ITEM ANALYSIS AND INTERNAL CONSISTENCY OF CHILDREN’S SLEEP HABIT QUESTIONNAIRE (CSHQ) IN INDONESIAN VERSION

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Abstract

Background: The Children’s Sleep Habit Questionnaire (CSHQ) has been utilized for assessing sleep behavior problems in children aged 4-10 years in many countries. However, a proper tool to detect of sleep behavior problems in Indonesian children has not been proven.

Aims: The aim of our study was to test the item analysis and internal consistency of the Children’s Sleep Habit Questionnaire (CSHQ) in Indonesian version.

Methods: We used a cross-sectional design and 305 mothers of pre- and primary school children in Yogyakarta Indonesia participated in this study. The Indonesian version of the Children’s Sleep Habit Questionnaire was used for assessing the sleep behavior problems in children. Internal consistency was evaluated by using the Cronbach α method. The internal consistency was tested with Cronbach alpha coefficients. Pearson’s Product Moment was completed to estimate the correlation between all items of CSHQ with Subscales and total scores of CSHQ.

Results: Internal consistency of all items of the Children’s Sleep Habit Questionnaire was 0.80. Internal consistency of subscales ranged from 0.42 (parasomnias) to 0.66 (night wakening). 31 of 33 items had significant positive correlation with total score of Children’s Sleep Habit Questionnaire. Inter-subscales with the highest correlation were sleep onset delay with parasomnias, parasomnias with sleep disordered breathing, and sleep disorder breathing with night wakening.

Conclusions: The Indonesian version of the Children’s Sleep Habit Questionnaire is suitable for screening sleep behavior problems in Indonesian children aged 4-10 years.

Keywords: item analysis; internal consistency; children’s sleep habit questionnaire; Indonesia; sleep behavior problems

INTRODUCTION

The prevalence of sleep problems was estimated approximately 35 to 40% in school-age children (Fricke-Oerckermann et al., 2007). One recent study mentioned that 37-38% of Indonesian adolescents were suffering from sleep problems in both urban and rural areas (Sofyani, Supriatmo, & Lubis, 2014). Sleep behavior problems in children consists of bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night waking, parasomnias, sleep disordered breathing, and daytime sleepiness (Owens, Spirito, & McGuinn, 2000). Archbold and team reported that the USA children had sleep behavioral problems such as habitual snoring (17%), sleep-disordered breathing (11%), insomnia (41%), and excessive daytime sleepiness (14%) (Archbold, Pituch, Panahi, & Chervin,
While in Japan, delay of sleep phase, reduction of sleep length, and increasing daytime sleepiness were found as sleep problems in some seventh grade children (Shinkoda, Matsumoto, Park, & Nagashima, 2000). Older children were also reported to have more delayed sleep onset time and increased daytime sleepiness (Goldman, Richdale, Clemons, & Malow, 2012; Sadeh, Raviv, & Gruber, 2000).

There are many methods to measure the sleep behavior problems in children. The Children’s Sleep Habit Questionnaire (CSHQ) is one method that is commonly used for screening of sleep behavior problems in school-aged children approximately 4 to 10 year-old based on the International Classification of Sleep Disorder Pediatric Diagnoses (American Academy of Sleep, 2005). The CSHQ, developed by Judith Owens, consists of a 33-item, parent-rated questionnaire for assessing the behaviors associated with common pediatric sleep difficulties (Owens et al., 2000). The CSHQ consists of eight subscales which are associated with common sleep behavior problems in children: bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night waking, parasomnias, sleep disordered breathing, and daytime sleepiness. The CSHQ was developed in 2000 in the USA, and has been translated, adapted, and culturally validated to several societies, such as Portugal, China, Germany, and Netherlands (Z. Liu, Wang, Tang, Wen, & Li, 2014; Loureiro, Pinto, Pinto, Pinto, & Paiva, 2013; Schlarb, Schwerdtle, & Hautzinger, 2010; Waumans et al., 2010). Several studies were conducted in the USA, Australia, India, Japan, and Canada to evaluate sleep in larger populations by using CSHQ (Byars, Yeomans-Maldonado, & Noll, 2011; Hoffmire, Magyar, Connolly, Fernandez, & van Wiingenarden, 2014; Iwadare et al., 2013; Joseph & Mathew, X. Liu, Liu, Owens, & Kaplan, 2005; Markovich, Gendron, & Corkum, 2015; Price, Wake, Ukoumunne, & Hiscock, 2012).

During the process of developing this scale, Owens et al. assessed the CSHQ validity and reliability in the community and clinical samples, and performed the test-retest reliability measurement in the community samples. The internal consistency of CSHQ was reported as 0.68 for community samples and 0.78 for clinical samples. The test-retest reliability of the subscales ranged from 0.62 to 0.79. The validity of the CSHQ was evaluated by comparing total scores and subscale scores of community and clinical samples. The total scores and subscale scores in the clinical samples were significantly higher compared to the community samples. The sensitivity and specificity of the CSHQ were reported at 0.80 and 0.72, respectively (Owens et al., 2000). Internal consistency of subscales score of CSHQ were reported in Chinese children (0.44 to 0.63), in Portuguese (0.44 to 0.74), and in Dutch children (0.47 to 0.68) (Z. Liu et al., 2014; Waumans et al., 2010). The test-retest reliability was also investigated in Chinese, Dutch, and German children (Chinese children: 0.54 to 0.76, Dutch: 0.47 to 0.93, and German: 0.46-0.81) (Z. Liu et al., 2014; Schlarb et al., 2010; Waumans et al., 2010).

The numbers of Indonesian children who suffer from sleep problems have nearly identical scores with the sample populations of children in many countries. It is necessary to provide a proper tool for assessing the sleep problem in Indonesian children. The validity and reliability of CSHQ have good internal consistency in the USA and other countries; however, it has not been proven in Indonesian children. We believe that the investigation of item analysis of CSHQ in Indonesian version will provide beneficial results contributing to data concerning the global internal consistency of CSHQ, particularly in Indonesia. The aim of this study was to investigate the item analysis and internal consistency of CSHQ in Indonesian version.

**METHODS**

**Study design and participants**

We used a cross-sectional design in this study. The participants were the mothers of children aged 4-10 years old attending in kindergarten and primary school. Three hundred and five mothers were enrolled in this study. Participants include 148 (48.5) boys and 157 (51.5) girls aged 4-10 years-old. The mean of age was 7.07±2.36 for children and 35.8±7.40 for mothers (Table 1). 89.5% of mothers were
Muslim, 9.2% were non-Muslim, and 1.3% no answer. Most of mothers had obtained an education level past senior high school (2.3% primary school; 22.3% junior high school; 55.4% senior high school; 19.3% undergraduate, and 0.7% did not disclose information). The parents’ occupations were as private employees (80.3%), government employees (10.2%), seller (6.6%), and owner (small shop, 2%).

| Table 1 Participants Background (n=305) |
|----------------------------------------|
| Participants                           | Mean±SD | n (%) |
|----------------------------------------|---------|-------|
| 1. Children                           |         |       |
| Age                                    | 7.04±2.36 |       |
| Sex                                    |         |       |
| Male                                   | 148(48.5) |       |
| Female                                 | 157(51.5) |       |
| 2. Mothers                            |         |       |
| Aged                                   | 35.8±7.40 |       |
| Educational background                 |         |       |
| Primary school                        | 7(2.3)  |       |
| Junior high school                    | 68(22.3)|       |
| Senior high school                    | 169(55.4)|       |
| Undergraduate level                   | 59(19.3)|       |
| No answer                             | 2(0.7)  |       |
| Occupation                             |         |       |
| Private employee                      | 245(80.3)|       |
| Government employee                  | 31(10.2)|       |
| Seller                                | 20(6.6)|       |
| Owner Shop                            | 3(1.0)  |       |
| No answer                             | 6(2.0)  |       |
| 3. Religion                           |         |       |
| Muslim                                | 273(89.5)|       |
| Non-Muslim                            | 28(9.2) |       |
| No answer                             | 4(1.3)  |       |

SD, standard deviation

Instrument
The Children Sleep Habit Questionnaire (CSHQ) was utilized to assess sleep behavior problems in children aged 4-10 years. CSHQ was developed by Owens based on the International Classification of Sleep Disorders pediatric diagnoses (Owens et al., 2000). It consists of 33 items, which are divided into 8 subscales (i.e. bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night waking, parasomnias, sleep disordered breathing, and daytime sleepiness). We were asking the parents to recall sleep behaviors of their children in past weeks. Items were assessed on a three-point scale: usually, if the sleep behavior occurred 5-7 times a week; sometimes, for 2-4 times a week; and rarely, for 0-1 time a week (Owens et al., 2000). There were 6 reversed items, which are scored in the opposite direction. We were granted permission from the original author both to utilize and to translate the questionnaire. The questionnaire was translated from English into Indonesian and then re-translated by another linguist back into English.

Ethical considerations and procedures
The study was conducted in Yogyakarta from August 2014 to August 2015. The study was approved by the Medical and Health Research Ethics Committee (MHREC), Faculty of Medicine, Universitas Gadjah Mada and granted permission by Local government of Yogyakarta Province. The study was conducted in accordance with the Declaration of Helsinki 2008. The questionnaires and written informed consent were distributed to the participants. We provided information on how to fill in the forms and the mothers of the children completed the questionnaires. After the forms were filled, the questionnaires were checked for misplaced information.

Statistical analysis
Statistical analysis was performed using SPSS version 19.0 (IBM SPSS, IBM, New York,
Descriptive analyses were used to calculate participants’ characteristics. The internal consistency was tested with Cronbach alpha coefficients. Pearson’s Product Moment was completed to estimate the correlation between all items of CSHQ with Subscales and total scores of CSHQ.

### RESULTS

#### Internal consistency of CSHQ

Internal consistency of total of CSHQ was 0.80. Internal consistency of subscales of CSHQ ranged from 0.42 (parasomnias) to 0.66 (night wakening). The other subscales were relatively moderate (bedtime resistance 0.45, sleep duration 0.57, sleep anxiety 0.43, sleep disordered breathing 0.56, and daytime sleepiness 0.49).

#### Validity of CSHQ

**Correlation between items with total score of CSHQ**

Most of CSHQ items (31 of 33 items) have significant positive correlation with total score of CSHQ. Correlation between items with total score of CSHQ ranged from 0.11 (falls asleep in 20 minutes) to 0.82 (goes to bed at same time, afraid of sleeping alone, sleeps the right amount, sleeps same amount each day, afraid of sleeping in the dark, awakes once during night, alarmed by scare dream, and snored loudly). There was no significant correlation between falls asleep in 20 minutes (subscale of sleep onset delay) with total score of CSHQ. The range correlation of items in the subscale of bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night wakening, parasomnias, sleep disordered breathing, and daytime sleepiness with total score of CSHQ were 0.13-0.82, 0.1, 0.22-0.82, 0.26-0.82, 0.31-0.82, 0.16-0.82, 0.48-0.82, and 0.13-0.33, respectively (Table 3).

### Table 2

| CSHQ                          | Alpha |
|-------------------------------|-------|
| Total of CSHQ                 | 0.80  |
| Bedtime resistance            | 0.45  |
| Sleep onset delay             | NA    |
| Sleep duration                | 0.57  |
| Sleep anxiety                 | 0.43  |
| Night wakening                | 0.66  |
| Parasomnias                   | 0.42  |
| Sleep disordered breathing    | 0.56  |
| Daytime sleepiness            | 0.49  |

CSHQ, Children Sleep Habit Questionnaire; NA, Not analyzed

### Table 3

| Items of CSHQ                          | R     | Items of CSHQ                          | R     |
|----------------------------------------|-------|----------------------------------------|-------|
| Bedtime resistance                     |       | Parasonnias                             |       |
| Goes to bed at same time (1)           | 0.82***| Wets the bed at night (12)              | 0.18** |
| Falls asleep in own bed (3)            | 0.15**| Talks during sleep (13)                 | 0.30***|
| Falls asleep in other’s bed (4)        | 0.13* | Restless and moves a lot (14)           | 0.48***|
| Needs parent in room to sleep (5)      | 0.26***| Sleepwalks (15)                         | 0.16** |
| Struggles at bedtime (6)               | 0.29***| Grinds teeth during sleep (17)          | 0.82***|
| Afraid of sleeping alone (8)           | 0.82***| Awakens screaming, sweating (22)        | 0.48***|
|                                        |       | Alarmed by scary dream (23)             | 0.82***|
| Sleep onset delay                      |       | Sleep Disordered Breathing              |       |
| Falls asleep in 20 minutes (2)         | 0.10  | Snores loudly (18)                      | 0.82***|
| Sleep duration                         |       | Stops breathing (19)                    | 0.48***|
| Sleeps too little (9)                  | 0.22***| Snorts and gasps (20)                   | 0.82***|
| Sleeps the right amount (10)           | 0.82***| Daytime Sleepiness                     |       |
| Sleeps same amount each day (11)       | 0.82***| Needs parent in room to sleep (5)       | 0.26***|
| Sleep anxiety                          |       | Wakes by himself (26)                  | 0.22***|
Correlation between items with subscales of CSHQ

The items of CSHQ are divided into 8 subscales (i.e. bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night wakening, parasomnias, sleep disordered breathing, and daytime sleepiness). Correlation coefficients between items with bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night wakening, parasomnias, sleep disordered breathing, and daytime sleepiness were 0.43-0.67, 1, 0.51-0.87, 0.43-0.77, 0.47-0.91, 0.24-0.83, 0.71-0.87, and 0.14-0.62, respectively. Table 4 shows correlation between items with subscales of CSHQ. The highest score item correlated with the bedtime resistance scale was goes to bed at same time and afraid if sleeping alone, correlated with the sleep duration was sleeps the right amount, correlated with the sleep anxiety was afraid of sleeping alone, correlated with the night wakening was awakes once during night, correlated with the parasomnias was restless and moves a lot and awakens screaming and sweating, correlated with the sleep disordered breathing was snores and gasps, and correlated with the daytime sleepiness was sleepiness during watching TV.

Table 4 Correlation between items with subscales of the Children’s Sleep Habit Questionnaire (n=305)

| Items                           | Subscales                      | R   |
|---------------------------------|--------------------------------|-----|
| Goes to bed at same time (1)    | Bedtime resistance             | 0.67*** |
| Falls asleep in own bed (3)     | Bedtime resistance             | 0.43*** |
| Falls asleep in other’s bed (4) | Bedtime resistance             | 0.53*** |
| Needs parent in room to sleep (5)| Bedtime resistance             | 0.45*** |
| Struggles at bedtime (6)        | Bedtime resistance             | 0.45*** |
| Afraid of sleeping alone (8)    | Bedtime resistance             | 0.67*** |
| Falls asleep in 20 minutes (2)  | Sleep onset delay              | 1***  |
| Sleeps too little (9)           | Sleep duration                 | 0.51*** |
| Sleeps the right amount (10)    | Sleep duration                 | 0.87*** |
| Sleeps same amount each day (11)| Sleep duration                 | 0.86*** |
| Needs parent in room to sleep (5)| Sleep anxiety                  | 0.43*** |
| Afraid of sleeping in the dark (7)| Sleep anxiety                  | 0.53*** |
| Afraid of sleeping alone (8)    | Sleep anxiety                  | 0.77*** |
| Trouble sleeping away (21)      | Sleep anxiety                  | 0.67*** |
| Moves to other’s bed in night (16)| Night wakening            | 0.47*** |
| Awakes once during night (24)   | Night wakening                 | 0.91*** |
| Awakes more than once (25)      | Night wakening                 | 0.90*** |
| Wets the bed at night (12)      | Parasomnias                    | 0.27*** |
| Talks during sleep (13)         | Parasomnias                    | 0.55*** |
| Restless and moves a lot (14)   | Parasomnias                    | 0.83*** |
| Sleepwalks (15)                 | Parasomnias                    | 0.24*** |
| Grinds teeth during sleep (17)  | Parasomnias                    | 0.65*** |
| Awakens screaming, sweating (22)| Parasomnias                    | 0.83*** |
| Alarmed by scary dream (23)     | Parasomnias                    | 0.65*** |
| Snores loudly (18)              | Sleep disordered breathing     | 0.86*** |
| Stops breathing (19)            | Sleep disordered breathing     | 0.71*** |
| Snorts and gasps (20)           | Sleep disordered breathing     | 0.87*** |
| Wakes by himself (26)          | Daytime sleepiness             | 0.48*** |
Correlation between subscales of CSHQ with total scores of CSHQ

All of subscales of CSHQ were positive correlated with total score of CSHQ (Table 5). There was one item (sleep onset delay) where there was no significant correlation with total score of CSHQ. Correlation between subscales with total of CSHQ ranged from 0.49 to 0.85 (except sleep onset delay).

Table 5 Correlation between subscales with total score of the Children’s Sleep Habit Questionnaire (n=305)

| Subscales of CSHQ               | R    |
|--------------------------------|------|
| Bedtime resistance             | 0.73*** |
| Sleep onset delay              | 0.10  |
| Sleep duration                 | 0.82*** |
| Sleep anxiety                  | 0.72*** |
| Night waking                   | 0.85*** |
| Parasomnias                    | 0.78*** |
| Sleep disordered breathing     | 0.85*** |
| Daytime sleepiness             | 0.49*** |

* P<0.05; **, P<0.01; ***, P<0.001; CSHQ, Children Sleep Habit Questionnaire

Inter-subsccales correlation

Correlations among subscales with the highest correlation were parasomnias with sleep disordered breathing and sleep disorder breathing with night wakening (Table 6).

Table 6 Correlation among CSHQ subscales

|                      | Bedtime resistance | Sleep duration | Parasomnias | SDB | Night waking | Daytime sleepiness | Sleep anxiety | Sleep onset delay |
|----------------------|--------------------|----------------|-------------|-----|--------------|-------------------|--------------|------------------|
| Bedtime resistance   | 1                  | 0.61           | 0.45        | 0.57| 0.66         | 0.11              | 0.50         | 0.01             |
| Sleep duration       | 0.61               | 1              | 0.63        | 0.79| 0.80         | 0.13              | 0.57         | 0.05             |
| Parasomnias          | 0.45               | 0.63           | 1           | 0.90| 0.69         | 0.25              | 0.53         | 0.02             |
| SDB                  | 0.57               | 0.79           | 0.90        | 1   | 0.84         | 0.23              | 0.59         | 0.01             |
| Night waking         | 0.66               | 0.80           | 0.69        | 0.84| 1            | 0.21              | 0.58         | 0.01             |
| Daytime sleepiness   | 0.11               | 0.13           | 0.25        | 0.23| 0.21         | 1                 | 0.17         | -0.05            |
| Sleep anxiety        | 0.50               | 0.57           | 0.53        | 0.59| 0.58         | 0.17              | 1            | 0.07             |
| Sleep onset delay    | 0.01               | 0.05           | 0.02        | 0.01| 0.01         | -0.05             | 0.07         | 1                |

CSHQ, Children Sleep Habit Questionnaire. SDB, Sleep Disordered Breathing

DISCUSSION

The present study is the first report regarding item analysis and internal consistency of the Indonesian version of Children’s Sleep Habit Questionnaire (CSHQ). This finding is important, because the large number of children who are suffering from sleep problems in Indonesia parallels similarly numbers with others countries (Sofyani et al., 2014). Proper scale measurements for assessing sleep behaviors problems has not been proven in Indonesian children. The CSHQ is the International scale to assess sleep behaviors problems in children aged 4-10 years based on the International Classification of Sleep Disorders pediatric
students in USA were revealed among elementary school sleep onset delay, and nighttime awaking sleep problems such as bedtime resistance, hyperhidrosis excessivity of initiation and maintaining sleep, disorder of in Indonesian children in urban area could possibly be explained by age and cultural background. Regarding the internal consistency coefficient of total CSHQ, it is somewhat higher in Indonesia compared to those study from USA (Cronbach alpha ranged from 0.68), Chinese (0.73) and 0.77 in Portugal children (Z. Liu et al., 2014; Loureiro et al., 2013; Owens et al., 2000; Owens et al., 2000; Waumans et al., 2010). The differences in reliability of total CSHQ could possibly be explained by age and cultural background differences. There were three sleep problems in Indonesian children in urban areas: disorder of initiation and maintaining sleep, disorder of excessive somnolence, and sleep hyperhidrosis (Sofyani et al., 2014). While sleep problems such as bedtime resistance, sleep onset delay, and nighttime awaking were revealed among elementary school students in USA (Surani et al., 2015). The most influential factors for sleep disturbances in Indonesian children (urban and suburban area) were environmental noise and consuming beverages that contain caffeine (Sofyani et al., 2014). Mindell, Sadeh, Kohyama & How reported that children's bed share and room share were higher in Asian region (Asian region: China, Hong Kong, India, Indonesia, Japan, Korea, Singapore, Malaysia, Philippines, Taiwan, Thailand and Vietnam, bed share: 64.7%, room share: 87.5%) compared than Caucasian region (Caucasian region: US, Australia, Canada, New Zealand, and UK, bed share: 11.8%, room share: 22%). Furthermore, outcome showed that children who sleep in a separate room obtain more sleep, wake less at night, have less difficulty at bedtime, fall asleep faster, and are perceived as having fewer sleep problems (Mindell, Sadeh, Kohyama, & How, 2010).
subscales of CSHQ are statistically acceptable. Several limitations in this study should be mentioned. The studied area was limited in the Java Island. The present study was conducted in the central part of Java Island, because the culture of this area is prevalent in Indonesia. More than 100 million people live on Java Island (Indonesia, 2012), and they share the same history and Javanese culture. People in this area speak both Indonesian and Javanese (in private life). We consider the people who live in this area to be representative of the general Indonesian population. In addition, socio-economic situation of parents was not measured in this study. Moreover, the test retest to conduct reliability was not conducted in this present study.

CONCLUSION
The Indonesian version of the Child Sleep Habit Questionnaire (CSHQ) seems to have adequate internal consistency. Using Product Moment Correlation, seven of eight subscales were found with high and positive correlation with total score of CSHQ. The Indonesian version of the CSHQ is therefore suitable for screening sleep behavior problems in Indonesian children aged 4-10 years.

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Conflict of Interest
The authors of this paper have no conflicts of interest to report.

Author Contribution
All authors have materially participated in the present research and/or article preparation.

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Appendix

CHILDREN’S SLEEP HABIT QUESTIONNAIRE (CSHQ)
KEBIASAAN TIDUR ANAK
(Anak Usia Prasekolah dan Usia Sekolah)

A. Identitas Anak
Nama: _________________________________
Jenis kelamin: □ Laki-laki □ Perempuan
Tanggal lahir: __________________________
Tanggal pengisian kuesioner: __________________________
Riwayat kejang: □ Ya □ Tidak
Berat lahir (kg): __________________________

B. Identitas Ibu
Nama: _________________________________
Usia: _________________________________
Usia pada saat melahirkan: __________________________
Tingkat pendidikan: □ SMP □ SMA □ PT

Pernyataan berikut adalah tentang kebiasaan tidur anak dan kemungkinan kesulitan tidur anak anda. Pikirkan selama satu minggu terakhir tentang kebiasaan anak anda ketika menjawab pertanyaan ini. Jawaban "Selalu" jika terjadi 5 kali atau lebih dalam seminggu; Jawaban "kadang-kadang" jika terjadi 2-4 kali dalam seminggu; Jawaban "Jarang atau tidak pernah" jika terjadi 0-1 kali dalam seminggu. Silahkan mengindikasikan, apakah anak anda mengalami gangguan tidur atau tidak dengan memberi tanda centang [√] pada kolom "Ya" atau "Tidak" atau "Tidak dapat diterapkan"

I. Waktu tidur
Tulislah waktu tidur anak:

| Item | Selalu (5-7) | Kadang-kadang (2-4) | Jarang (0-1) | Apakah ada masalah? |
|------|--------------|---------------------|-------------|-------------------|
| Anak pergi ke tempat tidur pada waktu yang sama setiap malam ® (1) | | | | Ya | Tidak | Tidak dapat diterapkan |
| Anak tertidur dalam 20 menit setelah berada tempat tidur ® (2) | | | | | |
| Anak tertidur di tempat tidur sendiri ® (3) | | | | | |
| Anak tertidur di tempat tidur orang tua atau saudara (4) | | | | | |
| Anak membutuhkan orang tua di ruangan untuk tertidur (5) | | | | | |
II. Perilaku tidur
Tulis kebiasaan jumlah tidur anak anda setiap hari: _______ Jam dan ______ menit (dengan menggabungkan tidur malam dan siang)

| Item                                                                 | Selalu (5-7) | Kadang-kadang (2-4) | Jaran (0-1) | Apakah ada masalah? |
|----------------------------------------------------------------------|--------------|---------------------|-------------|---------------------|
| Anak berontak pada waktu tidur (menangis, menolak berada di tempat tidur dll) (6) |              |                     |             |                     |
| Anak takut tidur dalam kegelapan (7)                                |              |                     |             |                     |
| Anak takut tidur sendiri (8)                                        |              |                     |             |                     |

III. Bangun pada malam hari

| Item                                                                 | Selalu (0-1) | Kadang-kadang (2-4) | Jaran (0-1) | Apakah ada masalah? |
|----------------------------------------------------------------------|--------------|---------------------|-------------|---------------------|
| Anak terbangun sekali dalam semalam (24)                             |              |                     |             |                     |
| Anak terbangun lebih dari sekali dalam semalam (25)                  |              |                     |             |                     |

IV. Bangun pagi
Tuliskan waktu terhadap kebiasaan bangun anak di pagi hari:

| Item                                                                 | Selalu (5-7) | Kadang-kadang (2-4) | Jaran (0-1) | Apakah ada masalah? |
|----------------------------------------------------------------------|--------------|---------------------|-------------|---------------------|
| Anak bangun sendiri ® (26)                                            |              |                     |             |                     |
| Anak bangun dalam suasana hati yang negative (27)                    |              |                     |             |                     |
| Orang lain atau saudara membangunkan anak (28)                       |              |                     |             |                     |
| Anak memiliki kesulitan beranjak dari tempat tidur di pagi hari (29)|              |                     |             |                     |
| Anak membutuhkan waktu yang lama untuk waspada di pagi hari (30)     |              |                     |             |                     |

V. Kantuk di siang hari

| Item                                                                 | Selalu (5-7) | Kadang-kadang (2-4) | Jaran (0-1) | Apakah ada masalah? |
|----------------------------------------------------------------------|--------------|---------------------|-------------|---------------------|
| Anak tidur siang                                                      |              |                     |             |                     |
| Anak tiba-tiba tertidur di tengah kegiatan / perilaku aktif         |              |                     |             |                     |
| Anak kelihatan lelah (31)                                            |              |                     |             |                     |
Selama minggu terakhir, anak anda terlihat sangat mengantuk atau tertidur selama di bawah ini (Berilah centang)

|                         | Tidak mengantuk (1) | Sangat mengantuk (2) | Tertidur (3) |
|-------------------------|---------------------|----------------------|--------------|
| Menonton TV (32)        |                     |                      |              |
| Perjalanan dengan mobil (33)|                   |                      |              |