

Development of Malay Version of Vertigo Symptom Scale (MVVSS) for Clinical Use

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ABSTRACT

Background: Vertigo Symptom Scale (VSS) by Yardley *et al.* (1992) is one of the disease specific questionnaires used widely in clinical settings. It is conducted in English and had been translated into six languages including Dutch, French, German, Spanish, Swedish, and Turkish. It has been acknowledged as a good subjective tool to determine the severity of balance disorders. **Objective:** To develop a valid Malay version of VSS (MVVSS) using appropriate translation methods and validation technique. **Method:** Forward and backward translation was performed by four professionals from different fields. The translated questionnaire was then assessed for its test reliability based on an experiment on 30 normal subjects. Further, to determine the cultural adaptation issues, the face validity of MVVSS was assessed from 32 normal subjects. They were asked to fill in the MVVSS questionnaire accordingly and give opinions regarding its language, understanding and overall format of questionnaire. **Results:** Final results of the translation process showed sufficient concurrence among the professionals involved. The reliability test among the normal subjects also showed a high Cronbach's alpha value (0.90). The face validity method on 32 subjects (mean age of 29.9 ± 9.2 years) showed good feedbacks in terms of language, understanding and overall format of the MVVSS. **Conclusion:** The translation process was successful and the further validation showed an adequate face validity response. This suggests that our MVVSS has been culturally adapted and can be used in all Malay conversing patients.

BACKGROUND

Dizziness is one of 'the common, chronic and untreated symptoms' among the population in the age range of 18-65 years old^[1]. The possibility and risk for a person to have these symptoms is quite high: about 93 per 1000 people are affected each year^[2].

Among all these subtypes, vertigo is one of the most commonly reported symptoms by the vestibular disordered patients nowadays. It is defined as the 'illusion of movement that is commonly present with a sense of rotation or sometimes a feeling of linear displacement or tilt'^[3]. Vestibular disorder is a prevalent and serious medical condition if it is treated improperly. Furthermore clinically, the diagnoses of vertigo and balance disorders are very challenging and complicated. Clinical diagnosis and objective tests of balance disorders alone are inadequate for assessing the severity and impact of a patient's symptom. For clinical purposes, it is valuable if the clinician has a detailed understanding and knowledge of the severity level as to whether patients have vestibular disorder solely, or if it is mixed with psychological involvements such as anxiety disorder and depression in terms of management^[4].

By using the self-administrated questionnaire, the patients are able to express and score their recent and current symptoms that they suffer from, that might not be covered during the short appointment with the clinician.

Among all the measures, Vertigo Symptom Scale (VSS) by Yardley *et al.* (1992) (Appendix 1) is one of the disease specific questionnaires conducted in the English language. Since its development, validation tests have been done amongst the UK population^[5,7] and had been translated into six languages such as Dutch, French, German, Spanish, Swedish, and Turkish^[6,16]. It has been acknowledged as a good subjective tool to determine the severity of balance disorders. It has been used extensively for research purposes^[8, 9, 10, 11, 12, 13, and 17]. This questionnaire has also been used as a treatment evaluation in research^[14].

The VSS mainly focuses on the primary and secondary symptoms of vestibular disorders, including anxiety and autonomic symptoms^[5, 6]. It measures the patient's frequency of symptoms using a Likert-like scale. Responses are rated between 0 (never) to 5 (more than once a week) for all symptoms associated with vestibular disorders vertigo for the past one year, or since the attack. The majority of the questions related to the autonomic symptom in this questionnaire are more related to vertigo than the other subtypes of dizziness^[3]. Autonomic symptoms such as nausea and vomiting are the typical features of peripheral vestibular disorders^[3].

The VSS subscales that are related to vertigo scale showed high reliability for the 'weighted short duration' (alpha=0.85) and 'unweighted acute vertigo scale' (alpha=0.83). These two subscales were noted to be highly associated,

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and correspond with patient disability and the clinical diagnostic impact of their symptoms^[5]. By considering all these important findings and reasons there is no doubt that the subjective measure questionnaire is important.

The main purpose of this study was to translate the VSS from the English version into a Malay version of VSS (MVVSS) using appropriate translation and validation methods. The predominant reason why we are interested to translate this VSS is because it would be beneficial for the Asian community for purposes of clinical services and research expansion. The last but not least important reason why we think this subjective measure is important is that we hope that medical community, patients and the larger community will benefit from an accurate diagnosis and treatment being evaluated in pre-intervention and post-intervention sessions.

Objective

The main aim of this study was to develop a valid Malay Version of VSS (MVVSS) using appropriate translation methods and validation technique.

SUBJECTS

There were two main phases involved in this study: translation and face validity. For the translation phase, we invited four professionals from different fields to perform the forward translation and another four professionals for the backward translation. All the professionals have an adequate language competency for both Malay and English. In the face validity phase, we recruited 32 normal healthy subjects to complete the translated questionnaire. These people were asked to provide comments regarding the language, level of understanding and overall format of the MVVSS.

METHODS

The development process of the MVVSS followed the established methods from Argimon-Pallàs *et al.* (2009). In the translation phase, two different exercises were carried out: forward and backward translation. The forward translation from English into Malay version was performed by four professionals who were a Professor in ORL-HNS, a linguist, a medical officer from the vertigo clinic and a university lecturer. They were given two weeks to complete the translation on their own. Following this, the professionals met to discuss the result of the translation. After considering all the culture adaptations and community acceptance of terms used in the questionnaire, a first version of MVVSS was produced. Next, the backward translation from Malay version to English version VSS by four other professionals with two weeks duration for the translation process was carried out. Following this exercise, sessions were held where all the translators involved discussed and compared the entire translated version with the original version. The final version of MVVSS (Appendix 2) was produced at the end of the discussion.

To determine the test reliability of the translated VSS. Hence, a pilot study was carried out to serve this purpose. In this pilot study, we recruited 30 normal and healthy subjects were recruited.

To further include the cultural adaptation factors, the face validity of MVVSS was assessed from 32 normal subjects from various backgrounds. They were asked to complete all the questions asked in the MVVSS questionnaire. Additionally these people were asked to provide comments regarding the language, level of understanding and overall format of the MVVSS. Each individual was asked to rate items as good, moderately good or not satisfied.

For the translation methods and face validity technique, the data were analysed descriptively. In the pilot study, the test reliability (i.e. internal consistency) of MVVSS was determined using the Cronbach's alpha analysis. Since the MVVSS questionnaire employs Likert scale format, each participant produced a specific total score. These numerical values were then analysed quantitatively to determine the Cronbach's alpha value. All the data analyses were carried out using the SPSS (version 14.0).

Prior to the assessments, ethical approval from the Human Ethics Committee of Universiti Sains Malaysia was obtained. All subjects agreed for voluntary participation upon signing the consent form.

RESULTS

There was more than 80% agreement in terms of the content amongst the translators involved in the forward and backward translations. The final consensus was made by the committee as a group and they decided to retain the entire 22 questions in this final Malay version VSS.

Assessment of the test reliability of the MVVSS was performed using the Cronbach's alpha method. The Cronbach's alpha for MVVSS was found to be excellent (0.90) and this indicated that the final translated version of MVVSS is reliable enough for use.

In the face validity phase, 32 subjects with the mean age of 29.9 ± 9.2 years took part. 23 participants were female and 9 were male. The majority of the subjects were public, lecturers and undergraduate students with eight members per occupation. The rest of them were four medical officers, two postgraduate students, one speech pathologist and one staff nurse.

Analysis of the responses from all 32 subjects showed that MVVSS is well accepted and understandable in terms of translated language, comprehensiveness and overall format. Detailed responses from all the subjects showed that 97% rated the language as being good and 3% rated it as being moderately good (Figure 1). In terms of the understanding, 72% rated the understanding is good and 22% rated as moderately good (Figure 2) and 75% rated the overall format to be good and 22% rated the quantity of questionnaire items as moderately good (Figure 3).

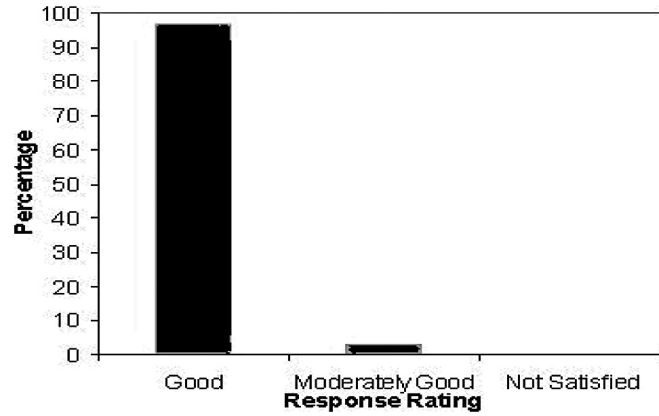


Figure 1: Subjects' response regarding the language of MVVSS

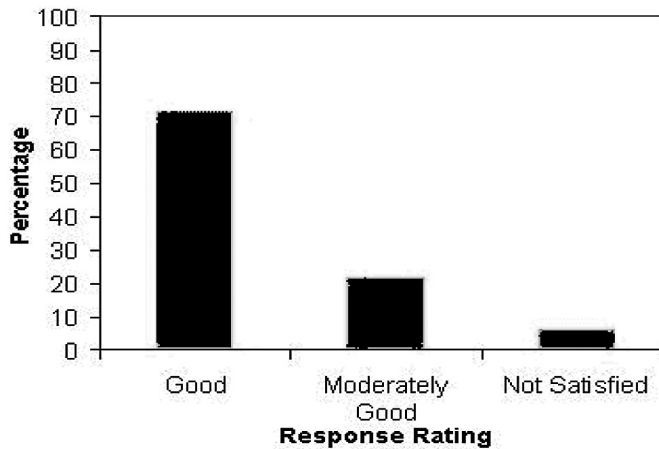


Figure 2: Subjects' response regarding the understanding of MVVSS

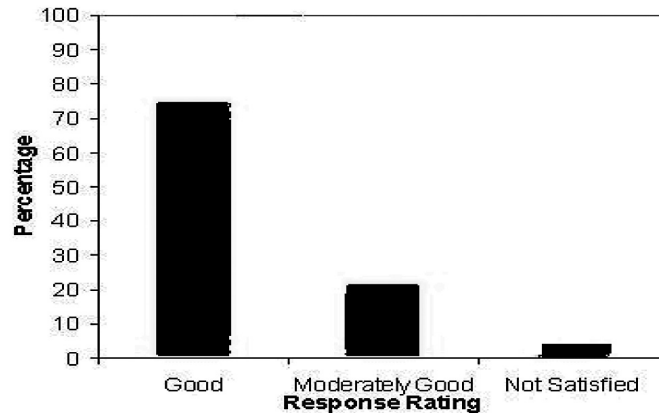


Figure 3: Subjects' response regarding the overall format of MVVSS

About 6% of respondents complained some difficulties in understanding MVVSS and the remaining 3% of them claimed the number of questions were too many.

CONCLUSION

This study demonstrates the efforts that had been employed to produce a reliable and validated MVVSS for clinical and research use. The number of subjects recruited was adequate and at the end of the study, we developed a well-translated and culturally adapted MVVSS. This has benefited the medical community by increasing the number of translated versions of the original VSS into seven languages. For the face validity assessment, it showed that the language, understanding and format of this MVVSS showed a good rating response and that it is acceptable by the Malay community. This is well demonstrated from the feedback of those 32 respondents who were overall satisfied with this version of the VSS. In conclusion, this study showed that the translation process was successful and the further validation showed an adequate face validity response. This suggests that our MVVSS has been culturally adapted and that it may be used for all Malay conversing patients.

However, this study has two limitations. Firstly, the respondents were young and there is a possibility that these people may not truly represent the actual vertigo or dizzy patients that is more common amongst older age groups. Secondly, recall that in the face validity assessment, only eight out of 32 subjects were among the public, while the remaining subjects were students, lecturers, medical officer and hospital staff members. In this situation, it is likely that this MVVSS is more readily understood and accepted by health care students and professionals due to their higher educational level and associations with the health profession as compared to the public and ordinary people. Hence, the development of this version of the questionnaire would require further validations.

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APPENDIX 1

VERTIGO SYMPTOM SCALE BY (YARDLEY *et al.*, 1992)

This questionnaire is part of a study looking at how people are affected by dizziness. We hope that it will help us to understand how dizziness interferes with everyday activities and how we can best help people overcome these difficulties. We expect that the questionnaire will take about 5 minutes to complete but we would like you to state the actual time taken. The answer will remain completely confidential. Thank you for your co-operation.

We would first like to ask you a few questions:

What is your name?

How old were you at your last birthday?

Are you male or female?

What is your current contact number?

The following questions ask about the type of symptoms you experience and how many times you have experienced each of the symptoms listed below during the past 12 months (or since the vertigo started, if you have had vertigo for less than one year).

The meanings of the number responses are:

- 0 Never
- 1 A few times (1-3 times a year)
- 2 Several times (4-12 times a year)
- 3 Quite often (on average more than once a month)
- 4 Very often (on average, more than once a week)

How often do you have the following symptoms:

1. A feeling that things are spinning or moving around, lasting:(please answer all the categories)
 - a) Less than two minutes 0 1 2 3 4
 - b) Up to 20 minute 0 1 2 3 4
 - c) 20 minutes to 1 hour 0 1 2 3 4
 - d) Several hours 0 1 2 3 4
 - e) More than 12 hours 0 1 2 3 4
2. Pains in the heart or chest region 0 1 2 3 4
3. Hot or cold spells 0 1 2 3 4

4. Unsteadiness so severe that you actually fall 0 1 2 3 4
5. Nausea (feeling sick), stomach churning 0 1 2 3 4
6. Tension/soreness in your muscles 0 1 2 3 4
7. A feeling of being light-headed, "swimmy" or giddy, lasting :(please answer all the categories)
- a) Less than two minutes 0 1 2 3 4
- b) Up to 20 minutes 0 1 2 3 4
- c) 20 minutes to 1 hour 0 1 2 3 4
- d) Several hours 0 1 2 3 4
- e) More than 12 hours 0 1 2 3 4
8. Trembling, shivering 0 1 2 3 4
9. Feeling of pressure in the ear(s) 0 1 2 3 4
10. Heart pounding or fluttering 0 1 2 3 4
11. Vomiting 0 1 2 3 4
12. Heavy feeling in arms or legs 0 1 2 3 4
13. Visual disturbances (e.g. blurring spots before the eyes) 0 1 2 3 4
14. Headache or feeling of pressure in the head 0 1 2 3 4
15. Unable to walk or stand properly without support 0 1 2 3 4
16. Difficulty breathing, short of breath 0 1 2 3 4
17. Loss of concentration or memory 0 1 2 3 4
18. Feeling unsteady about to lose balance, lasting :
(please answer all the categories)
- a) Less than two minutes 0 1 2 3 4
- b) Up to 20 minutes 0 1 2 3 4
- c) 20 minutes to 1 hour 0 1 2 3 4
- d) Several hours 0 1 2 3 4
- e) More than 12 hours 0 1 2 3 4
19. Tingling, prickling or numbness in parts of the body 0 1 2 3 4
20. Pains in the lower part of your back 0 1 2 3 4
21. Excessive sweating 0 1 2 3 4
22. Feeling faint, about to black out 0 1 2 3 4

VERTIGO SYMPTOM SCALE BY (YARDLEY *et al.*, 1992)

APPENDIX 2

MALAY VERSION OF VERTIGO SYMPTOM SCALE
 SKALA SIMPTOM 'VERTIGO' OLEH YARDLEY 1992

Setiap soalan hendaklah di jawab berdasarkan skala 0-4.

Nilai bagi setiap respon ialah :

- | | | |
|---|---|--------------------------|
| 0 | Tidak Pernah | <input type="checkbox"/> |
| 1 | Beberapa kali (1-3 kali setahun) | <input type="checkbox"/> |
| 2 | Banyak kali (4-12 kali Setahun) | <input type="checkbox"/> |
| 3 | Agak kerap (secara purata lebih dari sekali dalam sebulan) | <input type="checkbox"/> |
| 4 | Sangat kerap (secara purata lebih dari sekali dalam seminggu) | <input type="checkbox"/> |

Berapa kerapkah anda mengalami simptom (gejala) dibawah:

1. Perasaan seolah-olah benda atau keadaan sekeliling berputing atau bergerak, selama : (sila jawab semua kategori)

a) kurang dari dua minit	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b) sehingga 20 minit	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c) 20 minit hingga satu jam	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d) Beberapa jam	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e) Lebih dari 12 jam	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
2. Sakit di bahagian jantung atau dada

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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3. Serangan rasa panas atau sejuk

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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4. Ketidakseimbangan badan yang melampau sehingga menyebabkan anda terjatuh

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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5. Loya, perut memulas

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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6. Kejang atau sakit pada otot-otot

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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7. Perasaan berasa pening-pening lalat, terapung-apung atau 'giddy', selama: (sila jawab semua kategori)

a) kurang dari dua minit	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
b) sehingga 20 minit	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
c) 20 minit hingga satu jam	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
d) Beberapa jam	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
e) Lebih dari 12 jam	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
8. Menggigil, menggeletar

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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9. Berasa telinga tersumbat

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
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- | | | | | | |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 10. Berasa jantung berdegup atau berdebar-debar | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 11. Muntah | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 12. Berasa berat pada lengan atau kaki | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 13. Gangguan penglihatan (contoh : gangguan bayangan mata semasa melihat sesuatu objek) | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 14. Sakit kepala atau berasa berat dalam kepala | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 15. Tidak dapat berjalan atau berdiri dengan baik tanpa bantuan | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 16. Kesukaran untuk bernafas, bernafas dengan tercungap-cungap | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 17. Hilang tumpuan atau ingatan | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 18. Berasa hilang keseimbangan badan sehingga ingin terjatuh, berpanjangan (sila jawab semua kategori) : | | | | | |
| a) kurang dari dua minit | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| b) sehingga 20 minit | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| c) 20 minit hingga satu jam | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| d) Beberapa jam | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| e) Lebih dari 12 jam | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 19. Berdenyut-denyut, mencucuk-cucuk atau kebas di bahagian badan tertentu | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 20. Sakit pada bahagian bawah belakang | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 21. Berpeluh berlebihan | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 22. Perasaan ingin pitam, hampir pingsan | <input type="checkbox"/> 0 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |

