Application of the CFFS in Children with Special Needs

陳韋長 Wei-Chang Chen
OTD(c), OTR/L,
Tufts University, Medford, MA, USA
Wei-Chang.Chen@tufts.edu

Taiwan Society of ICF: The Workshop of the ICF-CY Application and FUNDES-Child Version , Taipei, Taiwan. 2013/09/05

1

Introduction (1)

- Development of Child and Family Follow-up Survey (CFFS)
  - English version
  - Traditional Chinese version
- Sections of the CFFS
  - General information
  - Home and community participation- Child and Adolescent Scale of Participation (CASP)
  - Problems experienced in daily life
    - Child-related- Child and Adolescent Factor Inventory (CAFI)
    - Environmental-related- Child and Adolescent Scale of Environment (CASE)
  - Child's current services & Family services
  - Suggestions and additional information

2

Introduction (2)

- How to use the CFFS
  - Scaling- summary score vs. subdomain scores
- CFFS psychometric property
  - English version
  - Traditional Chinese version
- CFFS used on the children with special needs
- Interpretation of the CFFS scores
- Apply the results of the CFFS to clinical practice

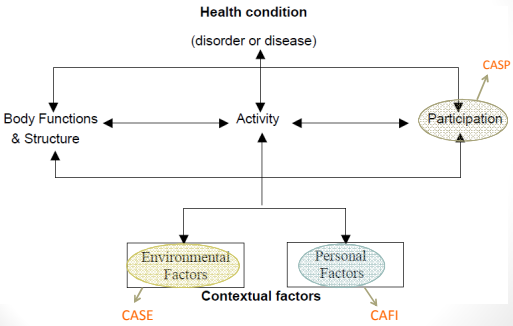
3

About the CFFS

- Developed by Dr. Gary Bedell, Ph.D., OTR (Associated Professor and Chief at Tufts University- Department of Occupational Therapy)
- Originally developed by to monitor the rehabilitation and education needs and outcomes of children and youth with acquired brain injury (ABI) and their families
- Used to monitor participation in home, school and community life of children and youth with ABI after discharge and other factors that may have an impact on their participation
- Now the CFFS is extended for use with children and adolescents with varied diagnoses

4

CFFS vs. ICF Model



5

CFFS- English version (1)

- The CFFS is a questionnaire survey from the parents' perspectives, including three sessions:
  - General information
  - The *Child and Adolescent Scale of Participation* (CASP):
    - learn about the activities the child with TBI/ABI participates in at three contexts- home, school, and community
    - 20 questions (Can be done as part of the larger CFFS or separately. Can be done as self-report, or administered as part of in-person or phone interview)
    - 4-point rating scale (age expected, somewhat limited, very limited, unable, and not applicable)
    - compared to other same-aged peers
    - Four subdomains- home participation (6 items), community participation (4 items), school participation (5 items), home and community living activities (5 items)

6

Child and Adolescent Scale of Participation (CASP) items

- *Home participation*

(1) Social, play or leisure activities with family members at home (e.g. games, hobbies, 'hanging out')
(2) Social, play or leisure activities with friends at home (can include conversations on the phone or internet)
(3) Family chores, responsibilities and decisions at home (*For younger children* this may be getting things or putting things away when asked or helping with small parts of household chores; *For older children* this may be more involvement in household chores and decisions about family activities and plans)
(4) Self-care activities (e.g. eating, dressing, bathing, combing or brushing hair, using the toilet)
(5) Moving about in and around the home
(6) Communicating with other children and adults at home

- *Neighbourhood and community participation*

(7) Social, play or leisure activities with friends in the neighbourhood and community (e.g. casual games, 'hanging out', going to public places like a movie theatre, park or restaurant)
(8) Structured events and activities in the neighbourhood and community (e.g. team sports, clubs, holiday or religious events, concerts, parades and fairs)
(9) Moving around the neighbourhood and community (e.g. public buildings, parks, restaurants, movies) [*Please consider your child's primary way of moving around, NOT his or her use of transportation*]
(10) Communicating with other children and adults in the neighbourhood and community

- *School participation*

(11) Educational (academic) activities with other children in his or her classroom at school
(12) Social, play and recreational activities with other children at school (e.g. 'hanging out', sports, clubs, hobbies, creative arts, lunchtime or recess activities)
(13) Moving around at school (e.g. to get to and use bathroom, playground, cafeteria, library or other rooms and things that are available to other children shis or her age)
(14) Using educational materials and equipment that are available to other children in his or her classroom/s or that have been modified for your child (e.g. books, computers, chairs and desks)
(15) Communicating with other children and adults at school

- *Home and community living activities*

(16) Household activities (e.g. preparing some meals, doing laundry, washing dishes)
(17) Shopping and managing money (e.g. shopping at stores, figuring out correct change)
(18) Managing daily schedule (e.g. doing and completing daily activities on time; organizing and adjusting time and schedule when needed)
(19) Using transportation to get around in the community (e.g. to and from school, work, social or leisure activities) [*Driving vehicle or using public transportation*]
(20) Work activities and responsibilities (e.g. completion of work tasks, punctuality, attendance and getting along with supervisors and co-workers)

7

CASP Scoring

- There are a number of ways to score the CASP depending on measurement purpose
  - **Total summary scores:** sum of all applicable items divided by maximum possible score of applicable items. The scores then should be multiplied by 100 to conform to a 100 point scale. (*Higher scores indicate a greater extent of age-expected participation).*
  - **Subsection scores:** sum of all items within each subsection (home, school, community participation subsections and the home/community living subsection). Scoring is the same as for total scores but only focus on subsection.
  - **Item-level scores:** These are the actual ratings on the 4-point scale provided for each item (1 to 4)

8

CASP- Psychometric Properties

- *Reliability*
  - *Internal Consistency:* Cronbach's alpha = .98 (Bedell, et al. 2004) and = .96 (Bedell, 2009).
  - *Test-Retest:* Intra-class correlation coefficient = .94.
- *Validity*
  - *Content:* Feedback obtained from parents of children with ABI, measurement and content experts.
  - *Construct:* Moderate correlation between CASP scores and variables hypothesized to be associated with participation. Typically developing children had significantly higher scores than children with TBI and other disabling conditions. No studies on responsiveness.
- CASP scores were positively correlated (p<.01) with Padiatric Evaluation Disability Inventory sub-scale scores reflecting that children with a greater extent of age-expected participation tended to have higher mobility (r=0.51), social (r=0.65) and self-care (r=0.72) functioning.

9

CASP- Psychometric Properties (Cont.)

- CASP scores were negatively correlated (p<.01) with scores from the CAFI (r=-0.58) and CASE (r=-0.57) indicating that children with a greater extent of age-expected participation had a lesser extent of cognitive, psychological and physical impairment and experienced a lesser extent of physical, social and attitudinal barriers as reported by family caregivers.
- The results of factor analysis showed that three factors with eigen values greater than one were identified and contributed 63% of the variance explained: (1) Participation in social, leisure, communication items (20%); (2)Participation in advanced daily living items (7%); and (3) Participation in basic daily living and mobility items (6%) (Bedell, 2009).
- According to the Rasch model, children with a greater extent of age-expected participation would be expected to participate in more difficult items (Bedell, et al. 2004; Bedell, 2009).

10

CFFS- English version (2)

- Problems experienced in daily life
  - The *Child and Adolescent Factors Inventory* (CAFI) :
    - experiencing impairments as a result of his/her diagnosis or condition
    - 15 questions
    - 3-point rating scale: no problem, little problem, big problem, and not application
    - Soring: Sum all 15 items divided by the maximum possible score (= 45) & then multiply by 100 to conform to a 100-point scale.
    - Higher scores indicate a greater extent of problem.

11

The Child and Adolescent Factors Inventory (CAFI) Items

1. Paying attention or concentrating
2. Remembering people, places or directions
3. Problem solving or judgment
4. Understanding or learning new things
5. Controlling behaviors, 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-reaching to sound, light, touch, movement)
14. Physical symptoms (e.g., headaches, dizziness, pain)
15. Other health and medical conditions

12

CAFI- Psychometric Properties

- *Reliability*
  - *Internal Consistency:* Cronbach's alpha = .86 (Bedell, et al. 2004) .
  - *Test-Retest:* Intra-class correlation coefficient = .67. (Bedell et al., 2004).
- *Validity*
  - *Content:* Feedback obtained from parents of children with ABI, measurement and content experts.
  - *Construct:* Higher CAFI scores (greater impact of problems) significantly associated with lower scores on the Child Adolescent Scale of Participation (CASP) (more restricted participation)
- A factor analysis identified three factors accounting for 62% of the variance explained: (1) Cognitive/behavioral/speech; (2) Movement/vision/health, (3) Hearing (Wells, et al., 2009).

13

CFFS- English version (3)

- Problems experienced in daily life
  - The *Child and Adolescent Scale of Environment* (CASE):
    - addresses environmental factors affecting children's participation in the specific context
    - 18 condition questions
    - 3-point rating scale: no problem, little problem, big problem, and not application
- Child's current services & Family services
- Suggestions and additional information

14

Child and Adolescent Scale of Environment (CASE) Items

(1) Problem with design and layout of home (Hard to get to places and things, or hard to see or hear important information)
(2) Problem with design and layout of buildings and places your child uses in the *community or neighbourhood*
(3) Problem with design and layout of school or work setting (Circle *school* or *work*)
(4) Lack of support and encouragement for your child in the *community or neighbourhood*
(5) Lack of support and encouragement for your child at *school or work* (*Circle school or work*)
(6) Problems with people's attitudes toward your child at *school or work* (*Circle school or work*)
(7) Problems with people's attitudes toward your child in the *community or neighbourhood*
(8) Inadequate or lack of assistive devices or equipment
(9) Inadequate or lack of assistance from people at *home* or in the *community or neighbourhood*
(10) Inadequate or lack of assistance from people at *school or work* (*Circle school or work*)
(11) Inadequate or lack of transportation
(12) Inadequate or lack of programmes and services at *school*
(13) Inadequate or lack of programmes and services in the *community or neighbourhood*
(14) Inadequate or lack of family finances
(15) Family stress
(16) Crime or violence in the community or neighbourhood
(17) Problems with government agencies and policies
(18) Inadequate or lack of information about your child's diagnosis or condition or intervention approaches (e.g. educational, rehabilitation or medical)

15

CASE- Psychometric Properties

- *Reliability*
  - *Internal Consistency:* Cronbach's alpha = .91 (Bedell, et al. 2004) and = .85 based on recent analyses.
  - *Test-Retest:* Intra-class correlation coefficient = .75 and Spearman's Rho coefficient = .78 (Bedell et al., 2004).
- *Validity*
  - *Content:* Feedback obtained from parents of children with ABI, measurement and content experts.
  - *Construct:* Higher CASE scores (greater impact of problems) significantly associated with lower scores on the Child Adolescent Scale of Participation (CASP) (more restricted participation) and Pediatric Evaluation of Disability Index (PEDI) mobility and social function subscales (more limited functional skills).
- Results from factor analyses and Rasch analyses suggest that the CASE is best viewed as an inventory of environmental factors or multidimensional scale rather than a unidimensional scale (Bedell, 2004).

16

CFFS- Traditional Chinese Version

- The Child and Family Follow-up Survey- the Traditional Chinese version (CFFS-C)
  - Child and Adolescent Scale of Participation- the Traditional Chinese Version (CASP-C)
    - Internal consistency: The Cronbach's alpha were .88, .89, .90, and .91 for the four subdomains. (Hwang et al., 2013)
    - Rasch analysis: All items showed appropriate fit indexes with acceptable personal and item reliability coefficients 0.92 and 0.97 respectively. (Hwang et al., 2013)
  - Child and Adolescent Factor Inventory- the Traditional Chinese Version (CFFI-C)
  - Child and Adolescent Scale of Environment- the Traditional Chinese Version (CASE-C)
    - Internal consistency: The Cronbach's alpha was .86
    - Construct validity was shown by a moderate negative correlation with CASP-C (Spearman's rho=-0.43, p<.01) . (Kang et al., unpublished)

17

Studies related to the CFFS

- Children with acquired brain injury
  - Bedell & Dumas (2004)
  - Galvin Froude, & McAleer (2009)
  - Chen & Bedell (2012)
- Children with disabilities
  - Liao, Chen, Bedell, Liou, Kang, Yen, Hwang, and d Component Task Force of Disability Evaluation System (2012)
  - Hwang, A.-W., Liou, T.-H. , Yen, C.-F., Bedell, G. M.,Chen, Kang, Liao, and d Component Task Force of Disability Evaluation System (2013)

18

Application (1)

- Use the results of the CASP
  - Identify the participation problems in the specific contexts
    - Home
    - School
    - Community
  - Further interviewing with the stakeholders
  - Fine out the important/meaningful participation with problems
  - Consultation to give suggestion

19

Application (2)

- Use the results of the CASE
  - Identify environmental barriers in the specific contexts
    - Contexts part
      - Home
      - School
      - Community
    - Environmental problem part
      - Products and technology: Inaccessible space and buildings, lack/inadequate assistive devices and learning equipment, poor arrangement of classrooms.
      - Natural environment and human-made changes to environment: poor weather.
      - Support and relationship: insufficient supports and difficult to build positive relationships at school.
      - Attitudes: bully, over-protection, lack of knowledge about the disabilities.
      - Services, systems and policies: short break, poor design of courses and examination, lack/inadequate assistants.

20

Let's practice now!

21

References

- A.-W., Hwang, T.-H., Liou, G. M., Bedell, L.-J., Kang, W.-C., Chen, C.-F., Yen, K.-H., Chang, H.-F. Liao. (2013). Psychometric Properties of the Child and Adolescent Scale of Participation - Traditional Chinese Version. International journal of rehabilitation research. DOI:10.1097/MRR.0b013e32835d0b27
- Bedell, G. (2004). Developing a follow-up survey focused on participation of children and youth with acquired brain injuries after inpatient rehabilitation. *NeuroRehabilitation, 19*, 191-205.
- Bedell, G. (2009). Further validation of the Child and Adolescent Scale of Participation. *Developmental Neurorehabilitation, 12*(5), 342-351.
- Bedell, G (2011). The Child and Adolescent Scale of Participation (CASP)-Administration and Scoring Guidelines [Unpublished Manual].
- Bedell, G., & Dumas, H. (2004). Social participation of children and youth with acquired brain injuries discharged from inpatient rehabilitation: A follow-up study. *Brain Injury, 18*, 65-82.
- Galvin, J., Froude, E. H., & McAleer, J. (2010). Children's participation in home, school and community life after acquired brain injury. *Australian Occupational Therapy Journal, 57*, 118.126 .
- Hwang, A.-W., Liou, T.-H. , Yen, C.-F., Bedell, G. M., Chen, W.-C., Kang, L.-J., Liao, H.-F., and d Component Task Force of Disability Evaluation System. (2013, March). *A national survey of participation among children with disabilities in Taiwan.* Paper presented at the Third Conference of Taiwan Society of International Classification of Functioning, Disability, and Health, Taipei, Taiwan
- Liao, H.-F., Chen, W.-C., Bedell, G. M., Liou, T.-H., Kang, L.-J., Yen, C.-F., Hwang, A.-W., and d Component Task Force of Disability Evaluation System. (2012, October). *Participation of Taiwanese children with disabilities in home, school and community.* Poster session presented at the meeting of the American Congress of Rehabilitation Medicine (ACRM) Annual Meeting. Vancouver, BC, Canada.
- Chen, W.-C., & Bedell, G. (2012, April). Environmental barriers that affect participation of children with acquired brain injuries. Poster session presented at the meeting of the American Occupational Therapist Association (AOTA) Annual Conference. Indianapolis, IN, USA.

22