The Child and Adolescent Factors Inventory (CAFI)©

Administration and Scoring Guidelines

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ABOUT THE AUTHOR

Gary Bedell, Ph.D., OTR, FAOTA is the primary author of the *Child and Adolescent Factors Inventory (CAFI)* which was designed as part of the *Child and Family Follow-up Survey (CFFS*, Bedell, 2004). Dr. Bedell is an Associate Professor at Tufts University, Department of Occupational Therapy, Medford, MA, USA. His research involves measurement development and investigating effective strategies to promote participation of children and youth in home, school and community activities. Most of his recent work has focused on children and youth with acquired brain injuries (ABI) and their families.

INTRODUCTION

The Child and Adolescent Factors Inventory (CAFI) was initially developed as part of the *Child and Family Follow-up Survey (CFFS)* to monitor outcomes and needs of children with traumatic and other acquired brain injuries (Bedell, 2004; Bedell & Dumas, 2004, Galvin, Froude, & McAleer, 2010; Wells, Minnes, & Phillips, 2009) The CAFI can be used separately from the CFFS, but is most often used as part of the CFFS or along with two other measures that are included in the CFFS: *The Child and Adolescent Scale of Participation (CASP)* and *Child and Adolescent Scale of Environment (CASE)*.

The content and methods used in the CAFI and CFFS were informed by the International Classification of Functioning (ICF, WHO, 2001), research addressing participation of children / youth with a range of disabilities and factors related to the child, family and physical and social environment that support and/or hinder participation. As well, feedback was obtained by parents of children and youth with ABI

and clinical and measurement experts (Bedell, 2004; Bedell, Cohn, & Dumas, 2005; Dumas, Bedell, & Hamill, 2004). The CFFS and CAFI also have been used to assess children with other diagnoses (Bedell, 2009; McDougall, Wright, Schmidt, Miller, & Lowry, 2011; Weintraub, Rot, Shoshani, Pe'er, & Weintraub, 2011).

CAFI: DESCRIPTION

The CAFI consists of a list of 15 potential problems that the child may be experiencing as a result of his or her diagnosis or condition related to health and cognitive, psychological, physical and sensory functioning. Each item or problem is rated on a 3-point ordinal scale: 1) No problem; 2) Little problem; 3) Big problem. There is one additional question that asks whether the child has any health or medical restrictions on his or her daily activities, and if so, to describe the specific restrictions. When the CAFI is used separately from the CFFS, parents/guardians also are asked to identify characteristics about their child that are strengths or helpful to him or her in daily life.

CAFI: ADMINISTRATION

The CAFI takes about 5 minutes to complete when done separately from CFFS. There is no specific training to administer the CAFI or CFFS. Those using the CAFI should be knowledgeable about the content and rating scales used, the key concepts being measured as defined in the International Classification of Functioning (WHO, 2001; 2007) and the conceptual, descriptive and psychometric information reported in three published articles and summarized in these guidelines (Bedell, 2004; 2009; Bedell & Dumas, 2004).

There are two ways to administer the parent/guardian - report version of the CAFI (and CFFS). Consistency between the two modes of administration has not been examined.

Self-Administered (in person or mail survey): The parent or guardian is provided with the CAFI in person or via postal mail (or e-mail attachment) and asked to complete it on his or her own and then return it to the specific contact person responsible for data coordination (in person or via postal mail). Parents/guardians should be provided with a description of the specific purposes of the project or research being conducted in person or via a cover letter if the CAFI is sent via postal mail or e-mail. Each institution is responsible for adhering to guidelines for research ethics with human participants (e.g., informed consent procedures) if the CAFI is used for research purposes.

Interviewer administered (in-person or by telephone): The parent or guardian would be administered the CAFI in person or by phone using the same version used for self-administration. The interviewer essentially asks the same questions along with the examples provided as they are described in the order in which they are asked on the CAFI protocol. Respondents and interviewers are allowed to ask for and provide clarification or further explanation, if needed.

CAFI: SCORING

There are a number of ways to score the CAFI depending on the purpose of the project or research being conducted:

CAFI Total Summary Scores: This score is the sum of all CAFI item ratings divided by the maximum possible score (i.e., 15 items X 3 = **45)**. This score then should be multiplied by 100 to conform to a 100-point scale. For example, let's say the sum of all 15 CAFI item ratings was 30. This sum (30) would be divided by 45 (which would equal 0.666) and then multiplied by 100 to obtain a total summary score of 66.6. Higher scores indicate a greater extent of problem.

CAFI Composite (Domain) Scores: Composite scores can be created by summing ratings of individual items that fall within a specific domain of functioning (e.g., cognitive). Computation of composite scores is essentially the same as for computation of the total summary score. This score is the sum of all items that fall within the domain of interest divided by the maximum possible score. For example, if you want to create a composite Cognitive Domain Score you might want to sum the first four CAFI item ratings (1. Paying attention or concentrating, 2. Remembering people places, or directions, 3. Problem solving or judgement, and 4. Understanding or learning new the things) and divide this sum from the maximum possible score (4 X 3 = **12**). If the sum of the four item ratings is 10, this sum (10) would be divided by 12 (which would equal 0.833) and then multiplied by 100 to obtain a composite Cognitive Domain score of 83.3.

CAFI Item-level Scores: Item-level scores can be used if interested in responses to or change in specific items (i.e., specific types of problems) or for comparing item-level responses or change among all or selected CAFI items. This score is the rating provided for each item (e.g., 1=No problem; 2=Little problem; 3=Big problem).

CAFI: Overview of Psychometric Findings

The CAFI has reported evidence of test re-test reliability (Intraclass Correlation Coefficient = 0.68) and internal consistency ($\alpha = 0.86$) and construct / discriminant validity (Bedell, 2004). Higher CAFI scores (greater extent of impairment) significantly associated with lower scores on the Child Adolescent Scale of Participation (CASP, more restricted participation, r = -0.58, Bedell & Dumas, 2004; r = -0.66, Bedell, 2009) and Pediatric Evaluation of Disability Index (PEDI, Haley, et al., 1992; more limited functional skills) self-care (r= -0.26) and social function (r= -0.31) subscales, and higher scores on the Child Adolescent Scale of Environment (CASE, greater impact of environmental problem, r = -0.36, Bedell & Dumas, 2004; r= 0.55, recent analyses). Recent analyses (unpublished data) demonstrated that as a group, children with disabilities had significantly ($p < 0.001$) higher CAFI scores (greater extent of impairment) than children without disabilities.

It is important to note that additional CASE and CFFS data are still being collected and will achieve the goal of obtaining a much larger and more diverse sample. Findings from these data will be analyzed and results will be reported in the future.

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APPENDIX: Child & Adolescent Factors Inventory (CAFI)

Child's name _____

Child & Adolescent Factors Inventory (CAFI)

- Instructions -

1. In this inventory there is a list of problems that your child may be experiencing as a result of his or her diagnosis or condition. There also is a section for you to identify characteristics about your child that are strengths or helpful to him or her in daily life.

2. There are no right or wrong answers. You will have to choose, and in some cases, write the answer that best describes your child's problems and strengths. If you are not sure about how to answer a question, give your best guess.

Thank you

Your name _____

Your relationship to child _____

Date you completed survey_____

(Month / Day / Year)

A. The following is a list of possible problems that your child may be experiencing as a result of his or her diagnosis or condition. Please put an X in the box under the appropriate column indicating whether each area listed is "No Problem," a "Little Problem" or a "Big Problem" for your child.

	Possible Problem	**No Problem**	**Little Problem**	**Big Problem**
1.	Paying attention or concentrating	☐	☐	☐
2.	Remembering people, places or directions	☐	☐	☐
3.	Problem solving or judgment	☐	☐	☐
4.	Understanding or learning new things	☐	☐	☐
5.	Controlling behavior, moods or activity level	☐	☐	☐
6.	Motivation (lacks interest or initiative)	☐	☐	☐
7.	Psychological (e.g., depression or anxiety)	☐	☐	☐
8.	Speech	☐	☐	☐
9.	Vision	☐	☐	☐
10.	Hearing	☐	☐	☐
11.	Movement (balance, coordination, muscle tone)	☐	☐	☐
12.	Strength or energy level (e.g., weakness or fatigue)	☐	☐	☐
13.	Reacting to sensation or stimulation (e.g., over- or under- reacts to sound, light, touch, movement)	☐	☐	☐
14.	Physical symptoms (e.g., headaches, dizziness, pain) *Specify* → _____	☐	☐	☐
15.	Other health and medical *conditions*	☐	☐	☐

Please list specific *conditions*: _____

_____

16. Does your child have any health or medical restrictions on his or her daily life activities (e.g., physical contact sports)? ☐ Yes ☐ No

If Yes, please identify:

17. Please identify characteristics about your child that are strengths or helpful to him or her in daily life:

The Child and Adolescent Factors Inventory (CAFI) was originally developed as part of the Child and Family Follow-up Survey (CFFS) created by
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