

Reliability of Korean Version AMS and ADAM Questionnaire

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ABSTRACT

Context: There are number of non-English version of AMS and ADMA questionnaires tested for their validity and reliability before use in evaluation of LOH worldwide. But there has been no investigation on reliability of Korean version of AMS questionnaire and ADAM questionnaire in Korean male affected with LOH. **Aim:** The purpose of this study is to evaluate the reliability of Korean version of AMS questionnaire and ADAM questionnaire in Korean male patients with LOH.

Patients and Methods: 959 Korean men in various age participated in the study between 2016 and 2018. The reliability of questionnaire was determined by means of Reliability analysis to calculate the Cronbach's reliability coefficient α . **Results:** The reliability of Korean version AMS questionnaire was very good with 0.925 of the Cronbach's α as well as the corrected item-total correlation of the one item above 0.3. But the Cronbach's α of the ADAM questionnaire was 0.792 and the corrected item-total correlation of the one item was below 0.3. **Conclusion:** Korean version AMS questionnaire can be reliably used in Korean men but the reliability of Korean version ADAM questionnaire is not so good and it needs to be adjusted when used in Korean men. Therefore, AMS questionnaire would be preferred when we approach Korean men affected with LOH.

Keywords: Late-Onset Hypogonadism, AMS Questionnaire, ADAM Questionnaire, Reliability.

Article Information

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INTRODUCTION

A cytokine Late-onset hypogonadism (LOH) in men is recognized as a growing clinical concern in an increasingly ageing population [11-14] and it is very important to establish reliable screening and evaluation tools for individuals who might be affected with this

sexual disorder. Therefore, there are number of different questionnaires to evaluate sexuality of men. Among those, AMS (Aging male's symptoms) and ADAM (Androgen deficiency in aging male) questionnaire are widely used questionnaires in screening and diagnosis of LOH. Originally AMS questionnaire was

developed for evaluating the quality of life of elderly men but currently used as a screening tool for LOH. In addition, this questionnaire could be used for evaluating health related problems of men under age of 40. There have been a number of investigations to evaluate the reliability of various non-English version of AMS questionnaire [1-5]. Myon et al reported that reliability and validity of French version AMS questionnaire was similar to other language version AMS questionnaire. There was a correlation with QOL questionnaire: SF (Short Form)-12, depression questionnaire: HAD and ADAM questionnaire [4]. They suggested that it had a good reliability for psychological evaluation [4].

Nigerian version of AMS questionnaire was also developed and evaluated that its reliability and accuracy was as same as the other European language version [9]. Translation of AMS into other language is essential for evaluating the quality of life of middle aged and elderly men who cannot understand English. Furthermore ethnical differences should be considered during translation [2, 4, 6]. ADAM (Androgen deficiency in aging male) questionnaire suggested by Morley has been used widely in many countries [7]. Many researchers have been attempting to assess the reliability and validity of their native language version of AMS questionnaire and some have concluded that adjustments were required in order to fit in with their patients who can only understand their first language [9, 10]. For there have been a great number of evidences accumulated that the reliability and validity of various language versions of AMS questionnaire were good enough for use, the AMS questionnaire is now being acknowledged as a dominating questionnaire in the field of LOH diagnosis. There has been no investigation on reliability of Korean version of AMS and ADAM questionnaire before so we conducted this study.

SUBJECTS AND METHODS

Patients

After approval from the local ethics committee, 959 men in various age participated in the study between 2016 and 2018 and their mean age was 55.9 years (20~88). LOH was diagnosed based on serum testosterone level less than 3.5ng/mL and the positive score on AMS questionnaire [10].

Exclusion criteria were the presence of pituitary or testis disease, current medical use which might affect the pituitary or testis function or steroid clearance rate, previous history of testosterone replacement therapy, severe liver dysfunction or neuropathy and malnutrition.

METHODS

Translation procedure

AMS and ADAM questionnaire was translated into Korean by independent two translators who were native Korean and who were proficient in English. And these Korean translated manuscripts were reviewed by an expert group composed of psychologists, urologists and endocrinologists who were also proficient in English. And these Korean translated versions of AMS and ADAM questionnaire were back-translated into English by other translators to compare with the original English version. There were no major differences between back translation and original English version. Finally, these Korean versions of AMS and ADAM questionnaire were approved by the local medical committee. The authors personally explained the purpose of the study to the participants who were then asked to complete the questionnaire directly.

Statistical analysis

The reliability of questionnaire was determined by means of Reliability analysis to calculate the Cronbach's reliability coefficient α . Cronbach's α greater than 0.8 was considered to be good degree of reliability. Reliability means that a questionnaire should consistently

reflect the construct that it is measuring. “Corrected Item-Total Correlation” are the correlations between each item and the total score from the questionnaire.

In a reliable scale, all items should correlate with the total. If any of these values were less than about 0.3 then we’ve got problems, because it means that a particular item does not correlate very well with the scale overall. Items with low correlations should be dropped. “Cronbach’s A if Item is Deleted” are the values of the overall α if that item isn’t included in the questionnaire. As such, they reflect the change in Cronbach’s α that would be seen if a particular item were deleted.

RESULTS AND DISCUSSION

RESULTS

Reliability analysis of Korean version of AMS questionnaire

AMS questionnaire consists of 17 questions and we evaluated the reliability of this questionnaire in Korean men using Cronbach’s α , reliability coefficient. As our result, the overall Cronbach’s α of Korean version AMS questionnaire was 0.925 in Korean men (**Table 1**). The corrected item-total correlation of all items was above 0.3 and their Cronbach’s α if item deleted were below 0.925, so all items were significant. It means that the reliability of AMS questionnaire is very good and the all questions of AMS questionnaire well correlate with the total questionnaire.

Table 1. Reliability analysis of Korean version AMS questionnaire in LOH (n=959).

AMS Symptoms [16]	CITC	CID	OC
Q 1. Decline in your feeling of general well-being (general state of health, subjective feeling)	0.731	0.918	0.925
Q 2. Joint pain and muscular ache (lower back pain, joint pain, pain in a limb, general back ache)	0.555	0.922	
Q 3. Excessive sweating (unexpected/sudden episodes of sweating, hot flushes independent of strain)	0.469	0.924	
Q 4. Sleep problems (difficulty in falling asleep, difficulty in sleeping through, waking up early and feeling tired, poor sleep, sleeplessness)	0.573	0.922	
Q 5. Increased need for sleep, often feeling tired	0.624	0.920	
Q 6. Irritability (feeling aggressive, easily upset about little things, moody)	0.619	0.920	
Q 7. Nervousness (inner tension, restlessness, feeling fidgety)	0.593	0.921	
Q 8. Anxiety (feeling panicky)	0.623	0.921	
Q 9. Physical exhaustion/lacking vitality (general decrease in performance, reduced activity, lacking interest in leisure activities, feeling of getting less done, of achieving less, of having to force oneself to undertake activities)	0.755	0.917	
Q 10. Decrease in muscular strength (feeling of weakness)	0.747	0.918	
Q 11. Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings, feeling nothing is of any use)	0.677	0.919	
Q 12. Feeling that you have passed your peak	0.746	0.917	
Q 13. Feeling burnt out, having hit rock-bottom	0.713	0.918	
Q 14. Decrease in beard growth	0.409	0.925	
Q 15. Decrease in ability/frequency to perform sexually	0.647	0.920	
Q 16. Decrease in the number of morning erections	0.596	0.922	
Q 17. Decrease in sexual desire/libido (lacking pleasure in sex, lacking desire for sexual intercourse)	0.636	0.921	

CITC: Corrected Item-Total Correlation, CID: Cronbach’s α if Item Deleted, OC: Overall Cronbach’s α .

Reliability analysis of Korean version of ADAM questionnaire in LOH patients

ADAM questionnaire consists of 10 questions and we evaluated the reliability of this questionnaire in Korean men using Cronbach's α , reliability coefficient. The overall Cronbach's α of Korean version ADAM questionnaire was

0.792 (Table 2). The corrected item-total correlation of Question 9 was below 0.3, so Cronbach's α if this item deleted was 0.799. It means that the reliability of AMS questionnaire is not so good in Korean men and Cronbach's α if Question 9 deleted will be increased than 0.792 of overall Cronbach's α .

Table 2. Reliability analysis of Korean version ADAM questionnaire in LOH (n=959).

ADAM Questions[15]	CITC	CID	OC
1. Do you have a decrease in libido (sex drive)?	0.437	0.777	0.792
2. Do you have a lack of energy?	0.387	0.783	
3. Do you have a decrease in strength and/or endurance?	0.636	0.752	
4. Have you lost height?	0.388	0.783	
5. Have you noticed a decreased "enjoyment of life"?	0.539	0.764	
6. Are you sad and/or grumpy?	0.412	0.780	
7. Are your erections less strong?	0.434	0.777	
8. Have you noted a recent deterioration in your ability to play sports?	0.537	0.766	
9. Are you falling asleep after dinner?	0.261	0.799	
10. Has there been a recent deterioration in your work performance?	0.632	0.753	

CITC: Corrected Item-Total Correlation, CID: Cronbach's α if Item Deleted, OC: Overall Cronbach's α

DISCUSSION

Many investigators have been attempting to translate the AMS questionnaire into their first language to evaluate the LOH. As a consequences, various lingual versions of AMS questionnaire have been approved for their good reliability and diagnostic accuracy [1, 4]. But there have been no investigations on reliability and validity of Korean version of AMS and ADAM questionnaire before, therefore it is needed to evaluate validity of Korean version of AMS questionnaire or ADAM questionnaire before use in Korean men. According to our study, the overall Cronbach's reliability coefficient α of Korean version of AMS questionnaire was 0.925.

The corrected item-total correlation of all items was above 0.3 and their Cronbach's α if item deleted were below 0.925 so all items were significance. Therefore, we concluded that Korean version of AMS questionnaire was reliable and applicable in screening and diagnosis of LOH in Korean men. We also

evaluated the reliability of Korean version of ADAM questionnaire. The overall Cronbach's α of Korean version of ADAM questionnaire was 0.792. The corrected item-total correlation of one item was below 0.3. Therefore we concluded that the reliability of Korean version of ADAM questionnaire was not so good that adjustment is needed it is needed adjustment if we want to use this questionnaire in Korean men.

CONCLUSION

The reliability of Korean version of AMS questionnaire is good as 0.925 of Cronbach's α , so that we could reliably use it for Korean men. The reliability of Korean version of ADAM questionnaire was not good as 0.792 of Cronbach's α , so that adjustment is needed when used in Korean men.

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