

VALIDITY AND RELIABILITY OF THE INDONESIAN MODIFICATION OF SCORE FOR ALLERGIC RHINITIS

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Abstract: *Allergic rhinitis (AR) is a nasal inflammation caused by IgE-mediated reactions after inhaled the allergens. It's characterized as symptoms of sneezing, airflow obstruction, nasal pruritus, and often clear nasal discharge. The prevalence of AR is about 5-40% in the general population and still rising. Multiple non-instrumental tests for AR were reported though few were validated. Score for Allergic Rhinitis (SFAR) is a valid instrument to screening AR. The purpose of this study was to perform adaptation and cultural translation and validation of the SFAR questionnaire for the Indonesian language. This was a cross sectional study to assess the validity and reliability of the Indonesian modification of Score for Allergic Rhinitis. The study conduct in 59 subjects. The Indonesian modification of SFAR instrument is valid and reliable as an instrument for screening AR with r values ranging from 0.345 to 0.730. Internal consistency shows that Cronbach's alpha is 0.803. The validation and reliability test of Indonesian modification of Score for Allergic Rhinitis was performed and valid and reliable as an instrument for assessing allergic rhinitis.*

Keywords: *Allergic Rhinitis, Score for Allergic Rhinitis, Validity, Indonesian Version.*

INTRODUCTION

Rhinitis is defined as nasal membrane inflammation.¹ The most common type of chronic is allergic rhinitis (AR).² AR is a nasal inflammation caused by IgE-mediated reactions after inhaled the allergens. It's characterized as symptoms of sneezing, airflow obstruction, nasal pruritus, and often clear nasal discharge.^{3,4}

The prevalence of AR is about 5 to 40% in population and still increasing.⁵ Indonesia has not recognized the prevalence AR, but the data from some hospitals shows the has frequency of AR is about 10 to 26%.⁶ AR is not life-threatening condition, but this disease can impact to sleep, work, and quality of life.^{7,8,9,10} Now the golden standard clinical specialists are expensive to diagnose AR and limited in the relevant area.¹¹

Within the last decade, multiple non-instrumental tests for AR were reported though few were validated. Some screening instruments use questions relating to self-assessment, while others rely on a physical appraisal. A simple tool is needed for general practitioners like Score for Allergic Rhinitis questionnaire (SFAR).⁵ SFAR was developed by Annesi-Maesano at 2002. SFAR is easy to use and useful for estimating prevalence and studies of AR causation in population settings.¹²

The basic consideration to modify SFAR in Indonesia is the lack of valid instrument to assess AR in Indonesian. Moreover, SFAR also shows consistency and high reliability to assess AR with Cronbach's alpha score of 0.79.¹² A committee of three specialists was convened in Yogyakarta to develop SFAR modification in Indonesia to ease AR screening.

This study aims to validate the Indonesian modification of Score for Allergic Rhinitis (SFAR).

RESEARCH METHOD

This was a quantitative study which aimed to proof the validity and measure SFAR adaptation reliability instrument. To find the subject, there were criterion which was applied. is a cross-sectional study conducted in Medical Faculty University of Muhammadiyah Yogyakarta. The inclusion criteria for the study were students at Medical Faculty of Universitas Muhammadiyah Yogyakarta and consented to participate in the study. The exclusion criteria for the study were students with severe illness who cannot participate in regular activities such as unable to mobilize, in an unfavourable general condition, or do not speak Indonesia.

The first thing that has been done was translated the original SFAR to Bahasa Indonesia. Cross-cultural adaptation was adjusted using World Health Organization (WHO) methods until we obtained the Indonesian adaptation of SFAR questionnaire. The WHO cross-cultural adaptation method consist of 5 steps, namely forward translation, expert committee meeting, back translation, pre-testing of questionnaire on monolingual people, and thorough documentation of those processes.¹³ Based on expert committee meeting, the questionnaire was modify instruction, modify inappropriate item and adapting the weights of scores to Indonesian cultural context.

Subjects who met the inclusion and exclusion criteria and consented to participate in the study were assessed for AR using Indonesian modification of SFAR. Data were processed using the following methods: 1) Descriptive presentation by calculating the frequency distribution, proportions, and the average of each variable; 2) Adaptation of cross-cultural (transcultural) questionnaires was carried out by the WHO method. Research data that has been collected was processed by using a computer program. Data analysis was performed using tests of internal validity and reliability on the

Indonesian modification SFAR questionnaire. The validity test is done by the Pearson correlation test or the Spearman correlation coefficient, measuring the correlation between the question items and the overall question score. The significance value of $p < 0.05$ indicates that the items were valid. Reliability tests with internal consistency look for Cronbach's α values. It is said to be reliable if it has an alpha value of at least 0.7.

RESULTS AND DISCUSSION

SFAR was adapted with WHO cross-cultural adaptation method consisting of 5 steps, namely forward translation, expert committee meeting, back translation, try out of questionnaire on monolingual people, and thorough documentation of those processes.¹³ A committee of three specialists was convened in Yogyakarta to develop SFAR modification in Indonesia to fit Indonesian cultural contexts.

SFAR by Annesi-Maesano et al. consisted of 8 questions.¹² The committee meeting modified the SFAR to become 13 questions and modified the score. The maximum score of this questionnaire is 16. The mean total score of Indonesian modification of SFAR is 4.14 with the minimum score of 0 and maximum score of 14. The suspected diagnosis of AR determines when the score of Indonesian modification of SFAR is minimally 7.

This study performed the validity test on 59 subjects, hence the r value of the table was 0.2162. The r value for each item described in table 1. Based on the r value, we found that all of the questions in Indonesian modification of SFAR questionnaire have a greater r value than the table (0.2162 for $df =$

57), indicating that Indonesian modification of SFAR questionnaire is valid to utilize.

The reliability test used in this study is the internal consistency. We found that the Cronbach's Alpha score of the Indonesian modification of SFAR questionnaire was 0.803, indicating that Indonesian modification of SFAR instrument is fairly reliable (Cronbach's Alpha score > 0.7).

This study developed a tool for assessing Indonesian patients with suspected AR. The Indonesian assessment tool for assessing AR is limited. Our study has revealed the Annesi-Maesano group's research and development of the SFAR tools. This tool was adapted into other languages such as in Arabic version by Alharethy et al.,⁵ The Score For Allergic Rhinitis Study in Turkey by Cingi et al.¹⁴, and in Chinese population by Lam et al.¹¹ The SFAR tool's popularity is probably related to the fact that it's simple, easy to administer, and cheap.

Result of this study showed that the interpretation of r value and total score was above 0.25. According to Colton (1974) it's indicated fair to moderate-good correlation.¹⁵ This result signified that Indonesian modification of SFAR questionnaire is valid for utilization. Questionnaire item with the lowest r value was item 10 with r value of 0.345 however it is still valid (P value = 0.007). Questionnaire item with the highest r value was item 1 with r value of 0.730 (P value = 0.001).

The original version of SFAR has been translated to various languages and cultures, such as Arabic (2017), Turkey (2011), and Chinese (2017), all showed that the items in the questionnaire are valid for utilization.^{5,11,14}

Tabel 1. Validity test result of Indonesian modification of SFAR questionnaire

	Indonesian modification of SFAR	r	P-value	Interpretasi
1	Apakah anda mengalami pilek dan hidung gatal berulang tanpa gejala flu (demam, pusing, batuk)?	0.730	0.001	Moderate-good correlation
2	Apakah anda mengalami periode bersin lebih dari 5 kali dalam 1 periode?	0.443	0.001	Fair correlation
3	Apakah saat tidak menderita flu anda tetap mengalami keluhan hidung tersumbat?	0.615	0.001	Moderate-good correlation
4	Apakah anda mengalami gejala pilek/ gatal/ bersin-bersin/ hidung tersumbat setelah terkena debu?	0.555	0.001	Moderate-good correlation
5	Apakah anda mengalami gejala pilek/ gatal/ bersin-bersin/ hidung tersumbat setelah terkena bulu binatang?	0.525	0.001	Moderate-good correlation
6	Apakah anda mengalami gejala hidung seperti pilek/ gatal/ bersin-bersin/ hidung tersumbat selama 4 hari atau lebih dalam 1 minggu atau selama 4 minggu atau lebih?	0.350	0.007	Fair correlation
7	Apakah anda mengalami gejala hidung seperti pilek/ gatal/ bersin-bersin/ hidung tersumbat selama kurang dari 4 hari dalam 1 minggu atau selama kurang dari 4 minggu?	0.583	0.001	Moderate-good correlation
8	Apakah anda pernah mengalami alergi kulit/ alergi makanan/ alergi obat/ biduran?	0.502	0.000	Moderate-good correlation
9	Apakah anda sering mengalami mata merah atau gatal atau keluar air mata banyak sepanjang hari?	0.529	0.001	Moderate-good correlation
10	Apakah anda pernah melakukan test alergi/ skin prict test dan dikatakan hasilnya positif?	0.345	0.007	Fair correlation
11	Apakah sebelumnya anda pernah mengalami nafas sesak dan ketika mengeluarkan nafas terdengar suara “ngiik” atau mengi?	0.609	0.001	Moderate-good correlation
12	Apakah keluarga anda (orangtua/kakek/nenek/saudara) ada yang menderita penyakit alergi atau asma?	0.609	0.001	Moderate-good correlation
13	Apakah anda pernah didiagnosis oleh dokter menderita asma/rhinitis/eksim/alergi	0.704	0.001	Moderate-good correlation

Pearson coefficient correlation is one of the methods used to evaluate the correlation between two tests denoted by the letter r (-1

$\leq r \leq 1$), in which $r \geq 0.7$ is considered as a tolerable score for reliability in questionnaires. According to the study result,

the r value of each item and total score was all scored ≥ 0.7 ($P < 0.05$), which indicated that the Indonesian modification of SFAR instrument is reliable.

CONCLUSION

In conclusion, we have performed adaptation and cultural translation and validation of the Indonesian modification of SFAR. Indonesian modification of SFAR questionnaire is valid and reliable as a valuable tool in AR screening AR. Generally, it's important to determine the characteristics and objectifying concepts such as validity and reliability need to be stressed when developing a questionnaire.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this paper.

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