Healthy school healthy Newport News girls' initiative

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MPH 661: PROGRAM PLANNING & EVALUATION

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Contents

Executive Summery.....3

Adolescent obesity: Health problem statement

The CommunitySubgroup/Setting.....5

The Scope of Adolescent obesity 5

The Health Significance of Adolescent obesity.....6

Contributing Factors of Adolescent obesity 7

Potential for Intervention for Adolescent Obesity-Evidence Based Best Practices

Meal or Fruit and Vegetable Snack Interventions.....8

Comprehensive School Physical Activity Program.....9

Farm-to-school programs..... 10

Healthy School Healthy Newport News Girls' Initiative (HSHNNGI) Program

Program Description.....11

Target Population of Middle and High Schools at Newport News School District table.....12

Major components of the Program 12

Connection of the program with Social-ecological model.....13

Connection of the program with Health Impact pyramid.....14

Goal and Objective of Healthy School Healthy Newport News Girls' Initiative Program

Goal and Objective 14

Implementation of Healthy School Healthy Newport News Girls' Initiative Program

Preparation phase.....16

Funding Proposal.....17

Implementation Phase.....18

Gantt Timeline Chart for HSHNNGI Program.....20

Evaluation of Healthy School Healthy Newport News Girls' Initiative Program

Evaluation design and plan.....22

Logic Model of Healthy School Healthy Newport News Girls' Initiative Program.....21

Evaluation Indicators of Healthy School Healthy Newport News Girls' Initiative Program.....24

References 27

EXECUTIVE SUMMERY

Introduction

Adolescent obesity reached almost an epidemic level in the United States. Every one in six adolescents in the United States is obese (20.6% in 2019)[1]. Adolescence is a crucial stage of life for the adaptation of healthy behaviors. The significant increase in body weight during adolescence foreshadows the severe health consequences in adult life. Overweight or obese adolescents are more likely to develop diabetes, cardiovascular diseases, obstructive asthma, obstructive sleep apnea, hypertension, hepatic steatosis, gastroesophageal reflux, cancer, and psychosocial issues[1]. More than $14 billion is the estimated increased medical costs for adolescents' obesity in the United States each year[3].

Prevalence of Adolescent Obesity

In 2019-2020, the prevalence of obesity was higher in African American adolescents (23.8%) and Hispanic (21.4%) adolescents[3]. The non-Hispanic Asian adolescent had the lowest obesity rate (8.1%), followed by non-Hispanic White adolescents (12.1%)[3]. For adolescents ages 12 to 19, non-Hispanic African American girls (29.2%) had the highest rates of obesity[3]. In Virginia,14.9% of adolescents have obesity, and Virginia ranks 31st in adolescent obesity among 50 states and D.C.[2,4]. In Newport News, 38.7% of people are obese, which is one of Virginia's worst outcomes[9].

Evidence Based Best Practices

Adolescents spend at least five days per week most of the year in school, where they consume approximately 35% to 50% of their daily calories, making the school the best setting to create and nature healthy eating and physical activity (PA) behavior[7]. Current Evidence shows that the meal or fruit and vegetable snack interventions proved effective in adapting healthy nutrition, increasing students' fruit and vegetable consumption (20%), and reducing obesity prevalence (9.6 Percentage Points) in adolescents[11]. Comprehensive School Physical Activity Program demonstrated improved PA knowledge and increased PA level[13]. In addition, farm-to-school programs increased students' fruit and vegetable consumption and knowledge of food, nutrition, and agriculture[12].

Healthy School Healthy Newport News Girls'

initiative (HSHNNGI) Program overview

Health School Healthy Newport News Girls' initiative (HSHNNGI) is a two-year program based in Newport News high and middle schools primarily targeting 3458 economically disadvantaged female students aged between 12 and 19. There are three major components of the HSHNNGI program guided by three evidence-based practices mentioned above - provision of healthy nutrition, increased physical activity, and increased knowledge and awareness about healthy eating and physical activity in the community. The students will access more healthy food and beverages in school, providing more fruits and vegetables and reducing access to sugary beverages in the HSHNNGI program. In addition, they will get a minimum of ≥ 60 min Physical activity per day, health education classes, and regular monitoring of BMI. The primary goal of the HSHNNGI program is to reduce the percentage of obesity among the target population from 29.2% to 23.0%. A Gantt timeline chart demonstrates the suggested timelines. The evaluation of HSHNNGI includes identifying the program's inputs, outputs, activities, anticipated short and long-term outcomes, and impact expressed clearly in the program's suggested logic model. Moreover, specific indicators and various metrics are presented in a table to help with its ongoing review.

Conclusion

Because of the multifactorial nature of obesity, only multifaceted interventions that address the different levels of the socioecological model would be efficacious and school-based intervention is the best for adolescents.

Adolescent obesity: Health problem statement

The community Subgroup/Setting

The population is African American adolescent girls aged 12 to 19 who are students at Newport News Public School (High and middle school) and belong to economically disadvantaged populations.

Scope of Adolescent obesity

Adolescent obesity reached almost an epidemic level in the United States. Every one in six adolescents in the United States is obese (20.6% in 2019)[1,3]. In 2019-2020, the prevalence of obesity was higher in African American adolescents (23.8%) and Hispanic (21.4%) adolescents[3]. The non-Hispanic Asian adolescent had the lowest obesity rate (8.1%), followed by non-Hispanic White adolescents (12.1%)[3]. For adolescents ages 12 to 19, non-Hispanic African American girls (29.2%) had the highest rates of obesity[1]. In 2019-2020, Obesity rates in adolescents from the highest income population were 8.6% compared to 23.1% among adolescents from the lowest income population[3].

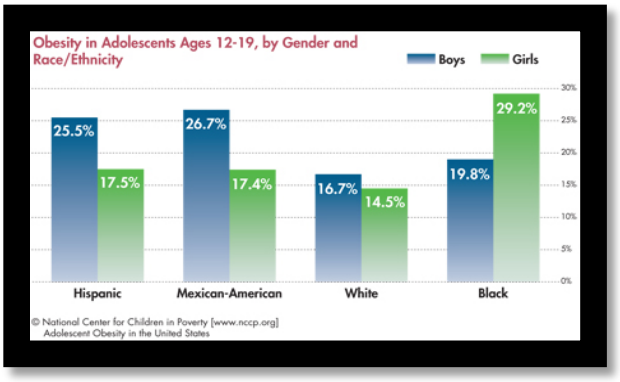

Figure 1: Source: NCCP

In Virginia,14.9% of adolescents have obesity, and Virginia ranks 31st in adolescent obesity among 50 states and D.C[2,4]. About 38.7% of adolescents in Virginia reported consuming vegetables and fruits daily, and only 23.8% of Virginia students were physically active at least

60 minutes per day on all seven days in the past week[2]. In addition, 16.7% were consuming sugary drinks regularly[2].

Newport News is an independent city in the Hampton Roads metropolitan area and is the 5th most populous city in Virginia. The city has a proportionally more African American population than most parts of Virginia (40.9%)[10]. In addition, US census reports 2021 showed that 14.8% of the population in Newport News was living in poverty (9.2% in Virginia)[5,10]. In Newport News, 38.7% of people are obese, which is one of Virginia's worst outcomes[9]. Racial and socioeconomic status is often correlated with poorer diet, lower exercise levels, and excess weight. African American adolescent girls aged between 12 to 19 living in Newport News are disproportionately affected by the obesity epidemic.

Health Significance of Adolescent obesity

Obesity is a complex multifactorial chronic disease with abnormal or excessive fat accumulation in the body. A body mass index (BMI) of 25 to 29.9 kg/m2 is considered overweight, and a body mass index (BMI) of 30 kg/m2 is considered obese[24]. Obesity has a significant impact on physical health and social and emotional wellbeing. Adolescence is a crucial stage of life for the adaptation of healthy behaviors. The significant increase in body weight during adolescence foreshadows the severe health consequences in adult life. Overweight or obese adolescents have an 80% chance of becoming overweight adults than their normal weight peers[1]. In the case of African American adolescent girls, the risk increased to 95%[6]. Overweight or obese adolescents are more likely to develop diabetes, cardiovascular diseases, obstructive asthma, obstructive sleep apnea, hypertension, hepatic steatosis, gastroesophageal reflux, cancer, and psychosocial issues[1]. Obesity is often associated with poor academic performance and lower quality of life experienced[1,6]. A study among 1400 adolescents with either standard or excess body weight

demonstrated that overweight or obese adolescents reported higher body dissatisfaction, social isolation, and negative self-esteem than normal adolescents[1].

Studies suggest that obesity represented 27 percent of the rise in US healthcare costs over the last 20 years and 6-10% of the United States healthcare expenditure due to obesity[3]. More than $14 billion is the estimated increased medical costs for adolescents' obesity in the United States each year3. In addition, adolescent obesity affects our nation's ability to protect itself; more than one in four adolescents are too heavy to enroll in the military[3].

Contributing factors of Adolescent obesity

Numerous factors contribute to different levels of the social-ecological model to the development of adolescent obesity. The primary factors mainly represented at the individual level are consumption of high-calorie food, reduced consumption of fruits and vegetables, and a sedentary lifestyle[1]. Research suggests an increase in adolescent food consumption is often related to increased availability of high-caloric, less-expensive food with aggressive marketing and easy access[25]. Several barriers to regular physical activity include increased internet and TV use, less promotion of physical activity in schools, neighborhood walkability, absence of state regulation on a safe route to school, neighborhood crime rates, race–gender cognitions, and beliefs that contribute to the prevalence of obesity[25]. Peer perception of obesity plays a significant factor at the interpersonal level8. Parents' perception of obesity, education, and income are other major contributors to adolescent obesity[25]. At the community level, structural racism from residential segregation and discrimination often creates barriers to adopting healthier behavior. At the policy level, racial and social discrimination creates disparities in obesity outcomes through limited opportunities in education, access to healthy food, safe neighborhoods for walking, and limited access to health care[6]. Research suggests that the unavailability of enough healthy food often

leads to choosing inexpensive, unhealthy, calorie-dense foods and beverages[7]. School cafeterias in low-income neighborhoods often serve food containing solid fats and added sugars with fewer fruit and vegetable options[7]. High-calorie snacks and sweetened beverages are offered in schools as part of any celebration or school fundraisers or given as a reward[18].

African American girls live their life with multiple forms of oppression[6]. The cultural perception of obesity or social acceptance of a larger body size often influences their behavior[6]. A study demonstrated that the social norm influences African American girls to prefer straightened hair which contributes to lower levels of participation in physical activity and potentially higher levels of obesity[6].

Potential for Intervention for Adolescent Obesity-Evidence Based Best Practices

Systemic disparities and socioeconomic factors contribute to a higher prevalence of obesity among African American girls in Newport News. Adolescents spend at least five days per week most of the year in school, where they consume approximately 35% to 50% of their daily calories, making the school the best setting to create and nature healthy behavior[7]. According to the US Department of Education, high-poverty school districts spend 15.6% less per student than low-poverty districts, the funding depends on local taxes[7]. Therefore, schools can adopt programs and policies to encourage adolescent girls to adopt healthy nutrition choices, increase daily physical activity, and maintain a healthy weight.

1. <u>Meal or Fruit and Vegetable Snack Interventions</u>: The first potential intervention is the Community Preventive Services Task Force (CPSTF) recommends meal or fruit and vegetable snack interventions to increase the healthier foods and beverages available in schools11. These interventions included policies that ensure school breakfasts or lunches meet specific nutrition requirements. The intervention also had programs that provide fresh fruits and vegetables during

lunches or snacks in school. Fortunately, few schools adapted both the policies and programs3,6. These interventions aim to reduce the access to less healthy foods and drinks in school, which reduce the consumption and therefore help reduce the weight or manage a healthy weight in adolescents. The intervention used the strategies like making more nutritious foods and beverages easily accessible and inexpensive, with attractive displays and eye-catching signs. The interventions also adapted rewarding healthy foods and drinks during classroom celebrations, parties, and special events in school11. CPSTF found that the interventions increased students' fruit and vegetable consumption (20%) and reduced obesity and overweight (9.6 Percentage Points)11. In addition, the intervention was proved more effective among primarily low-income populations, both elementary and middle school children. Several studies confirmed that interventions were cost-effective11.

2. Comprehensive School Physical Activity Program: The second potential intervention is another evidence-based program called Comprehensive School Physical Activity Program. CDC and shape America worked together to provide a step-by-step guide to improving physical activity in school through CSPAP. This evidence-based approach helps school districts and schools to enable all students to be physically active, meet the recommended 60 minutes of moderate-to-vigorous physical activity each day, and develop the understanding, knowledge, and confidence to be physically active for their whole life[13,26]. The CSPAP guide can be read and utilized by the school health council or wellness committee for classroom teachers, physical educators, physical education coordinators, school administrators, and physical activity supervisors to provide better quality physical education and classroom-based physical activity opportunities[13,26]. In addition, CSPAP schools receive bulletin boards, handouts, and other educational materials to promote physical activity[13,26]. Mattson et al. significantly improved

physical activity knowledge scores in low-income school-aged children[13]. The improvement in higher physical activity knowledge was seen to transfer to higher levels of physical activity behavior and it is more prominent in female students than male students. Kuhn et al. found that the CSPAP program effectively promotes PA and other positive outcomes for school youth[26]. Increasing physical activity knowledge and behavior proved effective in the long-term reduction of obesity and maintaining a healthy weight[13,26].

Figure 2. Source: SHAPE America

3. Farm-to-school programs: The third potential intervention is Farm to school programs (F2SPs). The Farm to school programs proved highly effective in promoting healthy eating habits in children and adolescents[12,14]. F2SPs connect the school student and their families to locally or regionally produced foods[12,14]. F2SPs include the availability of fresh, locally grown foods in school cafeterias, agricultural education in the standards-based educational curriculum, and learning outside the classroom, such as school gardens or farm visits[12,14]. F2SPs program provides promotional activities or experiential learning to support nutrition education. Farm to school enriches the connection between communities and local food producers and help modify the community's perception of healthy food habit[12,14]. Several studies demonstrated the effectiveness of the Farm to school program. For example, a study suggested that middle school students' fruit and vegetable consumption increased to more than five servings per day[12]. Several

other studies demonstrated significant increases in knowledge of food, nutrition, and agriculture[14]. A healthy eating habit and proper nutritional knowledge promote healthy eating behavior and maintenance of a healthy weight[12,14].

Healthy School Healthy Newport News Girls' initiative (HSHNNGI) Program

Program Description

Health School Healthy Newport News Girls' initiative (HSHNNGI) is a two-year program based in Newport News high and middle schools funded by the Virginia Foundation for healthy youth through their Healthy Communities Action Teams (HCAT) grants. The program aims to address obesity among African American adolescent girls of Newport News. The program is a collaborative project between the Virginia Foundation of healthy youth, Newport news school district, Virginia department of health, Virginia Department of Education, Virginia Department of Agriculture and Consumer Services, Newport News school PTA and Newport News communities. The Newport News school division has eight middle and six high schools and has 13551 total students in middle and high schools[15]. About 60% of Newport News school students come from economically disadvantaged populations[15]. Between 13551 students of Newport News middle and high schools and about 3458 are economically disadvantaged African American girls aged between 12 and 1915[15]. The program's primary target population is those 3458 African American adolescent girls. Since the 2019-20 school year, the Newport News school district has been providing free meals at schools across the district as a part of a Community Eligibility Provision program[15]. The HSHNNGI program would connect the school district's healthy eating efforts with local organizations to promote healthy nutrition and physical activity more comprehensively to students and their families. Later we can expand the program to other Hampton Road school districts to fight against the region's obesity epidemic.

Figure:3 Target Population of Middle and High Schools at Newport News School District

School	Total Enrollment	Gender				Ethnicity - African American		Economically Disadvantaged	
		F	%	M	%	Total	Total - Female	Total	Total - Female
Achievable Dream Middle	225	137	60.9%	88	39.1%	205	125	135	82
Crittenden Middle	985	450	45.7%	535	54.3%	617	282	485	222
Dozier Middle	1063	526	49.5%	537	50.5%	512	253	650	322
Gildersleeve Middle	1029	489	47.5%	540	52.5%	301	143	492	234
Hines Middle	883	456	51.6%	427	48.4%	454	234	447	231
Huntington Middle	509	256	50.3%	253	49.7%	454	228	367	185
Passage Middle	777	353	45.4%	424	54.6%	425	193	402	183
Washington Middle	439	234	53.3%	205	46.7%	199	106	175	93
Middel School	5910					3167	1565	3153	1550
Achievable Dream High	214	118	55.1%	96	44.9%	195	107	132	73
Denbigh High	1317	535	40.6%	782	59.4%	693	281	803	326
Heritage High	1208	568	47.0%	640	53.0%	1046	492	654	307
Menchville High	1510	697	46.2%	813	53.8%	540	249	533	246
Warwick High	1491	810	54.3%	681	45.7%	776	421	812	441
Woodside High	1901	1085	57.1%	816	42.9%	1058	604	901	514
High School	7641					4308	2155	3835	1908
Grand Total	13551					7498	3720.26	6988	3458.11

Major Components of the Program

There are three major components of the HSHNNGI program guided by three evidence-based practices mentioned above - provision of healthy nutrition, increased physical activity, and increased knowledge and awareness about healthy eating and physical activity in the community[17,18].

The HSHNNGI program plan will include

1. Modification of the school breakfast and lunch menu according to the registered dietitian-guided nutritional standard for adolescents.
2. Provision of fresh fruit and vegetable bar in every school cafeteria during lunch and snacks.

3. Introduction of two water dispensers in every school.

4. Eliminating soda and other sugary beverages in every school vending machine permitted only water and 100% juice.

5. Healthy foods are displayed in attractive displays with attractive signs and sold at a lower cost than high-calorie food.

6. Replacement of sugary snacks with fresh fruits and vegetables during any class celebration.

7. Modifying school physical activity curriculum with a minimum of ≥ 60 min Physical activity per day for every student.

8. Increase the number of physical education classes per week.

9. Health education class for students once every month and presence of bulletin boards, handouts, and other educational materials throughout every school to promote physical activity.

10. Field trips to the local farm gardens once a year/school.

11. Cooking competition based on healthy recipes every six months/school.

12. Incentives for a student who will participate in vegetable school garden projects in every school.

Connection of the program with Social-ecological model and Health Impact pyramid

HSHNNGI program activities will reflect the range of policies implemented across the four levels of the social-ecological model. The program will be based on the school setting, changing adolescent obesity behavior at the organizational level. Increasing awareness and knowledge between the student and their families and collaborative work between school and community will represent the community level of SEM[17,18]. Encouragement of healthy nutrition and increased physical activity among adolescent students, and increased awareness about healthy weight management will interact with the individual and interpersonal level of the SEM.

The HSHNNGI program activities will address the various components of the health impact pyramid. Figure 4 below represents the relationship of the HSHNNGI program with different levels of the health impact pyramid.

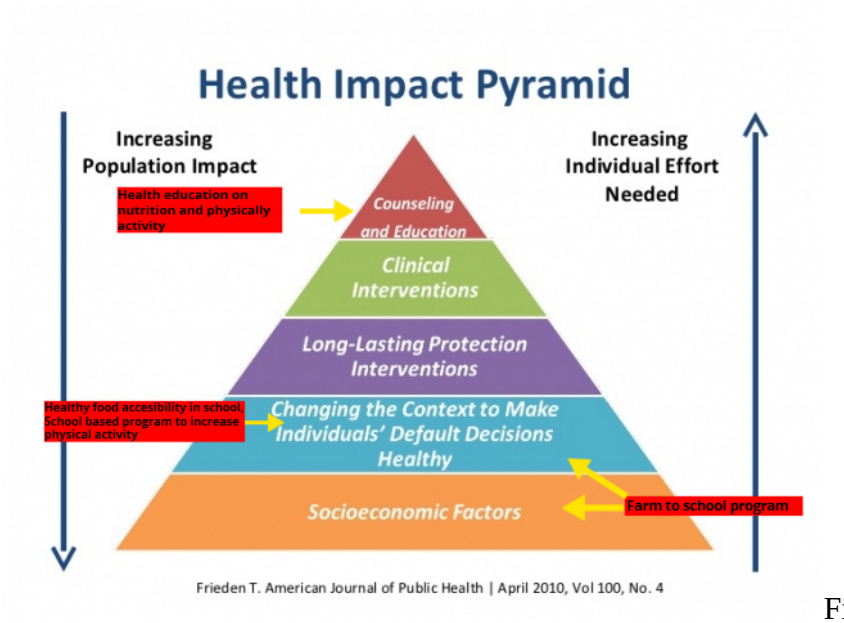

Figure:4 Source: NBHN

Goals and Objectives

The five goals are to increase physical activity, promote healthy eating, and grow awareness in the community. These goals are further clarified using multiple objectives, written as S.M.A.R.T. statements.

Goal 1. Reduce the percentage of obesity in the target population.

Objective 1.1: By December 2025, reduce the percentage of obesity among the target population from 29.2% to 26.0%.

Objective 1.2: By December 2025, increase the fruit and vegetable consumption from 38.7% to 42.0%:

Objective 1.3: By December 2024, decrease the consumption of one or more sugary drinks daily from 16.7% to 13.0%.

Objective 1.4: By December 2024, increase the percentage of adolescents who participate in physical activity for 60 minutes per day on all seven days in the week from 23.8% to 28.0%:

Goal 2. Ensure all food and drinks provided by the school district promote healthy eating.

Objective 1.1: Increase the healthy ingredients proportion in the breakfast and lunch menu.

Objective 1.1: Increase the school cafeteria's fresh fruits and vegetable bar during lunch and snacks.

Objective 1.2: Ensure access to a free drinking water dispenser in all schools.

Objective 1.3: Ensure healthier foods and beverages are sold through schools at a lower cost.

Objective 1.4: Discourage offering high-calorie snacks and sweetened beverages in schools during a celebration or school fundraisers or given as a reward.

Objective 1.5: Discourage dispensing soda and other sugary beverages in the school vending machine.

Objective 1.6: Ensure collaboration between the school district and the local farmer's market association.

Goal 3. Ensure all schools of the school district meet the recommended level of physical activity guidelines.

Objective 1.1: Ensure all schools have a physical education curriculum designed to develop motor skills, knowledge, and behaviors for healthy active living, physical fitness, sportsmanship, self-efficacy, and emotional intelligence.

Objective 1.2: Ensure all students engage in $\geq$ 60 min of physical activity and attend scheduled physical education instructional classes.

Objective 1.2: Ensure all students engage in physical activity in various settings throughout the school day besides the requisite physical education instructional class.

Goal 4. Increase the target population's understanding, knowledge, and awareness of healthy dietary or physical activity behaviors.

Objective 1.1: Enhance the target population's self-management of weight skills.

Objective 1.2: Increase involvement of parents or caregivers in weight management.

Objective 1.3: Increase awareness of parents or caregivers about their child's healthier dietary and physical activity habits.

Goal 5. Create school environments that foster the achievement and maintenance of a healthy weight.

Objective 1.1: Ensure sufficient time into the school day is available for eating nutritious lunch/snacks and physical activity.

Objective 1.2: Increase awareness about healthier dietary and physical activity behavior among school staff and teachers.

Objective 1.3: Ensure the availability of bulletin boards, handouts, and other educational materials to promote physical activity in all schools.

Implementation of the H.S.H.N.N.G.I. program

Preparation phase

For the preparation and implementation of the H.S.H.N.N.G.I. program, we will create a program committee which is a team of individuals who represent each of the critical areas of the prevention program. The program committee will include a program coordinator(myself), one teacher from each school, one school principal, one school board member, a registered dietician, a registered local health care provider, one physical education teacher or physical instructor from each school, eight school nurses, six school counselors, a representative from the Virginia Department of Health-Peninsula office, ten parent volunteers and four community members[17,18].

For the program's preparation phase, the committee will conduct a needs assessment, which will help identify the inputs and activities. Inputs include a list of identified resources, including funding supports and guidance for the program[17,18]. The activities should meet the program needs and focus on the short- and long-term outcomes[19]. We will take reference from successful strategies or best practices that have helped the other school districts. Team members reviewed data from V.D.H.'s Youth Risk Behavior Surveillance System to determine the priority areas. The program committee will decide the goal, budget, and timeline and develop the protocol. The program committee will facilitate the research process and pursue grant opportunities for the overall successful implementation of the program[19]. Virginia Foundation of healthy youth is a community-based organization in Virginia established in 1999 which empowers Virginia youth to make healthy choices8. V.F.H.Y.'s Healthy Community Actions Team (H.C.A.T.) grant is used for evidence-based strategies and best practices for healthy nutrition choices, increasing physical activity, and reducing obesity in Virginia[16]. This proposed program will facilitate funding opportunities through the H.C.A.T. grant initiative. The figure shows the funding proposal for the H.S.H.N.N.G.I. program.

Figure:5 Health School Healthy Newport News Girls' initiative (HSHNNGI)Program – Funding Proposal

Descriptions	Cost ($)
1. Funding Proposal - Labor	
Program coordination with monitoring and data collection on food consumption, physical activity participation, analysis, review, committee meetings	$24,960.00
Arrangement of school healthy nutrition or physical activity classes, screening of students	$12,012.00
Arrangement of health education classes, field trip to farm, program implementation at middle and high school	$12,012.00
Dietitian – Consultancy	$2,500.00
Health Care Provider - Consultancy	$3,500.00
2. Funding Proposal - Materials	

Water dispenser - Purchase, Install and Maintenance	$21,000.00
School Garden – Plant/sapling purchase	$7,000.00
Nutrition - Display and Sign – Printing	$1,400.00
Parents & Care giver information leaflets – Printing	$1,355.10
3. Miscellaneous	$3,000.00
Total Program	**$88,739.10**

The program committee will arrange meetings and discussions with primary stakeholders. The program coordinator and another team member will use several resources to develop a nutritional standard for the school according to the guidance of a dietician appointed, which will approve by the school board[7,18]. They also plan new school lunch and breakfast menus and new modified school schedules for implementation, which will also need the school board's approval[7,18]. In addition, the program coordinator and team will develop physical activity guidelines according to the CSPAP guidelines and avail additional material from CDC[17]. The following activities include water dispenser purchase, information leaflet preparation, training for school staff and teachers, and meeting with the local farmers market association to ensure a healthy food supply to the school cafeteria.

Implementation Phase

Every parent/caregiver of the school students should be informed about the program. During the implementation phase, the significant activities include installing and maintaining all components of the HSHNNGI program. The program coordinator will monitor all the activities, including data collection. The school nurse will collect BMI data of every student at the end of every week during screening[7,18]. Each month, a program committee member and a school staff/teacher will be responsible for data submission to the program coordinator. The program committee will meet monthly to review the implementation process and monitor the data

collection and analysis method. We will analyze the data focused on the target population with guidance from the health care provider.

The program committee will develop a few sub-committees for each school to implement the HSHNNGI program smoothly[7,18]. A satisfaction survey subcommittee, an F2SPs subcommittee. a field trip subcommittee, a cooking competition subcommittee, and an evaluation subcommittee will form for each school. The satisfaction survey committee will conduct quarterly surveys and submit the report to the program coordinator[7,18]. A semi-annual meeting will happen to review the data collection and analysis, program objectives, satisfaction survey, success, sustainability, and maintenance of the HSHNNGI program. The program committee will meet with all stakeholders annually. They will ensure that the outputs and outcomes reflect the correct understanding of the program -there are no major missing activities or outcomes, and the logical progression of activities and the outcomes should be present[21]. Reduction of obesity is the primary outcome expected, which would show a minor reduction in the short term and a further reduction in long-term outcomes[20]. In the long term, the expected outcome includes improved mental and physical wellbeing, healthy weight maintenance, better performance, and increased knowledge and awareness among adolescents, their parents/caregivers, schoolteachers, and staff[20,21]. The public health impact shows an improvement in the overall health status of the target population[20,21]

Figure 6. Gantt Timeline Chart for Health School Healthy Newport News Girls' initiative Program

Implementation of Health School Healthy Newport News Girls' initiative (HSHNNGI) program in 14 Newport News schools.

Company Name: Old Dominion University

Program Coordinator: Anasua Ghosh

Program Start Date: Oct 1, 2022

	October	January	April	July	October	January	April	July	October
Task description	10/1/2022	1/1/2023	4/1/2023	7/1/2023	10/1/2023	1/1/2024	4/1/2024	7/1/2024	10/1/2024
	wk39	wk52	wk13	wk26	wk39	wk1	wk14	wk27	wk40
Program preparation									
Create program committee /initial meeting									
Identify target population									
Identify target location									
Develop project goal, budget, and timeline									
Development of protocol from evidence-based practices and toolkits									
Meeting of Stakeholders, program committee and coordinators									
Program resources collection									
Staff training									
Evaluation of nutritional value requirement of adolescent									
Development of Nutritional Food standard									
Breakfast and Lunch Menu Planning									
Development of hourly school plan									
Prepare information leaflet									
Drinking Water dispenser purchase									
Physical education guidelines development									
Program Implementation									
Notification to parents/Caregiver									
Serving Healthy Menu at Schools									
Drinking Water dispenser installation									
Drinking Water dispenser maintenance									
Healthy snacks financing									
Salad and Fruit bar installation and maintenance									
Arrangement of bulletin boards, handouts, and other educational materials									
Arrangement of school healthy nutrition or physical activity classes									
Promoting, purchasing, and serving local grown food									
Arrangement of local farm field trips									
Monitoring and tracking the progress in accomplishing the activities									
Arrangement of health education classes									
Monitoring and data collection on food consumption									
Monitoring and data collection on physical activity participation									
Collection of additional data									
Weekly report of screening of students									
Monthly data collection, analysis, and review									
Monthly program committee meeting									
Program Evaluation and review									
Quaterly satisfaction survey on students, parent/caregiver, staffs, and teachers.									
Semi-annual program data collection, analysis and review of program objectives, satisfaction survey, success, sustainability, and maintenance.									
Yearly program review meeting for evaluation by program committee and stakeholders.									
End program review meeting to review the outcome and evaluation of entire program									
Program Follow up and Maintenance									
Follow up meeting to discuss the impacts and maintenance possibility									
Share the results with the stakeholders									

Figure 7: Health school healthy Newport News girls' initiative - Program Logic Model

Input

Funding and Accountability
- Virginia Foundation of healthy youth-
  Healthy Communities Action Teams (HCAT) grants

Provincial supports
- Newport News School Districts
- Virginia department of health
- School Nutrition Association
- Virginia Farmers Market association
- Virginia Department of Agriculture and Consumer Services.
- Chief State School Officer
- Newport News school PTA
- Newport news communities

Internal Supports
- Newport News School Districts staffs
- Newport News School Districts teachers
- Volunteers
- Program committee personals

Guidance and Resources
- Meal or Fruit and Vegetable Snack Interventions
- Comprehensive School Physical Activity Program (CSPAP)
- Farm to school program
- Evidence based Practice Literature
- Peer reviewed Publications

Evaluation support
- Virginia department of health (YRBS)
- Data on nutrition, physical activity, and obesity.

Activities and Output

Setting
- Newport News Middle and high school.

Target Population
- African American economically disadvantaged female adolescents aged between 12 to 19 who are student at Newport News school district.
- Parents/caregivers
- Newport News School Districts staffs and teachers.

Implementation activities
- Formation of program implementation committee
- Evaluation of nutritional value requirement of adolescent
- Healthy Menu planning including fruit and vegetable.
- Drinking Water dispenser purchase.
- Fruit and vegetable bar for lunch and snacks
- Physical education guidelines development
- Hourly school plan
- Training Schedule development for staff and teachers
- Placement of bulletin boards, handouts, and other educational materials.
- Promoting, purchasing, and serving local grown food
- Collaboration between Newport news school districts, VDH and local stakeholders.

Outputs
- Primary: 3458 African American economically disadvantaged female Students.
- Secondary: 13551 students of middle and high schools of Newport news school districts

Short Term Outcome

- Reduction of obesity by 10%
- Student access to healthy food.
- Healthy school menu
- Healthy meal consumption.
- Increased fruit and vegetable consumptions.
- Decrease soda and other sugary beverages consumption.
- Increased physical activity.
- Increased student participation in physical education classes
- Positive Parenting
- Decrease food related social stigma
- Decrease stress

Long Term Outcome

- Reduction of obesity by 20%
- Improve mental and physical well-being
- Maintenance of healthy weight.
- Better academic performance
- Increase cognitive ability
- Reduction of obesity induced chronic diseases.
- Increased healthier dietary and physical activity behavior
- Increase knowledge and awareness of students
- Increase knowledge and awareness of parents/Caregivers.
- Increase knowledge and awareness of School Districts staffs and teachers

Impact

- Improve health status of the community.
- Reduction of chronic diseases.
- Reduction of racial and socioeconomic disparities
- Increase life expectancy.

Evaluation of Healthy School Healthy Newport News Girls' Initiative Program

Evaluation design and plan

The HSHNNGI program will be evaluated using formative, process, summative, impact, and outcome evaluation methods to evaluate the program feasibility, comparability, feasibility, relevance, acceptance, fidelity, reach, accuracy, sustainability, outcome, and impact on local adolescent obesity[20,21,22]. The primary aim of the evaluation is to document and assess the activities, accomplishments, and outcomes associated with the HSHNNGI program, so the stakeholders can learn from the experience and use their resources effectively during and after the initiative. Two evaluation coordinators will be selected from each school to form an evaluation team to supervise data collection, review, and analysis activities. A Gantt timeline chart (Figure 6) of the HSHNNGI program implementation is attached above to present a visual overview of the program tasks and probable timelines.

The formative evaluation identifies potential and actual influences on the implementation process[23]. It allows identifying for modification in the program before the full implementation begins and increases the probability of success of the program[23]. The formative evaluation requires data collection, and primarily qualitative data are collected by direct observations, semi-structured or focus group interviews, and group discussions[23]. The process evaluation also will depend upon the qualitative data. In the HSHNNGI program, the individual school evaluation coordinators will collect regular qualitative data through personal interviews. The data will be reviewed and analyzed at the program's beginning, yearly, and end. The school staff and teachers will support the whole process by direct involvement or supervision.

The outcome and impact of the program reflect the effect on the target populations, which brings us to the following form of evaluation, summative evaluation[20,23]. The summative

evaluation should start after the program is well established. In the HSHNNGI program, the committee will conduct summative evaluation through three primary time ranges- short term, long term, and impact outcome[20,23]. First, the individual school evaluation coordinators will collect the daily and weekly quantitative data. The evaluation coordinators will add additional data from school records and survey procedures into the program's database. Third, the program committee will review the data yearly in a meeting to assess the program process, impacts, and outcomes. The evaluation indicators, both the formative and summative indicators presented in figure 8 below. For all indicators, the program committee will pay careful attention to endpoint relevance so that the measurement will not remain a simple academic exercise but a process to stimulate conversations among various stakeholders and facilitate evidence-based action[20,23]. The program committee will conduct the final evaluation at the end review meeting. The Local youth behavioral risk Assessment data will be gathered with support from VDH. The final indicators table will give overviews of increased knowledge and awareness, program strengths and weaknesses, effects on behavioral outcomes, recommendations for future programming, and effectiveness in reaching the desired outcome, decreasing adolescent obesity prevalence in Newport News, Virginia[20,23].

Cohort studies are observational nonexperimental study designs often used as a study design for examining the effects of interventions[22]. The ideal study for the HSHNNGI program is a cohort study, as the main objective of this program is to observe how adolescents or students react to healthy nutrition and increased physical activity. In the HSHNNGI program, the outcome will measure pre-test/post-test, conducting a cohort study to find a distinction between the differences at baseline. The resulting numbers and percentages will be assessed at the programmed endpoint using a one-sample t-test for significance (P-Value).

Figure 8: Evaluation Indicator for Health School Healthy Newport News Girls' initiative (HSHNNGI) program

Indicators	Type of evaluation F=Formative S=Summative	Source where data will be collected	Target population	Compare to baseline? Y=Yes N=No	Data collection method	Data collection times B= Beginning I= Intermediate E=End	Data collector
Program Fidelity checklist for implementation	F	Program Database	Not applicable	N	Interview	B &I	Evaluation Coordinators
Number of students who have access to healthy food	F	Program Database	Middle and High School Students	Y	Lunchroom observation Interview	B &I	Evaluation Coordinators, school staff and teachers
Number of students who consume five or more servings of fruits and vegetables per day.	F & S	Program Database	Middle and High School Students	Y	Lunchroom observation Interview Survey	I &E	Evaluation Coordinators, school staff and teachers
Number of students who receive fruits or vegetables in the school cafeteria as the food offered or sold (Salad and Fruit bar)	F	Program Database & School records	Middle, High School Students.	N	Lunchroom observation Interview	B &I	Evaluation Coordinators, school staff and teachers
Number of students Who eat the healthy menu in the breakfasts	F & S	Program Database & School records	Middle and High School Students	Y	Cafeteria observation Interview Survey	B, I &E	Evaluation Coordinators, school staff and teachers
Number of students Who eat the healthy menu in the lunches	F & S	Program Database & School records	Middle, High School Students.	Y	Lunchroom observation Interview Survey	B, I &E	Evaluation Coordinators, school staff and teachers
Number of students Who have increase fruit and vegetable proportion in the snacks.	F & S	Program Database & School records	Middle, High School Students.	Y	Class observation Interview Survey	B, I &E	Evaluation Coordinators, school staff and teachers
Number of students who participate in ≥ 60 min Physical activity per day.	F & S	Program Database & School records	Middle and High School Students	Y	Class observation Interview Survey	I &E	Evaluation Coordinators, school staff and teachers
Number of students who participate in physical education classes	F & S	Program Database & School records	Middle, High School Students	Y	Class observation Interview Survey	B, I &E	Evaluation Coordinators, school staff and teachers
Number of students who access the free drinking water dispenser	F	Program Database	Middle, High School Students.	Y	Cafeteria observation Interview	B &I	Evaluation Coordinators, school staff and teachers

Number of students Who have reduced consumption of sugar sweetened beverages	F & S	Program Database	Middle, High School Students.	Y	Cafeteria observation Interview Survey	I &E	Evaluation Coordinators, school staff and teachers
Number of student with BMI more than or equal to 30/Number of student with BMI between 26-30/Number of students With BMI 25 or less	F & S	Program Database & School records	Middle, High School Students.	Y	Monthly estimation	B, I &E	School nurse/School staff
Number of students who participate in the health education classes by school nurse or counselor that include counseling or education related to nutrition or healthy weight maintenance.	F	Program Database & School records	Middle, High School Students.	N	Class observation Interview	B, I &E	Evaluation Coordinators, School counselors, School nurses, School staff, teachers, And Volunteers
Number of students who participate in the health education classes by school PE teachers or school counselor that include counseling or education related to physical activity	F	Program Database & School records	Middle, High School Students.	N	Class observation Interview	B, I &E	Evaluation Coordinators, School counselors, School nurses, School staff, teachers, And Volunteers
Number of students who have increased time available for eating nutritious lunch/snacks and physical activity in each school day.	F	Program Database & School records	Middle, High School Students.	Y	Survey Record	B, I &E	Evaluation Coordinators, school staff and teachers
Number of students who consume foods and beverages at school not recommended by the Dietary Guidelines for Americans such as those containing solid fats and added sugars.	F & S	Program Database & Local health department record	Middle, High School Students.	Y	Survey Record	I &E	Evaluation Coordinators, school staff, teachers, and volunteers
Number of schools with Farm-to-School programs	F & S	Program Database & Local health department record	Middle, High School Students.	Y	Survey Record	B, I &E	Evaluation Coordinators, school staff, teachers, and volunteers
Number of School Districts staffs and teachers who have increased knowledge and awareness of about healthy nutrition and physical activity.	S	Program Database, school & Local health department record	School Staffs and teachers	N	Open end interview Survey	I &E	Evaluation Coordinators, Program committee members and volunteers

Number of parents/Caregivers who have increased knowledge and awareness of about healthy nutrition and physical activity.	S	Program Database, school & Local health department record	Parents /Caregivers	N	Open end interview Survey	I &E	Evaluation Coordinators, Program committee members and volunteers
Number of students who have increased knowledge and awareness of students about healthy nutrition and physical activity.	S	Program Database, school & Local health department record	Middle, High School Students.	Y	Open end interview Survey	I &E	Evaluation Coordinators, Program committee members and volunteers
Satisfaction surveys for students	S	Program Database & School records	Middle, High School Students.	N	Open end interview	I &E	Evaluation Coordinators, Program committee members and volunteers
Satisfaction surveys for Parents/Care givers	S	Program Database & School records	Parents /Caregivers	N	Open end interview	I &E	Evaluation Coordinators, Program committee members and volunteers
Satisfaction surveys for School district staffs and teachers	S	Program Database & School records	School Staffs and teachers	N	Open end interview	I &E	Evaluation Coordinators, Program committee members and volunteers
Number of school district staff and teachers participate in surveys	F& S	Program Database, school & Local health department record	School Staffs and teachers	N	Record	I &E	Evaluation Coordinators, Program committee members and volunteers
Reduction of percentage of obesity among the target population	S	Program Database, school & Local health department record	Middle, High School Students.	Y	Record	I &E	Evaluation Coordinators, Program committee members and volunteers
1St Yearly Evaluation	F	All available data	Program committee members and all program team members	Y	Record	B, I &E	Program team
2nd Yearly Evaluation	F& S	All available data	Program committee members and all program team members	Y	Record	B, I &E	Program team
End -Point Evaluation	S	All available data	Program committee members and all program team members	Y	Record	B, I &E	Program team

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