

Thai version of Family Impact of Assistive Technology Scale for Adaptive Seating (FIATS-AS-Th): Cross-cultural adaptation and preliminary reliability in children with cerebral palsy

Rumrada Inthachom¹, Saipin Prasertsukdee^{1*}, Stephen E. Ryan², Jaranit Kaewkungwal³

¹ Faculty of Physical Therapy, Mahidol University, Nakhonpathom, Thailand.

² Bloorview Research Institute, Holland Bloorview Kids, Rehabilitation Hospital and Department of Occupational Science & Occupational Therapy, University of Toronto, Toronto, Canada.

³ Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand.

KEYWORDS

Adaptive seating;
FIATS-AS;
Children with
cerebral palsy;
Cross-cultural
adaptation;
Reliability.

ABSTRACT

Adaptive seating devices provide postural support to children with cerebral palsy who have difficulty sitting independently due to neurological impairments. They help enhance sitting stability and are useful for both children with cerebral palsy and their families. Little evidence exists on the effectiveness of adaptive seating devices from the perspective of parents or other family members who are crucial in caring for their children. The Family Impact of Assistive Technology Scale for Adaptive Seating (FIATS-AS) is a parent-reported measure of adaptive seating interventions for children. While the English version of the FIATS-AS is useful, the cross-cultural adaptation is needed to improve its utility in other cultural settings. Thus, the aims of this study were to develop a Thai version of the Family Impact of Assistive Technology Scale (FIATS-AS-Th) and estimates its internal consistency and test-retest reliability. Translation and cross-cultural adaptation of the FIATS-AS into Thai version were conducted using standardized process. Thirty primary caregivers of the children with cerebral palsy (aged 2-11 years) and Gross Motor Function Classification System levels 4-5 completed Thai version of the FIATS-AS twice at 2-week intervals to estimate internal consistency and test-retest reliability. For the internal consistency, the Cronbach's alpha was 0.84 for total scale and ranged from 0.63-0.85 for its subscales. For test-retest reliability, the intraclass correlation coefficient (ICC 3,1) for the total scores was 0.97 (95% confidence interval (CI) = 0.91 - 0.99). The ICC point estimates for subscales between 0.86-0.96 (95% CI = 0.44 - 0.99). The FIATS-AS-Th is an emerging a reliable measure of the functional impact of adaptive seating device on children with CP and their families.

*Corresponding author: Saipin Prasertsukdee, PT, PhD. Faculty of Physical Therapy, Mahidol University, Nakhonpathom, Thailand.
Email address: saipin.pra@mahidol.ac.th

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Introduction

Cerebral palsy (CP) is described as a group of permanent disorders of the development of movement and posture due to non-progressive brain damage in early life⁽¹⁾. Children with CP usually present many neurological impairments that might affect their activities and social participation⁽²⁾. One of the postural control deficits in children with CP exists in sitting. Children with more functional limitations often have difficulty in sitting independently⁽³⁾. Thus, they may require external supports to accommodate some parts of the body in order to remain upright⁽⁴⁾. Consequentially, rehabilitation practitioners often recommend that children receive adaptive seating devices.

Adaptive seating devices are postural support equipment designed to enhance the postural alignment and stability of children with CP and other neuromotor impairments^(5,6). Adaptive seating devices have a crucial role in mitigating burden and stress of caregiver by promoting functional ability, social interaction, and autonomy^(5,6). Presently, the effectiveness of adaptive seating interventions may be judged using the International Classification of Functioning, Disability, and Health for Children and Youths (ICF-CY) as a biopsychosocial framework. Assistive technology practitioners and researchers may use this framework to conceptualize adaptive seating interventions as environmental resources that support the performance of daily activities and interactions with their peers and family members in a variety of settings. Adaptive seating devices have been useful for both children with CP and their family (e.g., improving functional activities, decreasing assistance from caregiver, and enhancing social interaction with peers)^(7,8). However, little evidence exists about the effectiveness of adaptive seating from the perspective of parents or other family members who play a key role in caring for their children⁽⁹⁾. Assistive technology practitioners who practice family-centred service acknowledge that parents

know their children best. Thus, it makes sense that assessments of the impact of adaptive seating interventions should include the perspectives of parents to understand more about the effectiveness of adaptive seating interventions in the lives of children who are unable to sit without support and their families. Utilizing tools such as outcome measures with proven levels of reliability and validity serves to increase the accuracy and confidence in the assessment result.

The Family Impact of Assistive Technology Scale for Adaptive Seating (FIATS-AS) is a parent-reported outcome measure specifically designed to detect the functional and contextual effects of adaptive seating interventions for children aged 1 to 18 years⁽⁸⁾. The FIATS-AS was developed as a sound measurement scale that could be used both in clinical practice and research to detect the parent perceiving effects of adaptive seating interventions on children and families. The FIATS-AS had evidence of good face, construct, and content validities, high internal consistency ($\alpha = 0.94$) and excellent test-retest reliability (Intraclass Correlation Coefficient: ICC for all subscales = 0.86-0.95)^(10,11).

While the English version of the FIATS-AS is appropriate for use as an outcome measure in service and research, cross-cultural adaptation and estimation of key measurement properties of the FIATS-AS into other cultural settings is necessary to improve its utility. The purposes of the present study were to develop a Thai version of the FIATS-AS and estimate its preliminary internal consistency and test-retest reliability.

Materials and methods

Prior to data collection, ethical approval was obtained from the Mahidol University Central Institutional Review Board (COA. NO. 2017/155.1910). The eligible participants were enrolled after providing an informed consent. This study was divided into two phases: 1) cross-cultural adaptation of the FIATS-AS and 2) estimation of the reliabilities of the FIATS-AS-Thai.

Phase 1: Cross-cultural adaptation of the FIATS-AS

Instrument and study variables

The FIATS-AS has 64 items assigned to one of the following eight subscales, including child autonomy, caregiver relief, child contentment, doing activities, effort, family & social interaction, caregiver supervision, and safety, and one non-contributing subscale, i.e., technology acceptance. The FIATS-AS uses a seven-point Likert scale (strongly agree to strongly disagree) to record a level of agreement/disagreement with each item statement⁽⁸⁾.

Procedure

Permission for cross-cultural adaptation of the FIATS-AS was approved by the principal scale developer - Stephen E. Ryan. We used the cross-cultural adaptation process by Beaton et al. as a guideline⁽¹²⁾. The process comprised five steps: 1) forward translation, 2) reconciliation of items, 3) backward translation, 4) review of the forward and backward translation, and 5) cognitive interviews.

Step 1: Forward translation

The English version of the FIATS-AS was translated into Thai. This process included two native Thai speakers, who had acceptable knowledge in English and Thai languages, and experience regarding measurement development. The translators translated the FIATS-AS independently. The translators were instructed to perform the translation into Thai using simple, clear, and concise language that would be understandable to a lay person⁽¹²⁾.

Step 2: Reconciliation of items

The two forward translations were compared and discussed together in terms of their conceptual equivalence, comprehensibility, and clarity relative to the FIATS-AS English version. The approved version was verified by the consensus agreement of the two forward translators⁽¹²⁾.

Step 3: Backward translation

Two native English speakers, who had acceptable communication skill in both Thai and

English languages, were the backward translators. The reconciled Thai translation was reversely translated into English. The backward translators did the backward translation independently and did not refer to the original source version of the English FIATS-AS⁽¹²⁾.

Step 4. Review of the forward and backward translation

The entire forward-backward process was reviewed to provide a final forward translation. Two researchers with acceptable knowledge of both English and Thai language conducted the review procedure. One of them was the forward translator. The backward translation was compared to the original FIATS-AS and focused on conceptual differences. Then the two researchers discussed and agreed on the wording of the final questionnaire. The backward translated version of the final questionnaire was sent to the principal scale developer for review and approval to ensure that the meanings of the original items were generally retained⁽¹²⁾.

Step 5: Cognitive interviews

Eight primary caregivers of the children with CP (Gross Motor Function Classification System (GMFCS) levels 4 or 5) who were aged 2-11 years and used adaptive seating devices completed the initial FIATS-AS-Th independently⁽¹³⁾. A researcher interviewed each primary caregiver independently to ask their opinions about the meaning of each item. Primary caregivers flagged items that were confusing as well as words or expressions that they found unacceptable or offensive. If more than two primary caregivers had difficulties with the same item, then the researchers reviewed and reworded these items based on the concerns raised⁽¹²⁾.

Results

Primary caregivers indicated that they generally understood the meaning of items on the preliminary measure. Three primary caregivers identified seven items were unclear and suggested the alternatives to make them clearer. The FIATS-AS-Th was revised to incorporate these suggestions and used in phase 2 of the study.

Phase 2: Reliabilities of the FIATS-AS-Th Sampling, study population, sample size

We recruited study participants by purposive sampling. For inclusion criteria, primary caregivers were (1) parents or family members with primary caregiving responsibilities for children with CP (GMFCS levels 4 or 5) who were aged 2-11 years and used adaptive seating devices, (2) provided ≥ 5 hours taking care of the child per day, and (3) currently living with the child for at least the past six months. The primary caregivers who did not understand Thai language by listening in case of inability in reading Thai were excluded.

About the sample size estimation of the study, thirty primary caregivers were sufficient for a hypothesized correlation of 0.7 assuming an alpha of 0.05 and power of 90%.

Procedure

A researcher instructed each participant in person how to complete the FIATS AS-Th. The primary caregivers completed the FIATS-AS-Th twice at 2-week intervals to avoid recall bias⁽¹⁴⁾. If the primary caregivers could not read or fill the questionnaire by themselves, the researcher provided assistance by reading the item aloud without interpretation.

Data analysis

The data were analysed using the IBM SPSS statistics version 22.0 software (Mahidol University license). Data from the first session that the primary caregivers completed the FIATS-AS-Th were analysed for internal consistency. Cronbach's alpha was used to evaluate the internal consistencies of the FIATS-AS-Th in each dimension. Experts recommend an alpha of more than 0.7 for internal

consistency⁽¹⁵⁾. Alpha greater than 0.9 indicates possible item redundancy within subscales and subscale redundancy within the total FIATS-AS-Th⁽¹⁵⁾.

Data from two sessions that the primary caregivers completed the FIATS-AS-Th were analysed for test-retest reliability. For test-retest reliabilities, data were analysed using the intraclass correlation coefficient (ICC 3,1) for the total FIATS-AS-Th and each subscale. Health measurement authorities recommend an ICC equal to or more than 0.7⁽¹⁵⁾.

Results

Participant characteristics

The demographics of the primary caregivers are shown in table 1. The participants were 30 primary caregivers aged 24 to 72 years old (mean = 45.60, SD = 11.30) enrolled in this study. Most primary caregivers were mothers (67%) and had education levels below the Bachelor's degree (70%). Approximately 27% of the primary caregivers graduated in Bachelor's degree. Most primary caregivers (97%) took care of their children with CP for more than one year and more than 15 hours per day (93%). Approximately 67% of the primary caregivers reported that their perceived economic status was adequate.

Internal consistency of the FIATS-AS-Th

Internal consistency for the FIATS-AS-Th total scale and subscales are shown in table 2. Results estimate the Cronbach's alpha was 0.84 for total scale and ranged from 0.63 - 0.85 for its subscales. Two subscales (contentment and family & social interaction) had the alphas below 0.7.

Table 1 The demographics of the primary caregivers (n = 30)

Demographics variables	Frequency of response (%)
Relationship with the child	
Father	1 (3)
Mother	20 (67)
Grandmother	8 (27)
Grandfather	1 (3)
Educational level	
No formal education	2 (7)
Primary school	7 (23)
Secondary school	6 (20)
Vocational certificate	6 (20)
Bachelor degree	8 (27)
Above bachelor degree	1 (3)
Duration in taking care of the child with CP per day	
5-15 hours	2 (7)
More than 15 hours	28 (93)
Total period in taking care of the child with CP	
6 months - 1 year	1 (3)
More than 1 year	29 (97)
Perceived economic status	
Enough	20 (67)
Not enough	10 (33)

Table 2 Internal consistency for the FIATS-AS-Th total scale and subscales (n = 30)

FIATS-AS-Th	Numbers of subscales/items	Cronbach's alpha
Total scale	8*	0.84
Subscales		
Child autonomy	5	0.74
Caregiver relief	9	0.70
Child contentment	9	0.65
Doing activities	5	0.78
Parent effort	8	0.73
Family & social interaction	4	0.63
Safety	8	0.76
Caregiver supervision	7	0.70
Technology acceptance	9	0.85

Note: * Technology acceptance is an independent, non-contributing subscale of the FIATS-AS-Th.

Test-retest reliability of the FIATS-AS-Th

Test-retest reliability for the FIATS-AS-Th for the total scores and subscales are shown in table 3. The ICC 3, 1 for the total FIATS-AS-Th was

0.97 (95% CI 0.91 - 0.99). The ICC point estimates for subscales were between 0.86 - 0.96. The 95% lower and upper confidence limits for all subscales extended from 0.44 - 0.99.

Table 3 Test-retest reliability for the FIATS-AS-Th total scale and subscales (n = 30)

FIATS-AS-Th	ICC (3, 1)	95% CI
Total scale	0.97	0.91 - 0.99
Subscales		
Child autonomy	0.96	0.89 - 0.98
Caregiver relief	0.93	0.85 - 0.97
Child contentment	0.94	0.87 - 0.97
Doing activities	0.88	0.44 - 0.96
Parent effort	0.96	0.93 - 0.98
Family & social interaction	0.86	0.72 - 0.94
Safety	0.96	0.92 - 0.98
Caregiver supervision	0.96	0.92 - 0.98
Technology acceptance	0.97	0.87 - 0.99

Discussion

The aims of this study were to develop the FIATS-AS-Th and estimate its internal consistency and test-retest reliability. The participants were the primary caregivers of children with CP who cannot sit independently. We hypothesized that the FIATS-AS-Th was reliable for primary caregivers of children with CP.

The primary caregivers in both study phases were heterogeneous in view of the relationship with their children with CP, educational level, and economic status. While most were mothers, all primary caregivers were close family members who spent more than five hours each day caring for their children. Consequently, all primary caregivers were well positioned to express their views on child and family functioning.

Internal consistency indicates the extent to which items within a measurement scale measure the same construct⁽¹⁵⁾. Internal consistency in the present study was acceptable for total FIATS-AS-Th. This finding suggests that the different subscales within the FIATS-AS-Th are generally measuring a related concept and no evidence of

scale redundancy is found. This is consistent with the other studies that used data collected from primary caregivers of children with CP and other disabilities to calculate internal consistency of the FIATS-AS^(11,16). Four subscales of the FIATS-AS-Th had acceptable internal consistency and two subscales had alphas marginally below the recommended threshold. Ryan et al. similarly flagged an alpha for the family & social interaction subscale that was just below 0.70^(11,16). Other researchers reported that three subscales-child contentment, family & social interaction, and child autonomy-of the Turkish version of the FIATS-AS were also below the recommended threshold⁽¹⁷⁾. All recommended that the internal consistencies of the FIATS-AS subscales continue to be monitored in future research^(11,16,17).

In the present study, we found two subscales of the FIATS-AS-Th--family & social interaction, contentment--had alphas below the level recommended by measurement authorities. Possible reasons that these subscales had lower internal consistencies are that they have too few items to measure these latent constructs and have items

that do not relate well to other items assigned to the same subscale. For example, one item on the contentment subscale (My child must be with others to be content.) had very low correlations with other items on the same subscale ($r = -0.087$ to 0.192). Further, item ratings on the family & social interaction subscale were not well distributed. All participants rated statements on this 4-item subscale as either '6' or '7'. While having a lower internal consistency than other subscales, it may also be less responsive to change which is an important property for an outcome measure intended to detect change following the introduction of an adaptive seating intervention. Future studies with a broader age range of children are recommended to explore further the measurement properties of the FIATS-AS-Th subscales.

Test-retest reliability is a measure of the stability obtained by repeated administration of the same questionnaire over the time⁽¹⁵⁾. Overall, the preliminary levels of test-retest reliability reported here confirm the stability of the FIATS-AS-Th. The test-retest reliability of the total FIATS-AS-Th was excellent (ICC = 0.97, 95% CI 0.91-0.99) and ICC point estimates for each of the eight subscales exceeded the recommended threshold. These results are consistent with the psychometric values reported for the original English version and the Turkish version of the FIATS-AS^(11,16,17).

Interestingly, the doing activities subscale showed the greatest variation in 95% CI of test-retest reliability (0.44 - 0.96). While its point estimate ICC was high, it is possible that some children changed their ability to perform activities during the two-week retest period. Alternatively, this variation could also be due to measurement error⁽¹⁵⁾. Future studies that estimate the measurement properties of the FIATS-AS-Th should include follow-up interviews with caregivers to help interpret functional change detected by this and other subscales.

Several articles provided evidence to support the effectiveness of adaptive seating interventions for children with seating impairments^(8,9,16,18,19). This study reported on the linguistic adaption of the FIATS-AS for Thai-speaking parents and other primary caregivers. We intend to develop further the FIATS-AS-Th to be a standard outcome for assistive technology practitioners in Thailand to evaluate the role of adaptive seating interventions in the lives of children and their families. The preliminary results here confirmed that the FIATS-AS-Th has emerging levels of adequate internal consistency and test-retest reliability for use as a measure for paediatric rehabilitation services and research. Reaffirming the reliability of the FIATS-AS-Th should include recruitment of primary caregivers of older children with adaptive seating needs as well as those from diverse geographic areas to examine the effect of cultural differences in other regions of Thailand and abroad.

Limitations of the study

This study may not be representative of the whole population of the children with cerebral palsy and other childhood-onset disabilities. The scope of this study recruited only Thai-speaking primary caregivers whose young children received rehabilitation services at central region and neighbouring provinces. These results may limit the ability to generalize to older children and other regions in Thailand.

Conclusion

We provide emerging evidence that the FIATS-AS-Th has acceptable internal consistency and test-retest reliability. The FIATS-AS-Th may be considered as a candidate outcome measure for detecting the multidimensional functional impact of adaptive seating interventions on the children with cerebral palsy and their families in Thai-speaking populations.

Take home messages

The FIATS-AS-Th shows promise as reliable parent-reported questionnaire for measuring the functional impact of adaptive seating on the lives of the children with disabilities and their families in Thailand.

Conflicts of interest

The authors declare no conflict of interest.

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Supplementary

Thai version of the Family Impact of Assistive Technology Scale for Adaptive Seating (FIATS-AS-Th)

แบบสอบถามนี้สอบถามความคิดเห็นของท่านเกี่ยวกับเด็กของท่าน ชีวิตครอบครัว และอุปกรณ์เครื่องช่วย ในแบบสอบถามนี้ “เด็กของท่าน” หมายถึง เด็กผู้หญิงหรือเด็กผู้ชายที่มีอายุน้อยกว่า 19 ปี และต้องการใช้อุปกรณ์เครื่องช่วยในการทำกิจกรรมที่บ้าน ที่โรงเรียน และในชุมชน และ “อุปกรณ์เครื่องช่วย” หมายถึง อุปกรณ์ที่เด็กของท่านใช้ในบ้านของท่านตอนนี้ เช่น รถเข็น, เก้าอี้ประยุกต์

โปรดเลือกระดับของความเห็นด้วยที่ท่านเห็นด้วยกับข้อความนั้น ตัวอย่างจากข้อความแรก “ลูกของฉันปฏิสัมพันธ์กับคนอื่นในช่วงเวลาอาหาร” ถ้าท่านเห็นด้วยอย่างยิ่งกับข้อความนี้ เพราะเด็กของท่านปฏิสัมพันธ์กับคนอื่นในช่วงเวลาอาหารเสมอ ให้วงกลมตัวเลข “7” ถ้าท่านไม่เห็นด้วยอย่างยิ่งกับข้อความนี้ เพราะ เด็กของท่านไม่เคยปฏิสัมพันธ์กับคนอื่นในช่วงเวลาอาหาร ให้วงกลมตัวเลข “1” วงกลมตัวเลขอื่นเพียง 1 ตัวเลข ถ้าท่านเห็นด้วย หรือไม่เห็นด้วยในระดับของความเห็นด้วยอื่น แต่ละข้อความต้องการความเห็นด้วย เพียง 1 ระดับเท่านั้น

ข้อ		เห็นด้วย อย่างยิ่ง	เห็นด้วย	เห็นด้วย บางส่วน	เฉย ๆ	ไม่เห็น ด้วย บางส่วน	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่างยิ่ง
1	ลูกของฉันปฏิสัมพันธ์กับคนอื่นในช่วงเวลาอาหาร	7	6	5	4	3	2	1
2	ฉันมีเวลาน้อยที่จะทำงานบ้านให้เสร็จ	7	6	5	4	3	2	1
3	ฉันรู้สึกปลอดภัยที่จะปล่อยลูกของฉันนั่งในห้องน้ำตามลำพัง	7	6	5	4	3	2	1
4	ลูกของฉันสามารถสื่อสารกับผู้อื่น	7	6	5	4	3	2	1
5	สมาชิกอื่น ๆ ในครอบครัวต้องช่วยฉันดูแลลูกของฉัน	7	6	5	4	3	2	1
6	ลูกของฉันอยู่กับคนอื่นได้อย่างมีความสุข	7	6	5	4	3	2	1
7	ฉันกังวลเกี่ยวกับความปลอดภัยของลูกของฉันเมื่อเขาอยู่คนเดียว	7	6	5	4	3	2	1
8	ลูกของฉันท้อแท้ง่าย	7	6	5	4	3	2	1
9	ฉันเชื่อว่าอุปกรณ์เครื่องช่วยสามารถช่วยให้ลูกของฉันเรียนรู้	7	6	5	4	3	2	1
10	ลูกของฉันอยากจะอยู่กับฉันเมื่อฉันจะออกจากห้อง	7	6	5	4	3	2	1
11	ลูกของฉันกำลังเรียนรู้ที่จะทำกิจกรรมต่าง ๆ มากขึ้นโดยไม่ต้องช่วยเหลือ	7	6	5	4	3	2	1
12	ฉันต้องพาลูกของฉันไปด้วย เมื่อฉันออกจากห้องหนึ่งไปยังอีกห้องหนึ่ง	7	6	5	4	3	2	1
13	อุปกรณ์เครื่องช่วยทำให้ลูกของฉันเล่นกับคนอื่นได้ง่ายขึ้น	7	6	5	4	3	2	1
14	คนอื่น ๆ มีความสุขเมื่อลูกของฉันสามารถร่วมกิจกรรมต่าง ๆ ในครอบครัวได้	7	6	5	4	3	2	1

ข้อ		เห็นด้วย อย่างยิ่ง	เห็นด้วย	เห็นด้วย บางส่วน	เฉย ๆ	ไม่เห็น ด้วย บางส่วน	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่างยิ่ง
15	ฉันกังวลเกี่ยวกับความปลอดภัยของลูกของฉัน ขณะนั่ง	7	6	5	4	3	2	1
16	อุปกรณ์เครื่องช่วยสามารถทำให้ชีวิตของลูกของฉัน ง่ายขึ้น	7	6	5	4	3	2	1
17	ฉันใช้เวลาในการทำงานบ้าน	7	6	5	4	3	2	1
18	ฉันใช้เวลามากในการดูแลลูกของฉันในแต่ละวัน	7	6	5	4	3	2	1
19	ฉันมีปัญหาในการรับมือกับสิ่งต่างๆ ที่ต้องการ ในการดูแลลูกของฉัน	7	6	5	4	3	2	1
20	การเฝ้าระวังลูกของฉันระหว่างวันเป็นเรื่องน่าเหนื่อย	7	6	5	4	3	2	1
21	ลูกของฉันต้องการให้ฉันช่วยจับพุงเขาขณะเล่นกับ คนอื่น	7	6	5	4	3	2	1
22	ฉันต้องการจะใช้เวลากับสมาชิกในครอบครัวคนอื่นๆ มากขึ้น	7	6	5	4	3	2	1
23	อุปกรณ์เครื่องช่วยมีบทบาทสำคัญต่อการใช้ชีวิตของ ลูกของฉัน	7	6	5	4	3	2	1
24	ฉันกังวลว่าการนั่งตัวตรงเป็นอันตรายต่อลูกของฉัน	7	6	5	4	3	2	1
25	ฉันต้องการความช่วยเหลือในการดูแลลูกของฉัน	7	6	5	4	3	2	1
26	มันเป็นเรื่องง่ายกว่าที่จะเล่นกับลูกของฉันเมื่อมีบางคน โอบกอดเขา	7	6	5	4	3	2	1
27	ลูกของฉันสามารถเล่นเกมต่างๆ ได้	7	6	5	4	3	2	1
28	ฉันรู้สึกภูมิใจเมื่อลูกของฉันสามารถใช้อุปกรณ์เครื่อง ช่วย	7	6	5	4	3	2	1
29	ลูกของฉันชอบที่จะรู้ว่าฉันอยู่ที่ไหน	7	6	5	4	3	2	1
30	ลูกของฉันมักจะเปื่อยง่าย	7	6	5	4	3	2	1
31	ฉันหวังว่าลูกของฉันสามารถใช้เวลาส่วนตัวแก่ฉันสัก 2-3 นาทีในแต่ละวัน	7	6	5	4	3	2	1
32	ฉันต้องการความช่วยเหลือในการจับลูกของฉันอยู่ใน ท่านั่ง	7	6	5	4	3	2	1
33	ฉันห่วงใยความปลอดภัยของลูกของฉัน เมื่อเขาอยู่ ตามลำพัง	7	6	5	4	3	2	1
34	ฉันเชื่อว่าลูกของฉันควรใช้อุปกรณ์เครื่องช่วยในการทำ กิจกรรมต่างๆ ในชีวิตประจำวัน	7	6	5	4	3	2	1
35	ลูกของฉันสามารถใช้มือของเขาเพื่อที่จะเล่นได้	7	6	5	4	3	2	1
36	ฉันต้องนำลูกของฉันไปด้วยเมื่อฉันไปห้องอาบน้ำ	7	6	5	4	3	2	1
37	ฉันสามารถจัดการลูกของฉันได้ด้วยตนเอง	7	6	5	4	3	2	1
38	ลูกของฉันสามารถเล่นได้โดยไม่ต้องมีใครช่วยจับเขา	7	6	5	4	3	2	1

ข้อ		เห็นด้วย อย่างยิ่ง	เห็นด้วย	เห็นด้วย บางส่วน	เฉย ๆ	ไม่เห็น ด้วย บางส่วน	ไม่เห็น ด้วย	ไม่เห็น ด้วย อย่างยิ่ง
39	ลูกของฉันจำเป็นต้องมีสมาชิกคนหนึ่งในการครอบครัว ช่วยจับประคองเพื่อที่จะกินอาหารที่ได้ะอาหาร	7	6	5	4	3	2	1
40	สมาชิกหนึ่งคนในครอบครัวจำเป็นต้องอยู่ใกล้ลูกของ ฉันในช่วงกลางวัน	7	6	5	4	3	2	1
41	ฉันเชื่อว่าอุปกรณ์เครื่องช่วยสามารถช่วยให้ลูกของฉัน ทำกิจกรรมต่าง ๆ ได้มากขึ้น	7	6	5	4	3	2	1
42	ลูกของฉันมีความมั่นใจในตนเอง	7	6	5	4	3	2	1
43	ฉันหวังใยเมื่อลูกของฉันเล่นนอกบ้าน	7	6	5	4	3	2	1
44	ฉันคิดว่าอุปกรณ์เครื่องช่วยมีบทบาทสำคัญในชีวิตของ ลูกของฉัน	7	6	5	4	3	2	1
45	การจัดท่าทางให้ลูกของฉันเป็นเรื่องยาก	7	6	5	4	3	2	1
46	ลูกของฉันชอบที่จะอยู่ใกล้ฉัน	7	6	5	4	3	2	1
47	ฉันเกือบหมดแรงเมื่อสิ้นสุดแต่ละวัน	7	6	5	4	3	2	1
48	ฉันพบว่ามันง่ายที่จะเล่นกับลูกของฉัน	7	6	5	4	3	2	1
49	ฉันจำเป็นต้องทำงานบ้านให้มากขึ้น	7	6	5	4	3	2	1
50	ฉันกังวลว่าลูกของฉันจะตกจากเก้าอี้	7	6	5	4	3	2	1
51	มันเป็นเรื่องยากในการจับลูกของฉันขณะที่เขาเล่น บนพื้น	7	6	5	4	3	2	1
52	ลูกของฉันสามารถเล่นของเล่นต่าง ๆ โดยไม่ต้อง ช่วยเหลือ	7	6	5	4	3	2	1
53	ลูกของฉันชอบสำรวจสิ่งต่าง ๆ รอบ ๆ ตัวเขา	7	6	5	4	3	2	1
54	ลูกของฉันสามารถอยู่กับตนเองได้	7	6	5	4	3	2	1
55	อุปกรณ์เครื่องช่วยสามารถทำให้ชีวิตครอบครัวง่ายขึ้น	7	6	5	4	3	2	1
56	ฉันใช้เวลาในการดูแลลูกของฉันมากกว่าทำสิ่งอื่น	7	6	5	4	3	2	1
57	ฉันจำเป็นต้องมีเวลาหยุดพักจากการเฝ้าดูลูกของฉัน มากขึ้น	7	6	5	4	3	2	1
58	ลูกของฉันมีความสุขเมื่อฉันไม่จับเขา	7	6	5	4	3	2	1
59	ลูกของฉันจำเป็นต้องให้ฉันอยู่ใกล้ ๆ เพื่อทำกิจกรรม ต่าง ๆ	7	6	5	4	3	2	1
60	ลูกของฉันรู้สึกปลอดภัยเมื่อปล่อยให้นั่งตามลำพัง บนพื้น	7	6	5	4	3	2	1
61	ฉันต้องการช่วงหยุดพักจากการดูแลลูกของฉันเพิ่มขึ้น	7	6	5	4	3	2	1
62	ลูกของฉันสามารถทำกิจกรรมหนึ่ง ๆ ได้นาน	7	6	5	4	3	2	1
63	ลูกของฉันมีความสุขเมื่อเล่นคนเดียว	7	6	5	4	3	2	1
64	ลูกของฉันรู้สึกปลอดภัยเมื่อเล่นเองโดยไม่มีคนช่วย	7	6	5	4	3	2	1