Comprehensive Stress Response Inventory for Children: 
Construction, Reliability, and Validity

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ABSTRACT. The objective of this study was to develop a new measure of stress response in children, the Comprehensive Stress Response Inventory for Children (CSI-C). The items and response options of the original CSI, which was designed for use with adults, were modified using expressions more accessible to children. This measure was then used to conduct a self-report survey among 500 respondents, who were first-grade elementary to third-grade high school students, located in the Tohoku or Kanto regions of Japan at the time of the Great East Japan Earthquake. A confirmatory factor analysis of the CSI-C demonstrated the validity of its four-factor structure, and Cronbach’s alpha test indicated the scale to be reliable. Concurrent validity was confirmed with both the DSRS-C and PTSSC-15. Finally, cutoff values were determined using an ROC analysis, at 21 points for general stress response and 12 points for disaster stress response. The CSI-C uses a four-factor system, in accordance with prior theory, and our findings suggest that it provides sufficient reliability and validity as a measure of stress response in children.

KEY WORDS: comprehensive stress response, children, reliability, and validity

Introduction

Accurate evaluation of both the peculiar stress response manifested in children following a disaster, as well as everyday stress responses, is an essential first step in designing an appropriate support plan for these patients. Japanese-language options for evaluating posttraumatic stress responses in children through self-report include the internationally-employed UCLA PTSD Reaction Index for DSM-IV (Steinberg, Brymer, Decker, & Pynoos, 2004; rights to the Japanese language version held by Hyogo Institute for Traumatic Stress), as well as the Trauma
Symptom Checklist for Children (TSCC) (Briere, 1996; Nishizawa, Nakashima, & Miura, 1999), which evaluates effects of abuse or other recurrent trauma on children age 8 to 16. In addition to these measures, the Impact of Events Scale Revised (IES-R) (Weiss & Marmar, 1997; Asukai, 1999), which is intended to assess PTSD symptoms in adults following a single episode of trauma, has also been employed in studies of children.

Therefore, there is a growing body of research in Japan regarding measurements of stress in children following disasters. However, a number of shortcomings have yet to be addressed, including a failure to evaluate reliability and validity in these measures (Saito et al., 2005). For example, the TSCC inventory has 54 items. A 44-item version exists which omits items concerning sexual trauma, yet this still falls short of ideal in terms of ease of execution and burden placed on respondents. Some research has attempted to apply the IES-R to children (Asukai, 2006). However, this inventory is intended as a measure of PTSD symptoms in adults. Sufficient evaluation of data obtained about children using this method has yet to be conducted (Saito et al., 2005); thus, we believe prudence should be exercised in choosing to apply this measurement to children. Post-Traumatic Stress Symptoms for Children (PTSSC), which was developed to measure PTSD symptoms, includes the eight-item PTSD factor and seven-item depression factor, thereby ensuring minimal burden on children and easy application. Nonetheless, it is limited by the fact that it specializes in PTSD symptoms and the depression factor; it is potentially restricted from catching children’s diverse stress reactions.

In regards to the characteristics of stress responses in children following disasters, Okuyama (2012) reports that children of about 8 years or older exhibit a wide range of responses in addition to the typical responses seen in adults. This includes responses particular to children (vague feelings of uneasiness or regression, physical symptoms), and responses outside of those typically associated with PTSD. Accordingly, to accurately measure stress responses in children following disasters, it is essential that we screen for not only the particular response seen in PTSD but also generally occurring stress responses including anxiety, depression, anger, temper, and autonomic symptoms.

It is with these thoughts in mind that we have developed a comprehensive scale of stress response in children with the aim to maximize the number of factors covered, using a minimum number of items. Our result is the Comprehensive Stress Response Inventory for Children (CSI-C).

The CSI, on which the CSI-C is based, is composed of two scales, one each for measuring general stress response and disaster stress response (Asai, Morikawa, Hiraizumi, Usami, & Wakashima, 2013). Following a catastrophic event, the two scales are employed together, whereas in the absence of a disaster the general stress response inventory is used alone. The disaster stress response inventory is
Comprehensive Stress Response Inventory for Children

composed of 8 items and covers 1 factor. In its creation, careful examination was made of existing measures of stress response. Established items characteristic of PTSD were selected for use in the CSI, and additional items pertaining to memory were added to the inventory. The general stress response inventory is composed of 17 items and covers 3 factors (“anxiety and tension,” “temper and anger,” and “autonomic symptoms”). It is intended to evaluate change in the subject’s general stress response over time. Asai et al (2013) investigated reliability and validity of the CSI during its design. Wakashima et al (2016) confirmed cross-validity of the CSI using confirmatory factor analysis in a study of university students who had not been subjected to disaster conditions. The CSI is, therefore, not only capable of the accurate measurement of stress response in subjects who suffered a catastrophic event, but it is also a valid and reliable measure of general stress response in the absence of trauma. However, as no surveys of school-age children have been conducted with the CSI, it is possible that the factorial structure of the CSI differs in children. Furthermore, before the CSI is suitable for use with children, we believe that item content should be carefully constructed in a way that is easy for children to comprehend, and consideration should be given to the reduction of the psychological burden imposed on children when answering the inventory.

To this end, we have modified the expressions used in the CSI inventory such that children are able to respond to them more easily, and have performed a four-factor analysis of the new measure in the same manner as Asai et al (2013). We have further determined cutoff values to differentiate high-stress individuals from low-stress individuals. Finally, our research evaluated whether stress response varies based on age and gender.

Methods

Participants and procedures

Surveys were conducted from March 2016 to May 2016. Eligible subjects were those who were first-grade elementary to third-grade high school students located in the Tohoku or Kanto regions of Japan at the time of the Great East Japan Earthquake. A sample of 500 subjects was recruited through Rakuten Research, Inc., an online marketing research company with 2,279,275 registered users as of September 2015. Genders and age groups were equally sampled (for elementary school, 97 boys and 70 girls; for junior high school, 102 boys and 65 girls; for high school, 102 boys and 64 girls). Self-report surveys were administered via the website, and data was collected according to the order in which subjects completed and submitted their surveys. Eligibility for the survey necessitated informed consent from both the subject and the subject’s guardian. The subjects themselves responded to the survey items, with guardian assistance only at the request of the subject.

Basic attributes

Subjects were asked about their age, gender, level of school (elementary, junior high, high school), year in school, prefecture of current residence, and prefecture
of residence at the time of the Great East Japan Earthquake (March 11, 2011).

**CSI-C** The instructions, items, and response options of the CSI were modified to be easier for children to respond to. On the measure of general stress response, the following changes were made: the phrase “In comparison with before…” in item instructions was replaced with “…than I used to.” Furthermore, changes in wording were made to items 6 (from “I feel depressed” to “I feel down”), 16 (from “I experience heart palpitations” to “I feel my heart beating fast”), and 17 (from “I feel tense” to “I feel nervous”) on the CSI. On the measure of disaster stress response, changes were made to items 7 (from “When I think about the event, the emotions I had at that time well up inside me” to “When I think about the event, the feelings I had at that time come back strongly”), and 8 (from “I experience heart palpitations” to “My heart beats fast”). In this study, the phrase “that event” is assumed to refer to the Great East Japan Earthquake. Response options were also changed: “1 = completely disagree” on the CSI was changed to “1 = not at all”, and “4 = completely agree” was changed to “4 = very much.” A phonetic guide was added to all kanji characters appearing in items and response options. We consulted with one elementary school teacher and performed a preliminary survey with 83 students from elementary school, middle school, and high school to confirm the suitability of these modifications, and then determined validity based on the presence or absence of missing values.

**PTSSC-15** As a measure of comparison, our study used The Posttraumatic Stress Symptoms for Children 15 items (PTSSC-15) (Tominaga, Takahashi, Yoshida, Sumimoto & Kajikawa, 2002). The PTSSC-15 is composed of 8 items to measure for PTSD, and 7 items to measure for depression. Response options use a six-point scale: 0 = completely disagree, 1 = mostly disagree, 2 = partially disagree, 3 = partially agree, 4 = mostly agree, and 5 = completely agree, with a greater number of points indicating a greater degree of posttraumatic symptoms. Koseki, Koseki, Ohtani, & Ito (2013), in order to examine PTSD symptoms resulting from the Great Japan East Earthquake, referred to the survey of traumatic experience in infliction and receipt of bullying by Tominaga et al (2002), and set the criteria for PTSD symptoms at 19 points. Our research uses these same criteria.

**DSRS-C** Our study also employed the Depression Self-Rating Scale for Children (DSRS-C) (Murata, Shimizu, Mori, & Oshima, 1996). The DSRS-C is a depression screening test designed for children, and is composed of 18 items measuring for depression. Respondents are asked about their feelings over the past week, and items such as “I feel like I want to cry” and “I feel all alone” are self-evaluated using a three-point scale: 2 = always, 1 = sometimes, and 0 = never. The cutoff value on this measure is 16 points.

**Ethical considerations** Before beginning the survey, all subjects received explanation that answers to all items were voluntary, that they could choose to end the survey at any time,
that the content of their answers would be processed statistically, and that they would not be individually identified. Particular care was given in explaining that questions “pertaining to stress and to your disaster experience in the Great East Japan Earthquake” would be asked, that the subjects were able to discontinue the survey at any time they felt discomfort or difficulty in answering a question, and that there were no consequences for choosing to discontinue the survey. Only subjects who expressed their consent and understanding participated in the study.

Results

Data was analyzed using SPSS ver. 19.0 for Windows and Amos 19.

Internal consistency  Cronbach’s alpha was calculated for each subscale. Values obtained were $\alpha = .92$ for “anxiety and tension,” $\alpha = .90$ for “temper and anger,” $\alpha = .82$ for “autonomic symptoms,” and $\alpha = .94$ for “disaster stress symptoms.” As all factors demonstrated an alpha coefficient greater than .80, we determined that the CSI-C is a sufficiently reliable measure of stress response.

Confirmatory factor analysis  We performed a confirmatory factor analysis to determine the validity of the four-factor structure. As for the criteria for screening, we used $GFI > .90$, $AGFI > .90$, $CFI > .90$, and $RMSEA < .10$. Our results yielded the following fit levels for the four-factor model: $GFI = .79$, $AGFI = .74$, $CFI = .88$, and $RMSEA = .10$. We then adjusted for error variables with consideration given to the modification index.

When setting the error covariance, our adjustments were made within a theoretically permissible extent, and we determined a correlation setting among the subfactors. The only adjustments made were to the observed variables comprising each subfactor in order to compensate for error variables. The model’s level of fit after these adjustments was $GFI = .90$, $AGFI = .86$, $CFI = .96$, and $RMSEA = .06$, and it therefore met permissible levels under statistical criteria (Table 1).

Concurrent validity  To evaluate the CSI-C and its individual subfactors, correlation coefficients were calculated with the PTSSC-15 and DSRS-C (Table 2). A moderate positive correlation was observed between the CSI-C and both the PTSSC-15 and DSRS-C ($p < .001$ for both tests). A moderate correlation was also observed between the CSI-C’s subfactors and both the PTSSC-15 and DSRS-C ($p < .001$ for all tests).

Basic attributes and correlation with the CSI-C  In order to evaluate whether CSI-C scores or CSI-C subscores varied based on gender or year in school, we performed an independent two-way ANOVA ($p < .05$; between-subjects). The independent variables were gender (male, female) and age group (elementary school, junior high school, high school). The dependent variables were the CSI-C scores (four-factor score, three-factor score, “anxiety and tension” score, “temper and anger” score, “autonomic symptoms” score, “disaster stress symptoms” score). This test did not show a significant difference.

Cutoff values  As no significant difference
1. I feel uneasy more often than I used to.
2. I get scared more often than I used to.
3. I feel down more often than I used to.
4. I feel lonely more often than I used to.
5. I feel sad more often than I used to.
6. I get angry at myself more often than I used to.
7. I feel rushed more often than I used to.
8. I find myself with racing thoughts more often than I used to.
9. I feel nervous more often than I used to.
10. I lose my temper more often than I used to.
11. I get irritated more often than I used to.
12. I get offended more often than I used to.
13. I get headaches more often than I used to.
14. I feel dizzy more often than I used to.
15. My stomach hurts more often than it used to.
16. I feel my heart beating fast more often than I used to.
17. I avoid things that might make me remember the event.
18. I try to keep the event out of mind. (I try not to think about it, ignore it, don’t talk about it, etc.)
19. When I think about the event, the feelings I had at that time come back strongly.
20. When I think about the event, my body reacts. (My heart beats fast, I have trouble breathing, I start sweating, etc.)
21. Memories of the event will suddenly pop into my head even when I wasn’t trying to think about them.
22. I have bad dreams about the event.
23. I have trouble remembering important details about the event.
24. I find myself feeling or acting like I am back at the time of the event. 

Interfactor Correlations

| F1 | F2 | F3 | F4 |
|----|----|----|----|
| F1 | .83 | .85 | .69 |
| F2 |    | .76 | .53 |
| F3 |    |    | .64 |
| F4 |    |    |    |

Anxiety and Tension (a = .92)
1. I feel uneasy more often than I used to.
2. I get scared more often than I used to.
3. I feel down more often than I used to.
4. I feel lonely more often than I used to.
5. I feel sad more often than I used to.
6. I get angry at myself more often than I used to.
7. I feel rushed more often than I used to.
8. I find myself with racing thoughts more often than I used to.
9. I feel nervous more often than I used to.

Temper and Anger (a = .90)
10. I lose my temper more often than I used to.
11. I get angry more often than I used to.
12. I get irritated more often than I used to.
13. I get offended more often than I used to.

Autonomic Symptoms (a = .82)
14. I get headaches more often than I used to.
15. I feel dizzy more often than I used to.
16. My stomach hurts more often than it used to.
17. I feel my heart beating fast more often than I used to.

Disaster Stress Symptoms (a = .94)
18. I avoid things that might make me remember the event.
19. I try to keep the event out of mind. (I try not to think about it, ignore it, don’t talk about it, etc.)
20. When I think about the event, the feelings I had at that time come back strongly.
21. When I think about the event, my body reacts. (My heart beats fast, I have trouble breathing, I start sweating, etc.)
22. Memories of the event will suddenly pop into my head even when I wasn’t trying to think about them.
23. I have bad dreams about the event.
24. I have trouble remembering important details about the event.
25. I find myself feeling or acting like I am back at the time of the event.

Table 1. Results of the CSI-C confirmatory factor analysis (standardized estimate)

| Anxiety and Tension (a = .92) | F1 | F2 | F3 | F4 |
|-------------------------------|----|----|----|----|
| 1. I feel uneasy more often than I used to. | .56 |
| 2. I get scared more often than I used to. | .62 |
| 3. I feel down more often than I used to. | .85 |
| 4. I feel lonely more often than I used to. | .83 |
| 5. I feel sad more often than I used to. | .81 |
| 6. I get angry at myself more often than I used to. | .84 |
| 7. I feel rushed more often than I used to. | .77 |
| 8. I find myself with racing thoughts more often than I used to. | .82 |
| 9. I feel nervous more often than I used to. | .81 |

Table 2. Results of correlation analysis of variables (Pearson correlation coefficient)

| PTSSC15 | PTSSC-15 Total | Depression | PTSD | DSRS-C |
|---------|----------------|------------|------|--------|
| CSI-C three-factor | .62*** | .60*** | .62*** | .50*** |
| CSI-C four-factor | .63*** | .60*** | .64*** | .50*** |
| Anxiety and Tension | .61*** | .57*** | .61*** | .49*** |
| Temper and Anger | .60** | .57** | .60** | .48*** |
| Autonomic Symptoms | .53** | .53** | .52** | .41*** |
| Disaster Stress Symptoms | .51** | .47** | .52** | .40*** |

*** p < .001

CSI-C four-factor represents the total score for general stress response measure and disaster stress response
PTSSC-15: Posttraumatic Stress Symptoms for Children 15 items
DSRS-C: Depression Self-Rating Scale for Children
was observed between age group (by school level) and scores as regards the relationship between basic attributes and CSI-C, we considered having one cutoff value covering elementary to high school as age group.

For the purpose of the ROC analysis, the sample was divided into positive and negative groups based on the applicable measure’s cutoff value.

Subjects who scored less than 16 points on the DSRS-C were assigned to the negative group \((n = 394)\), and subjects who scored at least 16 points were assigned to the positive group \((n = 106)\). For the PTSSC-15, subjects who scored less than 19 points were assigned to the negative group \((n = 457)\), and those who scored at least 19 points were assigned to the positive group \((n = 43)\). Because there are few items related to memory on the PTSSC-15, which is a central element of PTSD symptoms (reliving the event, flashbacks), we anticipated the possibility of a false-positive group. To discern the false-positives from true-positives, we used the same procedure as described by Wakashima, Hiraizumi, Kobayashi, Asai, and Noguchi (2015); items on the PTSSC-15 which might suggest the reliving of a traumatic event or flashbacks were identified. These were item 8 (“I avoid people, places, or things that might cause me to remember something painful”), item 10 (“I blame myself; I think bad things happened because of me”), and item 11 (“I think about painful things even though I don’t want to”). The total for these three items (from 0 to 15 points) was considered independently, with a score of 0 to 7 deemed false-positive and 8 to 15 deemed true-positive. As a result, the negative group was \(n = 457\), the false-positive group was \(n = 15\), and the true-positive group was \(n = 28\).

In an ROC analysis, a larger area under the curve \((AUC)\) indicates more accurate identification of true-positives. According to Swets (1988), an \(AUC\) value of .60 to .75 may be considered as moderate accuracy, .75 to .90 as good accuracy, .90 to .97 as excellent accuracy, and .97 to 1.00 as ideal accuracy. To determine the ideal cutoff point, we employed the Youden Index.

The average general stress response score for positives on the DSRS-C was 26.49 \((SD = 9.07)\), and \(M \pm SD\) was thus 17 to 36 points. The area under the curve \((AUC = .79)\) indicated good identification accuracy. Analysis using the ROC curve and Youden Index revealed the ideal cutoff value to be 21 points (sensitivity .623, specificity .827). Based on this cutoff point, the “low general stress response” group scoring under 21 points was \(n = 366\) (73.2%) and the “high general stress response” group scoring at least 21 points was \(n = 134\) (26.8%).

The average disaster stress response score for the true-positive group on the PTSSC-15 was 14.68 \((SD = 5.98)\), and \(M \pm SD\) was thus 8 to 21 points. Here too, the area under the curve \((AUC = .77)\) indicated good identification accuracy. Analysis with the ROC curve and Youden Index indicated an ideal cutoff value of 12 points (sensitivity .643, specificity .841). Based on this cutoff point, the “low disaster
stress response” group scoring less than 12 points was \( n = 407 \) (81.4%), and the “high disaster stress response” group scoring at least 12 points was \( n = 93 \) (18.6%).

**Discussion**

This research developed the CSI-C, a comprehensive measure of stress response in children. We adjusted expressions used in the CSI to be easier for children to respond to, and confirmed the four-factor structure of the measure. This discussion will consider the relationships between the CSI-C’s factorial structure, internal consistency, concurrent validity and cutoff values. It will also debate the reliability and validity of the CSI-C as a measurement of stress response in children.

**Review of factorial structure**

The results of the confirmatory factor analysis demonstrate the four-factor structure of “anxiety and tension,” “temper and anger,” “autonomic symptoms,” and “disaster stress symptoms” to be valid. Additionally, as the alpha reliability coefficient was greater than .80, we can conclude that the CSI-C has sufficient reliability as well. These results correspond with the four-factor structure observed in adults following a disaster and with Wakashima et al. (2016) study of university students who had not been subjected to a disaster event. Accordingly, we can say that the CSI-C is a measure possessing sufficient factorial validity.

**Review of concurrent validity**

The CSI-C demonstrated moderate positive correlation with the PTSSC-15 and DSRS-C. Furthermore, the subfactors of the CSI-C displayed similar moderate correlations with these criteria. Because of this demonstrated correlation with depression and PTSD, we can say that the CSI-C possesses sufficient concurrent validity.

**Review of cutoff values**

The target of this study was children, which are assumed to differ from adults. Therefore, we chose external criteria specific to children, the DSRS-C and PTSSC-15, when considering cutoff values. Our determined values were 21 points for general stress response and 12 points for disaster stress response. Cutoff values for the CSI as shown in Wakashima et al. (2015) were, for screening purposes, 25 points for general stress response (in research, 33 points is recommended when sampling a clinical group with higher stress), and 13 points for disaster stress response. Wakashima et al.’s (2016) additional survey of university students in absence of trauma did not contradict these values. This suggests that the CSI’s cutoff values for both types of stress response are stable. Our results in regards to stress response in children following a disaster did not contradict the cutoff values shown in this earlier research focusing on adults.

However, our cutoff values for general stress response were significantly lower than those suggested for adults. This may indicate higher responsiveness in children to items testing for general stress response. In a survey of 395 students from three elementary schools and one junior high school located in Fukuoka Prefecture, the DSRS-C, which was our external criteria for general stress response,
yielded a positive rate of 9.6% (Murata et al., 1996). In contrast, our research, which sampled from among children who were in the Tohoku or Kanto regions at the time of the Great East Japan Earthquake, yielded a positive rate of 21.2%. In light of this difference between stress observed in students within one particular school district (Murata et al., 1996) and in subjects present in Tohoku or Kanto during the Great East Japan Earthquake, we must bear in mind the possibility of difference in our survey and the survey conducted 20 years ago in regards to results yielded by the DSRS-C’s measurements (e.g. “I feel like I want to cry,” “I feel all alone”).

Conclusions and Challenges

The significance of this research is its substantiation of the CSI-C’s four-factor structure. The CSI-C employs a four-factor structure in accordance with prior research, and it demonstrates sufficient validity and reliability as a measure of stress in children. It is capable of gauging both general stress response and disaster stress response. The fact that we could confirm that CSI-C has the same factor structure as CSI for adults suggests that it is a measure that can be applied to a broad range of age groups, ranging from children to adults. However, in this study, we do not consider how assessments are affected by the simplification of CSI items (the possibility that the capacity of CSI questions to discern different symptoms is reduced). In future studies, it will be necessary to conduct examinations using item response theory or comparisons between CSI-C and CSI on adults with language ability as a way to verify the accuracy of CSI-C.

Moreover, this study is significant in that we set a cutoff value to discern between high- and low-stress individuals. Our external criteria were different from those in Wakashima et al. (2015) as our study involved children, but our results were in line with previous findings in terms of the cutoff value for disaster stress response. These results should also be examined using corresponding data from an actual clinical group.

The instructions for the CSI-C disaster stress measure take the format of listing disaster contents relating to stress response. The disaster contents include not only natural disaster but man-made disasters (experiences of abuse and bullying, traffic accidents, and other specific traumatic experiences) as well. As such, CSI-C can be applied in classrooms where an emergency has taken place and to assess children’s specific traumatic experiences. Moreover, in cases where there is no specific disaster content, the general stress response measure can be used by itself by separating disaster stress response from that measure, as with CSI.

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Appendix 1. Japanese version of Table 1
Results of the CSI-C confirmatory factor analysis (standardized estimate)

| 因子間相関 | F1 | F2 | F3 | F4 |
|----------|----|----|----|----|
| 因子1 | .83 | .85 | .69 |
| 因子2 | .76 | .53 |
| 因子3 | .64 |
| 因子4 | — |

不安心・緊張 (α = .92)
1. 前よりも、不安になる .56
2. 前よりも、くびびしている .62
3. 前よりも、落ち着いている .85
4. 前よりも、ささやく感じている .83
5. 前よりも、思いついている .81
6. 前よりも、自分のことが識るになる .84
7. 前よりも、焦っている .77
8. 前よりも、考えがあらたならない .82
9. 前よりも、緊張している .81

不機嫌・怒り (α = .90)
3. 前よりも、不機嫌になる .81
4. 前よりも、怒り感じている .85
7. 前よりも、怒り感じている .80
11. 前よりも、いらいらする .91
13. 前よりも、不愉快な気分になる .77

自律神経症状 (α = .82)
4. 前よりも、頭痛が出る .72
8. 前よりも、めまいが出る .76
12. 前よりも、めまいが出る .64
16. 前よりも、ドキドキする .81

災害時特殊ストレス症状 (α = .94)
18. そのことを思い出すものは苦手できないものにしている .77
19. そのことはすっかり使えないようにしている (考えない、そう考えない、忘れないなど) .78
20. 前よりも、そのことを思い出すとそのときの思い出が強くなる .79
21. そのことを思い出すと、身体が反応する (ドキドキしたり、呼吸が苦しくなったり、汗が出るなど) .86
22. 考えるつもりはないのに、そのことがいきなり頭に浮かんでもる .86
23. そのことが出てくると、身体が反応する (ドキドキしたり、呼吸が苦しくなったり、汗が出るなど) .84
24. そのことが出てくると、身体が反応する (ドキドキしたり、呼吸が苦しくなったり、汗が出るなど) .80
25. 気がつくと、そのときに戻ったように感じたり、ふるまっている .75

数値は標準化推定値
GFI = .90, AGFI = .86, CFI = .96, RMSEA = .06