

Knowledge Level Of Clinical Dental Students At The Faculty Of Dentistry, University Of North Sumatra Related To Salivary Gland Disorders

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Abstract:

Background: Salivary gland disorder is an abnormal condition in the salivary glands which can lead to conditions that cause pain in the affected gland, swelling and dry mouth. The most common diseases that affect the salivary glands are developmental disorders, infections, obstructions, inflammation, functional disorders of the salivary glands, benign enlargements and tumors. Careful clinical examination in combination with appropriate radiography imaging will assist the practitioner in identifying the need for further investigations or referring to a specialist. Therefore, clinical dental students need to have a proper knowledge about the disorders in the salivary glands. This study aims to determine the level of knowledge of clinical dental students related to salivary gland disorders.

Methods: This research was conducted using an online questionnaire of 18 validated questions. The participant was 70 clinical dental students batch 2020. Respondents were selected using Cluster Sampling Technique.

Results: As many as 43 respondents (61.4%) have a good level of knowledge, 34.3% of respondents have a fair level of knowledge and 4.3% of respondents have a low level of knowledge.

Conclusion: The overall knowledge of clinical dental students at the Faculty of Dentistry, University of North Sumatra about salivary gland disorders are in the good category.

Key Word: Salivary gland disorders, knowledge, clinical dental students.

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I. Introduction

Saliva is a complex body fluid and is beneficial for the health of the oral cavity, in which the oral cavity is wetted with 1,000 to 1,500 ml of saliva every day.¹ Saliva is secreted by three pairs of major salivary glands that are parotid, submandibular and sublingual glands.² Saliva is needed to lubricate the food bolus, to protect against viruses, bacteria and fungi, to protect the oral mucosa, for tooth remineralization, needed in digestion, taste sensation, pH balance and phonation.⁴ These glands are cannot be separated from disease. Abnormalities involving the salivary glands are sometimes difficult to detect because of their small structure.² Salivary gland disorders are associated with many causes. The most common causes are; aplasia (developmental disorder), mumps and HIV-Associated salivary gland disease (virus), bacterial sialadenitis (bacteria), Sjogren's syndrome (autoimmune), mucocele and ranula (obstruction), sialolithiasis (stone formation in the gland or in the duct), sialocyst, sialadenosis (systemic disease), sialorrhea and xerostomia (functional disorders), and salivary gland tumors.³ Usually, the initial diagnosis of salivary gland disorders firstly detected by general dentists and its treatment is carried out by oral surgeons.¹

The student knowledge as a future dentist is certainly required not only regarding anatomy (normal), but also the things related to pathology (abnormalities) in the oral cavity. Clinical dental students must be familiar in recognizing oral lesions, including infections, obstructions, inflammation, cysts, or tumors that occur in the salivary glands. The success of treatment rate depends on our capability to diagnose a disease properly. In addition, it would be a fatal if later the practitioners carry out a treatment with the wrong diagnosis. Therefore, as a future dentist students, it is necessary to have good knowledge about the disorders that exist in the salivary glands.

The purpose of this study was to determine knowledge level of clinical dental students at the Faculty of Dentistry, University of North Sumatra regarding salivary gland disorders.

II. Material And Methods

This is a descriptive study, with a survey method that aims to describe or characterize the knowledge level of clinical dental students at the Faculty of Dentistry, University of North Sumatra regarding salivary gland disorders. The study was conducted from April 2021 to May 2021. The population in this study were all clinical

dental students enrolled in 2020, which consist of 249 students class of 2015 and 2016 at RSGMP, Faculty of Dentistry, University of North Sumatra.

Study Design: Descriptive study, with a survey method

Study Location: This study was carried out at RSGMP, Faculty of Dentistry, University of North Sumatra

Study Duration: April 2021 to May 2021.

Sample size: 70 clinical dental students.

Sample size calculation: This study use a proportion estimation formula as a measuring instrument in calculating the sample size, with the confidence level used is 95% and the proportion of 50% (0.5) resulting in the sample size of 70 people.

Subjects & selection method: The sampling technique in this study used a cluster sampling method as members in the population were divided into groups, where in this study the clinical dental students who enrolled in 2020 with several classes in order to regrouped. Cluster sampling is a type of probability sampling.

Inclusion criteria:

1. Clinical dental students who entered in 2020 at the Faculty of Dentistry, University of North Sumatra.
2. Clinical dental students who entered in 2020, class of 2015 and class of 2016.
3. Willing to be a research subject/respondent.

Exclusion criteria:

1. Clinical dental students entering in 2020 who are not willing to be research subjects/respondents.

Procedure methodology

The research has received approval from the ethics committee of the University of North Sumatra as of this research can be justified ethically and legitimately. All respondents who participated in this study were given an explanation and asked for their consent in the form of informed consent. Number of subjects in this research is 70 samples.

The data collected by distributing a google form questionnaire with questions regarding knowledge about salivary gland disorders, in the form of closed questions, as the form of questions that have been given several answer choices with only one correct answer. All questions on the questionnaire have passed the validation and reliability test.

Questions with correct answers scored 1 and questions with incorrect answers scored 0. So the highest score out of 18 questions was 18. Then the next score was categorized with good, fair and poor knowledge. It is said that the knowledge category is good if the correct answer between 76%-100% of all questions, the knowledge category is fair if the correct answer between 56%-65% of all questions and the knowledge category is poor if the correct answer is <56% of all questions.⁵

Statistical analysis

The data analysis used in this research is uni-variate analysis. Data processing from research results is carried out computerized and begins with checking the contents of the questionnaire, editing, coding, data entry and analysis. This analysis takes the form of an analysis of a group of variables which aims to summarize a collection of measurement data in such a way that the data collection turns into useful information in the form of percentages. The results of the data are presented in table form to see the knowledge level of clinical dental student at the faculty of dentistry, University of North Sumatra related to salivary gland disorders.

III. Result

Table no 1 shows the characteristics of the respondents, clinical dental students at the Faculty of Dentistry, University of North Sumatra who enrolled in 2020 as the respondents, were class and gender. The overall results can be seen in the following table.

Table no 1: Frequency distribution of respondent's characteristics

Characteristics	Frequency	Percentage
Class		
2015	9	12,86
2016	61	87,14
Gender		
Male	13	18,6
Female	57	81,4
Total	70	100,0

Table no 2 shows the knowledge questionnaire about salivary gland disorders consisted of 18 questions in multiple choice answers (a, b, c). Each question has only one correct answer and the other two answers are incorrect. The accumulation of respondent's answers in each question can be seen in the following table.

Table no 2: Frequency distribution of respondent's answers on the knowledge questionnaire sheet about salivary gland disorders

Question Topic	True		False	
	n	%	n	%
Knowing that the salivary glands be abnormal	69	98,6	1	1,4
Salivary gland aplasia	53	75,7	17	24,3
Mucocele	39	55,7	31	44,3
Ranula	62	88,6	8	11,4
Sialolithiasis	64	91,4	6	8,6
Sialocyst	40	57,1	30	42,9
Bacterial sialadenitis	60	85,7	10	14,3
Mumps (Viral Parotis)	52	74,3	18	25,7
HIV-Associated salivary gland disease	67	95,7	3	4,3
Sjogren's syndrome	47	67,1	23	32,9
Sialorrhea	56	80,0	14	20,0
Xerostomia	64	91,4	6	8,6
Sialadenosis	35	50,0	35	50,0
Pleomorphic adenoma	31	44,3	39	55,7
Whartin's Tumor	47	67,1	23	32,9
Muceopidermoid carcinoma	61	87,1	9	12,9
Procedure for diagnosing salivary gland disorders	69	98,6	1	1,4
Supporting examination to differentiate benign and malignant lesions in salivary gland tumors	69	98,6	1	1,4

Table no 3 shows based on the accumulation of respondent's answers on the knowledge questionnaire sheet about salivary gland disorders, the level of knowledge of the respondents can be seen in the following table.

Table no 3: Respondent's knowledge level about salivary gland disorders

Knowledge level	Frequency	Percentage
Good	43	61,4
Fair	24	34,3
Poor	3	4,3
Total	70	100,0

Table no 4 shows the frequency distribution of respondent's knowledge level about salivary gland disorders by gender can be seen in the following table.

Table 4: Respondent's knowledge level about salivary gland disorders by gender

Knowledge level	Gender			
	Male		Female	
	n	%	n	%
Good	6	50,0	37	63,8
Fair	5	41,7	19	32,8
Poor	1	8,3	2	3,4
Total	12	100,0	58	100,0

Table no 5 shows the frequency distribution of respondent's knowledge level about salivary gland disorders by class can be seen in the following table.

Table 5: Respondent's knowledge level about salivary gland disorders by class

Knowledge level	Class			
	Class of 2015		Class of 2016	
	n	%	N	%
Good	4	44,5	39	63,94
Fair	3	33,3	21	34,42
Poor	2	22,2	1	1,64
Total	9	100,0	61	100,0

IV. Discussion

The knowledge level of clinical dental students about salivary gland disorders in majority have a good level of knowledge. Salivary gland disorder is an abnormal condition in the salivary glands which can refer to conditions that cause complaints of pain in the affected gland, swelling and dry mouth⁶. The questions asked in the questionnaire in this study are listed in table no 2. The majority of respondents know that the salivary glands can have abnormalities.

The next question is regarding salivary gland aplasia. Of the 70 respondents, 53 respondent (75.7%) answered that developmental abnormalities of the salivary glands that have agenesis in one or more major salivary glands, with symptoms of severe xerostomia, rough looking tongue, prone to caries and erosion, but still have mucosal moisture because of the continuity activity by minor salivary glands are a description of salivary gland aplasia.⁷ While the other 17 respondents (24.3%) chose a different answer, where 7 respondents chose that the above characteristics are a description of sialadenitis, and 10 respondents chose that the above characteristics are a description of Sjogren's syndrome. The characteristics of the problem above are characteristics of salivary gland aplasia, while the characteristics of sialadenitis are disease accompanied by swelling of the affected gland, localized pain, purulent discharge from the ducts, which can be seen when the papilla is pressed and the overlying skin has erythema, so the statement in the question above is not is a characteristic of sialadenitis^{8,9,10}. One of the characteristics of Sjogren's syndrome is severe xerostomia and the tongue looks rough, but Sjogren's syndrome is an autoimmune disorder, so this is very contrary to the statement said in the question, that stated "developmental disorder".

Another salivary gland disorder is a mucocele. Mucoceles appear as lesions that fluctuate, bluish in color, when palpated the lesion is filled with fluid and its history of occurrence is intermittent.¹¹ The most common location for mucoceles is in the lower lip as it contains minor salivary glands, which the disorders are commonly caused by trauma such as lip biting⁹. Types of this question is a negative question, as the respondent must choose an answer choice that is not a characteristic of a mucocele. Of the 70 respondents, 39 respondents (55.7%) chose the wrong statement regarding mucoceles, that is mucoceles characterized by a blockage of salivary secretion from salivary gland stone or calculus. The blockage is a characteristic of sialolithiasis that most of the respondents have answered correctly. However, 31 respondents (44.3%) thinks that they need to choose for the correct statement as they think that this question is about the correct one.

Respondent's knowledge regarding ranula is classified as good category, ranula is a salivary gland disorder that occurs in the floor of the mouth originating from the sublingual gland, looks unilateral in the form of a bluish lump like a frog's stomach⁷. In this study, as many as 62 respondents (88.6%) had know that these characteristics are characteristics of ranula. However, 5 respondents chose that this is a characteristic of sialolithiasis, and 3 respondents chose that this is a characteristic of mucocele. Mucoceles can develop in any part of the oral cavity but most commonly as bluish, fluid-filled sessile masses under the mucosa of the lower lip. Obstruction of the submandibular and sublingual ducts causes a large mucocele on the floor of the mouth, with external swelling. Mucoceles are sometimes called ranulas because they are similar to frogs' stomachs, so respondents might have mistaken it as mucocele for its diagnosis¹².

The next is sialolithiasis. Sialolithiasis is a salivary gland disorder characterized by a blockage of saliva secretion by a salivary gland stone, which occurs in the submandibular or parotid glands, where pain usually occurs when there is food that stimulates salivary secretion or is called "meal-time syndrome"^{13,14}. The percentage of respondents who know that these are characteristics of sialolithiasis is good by 64 respondents (91.4%) and only 6 respondents (8.6%) answered incorrectly. The most common glands that have sialolithiasis are the submandibular glands and Wharton's glands, this is due to their anatomical location, alkaline fluid rich in mucin also contributes to stone formation, moreover the ducts are tortuous with the smaller and denser ducts compared to the main part of the duct. This is because the Wharton's duct is long and curved so there is a possibility of organic debris accumulation, plus the secretion of this gland is higher in calcium and phosphate content, is more alkaline, the consistency of the mucoid is thick and the position of the gland increases the chance of saliva stagnation⁹. The intermittent pain and swelling of glands are the most common complaint in sialolithiasis where these symptoms appear related to appetite (mealtime syndrome). When the appetite appears, salivary secretion will increase, while the drainage through the ducts is obstructed, resulting in stagnation which causes pain and swelling of the glands. Prolonged stagnation causes infection, resulting suppurative secretions that often found from the ductal orifices on the floor of the mouth⁹.

Respondent's knowledge about sialocysts is categorized as fair, sialocysts are cavities lined with epithelium that arise from salivary gland tissue and are separated from adjacent normal salivary ducts. If it occurs in the major glands, the sialocyst grows slowly, there is swelling but no symptoms, and if it occurs in the minor glands it looks like a mucocele⁷. This question is a negative question, where the respondent was asked to choose the wrong statement. Of the 70 respondents, 40 respondents (57.1%) answered correctly that choose the characteristic of mucoceles, while 30 respondents (42.9%) answered incorrectly. This can happen if the respondent thinks they have to choose the correct statement about sialocysts.

Another salivary gland disorder is bacterial sialadenitis. This salivary gland disorder in principal involves the parotid gland, caused by the entry of bacteria into the ductal system against the flow of saliva. In chronic conditions, the ducts will appear inflamed and on examination, mucopurulent discharge appears, and complains of a salty or foul taste in the mouth^{8,10}. In this study, respondents had answered the diagnosis correctly, as much as 60 respondents (85.7%) chose to answer bacterial sialadenitis, 8 respondents chose to answer mucoepidermoid carcinoma, while 2 other respondents answered HIV-Associated salivary gland disease. Sialadenitis is usually caused by a bacterial or viral infection, but this disorder can sometimes be caused by other causes, such as trauma, radiation and allergic reactions^{8,10}.

The respondent's level of knowledge to questions about Mumps is fair, as much as 74.3% who answered correctly, while 25.7% answered incorrectly. In this question, respondents were asked to choose the correct statements regarding the characteristics of Mumps disease. Of the 18 respondents who answered incorrectly, 8 respondents chose the characteristic of Mumps disease that Mumps attacks young adults and provides lifelong immunity. This statement is wrong because Mumps affects children under 15 years old, not young adults¹¹. The other 10 respondents chose the characteristic of Mumps disease that this disease can be transmitted through blood transfusions from infected people. This statement is wrong, because the transmission of Mumps is by contact with airborne droplets of saliva from an infected person, serum, urine, and cerebrospinal fluid¹¹. This is in line with previous study by Ali, et al in 2019 which showed that clinical dental students had good knowledge about the transmission of Mumps disease where 98.4% said that the transmission of Mumps was through the respiratory tract. Meanwhile, a low percentage of 6.4% chose transmission through sexual, 22.4% through blood transfusion and 27.2% through feco-oral¹⁵.

The next disease is salivary gland disorders associated with HIV. HIV-associated salivary gland disease is not an infection of the salivary glands themselves but a reaction of the salivary glands to HIV agents. The this condition can decreasing salivary gland function¹⁶. In this question's part, respondents were asked about the characteristics of HIV-SGD (HIV-Associated Salivary Gland Disease). HIV-SGD is generally asymptomatic, the signs include facial swelling and deformity with enlargement of one or more major salivary glands, especially the parotid. HIV-SGD showed diffuse soft swelling that could be unilateral (40%) or bilateral (60%) which resulted in facial injury, and was associated with pain¹⁷. In this study, the level of knowledge of the respondents was in the good category, where 67 respondents (95.7%) answered correctly, while 2 other respondents chose Sjogren's syndrome and 1 respondent chose salivary gland aplasia. This is not so in line with previous research conducted by Joan and Mercy in 2019 who conducted a study of final year dental students on the relationship of oral lesions with HIV. In this study, students had less knowledge (39.3%) about the association of HIV with salivary gland disorders and had better knowledge about the relationship between HIV and oral candidiasis.

An autoimmune related salivary gland disorder is Sjogren's syndrome. In this question, respondents were asked to choose the wrong statement. Sjogren's syndrome is a chronic autoimmune inflammatory disease that is prone to occur in women aged over 50 years^{10,19}. The patient's symptoms are xerostomia and xerophthalmia, difficulty swallowing, speaking and wearing dentures¹⁰. The answer that the respondent must choose is a statement that the suspected etiology of Sjogren's syndrome is radiation and ultraviolet exposure. This statement is wrong, the etiology of Sjogren's syndrome is unknown, the suspected causes include genetic, hormonal, infections and immunological. Most of the authorities support the immunological mechanism which is the main intrinsic factor for this disease⁹. In this study, 47 respondents (67.1%) answered correctly and 23 other respondents answered incorrectly. This can happen if the respondent thinks they have to choose the correct statement.

Some of functional abnormalities in the salivary glands are sialorrhea and xerostomia. In questions about sialorrhea, respondents were asked to choose the correct diagnosis from the characteristics in the question. Of the 70 respondents, 56 study subjects (80%) chose the correct diagnosis, while 8 respondents chose pleomorphic adenoma and 6 other respondents chose sialadenitis. Sialorrhea is a salivary gland disorder with symptoms of excessive salivation, it can occur due to local irritation, aphthous ulcers or ill-fitting prostheses, it can also occur as a consequence of certain medications such as antipsychotics, especially clozapine and cholinergic agonists that is used to treat dementia of the Alzheimer's type and myasthenia gravis⁷. In contrast to pleomorphic adenoma and sialadenitis, pleomorphic adenoma is a benign tumor of the salivary glands, appearing as a painless mass that grows slowly while sialadenitis is a non-inflammatory and non-neoplastic salivary gland disorder, presents as bilateral slow swelling and is associated with systemic disease. So, either sialorrhea with pleomorphic adenoma or with sialadenitis is a different disorders^{6,10,20}.

The other functional abnormality in the salivary glands is xerostomia. In this question, respondents were given the characteristics of xerostomia and asked to choose the correct diagnosis. This question's answer mostly in good category, where out of 70 respondents, 64 respondents (91.4%) have answered correctly, while 5 respondents chose sialorrhea and 1 respondent chose sialolithiasis. Sialorrhea and xerostomia are functional disorders of the salivary glands but have very different characteristics, while sialolithiasis is a salivary gland disorder characterized by a blockage of salivary secretion with salivary gland stone, therefore its characteristics are also very different from xerostomia¹⁴. This is in line with previous research by Trishala and Revathy in 2017,

which showed that dental student's knowledge of xerostomia etiology was in good category. The study stated that 54% of students realized that xerostomia was more common in women. When asked about the role of medicines, 67% of students said that medicine can cause xerostomia, 74% of students realized that diabetes is a risk factor for xerostomia and 52% of students realized that autoimmune diseases such as Sjogren's syndrome can cause xerostomia. The study also showed that the knowledge of dental students about the signs and symptoms of xerostomia and the various tests used to diagnose xerostomia was in good category where 74% of students realized that xerostomia can cause pain and discomfort, especially in patients with complete dentures and 78% of students knew that oral infections and thrush can be caused by xerostomia²¹. Xerostomia is a salivary gland disorder that shows a decrease in salivary secretion and the rest of the saliva looks foamy, the back of the tongue is fissured, oral candidiasis can occur. Patients will complain of difficulty in chewing and swallowing, prone to cavities, can also be caused by radiation therapy, drugs and can also be associated with salivary gland hypofunction^{7,9}.

Non-inflammatory and non-neoplastic salivary gland disorders, most commonly affecting the parotid gland, can be associated with endocrine disorders, nutritional status, drugs and chronic alcoholism, presents as bilateral swelling that is slow, asymptomatic and treating the etiology by managing the systemic condition, is a description of sialadenosis^{6,10,22}. In the question about sialadenosis, 35 respondents (50%) answered correctly, but the other 35 respondents answered with differently, of which 29 respondents chose Whartin's tumor and 6 other respondents chose ranula. However, this can happen because one of the differential diagnoses of sialadenosis is a tumor in the salivary glands, whereas ranula is not a differential diagnosis of sialadenosis and has different clinical characteristics.

Tumors can also occur in the salivary glands. Salivary gland tumors can occur in the major and minor salivary glands, both benign and malignant. In this study, respondents were asked questions about salivary gland tumors. The benign salivary gland tumors in this question are pleomorphic adenoma and Whartin's tumor. In the question about pleomorphic adenoma, respondents were asked to choose the wrong statement about this tumor type. Of the 70 respondents, only 31 respondent (44.3%) chose the wrong statement, while 39 other respondents (55.7%) chose the correct statement regarding pleomorphic adenoma. Pleomorphic adenoma will appear as a painless mass that grows slowly, with a rare recurrence. If the tumor is small, it will appear as a smooth and hard lump, but larger tumors tend to thin the skin or the overlying mucosa²⁰. Respondents preferred that the correct pleomorphic feature of adenoma was a false statement, while the incorrect statement was the statement that in the major salivary glands, the sublingual gland was involved in more than 80% of cases and in the minor salivary glands the most common intraoral site was the buccal mucosa, which was the truth is for the minor salivary glands, the most common place is the palate²⁰. This can happen if the respondent thinks they have to choose the correct statement for pleomorphic adenoma, but it can also happen if the respondent's knowledge about this type of tumor is lacking.

The next benign tumor is Whartin's tumor. In this question, respondents are given characteristics about Whartin's tumor and then choose the right diagnosis. Whartin's tumor is a benign salivary gland tumor that affects mainly in older men, in most cases has a history of smoking, most often occurs in the parotid gland, and when palpated it feels mobile and rubbery, the mass is slow growing, soft and painful, with the cause believed as excessive saliva trapped in the epithelium and located in developing lymph nodes^{6,16,19,24}. This question results in the fair category, where 47 respondents (67.1%) answered correctly, with 13 respondents chose mucoepidermoid carcinoma and 10 other respondents chose Mumps as the diagnosis. Mucoepidermoid carcinoma is a type of malignant tumor, while Mumps is an acute infectious disease caused by a virus^{11,19}.

The last salivary gland disorder is mucoepidermoid carcinoma, which is a malignant tumor of the salivary glands. In this question, respondents are given characteristics and asked to choose the right diagnosis. Of the 70 respondents, 61 respondents (87.1%) chose the correct answer, while 9 other respondents chose sialocyst as the diagnosis. This can happen because one of the differential diagnoses for sialocysts is mucoepidermoid carcinoma²⁵. This question result is in good category. Mucoepidermoid carcinoma is a malignant tumor of the salivary glands with the most common site in the palate, appearing as a hard and fixed mass that can cause pain and can interfere with local nerve function, bluish appearance because of the mucus content in the lesion and the possibility of ulcerated mucosa^{19,26}.

The most important component in diagnosis of salivary gland disorders, as with any other disease process, is the patient history and clinical examination. At times, doctors may feel the need to use one of several diagnostic tests, such as x-rays, functional tests, endoscopic procedures, and biopsy procedures¹⁹. Clinical dental students enrolled in 2020 are well aware of this, of which 69 respondents (98.6%) had answered correctly, and only 1 respondent (1.4%) chose that diagnosing salivary gland disorders was done by clinical examination alone.

One of the examinations is a biopsy. The use of fine-needle aspiration biopsy (FNAB) in the diagnosis of salivary gland tumors is highly recommended. This procedure has a high accuracy level for distinguishing benign and malignant lesions in superficial locations throughout the head and neck region¹⁹. This FNAB examination can also provide a tissue diagnosis, especially if the oral-maxillofacial surgeon and oral pathologist have good communication during the process and are experienced in performing and interpreting the results of

this examination¹⁹. The percentage of respondents who know that FNAB as a recommended examination to distinguish benign or malignant lesions in salivary gland tumors is in good category, as 69 respondents (98.6%) have answered correctly, while 1 other respondent chose radiography as the appropriate examination. This is in line with previous research by Ahmed and Archana in 2018, found that 83% of dental students had knowledge of oral biopsy²⁷.

As in the preclinical period, students have received good knowledge about salivary gland disorder, although some diseases not studied further or just superficially. In the results of the study, there were differences in knowledge level for each type of salivary gland disorder. This can happen because each individual has cognitive behavior, this is a different individual's comprehension in learning during the preclinical period, both in terms of basic (establish learning attitudes), knowing and understanding the knowledge. In this study, the knowledge level of women is categorized as fair because as many as 37 people (63.8%) have a good level of knowledge, while in men who have a good level of knowledge only 6 people (50%). This is in accordance with previous research which said that the level of intelligence in each individual is different, a 2014 meta-analysis of gender differences in scholastic achievement found that women outperformed men starting from the level of elementary school education (SD), Junior high school (SMP), high school (SMA) to college level. Similar results are also described in a meta-analysis study by Voyer in 2014 on a sample of 369 people from 1914 to 2011. They found that overall educational achievement for women was about 70 percent better than that of men²⁸. However, There are several other studies that conclude different results. Research by Zaidi in 2010 concluded that there is no difference between men and women in terms of intelligence, but that the two tend to operate in different ways. Men and women use different parts of the brain to memorize, feel the emotions, recognize faces, solve problems and make decisions. In line with this, Stoet and Geary in 2015, stated that gender differences in educational attainment cannot be linked to gender equality²⁸.

The limitation of this study is regarding the questions in the questionnaire, where there are many salivary gland disorders but the questionnaire only lists 15 disorders. The author's parameters in choosing which disorders to include in the questionnaire are based on the prevalence and incidence of each disease, with the most common disorders included in the questionnaire. The next limitation is the sample population, where the population used is not all clinical dental students at the Faculty of Dentistry, University of North Sumatra, but the population is reduced to clinical dental students who enrolled in 2020. The parameters of the authors to choose only clinical dental students who enrolled in 2020 is because students who become respondents still have good knowledge in answering questionnaires as they just finished the preclinical period and to reduce the research sample.

V. Conclusion

Overall, the knowledge level of clinical dental students regarding salivary gland disorders at the RSGM University of North Sumatra are 43 respondents who have good knowledge (61.4%), 24 respondents have fair knowledge (34.3%) and 3 respondents who have less knowledge about salivary gland abnormalities (4.3%). This is because during the preclinical period, students of the Faculty of Dentistry, University of North Sumatra, have gained good knowledge about salivary gland disorders. However, it also depends on the activeness and eagerness of students to learn about salivary gland disorders.

The knowledge level of respondents who are in good category (76% - 100%) included questions about ranula, sialolithiasis, sialadenitis, HIV-Associated Salivary Gland Disease (HIV-SGD), sialorrhea, xerostomia, mucoepidermoid carcinoma, diagnostic procedures and examinations to differentiate benign or malignant salivary gland tumors lesion. The knowledge level of respondents who are in the fair category (56% - 75%) includes questions about salivary gland aplasia, sialocysts, mumps (viral parotitis), Sjogren's syndrome and Whartin's tumor. The knowledge level of respondents who are categorized as less (< 56%) includes questions about mucoceles, sialadenosis and pleomorphic adenomas.

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