



Published in final edited form as:

J Nutr Educ Behav. 2010 ; 42(3): 210–212. doi:10.1016/j.jneb.2009.12.003.

Kid WAVE - Get Healthy Game: Promoting a Healthier Lifestyle in Overweight Children

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Keywords

Children; weight; lifestyle; health; dietary variety; physical activity; dietary excess

Introduction

Lifestyle, in relation to the prevalence of overweight in children, is a public health concern (1-3). Behavioral change constructs, such as goal-setting, self-efficacy, and readiness for change, need to be applied to the development of educational materials to address obesity in children (4,5). Educational games can promote goal-setting, enhance motivation, and build self-efficacy in overweight preadolescents (5). The United States Department of Agriculture provides interactive *MyPyramid- For Kids* materials for children age 6-11 years on its website (6), but these materials do not address the children's readiness to make changes or self-efficacy in promoting intake goals.

We adapted components from the Weight, Activity, Variety, and Excess (WAVE) Pocket Card and Screeners (7,8) to develop a game-like tool for introducing goal setting to overweight children entering a weight management program. Our goal was to enhance motivation before introducing the *MyPyramid* recommendations.

Methods

The instrument development and evaluation protocol was approved by the Albert Einstein College of Medicine Institutional Review Board. We obtained verbal parental consent and child assent to participate in the formative evaluation.

Instrument Development

We used the original WAVE Pocket Card template [7] as the format for the *KidWAVE: Get Healthy Game*. The weight quadrant is not scored while the other quadrants include 3-5 items with a corresponding score range of 3-5 points. Each of the scored quadrants includes one or more items related to lower body mass index (BMI) z-scores among children in a clinical weight loss program or related to trying to lose weight among Bronx 5th graders on

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the WAVE screener, which includes items adapted from the Youth Behavioral Risk Factor Survey (YBRFS) (8). The items addressed Activity – watching less TV ($p < 0.05$), Variety – switching from regular to low fat milk ($p < 0.01$), and Excess – less juice ($p < 0.01$), less sugary drinks ($p < 0.01$), less regular soda ($p < 0.05$), and less *junk* food. ($p < 0.001$). Other items were chosen based on *MyPyramid* recommendations but without emphasizing the number of servings to achieve the sense of mastery (eg, vegetables due to the exceedingly low initial intake). The maximum potential score is 12 points. The assessment was designed as a self-scoring tool with subtotals for each quadrant for the child to then calculate a total score.

Formative Evaluation

The template and scoring system were reviewed by 2 dietitians, 1 health psychologist, 2 pediatricians, and 2 elementary school teachers to address the content, scoring system, perceived appeal, and ease of completion. We evaluated acceptability and feasibility of using the card in an inner-city clinic setting where the vast majority of parents are Spanish speakers, but the children prefer communication in English.

We used cognitive interviewing to assess understanding and refine the format. We pilot tested the card by asking children ($n=53$) to complete the card and to respond to a 7-item evaluation while waiting for appointments in a large municipal hospital pediatric primary care clinic program. To evaluate user-friendliness, we asked the children to indicate if completing the card was fun and if it felt like a game. We also asked if it made them want to get more points, be a healthy weight, be more active, eat a variety of food, and avoid excess *junk* food and soda. Response options were definitely *yes*, *probably yes*, *probably no* and *definitely no*. We evaluated responses dichotomously as *yes* or *no*.

Calculation of readability scores

Card readability determined the grade of school reading level (Flesch-Kincaid, Microsoft Word version 2003, 2003).

Results and Discussion

Responses to the cognitive interviews indicated that most of the children could tell how often they ate a food but had difficulty conceptualizing recommendations with regard to servings per day. They often named vegetables when asked what fruits they ate and vice-versa. Other areas that needed to be clarified included the length of a week (eg, number of days) or what was meant by last week. Most of the children needed prompting to complete the self-scoring part of the sections, but after prompting they calculated scores without assistance.

Children completed the card in 5-15 minutes, which included selecting strategies to improve their score. The self-assessment by children ($n=53$) in the pilot testing indicated that 20/53 (38%) did not consume a vegetable daily during the previous week, 28/53 (53%) did not consume a fruit daily, and 29/53 (55%) did not drink low-fat milk. The children's responses to the evaluation questions indicated that 50/53 (94%) had fun, 47/53 (88%) felt like they were playing a game, and 52/53 (98%) reported that completing it made them want to get more points. With regard to questions about whether the completing the questions motivated health behaviors, 52-53/54 (98-100%) responded with *yes* to wanting to be at a healthy weight, be more active, and eat a greater variety of food, while 44/53 (83%) responded with *yes* to wanting to avoid excess *junk* food and soda. The *KidWAVE: Get Healthy Game*, illustrated in Figures 1 (front – assessment) and Figure 2 (back – behavioral goals), appears

to be easy to read (with a Flesch-Kincaid grade level of 2.9 suggesting that it could be easily read by the majority of children at the end of second grade).

Clinical Application and Implications for Nutrition Educations

We are using the card to initiate goal-setting in a family weight management program. It will be followed by a more in-depth education in subsequent sessions with *MyPyramid* materials geared for 6-11 year olds. The *KidWAVE-Get Healthy Game* can be used to introduce children to the importance of a healthy lifestyle and to increase their awareness of physical activity, dietary variety, and excesses, all of which are important achieving a healthy body weight. This tool is accessible as a Word file from http://eph.aecom.yu.edu/web/division_details.aspx?id=6

Acknowledgments

This work was supported in part by R18DK075981, the Diabetes Research and Training Center P60 DK020541, and Clinical and Translational Science Award UL1 RR025750. We thank Renee Rosett for her helpful feedback and suggestions during the development and formative evaluation.

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Kid WAVE- Get Healthy Game

Give yourself ONE point for every "yes" check you give yourself!

<p>Weight for Good Health</p> <p>Time to get healthy! Find out your score!</p>	<p>Activity</p> <ol style="list-style-type: none"> Did you play hard enough to sweat this week (the past 7 days)? (<i>play ball, play sports, skate, bike, run, dance</i>) <input type="checkbox"/> Yes <input type="checkbox"/> No Did you get extra exercise this week (the past 7 days)? (<i>walk to school or store, walk up stairs</i>) <input type="checkbox"/> Yes <input type="checkbox"/> No Did you spend less than 2 hours watching TV or playing video/computer games most days this week (the past 7 days)? <input type="checkbox"/> Yes <input type="checkbox"/> No <p>Total Points: _____</p>
<p>Variety</p> <ol style="list-style-type: none"> Did you eat any bright color vegetables and fruits this week (the past 7 days)? (<i>Carrots, yams, broccoli, spinach or other greens</i>) <input type="checkbox"/> Yes <input type="checkbox"/> No Did you eat a vegetable every day this week (the past 7 days)? <input type="checkbox"/> Yes <input type="checkbox"/> No Did you eat fruit every day this week (the past 7 days)? <input type="checkbox"/> Yes <input type="checkbox"/> No Did you drink low-fat milk this week (the past 7 days)? <input type="checkbox"/> Yes <input type="checkbox"/> No <p>Total Points: _____</p>	<p>Avoid Extras</p> <ol style="list-style-type: none"> Did you say NO to the super size? <input type="checkbox"/> Yes <input type="checkbox"/> No Do you drink water when you are thirsty? <input type="checkbox"/> Yes <input type="checkbox"/> No This week (the past 7 days), did you drink sugary drinks less than 2 times? (<i>soda, Kool-Aid™, Snapple™, iced tea, lemonade, Gatorade™, etc.</i>) <input type="checkbox"/> Yes <input type="checkbox"/> No Did you eat chips or junk food less than 2 times this week (the past 7 days)? <input type="checkbox"/> Yes <input type="checkbox"/> No Did you eat candy or other sweets less than 2 times this week (the past 7 days)? <input type="checkbox"/> Yes <input type="checkbox"/> No <p>Total Points: _____</p>

GRAND TOTAL POINTS: _____

If you score **10 or more** points, **GOOD FOR YOU!** You deserve a cheer!
 If you score **7-10 points**, **GO** for more healthy choices!
 If you score **less than 7**, **STOP!** Think about making changes to get healthy.

Figure 1.

Check "yes" to get a better



HEALTH SCORE!

<p>Weight for Good Health</p> <p>You want more points? Follow the arrows!</p> <p>Keep going!</p>	<p>Activity: I will</p> <p>Play sports or ride a bike when you are with your friends. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Walk or run until you sweat. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Dance to the radio or CD player. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Turn off the TV. <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If you want to play video games, try the ones that make you move.</i></p>
<p>Variety: I will</p> <p>Choose bright color vegetables and fruits. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Eat vegetables _____ times a day (<i>fill in the blank with a number</i>). <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Eat fruit _____ times a day (<i>fill in the blank with a number</i>). <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Drink low-fat milk. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Avoid Extra: I will</p> <p>Say NO to the giant, super-duper size. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Drink water when I get thirsty instead of sugary drinks. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Eat chips or junk food once a week or not at all. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Cut out candy and sweets or only the small size. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Figure 2.