AAP guideline, evidence continues to be lacking regarding the most effective means to achieve daily

physical activity in adolescents [9-11].

Background

Over the last four decades, sport psychology researchers and practitioners have expanded their focus to encompass the psychological development of young athletes for success in both sport and non-sport settings [7,9,12]. Research has described sports as ideal contexts for youth to develop life skills including lessons on winning and losing, teamwork, and conflict resolution are highly relevant "off the field" [13].

Inherent in the development of sport skills, the level of self-efficacy is argued to be important in adolescent physical activity [14,15], it enables participants to envision they can do more than they have previously demonstrated [16]. Bandura's theory [17] identifies self-efficacy as the mechanism that determines a person's level of motivation based on how long they will persevere in the face of obstacles. The study reported here was informed by his theory considering adolescents engaged in long-distance running inevitably face physical and emotional "obstacles."

When activities are structured, non-competitive, and uncomplicated, adolescents can focus on their individual goals and not those of a team which often supplant the athlete's personal goals. This type of physical activity program which is structured and non-competitive is the focus of this study. The marathon training program WeROCK, (We Run Our Community's Kids; also known as We Run Orange County's Kids) [18], is modeled after the nationally recognized StudentsRunLA (SRLA) [19] marathon training program in collaboration with the annually held Los Angeles marathon, was established in southern California in 2010.

Generally, children spend most of their developing years in school-based educational settings. The structure of school-based sports involvement is associated with numerous physical, social, and psychological benefits [20,21]. Despite this benefit, few primary and middle schools, offer school-based sporting opportunities for physical activity beyond mandated physical education class. In response, the WeROCK program enrolls students from several middle schools in this after school activity in a school district that does not offer any after-school programing for middle school students. The overall purpose for the design and execution of this program was to fill this void in after school physical activity programs.

The WeROCK program is informed by four foundational goals including: Goal 1. To improve physical health; Goal 2. To improve psychological health; Goal 3. To develop personal character; and Goal 4. To promote healthy good habits into adulthood (Figure 1). The purpose of the current study was to investigate the level of sustained achievement of the WeROCK goals by former participants.

Goal 1 **Improve Physical Health** The program provides a safe training program for participants to complete a 26.2 marathon by focusing on slow pace and conservative progression of weekly mileage.	**Goal 2** **Develop Personal Character** Participants learn discipline and commitment through sustained structure and awareness of self-motivation.
Goal 3 **Improve Psychological Health** Runners are focused on enhancing friendships among team members in order to offer support as the intensity of the programs training increases. The bonding that occurs within the team will potentially provide participants with social skills to inoculate against stress and anxiety of working toward the goal of running long distances which potentially translates into stress management in other areas of life.	**Goal 4** **Promote Good Habits Into Adulthood** The metaphor used to reach this goal is, "life Is like a marathon not a sprint." Runners learn how to set short-term goals To complete the training which will potentially Inform life goals at a later stage in life (i.e., educational, personal, financial).

Figure 1: WeROCK Goals.

Materials and Methods

Design

A descriptive mixed-methods design was used to elicit the experience of young adults who participated in the WeROCK program during the years 2010-2016. These dates were chosen to ensure participants were over 18 years of age when data was collected in 2020. This report will be limited to the quantitative results; the qualitative data are reported elsewhere [22]. Data were collected from three online questionnaires for wellness promotion, physical activity, and self-efficacy and were accessed by participants through a REDcap data system [23]. Consent was implied as the participants engaged in completion of the on-line questionnaires including demographic information. All study procedures, including protocols for recruiting participants and obtaining informed consent, were reviewed, and approved by the university institutional review board for the protection of human subjects prior to the study's initiation (IRB No.: HSR-20-21-97).

Population/Setting

Eligibility for recruitment included: (a) past participant in WeROCK in Orange County, CA, while enrolled in Middle School; (b) 18 years of age or older; and (c) able to read/write in English.

Recruitment

The sampling was purposive; original WeROCK registration documents between 2001 and 2020 (N=1,277) were used to identify the potential sample with 283 meeting eligibility criteria. Invitations to participate were emailed and 83 were returned as "inactive accounts." Of the 203 active accounts, 112 responded as interested. The REDcap system [23] sent multiple reminders to all 112 who were interested. The recruitment process ended when consecutive reminders yielded no additional participants. Fifty-seven participants provided data for this study; three participants provided partial data (Figure 2).

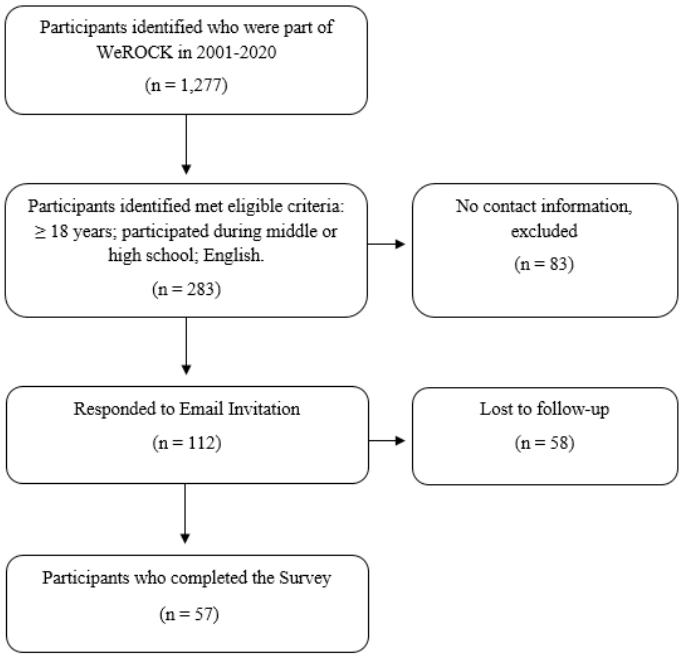

Figure 2: Diagram of Sample Selection.

Measures

Health/Wellness Promotion

The concept of health/wellness was measured with the Salutogenic Wellness Promotion Scale (SWPS) [24], a complementary scale designed to measure the amount of engagement in multidimensional health promoting actions. The SWPS measures seven dimensions of health promotion: physical, social, spiritual, intellectual, vocational, emotional, and environmental. Extant research have reported use of this instrument [24-27] with reported reliability and validity coefficient alpha .89 (all factor alphas above .6) [26]. Results from using the SWPS supported the findings higher engagement in measured

health promoting behaviors was associated with better physical, mental and social well-being, improved life satisfaction, and lower incidence of depression, disease, and infirmity [24-27]. Research has shown understanding health promoting actions can be more valuable in understanding health status than knowledge of risk factors [24, 28-30]. In this study Cronbach's α=.874.

Physical Activity

The International Physical Activity Questionnaire (Short Form) IPAQ-SF was created to measure the levels of physical activity in a population between the age of 18 and 69. The instrument was studied in 12 countries and on 6 continents using standardized method and protocols [31]. Approximately 2,450 participants of mixed gender were included [31]. Subjects repeated the survey over a 3-to-7-day period to measure test-retest reliability. Criterion validity was measured with Computer Science Application (CSA) accelerometer for 7 consecutive days [31]. The results indicated Spearman's Rho clustered around 0.8 measuring reliability between multiple testings. Criterion validity had a median rho of .30 vs. the CSA accelerometer for minutes of moderate, vigorous, walking, and sedentary behaviors [31]. The validity of the "usual week" and "last 7 days" reference periods were similar [31]. The categories of activity levels were assigned by the IPAQ Research Committee [32] as follows:

High (Category 1): Those who move approximately 12,500 steps per day or one hour more moderate-intensity activity over and above the basal level (5,000 steps) of activity, or vigorous-intensity activity on at least 3 days achieving a minimum total physical activity of at least 1,500 MET-minutes/week or 7 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum total physical activity of at least 3,000 MET-minutes/week. Moderate (Category 2): Some activity, more than low active category. Also, 3 or more days of vigorous-intensity activity of at least 20 minutes per day or 5 or more days of any combination of walking, moderate-intensity activity and/or walking of at least 30 minutes per day or 5 or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET-minutes/week. Low-Walking (Category 3): Not meeting any of the criterial for either of the previous categories.

Self-Efficacy

The New General Self-Efficacy Scale (GSE) [33, 34] was designed for general use in adults and adolescents. It was created to assess a general sense of perceived self-efficacy with the aim of predicting one's ability to cope with daily hassles and with one's ability to adapt to stressful life events of all types [34]. According to the authors, perceived self-efficacy facilitates goal setting, effort investment, and can be regarded as a positive resistance resource factor. Perceived self-efficacy is an operative construct. It is self-administered and responses ranked on a 4-point Likert scale, range for scores is 10 to 40. The GSE is a highly validated measure with inter-rater and internal consistence reliability of .76 to .90 [34]. In this study Cronbach's α = .939.

Data Analysis

Descriptive statistics were calculated for all study variables and data were examined for normality, missing values, and outliers. For categorical variables, frequency counts and percentages were used. Continuous variables were measured using mean and standard deviation. Median values reported for skewed variables. Physical activity was measured as a categorical (low, moderate, high) and a continuous variable in metabolic equivalent (MET) minutes per week; wellness promotion and self-efficacy were measured as continuous variables. Chi-square tests of independence for categorical variables were used to examine bivariate relationships between participant characteristics and physical activity (low, moderate, high). One-way ANOVA, t-test for independence, and Pearson's correlations were used to examine relationships between participant characteristics and the continuous physical activity, wellness promotion and self-efficacy. Non-parametric alternatives (i.e., Kruskal-Wallis H tests, Mann-Whitney U tests and Spearman's ranked-ordered correlations) were used when appropriate. Significance level was set at $p < .05$. All statistical analyses were performed with IBM SPSS version 29.0.

Results

Demographics

Sociodemographic and clinical characteristics of 57 participants enrolled in WeROCK are presented in Table 1. Participants ranged in age from 18 to 26; 53.7% (n = 29) males, 44.4% (n = 24) females, one (1.9%) identifying as nonbinary; three (5.8%) were married, none had children; 66.7% (n = 36) resided in California, 31.5% (n = 17) out-of-state, and one (1.9%) reported living outside of the United States; 54% were part of the program for one year. Two-thirds (64.9%, n = 35) pursued education beyond high school. Despite their youthful age, 35.8% (n = 10) regarded their health as poor, 14.7% (n = 7) indicated the presence of a chronic illness (e.g., asthma, chronic headaches, nerve damage, or Celiac disease). Participants had a healthy average BMI of 23.79 kg/m2 (SD = 4.10), self-efficacy score of 4.25 (SD = 0.63, range = 1 to 5), and positive heath behavior score of 3.35 (SD = 0.63, range = 1 to 5).

	Total		Low		Moderate		High			
Characteristic	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**χ^2**	**p[a]**
Gender									8.11	.069
Male	29	53.7	9	34.6	3	11.5	14	53.8		
Female	24	44.4	1	4.8	2	9.5	18	85.7		
Nonbinary	1	1.9	0	0.0	0	0.0	1	100.0		
Current State									1.95	.929
In-State: CA	36	66.7	6	19.4	3	9.7	22	71.0		
Out-of-State: CO, DC, FL, HI, ID, MI, ND, PA, TX, UT	17	31.5	4	25.0	2	12.5	10	62.5		
International: JAPAN	1	1.9	0	0.0	0	0.0	1	100.0		
Education									6.32	.863
Less than High School	1	1.9	0	0.0	0	0.0	1	100.0		
High School degree	18	33.3	4	26.7	1	6.7	10	66.7		
Some college or trade school	11	20.4	2	20.0	2	20.0	6	60.0		
Associate degree	5	9.3	1	25.0	1	25.0	2	50.0		
Bachelor's degree	16	29.6	2	13.3	1	6.7	12	80.0		
Master's degree	3	5.6	1	33.3	0	0.0	2	66.7		
Occupation									7.96	.177
Human services, medical	13	26.0	2	18.2	1	9.1	8	72.7		
Non-medical, licensed professionals	9	18.0	0	0.0	3	37.5	5	62.5		
Human communications	10	20.0	4	40.0	0	0.0	6	60.0		
Student	18	36.0	3	18.8	1	6.3	12	75.0		
Marital Status									3.06	.235
Married	3	5.8	1	33.3	1	33.3	1	33.3		
Single	49	94.2	9	20.5	4	9.1	31	70.5		
No. of Children[b]									--	--
None	53	100.0	10	20.8	5	10.4	33	68.8		
Health Status									5.87	.363
Poor	10	35.8	2	15.4	1	7.7	10	76.9		
Fair	25	47.2	4	16.0	2	8.0	19	76.0		
Good	6	11.3	3	50.0	1	16.7	2	33.3		
Excellent	3	5.7	1	33.3	0	0.0	2	66.7		
	Total		**Low**		**Moderate**		**High**			
Characteristic	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**χ^2**	**p[a]**
Chronic Illnesses									12.14	.860
None	40	85.1	7	19.4	3	8.3	26	72.2		
Asthma	1	2.1	0	0.0	0	0.0	1	100.0		
Headache[c]	1	2.1	--	--	--	--	--	--		
Nerve damage	1	2.1	0	0.0	0	0.0	1	100.0		
POTS, Asthma	1	2.1	0	0.0	0	0.0	1	100.0		
POTS, Gilbert's	1	2.1	0	0.0	0	0.0	1	100.0		
Knee pain	1	2.1	1	100.0	0	0.0	0	0.0		
UC, Celiac disease	1	2.1	0	0.0	0	0.0	1	100.0		
Reg Meds: Combined									19.14	.126
Allergy-asthma	2	12.5	1	50.0	0	0.0	1	50.0		
Allergy-asthma, health maintenance	1	6.3	0	0.0	0	0.0	1	100.0		
Health maintenance	5	31.3	0	0.0	0	0.0	5	100.0		
Psychiatric	2	12.5	1	50.0	1	50.0	0	0.0		
Psychiatric, allergy-asthma	1	6.3	0	0.0	0	0.0	1	100.0		
Psychiatric, cardiac	1	6.3	0	0.0	0	0.0	1	100.0		
Psychiatric, cardiac, health maintenance	2	12.5	0	0.0	0	0.0	2	100.0		
Psychiatric, health maintenance	1	6.3	1	100.0	0	0.0	0	0.0		
Psychiatric, pain	1	6.3	1	100.0	0	0.0	0	0.0		
Reg Meds: Health Maintenance									5.64	**.026**
Yes	9	56.3	0	0.0	0	0.0	8	100.0		
No	7	43.8	3	42.9	1	14.3	3	42.9		
Reg Meds: Psychiatric									2.06	.354
Yes	8	50.0	2	28.6	1	14.3	4	57.1		
No	8	50.0	1	12.5	0	0.0	7	87.5		
Regular Meds (NR)									--	--
Allergy-Asthma	4	16.0	1	25.0	0	0.0	3	75.0		
Health maintenance	9	36.0	0	0.0	0	0.0	8	100.0		
Psychiatric	8	32.0	2	28.6	1	14.3	4	57.1		
Pain	1	4.0	1	33.3	0	0.0	0	0.0		
Cardiac	3	12.0	0	0.0	0	0.0	3	100.0		
As Needed Meds									9.45	.270
Allergy-Asthma	5	19.2	0	0.0	0	0.0	5	100.0		
Health maintenance	3	11.5	1	33.3	0	0.0	2	66.7		
Psychiatric	2	7.7	1	50.0	1	50.0	0	0.0		
	Total		**Low**		**Moderate**		**High**			
Characteristic	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**χ^2**	**p[a]**
As Needed Meds (cont.)										
Pain	15	57.7	4	28.6	1	7.1	9	64.3		
Corticosteroids	1	3.8	0	0.0	0	0.0	1	100.0		
No. social encounters									8.43	.551
0 encounters, week	2	3.8	1	50.0	0	0.0	1	50.0		
1-2 encounters	15	28.8	5	35.7	1	7.1	8	57.1		
3-4 encounters	12	23.1	0	0.0	2	18.2	9	81.8		
5-7 encounters	12	23.1	2	18.2	1	9.1	8	72.7		
8-10 encounters	5	9.6	1	20.0	0	0.0	4	80.0		
10+ encounters	6	11.5	1	25.0	0	0.0	3	75.0		
No. religious activities									5.63	.537
Never	22	41.5	5	23.8	1	4.8	15	71.4		
1-2 times per year	9	17.0	2	22.2	1	11.1	6	66.7		
1-2 times per week	21	39.6	2	12.5	2	12.5	12	75.0		
3-4 times per week	1	1.9	1	100.0	0	0.0	0	0.0		
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**F**	**p**
Age, years	21.67	2.06	21.80	2.35	22.20	2.05	21.64	2.01	0.17	.848
SWPS total	3.35	0.63	2.85	1.00	3.53	0.69	3.30	1.12	1.50	.234
SWPS intellectual	3.24	1.04	3.02	0.60	3.34	0.54	3.43	0.66	0.90	.414
	M	**SD**	**n**	**M Rank**	**n**	**M Rank**	**n**	**M Rank**	**H**	**p**
BMI, kg/m^2	23.79	4.10	10	31.80	4	34.75	32	19.50	9.48	**.009**
No. jobs prev 5 years	2.96	1.60	10	18.95	5	17.20	31	25.06	4.47	.107
No. MD visits prev year	1.40	1.54	9	19.44	4	20.00	32	24.38	1.39	.499
No. DMD visits prev year	1.28	0.83	10	19.60	4	15.50	31	25.06	3.11	.211
NGSE-8	4.25	0.63	11	16.55	5	25.50	33	27.74	5.13	.077
SWPS social	3.87	0.96	10	19.00	5	22.60	33	26.45	2.31	.315
SWPS vocational	3.50	1.05	10	15.50	5	29.10	33	26.53	5.41	.067
SWPS emotional	3.23	0.75	10	19.00	5	28.80	33	25.52	2.24	.327
SWPS physical	3.52	1.02	10	12.70	5	13.70	33	29.71	14.76	**.001**
SWPS spiritual	2.34	1.74	10	25.45	5	25.60	33	24.05	0.11	.945
SWPS environmental	3.63	0.95	9	18.11	5	23.10	33	25.74	2.23	.328

Note. DMD, dentist medical doctor; MD, medical doctor; MET, metabolic equivalents; NGSE-8, New General Self-Efficacy Scale (8-items); NP, number of participants; m NR, number of responses; POTS, Postural Tachycardia Syndrome; SWPS, Salutogenic Wellness Promotion Scale. [a]Fisher's Exact Test, unless otherwise specified. [b]None of the participants report having children. [c]IPAQ low, moderate, high missing for participant with chronic headaches. [d]Variables are used to calculate the categorical IPAQ Physical activity; thus, significance is expected.

Table 1: Sociodemographic and Clinical Characteristics of Study Population (N=57).

Goal 1. To Improve Physical Health

Approximately two-thirds (67.3%, n = 33) of the WeROCK participants engaged in a high level of weekly physical activity, with an additional 10.2% (n = 5) engaging in moderate physical activity; total average physical activity was 4666.78 MET min/week (SD = 3720.65). Their average body mass index was a healthy 23.8 kg/m2 (SD = 4.10). The average number of doctor visits in the previous year was 1.40 (SD = 1.54, range = 0 to 10); median number of visits to the doctor was 1 visit. The average number of dentist visits in the previous year was 1.28 (SD = 0.83, range = 0 to 3); median number of visits to the dentist was 1 visit. Forty (85.1%) did not report having a chronic illness; illnesses reported included asthma, headache, nerve damage, POTS, Gilbert's Syndrome, knee pain, ulcerative colitis, and celiac disease. About thirty-one percent (n = 5) of WeROCK participants reported taking health maintenance medications regularly, followed by 12.5% (n = 2) taking allergy and/or asthma medication; other medications taken on a regular basis included psychiatric, cardiac, and pain medication. Average SWPS physical dimension score was 3.52 (SD = 1.02); range is 1 to 5, with higher values indicating higher physical movement in sport or lifestyle and nutrition from food intake.

The results of the bivariate analysis comparing sociodemographic and clinical characteristics of WeROCK participants who currently engaged in low, moderate, and high levels of weekly physical activity indicated significant association between their level of physical activity and the use of regular medications for health maintenance, Fisher's $\chi^2 = 5.64$, p = .026, Cramer's V = .645, large effect (Table 1). Among WeROCK participants who took regular medications for health maintenance, all engaged in a high level of weekly physical activity (n = 8, 100%); among those who did not take regular medication for health maintenance, only 42.9% (n = 3) engaged in a high level of weekly physical activity. The mean ranks for body mass index were also significantly different between level of physical activity groups, $\chi^2(2) = 9.48$, p = .009, ε2 = .200, relatively strong effect. Post-hoc analysis indicated significant differences in WeROCK participants' BMI between those in the high (Mean rank = 19.50) and low (Mean rank = 31.80) physical activity groups, p = .034; WeROCK participants in the high physical activity group had lower BMIs than those in the low physical activity group. The number of doctor visits in the previous year (p = .499), dentist visits in the previous year (p = .211), and reported chronic illnesses were not significantly different in terms of physical activity groups (p = .860).

Associations between sociodemographic and clinical characteristics of WeROCK participants and physical activity measured in MET minutes per week were also examined. Results showed a medium negative correlation between physical activity and: BMI (r = -.428, p = .003), and the No. of minutes sitting per week (r = -.423, p = .002; See Table 2). Increasing physical activity was associated with decreasing BMI and sitting time per week. There was also a medium positive correlation between physical activity and the No. of visits to the dentist in previous year (r = .304, p = .042), and a strong positive correlation between physical activity and MET kilocalories used per week (r = .968, p < .001), and the physical dimension of positive health potential (SWPS physical subscale, r = .531, p < .001).

Characteristic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Age	--																			
2 BMI, kg/m^2	0.35*	-0.11																		
3 Jobs, prev 5 yrs	0.07	0.06	--																	
4 MD visits prev yr	-0.17	0.03	0.32*	--																
5 DMD visits, prev yr	-0.27	-0.22	-0.04	-0.13	--															
6 NGSE	0.05	-0.13	0.02	-0.07	0.28*	--														
7 MET kilocal/wk	0.16	0.02	0.26	0.11	0.25	0.32*	--													
8 MET PA[a]	0.06	-0.11	0.25	0.11	**0.30***	**0.38****	**0.97****	--												
9 IPAQ sitting[a]	0.12	0.27	0.00	-0.20	-0.43**	-0.22	-0.38**	**-0.42****	--											
10 SWPS health	0.11	-0.28*	0.08	-0.04	0.12	0.39**	0.28	0.27	-0.17	--										
11 SWPS social	0.03	-0.35*	0.10	-0.15	0.13	0.33*	0.25	0.25	-0.17	0.65**	--									
12 SWPS vocational	0.30*	-0.27	0.07	-0.09	0.05	0.22	0.37*	**0.36***	-0.12	0.66**	0.48**	--								
13 SWPS emotional	0.20	-0.02	0.23	-0.08	-0.09	0.40**	0.16	0.12	0.09	0.52**	0.32*	0.37**	--							
14 SWPS physical	0.23	-0.21	0.09	-0.05	0.15	0.44**	0.55**	**0.53****	-0.29*	0.72**	0.47**	0.56**	0.43**	--						
15 SWPS intellectual	0.29*	-0.04	0.11	0.03	0.01	0.20	0.26	0.22	-0.11	0.53**	0.39**	0.30*	0.26	0.22	--					
16 SWPS spiritual	-0.13	-0.16	0.04	0.04	0.04	0.22	-0.02	0.04	-0.10	0.47**	0.24	0.01	0.12	0.05	0.10	--				
17 SWPS environmental	-0.17	-0.20	0.02	0.05	0.22	0.12	0.03	0.03	-0.14	0.45**	0.02	0.29*	0.12	0.44**	0.13	-0.08	--			
18 MET vigorous[a]	0.09	-0.17	0.08	-0.01	0.39**	0.34*	0.81**	**0.83****	-0.37**	0.37*	0.28	0.36*	0.21	0.72**	0.19	-0.04	0.15	--		
19 MET moderate[a]	0.11	-0.10	0.17	0.20	0.22	0.37**	0.78**	**0.80****	-0.37**	0.09	0.13	0.19	0.00	0.31*	0.14	0.02	-0.03	0.56**	--	
20 MET walking[a]	0.02	0.10	0.31*	0.18	0.05	0.19	0.71**	**0.73****	-0.27	0.16	0.07	0.24	-0.08	0.22	0.27	0.13	0.01	0.37**	0.48**	--

Note: BMI: Body Mass Index; DMD: Doctor of Dental Medicine; IPAQ: International Physical Activity Questionnaire; MD: Medical Doctor; MET: Metabolic Equivalent; NGSE: New General Self-Efficacy Scale; SWPS: Salutogenic Wellness Promotion Scale. The values in red are significant results for Spearman's Rank-Ordered Correlations for activity level in MET minutes per week. [a]Measure is in minutes per week. $^*p < .05$. $^{**}p < .01$

Table 2: Intercorrelations for Sociodemographic and Clinical Characteristics of Study Population and Activity Level in MET minutes per week (N=57).

Goal 2. To Improve Psychological Health

Participants' average perceived self-efficacy score was 4.25 (SD = 0.63), range 1 to 5; higher values indicating higher self-efficacy. Seventy-five percent (n = 39) engaged in one to seven social encounters per week with people other than family, and 39.6% (n = 21) engaged in weekly religious activities (Table 1). In terms of psychiatric medications, out of the 16 participants who reported taking medications on a regular basis, 50% (n = 8) reported taking psychiatric medications alone or in combination with other regular medications; yet there were no reports of psychiatric conditions in this sample. Among the 26 participants who reported taking "as needed" medications, 7.7% (n = 2) reported taking psychiatric medications. Average SWPS social dimension score was 3.87 (SD = 0.96, Md = 4.00), emotional dimension score was 3.23 (SD = 0.74, Md = 3.50), and spiritual dimension score was 2.34 (SD = 1.74, Md = 2.29); range 1 to 5, with higher values indicating larger network and relationships building interpersonal activities (social), greater ability to effectively manage emotions (emotional), and greater engagement in spiritual activities, prayer, religious activities, and consultation with a higher power (spiritual) [26].

The results of the bivariate analysis examining associations between sociodemographic and clinical characteristics of WeROCK participants and physical activity measured in MET minutes per week showed significant correlations between physical activity and perceived self-efficacy (r = .375, p = .007; See Table 3). The level of physical activity for WeROCK participants was not significantly different in terms of the number of social encounters with people outside the family (Fisher's $\chi 2 = 8.43$, p = .551), or engagement in religious activities (Fisher's $\chi 2 = 5.63$, p = .537; See Table 1). Similarly, physical activity measured in MET minutes per week was not associated with the social (r = .246, p = .092), emotional (r = .120, p = .417), or spiritual (r = .037, p = .804) dimensions of positive health behaviors (Table 2). However, analysis showed moderate positive correlations between perceived self-efficacy and the social (r = .331, p = .015), and emotional (r = .404, p = .003) dimensions of positive health behaviors (See Table 3) indicating engagement in social and/or spiritual activities and the ability to manage difficult emotions may moderate the relationship between physical activity and self-efficacy.

Characteristic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Age	--																			
2 BMI, kg/m^2	0.35*	--																		
3 Jobs, prev 5 yrs	0.07	-0.01	--																	
4 MD visits prev yr	-0.17	0.02	0.32*	--																
5 DMD visits, prev yr	-0.27	-0.27	-0.04	-0.13	--															
6 NGSE: Perceived self-efficacy	0.06	-0.28	0.02	-0.07	**0.28***	--														
7 MET kilocal/wk	0.16	-0.29	0.26	0.11	0.25	**0.32***	--													
8 MET PA[a]	0.06	-0.43**	0.25	0.11	0.30*	**0.38****	0.97**	--												
9 IPAQ sitting[a]	0.12	0.25	-0.01	-0.20	-0.43**	-0.22	-0.38**	-0.42**	--											
10 SWPS health	0.11	0.20	0.08	-0.04	0.12	**0.39****	0.28	0.27	-0.17	--										
11 SWPS social	0.03	0.29*	0.10	-0.15	0.13	**0.33***	0.25	0.25	-0.17	0.65**	--									
12 SWPS vocational	0.30*	0.18	0.07	-0.09	0.05	0.22	0.37*	0.36*	-0.12	0.66**	0.48**	--								
13 SWPS emotional	0.20	0.12	0.23	-0.08	-0.10	**0.40****	0.16	0.12	0.09	0.52**	0.32*	0.37**	--							
14 SWPS physical	0.23	-0.03	0.10	-0.05	0.15	**0.44****	0.55**	0.53**	-0.29*	0.72**	0.47**	0.56**	0.43**	--						
15 SWPS intellectual	0.29*	0.22	0.11	0.03	0.01	0.20	0.26	0.22	-0.11	0.53**	0.39**	0.30*	0.26	0.24	--					
16 SWPS spiritual	-0.13	0.10	0.04	0.04	0.04	0.22	-0.02	0.04	-0.10	0.47**	0.24	0.01	0.12	0.05	0.10	--				
17 SWPS environmental	-0.17	-0.02	0.02	0.05	0.22	0.12	0.03	0.03	-0.14	0.45**	0.02	0.29*	0.12	0.44**	0.13	-0.08	--			
18 MET vigorous[a]	0.09	-0.33*	0.08	-0.02	0.39**	**0.34***	0.81**	0.83**	-0.37**	0.37*	0.28	0.36*	0.21	0.72**	0.19	-0.04	0.16	--		
19 MET moderate[a]	0.11	-.035*	0.17	0.20	0.22	**0.37****	0.78**	0.80**	-0.37**	0.10	0.14	0.19	-0.01	0.31*	0.14	0.02	-0.03	0.56**	--	
20 MET walking[a]	0.02	-0.31*	0.31*	0.18	0.06	0.19	0.71**	0.73**	-0.27	0.16	0.07	0.25	-0.08	0.22	0.27	0.13	0.01	0.37**	0.48**	--

Note. BMI = body mass index; DMD = doctor of dental medicine; IPAQ = international physical activity questionnaire; MD = medical doctor; MET = metabolic equivalent; NGSE = new general self-efficacy scale; SWPS = Salutogenic wellness promotion scale. The values in red are significant results for Spearman's Rank-Ordered Correlations for activity level in MET minutes per week. * p < .05. ** p < .01.

Table 3: Intercorrelations for Sociodemographic and Clinical Characteristics and **Perceived Self-Efficacy** Level in MET minutes per week (N=57).

Goal 3. To Develop Personal Character

One (1.9%) WeROCK participant had less than a high school education, 33.3% (n = 18) had a High School degree, 20.4% (n = 11) some college or trade school, 9.3% (n = 5) Associate degree, and 35.2% (n = 19) had a college degree (Bachelors or Masters). Of note, 36% (n = 18) were still students working on their education. For those who were not students, 26% (n = 13) occupation was in the field of human services/medical, 20% (n = 10) human communications, and 18% (n = 9) non-medical licensed professionals. Average SWPS intellectual dimension score was 3.24 (SD = 1.04) and vocational dimension score was 3.50 (SD = 1.05); range is 1 to 5, with higher values indicating higher positive health potential. The results of the bivariate analysis examining associations between sociodemographic and clinical characteristics of WeROCK participants and physical activity measured in MET minutes per week showed a significant moderate positive correlation between physical activity and the vocational dimension of positive health behaviors (r = .355, p = .013; See Table 2).

Goal 4. To Promote Healthy Good Habits into Adulthood

Twelve (22.6%) of WeROCK participants did not run any races since leaving the WeROCK program; more than two-thirds (77.5%, n = 41) did report running races since leaving the program (Table 4). Thirty-four percent (n = 18) reported running one to 10 races, 18.9% (n = 10) 11 to 50 races, 5.7% (n = 3) 51 to 100 races, and 18.9% (n = 10) over 100 races since leaving the WeROCK program. Almost two-thirds of WeROCK participants reported when they run, they run for recreation or exercise (59.6%, n = 31), by contrast 40.4% (n = 21) reported they do not run either recreationally or for exercise. Among the 21 participants who reported not running for recreation or exercise, 9.5% (n = 2) did not engage in any other physical activity, six (28.6%) engaged in cardio exercise and 23.8% (n = 5) went to the gymnasium or lifted weights (See Table 4). WeROCK participants also reported a positive impact of WeROCK in other areas of their life (62.3%, n = 33), particularly 36.4% (n = 12) reported the program helped them overcome difficulties and accomplish goals (24.2%, n = 8); made them feel they could accomplish anything (21.2%, n = 7); increased their mental and physical strength (12.1%, n = 4); and helped them develop their leadership ability (3%, n = 1) and patience (3%, n = 1). For 96.2% (n = 51) the program made a difference in their life; particularly in the area of self-improvement (60%, n = 30), followed by development of love for running (22%, n = 11) and comradery (10%, n = 5).

Post WeROCK Question	n	%	n	M Rank	H (df)	p	ε^2
No. of running races post WeROCK					2.70 (4)	.609	--
No races	12	22.6	11	20.55			
1 to 10	18	34.0	18	26.25			
11 to 50	10	18.9	10	28.90			
51 to 100	3	5.7	3	29.33			
100+	10	18.9	10	30.25			
Other physical activities (n = 21)					3.01 (4)	.556	--
Nothing	2	9.5	2	9.50			
Cardio, running	6	28.6	6	8.17			
Gym, weightlifting	5	23.8	5	13.90			
Outdoor sports, other activities	4	19.0	4	13.00			
Walking	4	19.0	4	10.38			
WeROCK type of impact made					2.77 (5)	.736	--
Overcome difficulties	12	36.4	12	17.08			
Accomplish goals	8	24.2	9	17.38			
Accomplish anything	7	21.2	7	18.71			
Increased mental & physical strength	4	12.1	4	16.13			
Develop leadership ability	1	3.0	1	2.00			
Develop patience	1	3.0	1	19.50			
WeROCK type of difference made					3.01 (4)	.556	--
Self-improvement	30	60.0	30	23.98			
Developed love for running	11	22.0	10	23.35			
Comradery	5	10.0	6	31.50			
Accomplished goals	3	6.0	3	33.50			
Long-term pain	1	2.0	1	14.00			
Post WeROCK Question	**n**	**%**	**n**	**M Rank**	**U**	**p**	**r**

Run for recreation or exercise					467.0	**.003**	.410
Yes	31	59.6	30	31.07			
No	21	40.4	21	18.76			
WeROCK impact on other life areas					371.0	.272	--
Yes	33	62.3	33	28.24			
No	20	37.7	19	23.47			
WeROCK made difference in life					95.5	**.029**	.302
Yes	51	96.2	50	27.34			
No	2	3.8	2	5.50			

Note: M: Mean. P-value is Asymptotic Sig. (2-sided test).

Table 4: Kruskal-Wallis H and Mann-Whitney U Tests for the Effects of Post WeROCK Questions on Perceived Self-efficacy (N=57).

Study participants perceived self-efficacy score was 4.25 (SD = 0.63) out of 5 range, with higher values indicating higher self-efficacy. Spearman's rho correlations indicated medium positive correlations between perceived self-efficacy and participants weekly physical activity (r = .382, p = .007); particularly, participants engaged in weekly vigorous (r =.343, p = .016) and moderate activity (r = .369, p = .009; See Table 3) showed higher levels of perceived self-efficacy. Mann-Whitney U test indicated participants who reported running for recreation or exercise (Mean rank = 31.07) post WeROCK were significantly different in terms of self-efficacy than those who did not run for recreation or exercise (Mean rank = 18.76) post WeROCK, U = 467.0, z = -2.926, p = .003, r = .410, moderate effect (See Table 4). Mann-Whitney U test also indicated participants who reported WeROCK made a difference in their life (Mean rank = 27.34) were significantly different in terms of self-efficacy than those who did not run (Mean rank = 5.50) post WeROCK, U = 95.5, z = -2.177, p = .029, r = .302, moderate effect. No other post WeROCK variables were significantly different (See Table 4). Other post WeROCK variables, for example the No. of races run after leaving the WeROCK program, the type of impact the program had on participants other aspects of their lives, or type of difference the program made in their lives were not associated with perceived self-efficacy (See Table 4).

Discussion

Goal 1. Did study participants enrolled in WeROCK, a middle school running program in Southern California, improve their level of physical health; as evidenced by a high level of physical activity, healthy body mass index, absence of chronic illness and/or healthcare visits, and engagement in positive health behaviors (physical dimension)? The long-term goal of WeROCK is based upon the challenge of helping adolescents and teenagers to avoid unhealthy lifestyles. The popularity of adolescent/teen activities including, video games, computer activities, and television programming, has resulted in a sedentary lifestyle for America's youth. As a result, the United States currently has one of the highest rates of obesity in the developed world [35]. Of particular concern to our society is the fact childhood obesity has actually reached the point where, for the first time in over 100 years, this current generation of children has a shorter life expectancy than their parents [15, 36, 37]. Rates of childhood diabetes and cardiovascular disease continue to rise and are currently three times what they were 1980. Physical activity and proper nutrition are the keys to mediating such medical problems [38]. Our results indicate the participation in the WeROCK program is positively associated with the participants physical activity, nutritional intake, health promotion activities, and lower BMI scores.

Goal 2. Did study participants enrolled in WeROCK, a middle school running program in Southern California, improved their level of psychological health; as evidenced by a high level of self-efficacy, absence of chronic illness and/or use of psychiatric medications, engagement in social and/or religious activities, and engagement in positive health behaviors (social, emotional, and spiritual dimensions)? Psychological well-being is essential to successful human development. It plays a critical role in an individual's success as an adult and as a functioning member of the community. Studies show, in general, "troubled" teens with

disciplinary problems in school, or those who drop out altogether, share the common characteristics of low self-esteem and insecurity [39]. Accordingly, the second goal of the WeROCK program is to offer all participants an equal chance of successfully accomplishing a demanding task (completion of a long-distance running activity), improving self-worth, and increasing self-confidence by participating in running. Running is one of the easiest aerobic forms of exercise available. Studies show aerobics improves mental health by decreasing depression and other mood disorders. Further, recent research indicates participation in group activities, such as after-school sports, can help curtail feelings of self-doubt and self-consciousness among adolescents [10]. The mental health issues often confronted by this age group include feeling left out. As a result, isolation and depression often accompany the middle school experience. The current teen age suicide rate is rapidly increasing due to this dynamic. By participating in programs such as WeROCK, the sense of belonging is thought to "inoculate" against these mental health issues. The study findings support this work and show moderate positive correlations between perceived self-efficacy and the social and emotional dimensions of positive health behaviors. Our results indicate engagement in social and/or spiritual activities and the ability to manage difficult emotions may moderate the relationship between physical activity and self-efficacy. This potential association provides encouraging support that the goal to improve psychological health is an outcome of participation in the WeROCK program.

Goal 3. Did study participants enrolled in WeROCK, a middle school running program in Southern California, helped them develop personal character; as evidenced by an increase in their self-efficacy, academic and occupation achievement, and engagement in positive health behaviors (intellectual, vocational, environmental, and spiritual dimensions)? It has been reported between 10-30% of public high school students fail to graduate across the United States. This disparity reflects ethnic differences [40, 41]. Nationally, students who drop out of secondary schools are at greater risk of juvenile crime, gang activity, drug and alcohol abuse, teenage pregnancy or long-term poverty. Studies have indicated participation in after-school and youth sports programs can mitigate the desire to pursue these activities [10]. While the activity of running provides numerous physical and mental health benefits, the training and completion of a long-distance race is an endeavor that requires significant planning, preparation, and discipline. As long as the student runners have a positive mental attitude and a desire to succeed, WeROCK provides the roadmap by which they can, and do, complete a distance race of their choice from the 5K to the 26.2 mile marathon. While crossing the finish line is the most exciting and tangible benefit of participating in the WeROCK program, the true reward is developing the traits of self-reliance and self-confidence along the way.

Results reported from this study indicates physical activity contributed to the positive wellbeing for participants in this sample; physical activity was satisfying, inspirational and enjoyable; and school was considered important [26], also evidenced by the frequency of High School (30.9%) and College graduates (34.6%), as well as current frequency of participants who are still students (37.3%) in this sample. Less than 2% of participants had less than a High School education and considering the sample age range was 18 to 26 years, it is reasonable to assume the High School drop-out rate would be even lower than 1.9% for this population (compared to the 10% to 30% reported in the literature). Physical activity was not significantly correlated with occupation or the intellectual dimension of positive health behaviors in this sample. The intellectual dimension of positive health behaviors measures efforts to improve verbal, reading, and thinking skills [26]. Physical activity appears to have a differential impact on the domains of positive health behaviors for this sample (e.g., it increases physical movement in sport or healthy choices in lifestyle and nutrition, as well as participants wellbeing, for whom physical activity was satisfying, inspirational and enjoyable, and school was considered important). Yet, the impact of physical activity on the social, emotional, spiritual, and intellectual domains is potentially more complex. We believe this goal is the most difficult to evaluate but are encouraged that the WeROCK program does have positive impact on the development of personal character for participants.

Goal 4. Did study participants enrolled in WeROCK, a middle school running program in Southern California, helped promote healthy good habits as adults, as evidenced by a continuation of running post WeROCK? Is self-efficacy greater in those who continue running after they completed the WeROCK program? Middle school students who learn to set and achieve positive goals will potentially develop a greater sense of personal responsibility and self-discipline. As a result, those students will generally earn better grades in school and encounter fewer disciplinary problems than their peers [42]. While promoting this type of personal growth is a short-term goal of the WeROCK organization, the long-term goal is to provide a supportive environment filled with inspiration, excitement, and encouragement so our participants carry these life lessons with them into and throughout adulthood, become self-reliant, take control of their own futures, and continue to utilize the sport of running as part of their healthy lifestyle into adulthood. To measure the program's goals, valid and reliable measures were used to assess adolescents' bio-psycho-social-emotional health. Most participants reported they continue to engage in physical activity including running for recreational or exercise benefits. The results indicate a positive correlation between WeROCK participants level of perceived self-efficacy and engagement in physical activity with the specific outcomes described in the area of mental and physical strength, leadership, and ability to overcome

difficulties. Ninety-seven percent of the participants reported the program made a difference in their lives, most notably in the area of self-improvement, supporting the attainment of this goal.

Limitations

The findings should be interpreted within the context of the study limitations. The sample is small and relatively homogenous with respect to ethnicity, geographic location, and social economic status (SES), not randomly selected or matched. The cross-sectional design disallows for causal inferences. Study data relied on participants' recall of their participation in the WeROCK program 4-10 years after their participation and may not capture the complex phenomena under study. Future randomized longitudinal research focusing on pre- /post-program analysis is warranted. Despite these limitations, sample size was adequate, and the findings provide valuable preliminary information for supporting the implementation of WeROCK.

Conclusion

In summary, the four goals of the WeROCK program were met. The authors acknowledge the gap in the literature concerning the benefits and/or risks of adolescents who engage in long-distance running activities. It is our desire to address this lack of evidence with the evaluative process described in this study. The data collected and discussed is intended to inform future examination of this topic.

Acknowledgement

The authors wish to thank the WeROCK organization including the runners, their parents, and the community who support the program for their commitment and tenacity while participating in our study.

Funding Sources

The authors received no financial support for the research or writing of the manuscript.

Conflict of Interest

The authors have no conflicts of interest to report with respect to the research, authorship and/or publication of this article.

References

1. Bruner MW, Balish SM, Forrest C, Brown S, Webber K, et al. (2017) Ties that bond: Youth sport as a vehicle for social identity and positive youth development. Res Q Exerc Sport 88: 1-6.
2. Larson EB, Wang L, Bowen JD, McCormick WC, Teri L, et al. (2006) Exercise is associated with reduced risk for incident dementia among persons 65 years of age and older. Ann Intern Med 144: 73-81.
3. Marsh HW (1993) The multidimensional structure of academic self-concept: Invariance over gender and age. Am Educ Res J 30: 841-860.
4. Logan K, Cuff S, AAP Council on Sports Medicine and Fitness (2019) Organized sports for children, preadolescents, and adolescents. Pediatrics 143: e20190997.
5. Cardinal BJ, Yan V, Cardinal MK (2013) Negative experiences in physical education and sport: How much do they affect physical activity participation later in life? J Phys Educ Recreat Dance 84: 49-53.
6. Herbison J, Vierimaa M, Côté J, Martin L (2019) The dynamic nature of connection and its relation to character in youth sport. Int J Sport Exerc Psychol 17: 568-577.
7. Logan K, Cuff S, AAP Council on Sports Medicine and Fitness (2019) Organized sports for children, preadolescents, and adolescents. Pediatrics 143: e20190997.
8. American Academy of Pediatrics Committee on Sports Medicine (AAP) (1990) Risks in distance running for children. Pediatrics 86: 799-800.
9. Lobelo F, Muth ND, Hanson S, Nemeth BA (2020) Physical activity assessment and counseling in pediatric clinical settings. Pediatrics 145: e20193992.
10. Eime RM, Young JA, Harvey JT, Charity MJ, Payne WR (2013) A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport. Int J Behav Nutr Phys Act 10: 135.
11. (2022) The 2022 US report card on physical activity for children and youth. Physical Activity Alliance.
12. Larson RW (2000) Toward a psychology of positive youth development. Am Psychol 55: 170-183.
13. Jacobs JM, Wright PM (2017) Transfer of life skills in sport-based youth development programs: a conceptual framework bridging learning to application. Quest 70: 81-99.
14. Deforche B, Van Dyck D, Verloigne M, DeBourdeaudhuij I (2010) Perceived social and physical environmental correlates of physical activity in older adolescents and the moderating effect of self-efficacy. Prev Med 50: S24-S29.
15. Rutkowski EM, Connelly CD (2012) Self-efficacy and physical activity in adolescent and parent dyads. J Spec Pediatr Nurs 17: 51-57.
16. Valois RF, Umstattd MR, Zullig KJ, Paxton RJ (2008) Physical activity behaviors and emotional self-efficacy: Is there a relationship for adolescents? J Sch Health 78: 321-327.
17. Bandura A (1989) Human agency in social cognitive theory. Am Psychol 44: 1175-1184.
18. (2023) We Run Our Communities' Kids; DBA, We Run Orange CountyKids (WeROCK).
19. (2023) Students Run LA (SRLA).
20. Chaput JP, Willumsen J, Bull F, Chou R, Ekelund U, et al. (2020) 2020 WHO guidelines on physical activity and sedentary behavior for children and adolescents aged 5-17 years: summary of the evidence. Int J Behav Nutr Phys Act 17: 141.
21. Healthy People (HP) (2022) Adolescent Health. Office of Disease Prevention and Health Promotion.
22. Rutkowski EM, Perez A, Connelly CD (2022) Self-reported long-term implications of a marathon training program for adolescents: A qualitative study. J Community Med Public Health 6: 246.

23. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, et al. (2009) Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform 42: 377-381.

24. Becker CM, Dolbier CL, Durham T, Glascoff MA, Adams TB (2008) Development and preliminary evaluation of the validity and reliability of a positive health scale. Am J Health Educ 39: 34-41.

25. Al Hadid LRE, Becker C, Hamden-Mansour A, Al-Shuabi JT, Tharwat H, et al. (2013) Salutogenic wellness promotion scale: validation of the Arabic version. Am J Health Educ 44: 229-234.

26. Becker CM, Moore JB, Whetstone L, Glascoff M, Chaney E, et al. (2009) Validity evidence for the salutogenic wellness promotion scale (SWPS). Am J Health Behav 33: 455-465.

27. Becker CM, Chaney BH, Shores K, Glascoff M (2015) The salutogenic wellness promotion scale for older adults. Am J Health Educ 46: 293-300.

28. Becker CM, Glascoff MA, Mitchell T, Durham TW, Arnold W (2007) Assessing perceived health and associated health-promoting behaviors: an investigation of methods used to assess health status. J Appl Soc Psychol 37: 227-242.

29. Idler EL, Benyamini Y (1997) Self-rated health and mortality: a review of twenty-seven community studies. J Health Soc Behav 38: 21-37.

30. Benyamini Y, Idler E, Leventhal H, Leventhal E (2000) Positive affect and function as influences on self-assessments of health: expanding our view beyond illness and disability. J Gerontol B Psychol Sci Soc Sci 55: P107-P116.

31. Lee PH, Macfarlane DJ, Lam TH, Stewart SM (2011) Validity of the International Physical Activity Questionnaire Short Form (IPAQ-SF): A systematic review. IJBNPA 8: 115.

32. The IPAQ Group (2005) Guidelines for data processing and analysis of the International Physical Activity Questionnaire (IPAQ) – Short and Long Forms.

33. Chen G, Gully SM, Eden D (2001) Validation of a New General Self-Efficacy Scale. Organ Res Methods 4: 62-83.

34. Jerusalem M, Schwarzer R (1992) Self-efficacy as a resource factor in stress appraisal processes. In R. Schwarzer (Ed.), Self-efficacy: Thought control of action: 195-213. Hemisphere Publishing Corp.

35. Centers for Disease Control (2022) Adult obesity facts.

36. Rutkowski E, Connelly CD (2015) Adolescent obesity risk knowledge (AORK): let the discussion begin. J Spec Pediatr 21: 37-43.

37. American Academy of Family Physicians (2018) CDC data show U.S. life expectancy continues to decline.

38. Branscum P, Kaye G (2012) Process evaluations for a multisite nutrition education program. Calif J Health Promot 10(SI-Obesity): 34-39.

39. McClure AC, Tanski SE, Kingsbury J, Gerrard M, Sargent JD (2010) Characteristics associated with low self-esteem among US adolescents. Acad Pediatr 10: 238-244.e2.

40. Institute of Education Sciences (2019) Indicator 17: High School Status Dropout Rates-NCES, U. S. Department of Education.

41. Fry (2003) Hispanic youth dropping out of U.S. schools: measuring the challenge, Pew Hispanic Center.

42. Darling N (2005) Participation in extracurricular activities and adolescent adjustment: cross-sectional and longitudinal findings. J Youth Adolesc 34: 493-505.