BEACHES

Behaviors of Eating and Activity for Children's Health: Evaluation System

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June 1, 2009

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(Behaviors of Eating and Activity for Children's Health: Evaluation System)

Purpose
To obtain objective data on children's at home physical activity and sedentary behaviors and selected environmental (social and physical) variables that may influence these events.

Description

BEACHES is a direct observation system used to simultaneously record children's physical activity and sedentary behaviors as well as related environmental characteristics and events.[1] The physical activity codes have been validated using heart rate monitors and accelerometers, and the system can be used in homes, schools, and most settings where children might be found. [2-5] The original system was developed within the framework of behavioral analysis and included coding for 10 separate dimensions.[1] These dimensions have been modified to relate to the specific aims and study questions of AVENTURAS. The modified version is presented here.

Timing

BEACHES observations will be conducted on selected cohort children (20%) during one home visit 3 times each measurement year (i.e., 3 total years). Observations will be made at the child's home on school days between the time the child returns home until the evening meal. Observations will be for 60 minutes, and consist of two-30 minute segments

Observation Procedure

A trained assessor, paced by voice prompts on an IPOD or MP3, will conduct the observations. Data will be recorded manually on prepared forms or on a PDA.

The BEACHES Instrument

The following Table briefly describes BEACHES dimensions to be employed in AVENTURAS:

Categories	Description
1.0 Activity Level 1. Lying down 2. Sitting 3. Standing 4. Walking 5. Vigorous	Provides an estimate of the intensity of the child's physical activity. Codes 1 to 4 (lying down, sitting, standing, walking) describe the body position of the child. Code 5 (vigorous) describes when he/she is expending more energy than during ordinary walking. (Code one)
2.0 Location I. Inside home O. Outside home	Identifies the child's location at the end of the 'observe' interval. (Code one)
3.0 People There N. No others P. Parent/guardian S. Sibling OC. Other child OA. Other adult	Identifies persons in the child's environment at the end of the observe interval. (Code all that apply)
4.0 Behavior Motivated N. None during interval PA. Physical activity SB. Sedentary behavior	Describes events related to motivating/influencing the target child to directly engage in either physical activity or sedentary behavior. These events could be antecedents (e.g., prompts) or consequences (e.g., rewards or punishers). (Code one)
5.0 Motivator N. None C. Child A. Adult	Identifies persons interacting with the child relative to directly motivating him/her to be physically active or sedentary during the 'observe' interval. (Code one)
6.0 Views Media N. No Y. Yes	Identifies whether or not child directly engages in television (includes VCR, DVD) or video and computer games during during the 'observe' interval. (Code one)
7.0 Eats N. Ingests no food Y. Ingests food	Identifies whether or not the child ingests food during the observe interval. (Code one)

Sample recording from (abbreviated). With 30 intervals per page=4 pages for 60 minutes.

INTER VAL	ACTIVITY LEVEL	LOCATION	PEOPLE THERE	BEHAVIOR MOTIVATED	MOTIVATOR	VIEWS MEDIA	EATS
1	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
2	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
3	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
TO 30	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y

Observation Procedures

Home includes both inside and outside the home or apartment complex. Visit homes only on days a parent/guardian confirms the target child will be there for at least 2 hours. BEACHES observations will not be made when the child is away from home (e.g., at a friend's house or in a park area that is not part of the apartment complex).

Observers focus on the target child for a 15-second observation interval and then have 15 seconds to enter data codes onto prepared forms. Voice prompts on an IPOD or MP3 pace the alternating observation and recording periods. Each observe-record cycle requires 30 seconds; thus, a 90-minute period would produce 180 observation intervals.

Three dimensions (Child Activity, Location, and People There) are scored using momentary time-sampling methods (i.e., codes are entered to describe events related to these three categories as they occur at the end of the "observe" interval). The other four dimensions (Activity Motivation, Activity Interactor, Views Media, and Eats) are scored using partial-interval time sampling (i.e., events are coded if they occur at any time during the 15-second "observe" interval).

Observer Training and Calibration

Assessors memorize operational definitions of the behavior dimensions and their subcategories first and then learn the general procedures for recording data. During assessor training videotaped examples and role-playing are used to demonstrate each category. This is followed by live observations at homes. Training for each observer continues until she exceeds an inter-observer agreement score of 80% on two different criterion videotapes, and 80% on two consecutive live observations (using interval-by-interval correspondence, with agreements divided by agreements plus agreements multiplied by 100). Observers are also trained how to interact in order to reduce reactivity. The average training program takes about 16 hours.

Throughout the data collection period additional review and training sessions approximately one hour in length will be conducted at least every semester. To ensure maintenance of data quality and to guard against observer drift, observers should be reassessed once every three months through the independent coding of a videotape that has previously been coded by the designers of BEACHES. Any observer scoring below criteria level (80% agreement) should be retrained until mastery is once again achieved.

Each observer should complete at least five reliability assessments in the field during each data collection period.

AVENTURAS BEACHES: CODING CONVENTIONS

The assessor, on a rotational basis throughout the entire period, observes the target child for 15 seconds and then takes up to 15 seconds to enter codes for seven variables. A combination of momentary and partial time sampling is used.

CATEGORIES 1.0, 2.0, 3.0,
Use momentary time sampling. Code these three variables (ACTIVITY LEVEL, WHERE, and PEOPLE THERE) only as they are occurring at the end of the observe interval (i.e., on the "record" signal).

CATEGORIES 4.0 to 7.0
Use partial interval time sampling. That is, code relevant events if they occur at any time during the observe interval.

1.0 ACTIVITY LEVEL
Code the activity level that the child was engaging in at the "record" signal. BEACHES activity codes are the same as those used in SOFIT.

√ Code 1-4 (Lying Down, Sitting, Standing, Walking) to describe the body position of the child only if he/she in not expending more energy than that required for an ordinary walk.

√ Code 5 (Very active) for any activity in which the child was expending more energy than he/she would during ordinary walking, irrespective of body position. For example, code 5 (Very active) if the child is wrestling with a peer (even though he is lying on his back), standing on his hands, or pedaling a bicycle vigorously (even though sitting).

√ When the child is in transition from one category to another, enter the code for the higher category. For example, code '2' (sitting) if at the "record" signal the child is partially lying down and partially sitting up; code '3' (standing) if he/she is getting up from either sitting or lying down.

Sample activity codes:
  kneeling (weight on knees only) = standing
  kneeling (weight on knees and buttocks) = sitting
  inactive "on all fours" = standing
  seated swinging (arms producing no momentum)= sitting
  seated swinging (arms producing momentum)= very active
  obviously struggling to push or pull objects = very active

2.0 WHERE (LOCATION)
Code where the child was located at the "record" signal.

√ -I (Inside). Child is inside the home (includes hallways)

√ -O (Outside). Child is outside the home (in yard; on sidewalk or street) or in a home location specifically designed for physical activity (e.g., pool or activity room at apartment complex).

3.0 PEOPLE THERE
Code all persons in the child's immediate environment at the record signal.

√ -N (None). No one else is present

√ -P (Parent/Guardian). At least one parent or guardian is present.

√ -S (Sibling) is present. At least one brother or sister is present

√ -OC (Other child). A child other than the child's brothers or sisters is present.

√ -OA (Other Adult). An adult other than the child's parent or guardian is present.

For this category, persons are considered to be part of the environment only if they are proximally located
   to the target child (i.e., typically within 25 feet) and within the designated boundaries of the
   environment (e.g., in the same room). Observers should determine the boundaries of the environment
   before beginning data collection. Look for natural breaks in play, work, and eating areas that are
   separated by walls or shrubbery.

4.0 BEHAVIOR MOTIVATED
Code events related to motivating/influencing the target child to directly engage in either physical activity
   or sedentary behavior. These events may be antecedents (e.g., prompts) or consequences (e.g.,
   rewards or punishers).

√ -N (None). No prompts or consequences were provided for the target child to engage in either
   physical activity or sedentary behavior during the interval.

√ -PA (Physical Activity). A person provided a prompt or consequence to directly motivate the target
   child to initiate or continue to engage in physical activity (i.e., at activity levels 4 or 5).

√ -SB (Sedentary Behavior). A person provided a prompt or consequence to directly motivate the
   target child to initiate or continue to engage in sedentary behavior (i.e., level 1, 2, or 3).

Physical activity refers to those activity levels that would be coded as Activity Levels 4 and 5. References
   to (i.e., prompts and consequences related to) all locomotor activities (e.g., walking, running, hopping,
   skipping, galloping, chasing, fleeing, dodging, and crawling), as well as manipulative (e.g., throwing,
   catching, kicking, punting, dribbling, volleying, and striking), and non-manipulative activities (e.g.,
   balancing, rolling, twisting, hanging, jumping) that involve gross motor movement are coded as
   physical activities.

Examples with including interactor coded--Dimension 5.0):
Mom says: "Go outside and play." Code as "Adult; motivates physical activity."

Boy tosses study child a ball. Code as "Child; motivates physical activity."

Study child is playing tag with peers. Code as "Child; motivates physical activity."

Study child is playing chess or video games with sibling. Code as "Child, motivates sedentary behavior."

Study child sits with friend on couch, but do not interact. Code ("N, N") to indicate there was no behavior
   motivated, and thus no interactor.

Sibling says: "Let's stop jumping rope now." Code as "Child, motivates sedentary behavior."

Grandfather says, "Stop all that running around." Code as "Adult; motivates sedentary behavior."

During an observe interval TC is engaged reciprocally in active play with a girl (e.g., during wrestling, tag). Code as "Child: motives physical activity."

Boy on monkey bars says to TC, "See how much fun playing on this bar is." Code as "Child, motivates physical activity." (i.e., the boy provides imitative prompt)

When the study child is a participant in a group, code prompts and consequences provided to that group. For example if T.C. is a member of the Striders and hears: "All the children in the Striders Group did such a good job sprinting to the finish," code as "Adult, motivates physical activity."

Code all prompts that relate specifically to doing gross body activities. For example, mom says "Go to the refrigerator and get the milk." Code as "Adult, motivates physical activity." (i.e., walking). However, do not code statements such as "Pass the butter." or "Get your feet off the table and sit up straight." as prompts for either physical activity or sedentary behavior.

Motivators (i.e., prompts and consequences) are coded only if likely (intended) to have an immediate (within that day) effect (are contingent) on physical activity or sedentary behavior.

Stated motivators (i.e., verbal) must be direct and refer to immediate specific and concrete events, and not refer to remote and vague concepts such as references to becoming fat, fit, or sick.

In cases when there are multiple prompts or consequences during an interval, record only the first prompt or first consequence AND its interactor.

Record verbal consequences that are made regarding and heard by the study child but spoken to others. For example, code when a study child hears his mom say to dad, "Look at that T.C., I'm so proud of the way he's exercising" as "Adult, motivates physical activity."

Do not code verbal prompts if you don't hear them clearly. (Listen carefully and keep up with study child.)

Do not code requests to be physically active or engage in sedentary behavior by the target child.

5.0 MOTIVATOR
Code a motivator only if someone during the 15-second observe interval participated in a physical or verbal exchange that was related to directly motivating/influencing physical activity or sedentary behavior. The person coded is associated with the Activity Motivated in Dimension 4.0.

Physical activity behaviors refer to those that would be coded in Category 1 as a "4" (Walking) or "5" (Very Active).

√ -N (None). No interactions were related to motivating physical activity or sedentary behavior during the interval.

√ -C (Child). The motivator of the physical activity or sedentary behavior was a child.

√ -A (Adult). The motivator of the physical activity or sedentary behavior was an adult (e.g., parent, other adult).

6.0 VIEWS MEDIA

√ -Y (Views). Code "Y" if a television, VCR, DVD, computer or a video or computer game in the child's direct environment is turned on and the child focuses on it for at least three seconds during the interval

√ Do not consider whether the viewing was for play or educational purposes.

7.0 EATS (EATING BEHAVIOR)
Code whether or not the child ingested food during the observe interval.

√ Code ingests food (Y) only if the child puts food into his/her mouth at any time during the "observe" interval.

√ Do not code for food that is already in the child's mouth or for food that the child removes from his/her mouth and re-inserts it

√ Medicine and gum are considered food, but water is not.

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Sample Recording Form

INTER VAL	ACTIVITY LEVEL	LOCATION	WHO THERE	BEHAVIOR MOTIVATED	MOTIVATOR	VIEWS MEDIA	EATS
1	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
2	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
3	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
4	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
5	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
6	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
7	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
8	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
9	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
10	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
11	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
12	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
13	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
14	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y
15	1 2 3 4 5	I O	N P S OC OA	N PA SB	N C A	N Y	N Y