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**VALIDITY AND RELIABILITY OF SUMMATED XEROSTOMIA INVENTORY
 INDONESIAN VERSION IN SJOGREN'S DISEASE PATIENTS**

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ABSTRACT

Background: Dry mouth is one of the hallmark symptoms in Sjogren's disease. Dry mouth can be described as xerostomia and hyposalivation. Hyposalivation is objectively measured while xerostomia is subjective complaint which only can be measured using questionnaire. **Purpose:** To check the validity and reliability of Summated Xerostomia Inventory Indonesian Version (SXI-ID) in Sjogren's disease patients. **Methods:** This is a cross-sectional study including Sjogren's disease patients in Yayasan Sjogren's Disease Indonesia. Data were collected using Google Form and analyzed using SPSS. **Results:** The result of validity test using Cronbach alpha was 0.83 and reliability test using interclass correlation coefficient was 0.98. **Conclusion:** Summated Xerostomia Inventory Indonesian Version (SXI-ID) is valid and reliable to be used among Sjogren's disease patients.

Keywords: hyposalivation, indonesia, sjogren's disease, summated xerostomia inventory, validity and reliability, xerostomia

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INTRODUCTION

Sjogren's disease is an autoimmune disease that is characterized by the classic symptoms of dry mouth, dry eyes, and arthritis.^{1,2} Sjogren's disease has a very wide variety of signs and symptoms. Sjogren's disease can be divided into primary Sjogren's disease and secondary Sjogren's disease.¹ Primary Sjogren's disease occurs alone while secondary Sjogren's disease occurs as a part of other autoimmune diseases such as rheumatoid arthritis, systemic lupus erythematosus, and systemic sclerosis.¹

The prevalence of primary Sjogren's disease is 61 per 100,000 inhabitants in Europe.¹ In England, 3-4% of the British population may have Sjogren's disease. In the United States, 0.4-3.1 million individuals suffer from Sjogren's disease and is ranked as the 2nd most common autoimmune rheumatic disease.² Unfortunately, there is no sufficient data regarding prevalence of Sjogren's disease in Indonesia. Women are more commonly affected than men and the mean age of Sjogren's disease first diagnosis is 56 years.¹

The most common symptoms of Sjogren's disease are called sicca symptoms which consist of keratoconjunctivitis sicca with a complaint about foreign-body sensation of the eyes and increased sensitivity to light and marked hyposalivation and xerostomia with difficulties in chewing and swallowing foods.¹ Hyposalivation is a condition of reduced salivary flow rate and can be measured by sialometry whereas xerostomia is a subjective complaint of dry mouth. Since xerostomia is subjective, diagnosis of xerostomia can only be made by directly questioning the individual.³ Therefore, a standard questionnaire is needed for the measurement of xerostomia.^{4,5}

Wimardhani et al (2019) has adapted Summated Xerostomia Inventory (SXI) to Indonesian version (SXI-ID) and applied the questionnaire to older people living in social homes in Jakarta.⁶ From the study, SXI-ID is valid and reliable to be used in Indonesian older people population.⁶ To the extent of our knowledge, there is no study using SXI-ID in Sjogren's disease patients. Thus, the aim of this study is to measure the severity of xerostomia in Sjogren's disease patients using SXI-ID.

Xerostomia, also known as the subjective complaint of dry mouth, is one of the most significant signs of Sjogren's disease that may affect the Sjogren's disease patients' quality of life. While hyposalivation can be measured by sialometry, xerostomia must be measured by a questionnaire. Summated Xerostomia Inventory Indonesian Version (SXI-ID) has been validated to be used for older people in social homes and non-institutionalized older people. Measuring the severity of xerostomia among Sjogren's disease patient needs to be done.

MATERIALS AND METHODS

This study is a cross-sectional study including Sjogren's disease patients in Yayasan Sindrom Sjogren Indonesia (YaSSI), Jakarta, Indonesia. Patients included in YaSSI were already diagnosed with Sjogren's disease by internists. Data will be collected using Google Form, which includes demographic data (age, gender, occupation, education), primary or secondary Sjogren's disease, the presence of other diseases, medication lists, and the SXI-ID questionnaire. The data collection will be held in May 2021 – June 2021.

This study was conducted in Sjogren's disease patients who are the member of Yayasan Sindrom Sjogren Indonesia (YaSSI). The patients should understand Indonesian and agreed to participate in the study by ticking the 'Agree' box in the Google Form. Sampling method used in this study was convenient sampling.

The SXI-ID consists of 5 questions. Each of the questions should be answered as 1 of 5 responses, which are: 1 = never, 2 = hardly ever, 3 = occasionally, 4 = frequently, and 5 = always.

Table 1. Summated Xerostomia Inventory Indonesian Version (SXI-ID)

SXI-1	Apakah mulut anda terasa kering?
SXI-2	Apakah anda kesulitan makan makanan kering?
SXI-3	Apakah mulut anda terasa kering saat sedang makan?
SXI-4	Apakah anda kesulitan menelan makanan tertentu?
SXI-5	Apakah bibir anda terasa kering?

Data were analysed using Statistical Package for Social Sciences (SPSS) program for Mac, version 24. Convergent validity was analysed using Spearman's correlation coefficient and reliability was analysed by interclass correlation coefficient (ICC).

RESULTS

Sociodemographic information on the 50 participants is summarized in Table 2. Most of the participants were female and have bachelor's degree. The mean age was 43.9 years. The range of Sjogren's disease diagnosis was 0 to 15 years, with mean of 3.9 years. The responses of the participants to each of SXI-ID questions are presented in table 3. The correlations among SXI-ID items are shown in table 4

Table 2. Sociodemographic data of participants

Characteristics	Mean (SD)	n (%)
Gender		
Male		2 (4)
Female		48 (96)
Age	43.9 (8.6)	
Education		
High school		9 (18)
Academy		8 (16)
Bachelor		26 (52)
Master		7 (14)
Marital status		
Married		38 (76)
Not married		8 (16)
Widowed		4 (8)
Years of Sjogren's disease diagnosis	3.9 (3.1)	

Table 3. Responses of participants to SXI-ID

SXI	Responses				
	Never	Hardly ever	Occasionally	Frequently	Always
SXI-1	5	6	12	18	9
SXI-2	9	12	19	7	3
SXI-3	10	10	21	7	2
SXI-4	12	12	16	8	2
SXI-5	5	11	13	11	10

Table 4. The correlation among SXI-ID items

Questions	r	p value
1 Apakah mulut anda terasa kering?	0.860	0.000
2 Apakah anda kesulitan makan makanan yang kering?	0.606	0.000
3 Apakah mulut anda terasa kering saat sedang makan?	0.628	0.000
4 Apakah anda kesulitan menelan makanan tertentu?	0.577	0.000
5 Apakah bibir anda terasa kering?	0.857	0.000

Convergent validity was analysed using Spearman's correlation coefficient between each questions in the questionnaire to the global question. The correlation between SXI-ID total score and the standard question was 0.83.

Reliability of SXI-ID in Sjogren's disease patients; The reliability of the SXI-ID questionnaire applied to Sjogren's disease patient was assessed using test-retest in 8 patients (16%) after 2 weeks. The ICC for test-retest reliability was 0.98. This was found to be an excellent agreement.

DISCUSSION

Sjogren's disease is an autoimmune connective tissue disease with pathogenesis remains poorly understood and has wide spectrum of clinical features including dry mouth.⁷ The salivary gland damage becomes one of hallmark in primary Sjogren's disease, although this process progresses slowly over years and is frequently overlooked resulting average delay of diagnosis of primary Sjogren's disease for 7 years.⁷

There are two terms which being commonly used in dry mouth, xerostomia and salivary gland hypofunction (hyposalivation).⁸ There are a lot of paper that use these two terms interchangeably, when in fact, each term defines different condition. Xerostomia is the term used to describe the sensation of dry mouth, a subjective complain of dry mouth by patient.⁸ Xerostomia may be accompanied by symptoms of dry lips, alteration of taste and a sense of having inadequate amount of saliva which caused the patient to feel the need to sip water when swallowing dry food. It is considered as a complex relationship between salivation and xerostomia. Xerostomia not always necessarily arises in hyposalivation, it can be found in patient with normal salivation.⁸

In ACR/EULAR 2016 diagnosis criteria of Sjogren's disease, xerostomia is no longer considered as one of diagnostic criteria, rather the objective measurement of salivation by assessing unstimulated whole salivary flow rate.⁹ Nevertheless, it is important to specifically explore the subjective complain of dry mouth in Sjogren's disease patients because xerostomia may affect the patient's quality of life.¹⁰ Xerostomia or perceived oral dryness is known to be vary regionally.¹¹ Over the years, the perceived oral dryness has been measured using several instruments, Regional Oral Dryness Inventory (RODI), Xerostomia Inventory (XI), Bother Index (BI).¹¹ The xerostomia inventory is commonly used in disease assessment and research which measure multidimensionally and consists of 11 questions.¹² The xerostomia inventory has been widely used for elderly people, head and neck cancer patients who underwent radiotherapy, and diabetic patients.¹²

The xerostomia questionnaire then simplified into summated xerostomia inventory (SXI) which consists of 5 questions and has already widely used to assess xerostomia in many countries.⁶ In Indonesia, the SXI questionnaire has been translated and validated for elderly people,⁶ but has never been validated to assess xerostomia in Sjogren's disease patients.

This cross-sectional study has confirmed that the Summated Xerostomia Inventory Indonesian version (SXI-ID) has a good validity in measuring xerostomia among Sjogren's disease patients. The construct validity of SXI-ID was tested by the comparison between the scores of the SXI-ID and global question. All showed moderate to strong correlation between each SXI-ID question and the global question. The limitation of this study was the small sample size, and the questionnaire was self-administered online through Google form. This could cause cognitive burden bias.¹³

In conclusion, SXI-ID is valid and reliable for measuring xerostomia in Sjogren's disease patients. However, further studies with larger participants are needed.

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