

# Overview of the Quality of Life of Chronic Rhinosinusitis Patients at the ENT Polyclinic in 2019-2021

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DOI: <https://doi.org/10.52403/ijhsr.20230531>

## ABSTRACT

Chronic rhinosinusitis is a medical condition that affects all ages and is most common worldwide. The prevalence of chronic rhinosinusitis has been shown to vary widely from country to country. The reason for this variation may be that sociodemographic factors influence it. The prevalence of chronic rhinosinusitis is estimated to range from 10.9% in Europe, 12.3% in the United States, and 13% in China. In a national survey in Korea, the overall prevalence of chronic rhinosinusitis was characterized by nasal obstruction and nasal discharge lasting more than three months. Chronic rhinosinusitis has been shown to impact physical and psychologically, which can be seen in the emotional well-being of sufferers. Chronic rhinosinusitis is said to be a multifactorial process without a single specific underlying etiologic process. Symptoms of chronic rhinosinusitis cause a significant reduction in the patient's quality of life that is similar to or worse than that of other chronic diseases. Chronic rhinosinusitis has also become a significant public health problem with a considerable socioeconomic burden. The purpose of this study was to describe the quality of life of chronic rhinosinusitis patients based on SNOT-22 at the UKI General Hospital. This research is a descriptive study with a cross-sectional approach. The sample in this study used the consecutive sampling method, where the population was chronic rhinosinusitis patients at the UKI General Hospital in 2019-2021. The results showed that the highest proportion according to gender was 17 patients (56.7%). The highest proportion according to age is the age group of 16-25 years, with eight patients (26.7%). Overall chronic rhinosinusitis patients have a poor quality of life, with the five highest average scores experienced are nasal congestion (3.2), dizziness (2.6), decreased productivity (1.97), decreased concentration (1.87), runny or runny nose (1.67). The data obtained show that chronic rhinosinusitis provides an overview of the quality of life-related to poor health in patients.

**Keywords:** *Chronic Rhinosinusitis, Quality of Life, SNOT-22*

## INTRODUCTION

Sinusitis is inflammation in one or more sinuses, including the frontal sinuses, ethmoidal sinuses, maxillary sinuses, and sphenoidal sinuses. Infection, allergies, anatomical blockages, etc., can cause this inflammation. One of them is that a viral infection can cause local inflammation and obstruction of the sinus cavities. In addition, viral infections can also interfere with the

function of sinus cilia, which causes stasis and bacterial colonization. Many experts believe that rhinosinusitis is more appropriate because the nasal mucosa and paranasal sinuses are almost always involved in the inflammatory process. [1] Despite being a common disease, rhinosinusitis poses many diagnostic and management challenges for practicing physicians. There are many different

subtypes and causes of rhinosinusitis, the severity and clinical manifestations vary widely, and symptoms and/or pathology overlap with other diseases. [2]

It is estimated that between 5% and 10% of children with ARI will develop rhinosinusitis. In 1 year, there are up to 73 million days of limited activity in patients with rhinosinusitis, and the total direct medical costs are enormous (not including surgery or radiographic imaging). Additionally, according to a National Health Interview Survey, up to 14.7% of people had rhinosinusitis in the previous year. Children aged less than 15 years and adults aged 25-64 years are most affected by this disease. [3] In the United States alone, a population-based household survey conducted by the National Centers for Health found a self-reported prevalence of rhinosinusitis at 13% in 2009. According to a recent United States National Health Interview Survey data analysis, rhinosinusitis affects approximately 1 in 7 adults and poses major health problems to the quality of life, productivity, and even finances. Patients with rhinosinusitis may spend more annually on healthcare than people with chronic bronchitis, stomach ulcers, asthma, and hay fever. Other data suggest that rhinosinusitis affects certain domains of general health (social functioning, bodily pain) more than angina, chronic heart failure, chronic obstructive pulmonary disease, or chronic back pain. [4] Based on data from Basic Health Research (RIKESDAS), it is recorded that around 50.5% of Indonesian people still do not have health insurance, so most of them still choose to self-medicate without a doctor's prescription and rely only on buying medicines from stalls or drugstores. [5] According to a report from NAMCS, rhinosinusitis experienced by 14% of adults annually occurs periodically. [6] Chronic rhinosinusitis is a common disease that often occurs and is associated with a high socio-economic burden of direct and indirect costs. Estimates of prevalence range from 2% to 16%. Due to the increase in

visits and drug prescriptions, the direct costs associated with chronic rhinosinusitis are higher than the background costs of managed care patients, whereas the indirect costs of limited active days are enormous. Chronic rhinosinusitis poses a huge economic burden in the United States. Based on a report in 2004, of the 30 million Indonesian population, 12.6% were estimated to have chronic rhinosinusitis. [7; 8] According to the Ministry of Health of the Republic of Indonesia, in 2003, out of 50 main disease patterns, including nose and sinus disease, in the 25th position. [5]

Chronic rhinosinusitis is a chronic medical condition that affects all ages and is most common worldwide. The estimated incidence is 10.9% in Europe, 12.3% in the United States, and 13% in China. Chronic rhinosinusitis is also a condition that causes a significant reduction in the patient's quality of life. It has also been demonstrated that chronic rhinosinusitis has a greater effect on social functioning than ischemic heart disease or chronic heart failure. [7] Studies that examined the relationship between sleep quality and the degree of severity of rhinosinusitis suffered by patients found that more than 75% of chronic rhinosinusitis sufferers had poor sleep quality. [8; 9] Some patients with chronic rhinosinusitis have a refractory (untreatable) disease. Risk factors for chronic refractory rhinosinusitis include a history of atopy, disorders of the mucociliary transport system, medical conditions affecting the mucosa of the nasal passages and paranasal sinuses, and immune deficiencies. [10]

Chronic rhinosinusitis is more common in females aged 18-64 years, especially in southern, western, and central United States residents. According to The National Health Interview Survey (NHIS) in the United States, the prevalence of chronic rhinosinusitis is higher in women (15.5%) than in men (9.8%). Chronic rhinosinusitis is also more common in patients with comorbidities such as asthma, chronic obstructive pulmonary disease, and

environmental allergies. [6; 11] According to the 2012 EPOS, the prevalence of chronic rhinosinusitis was 10.9% with geographic variations. Meanwhile, based on data from the Centers for Disease Control and Prevention (CDC), the prevalence of chronic rhinosinusitis in the United States is 4.7%. In addition, the prevalence of chronic rhinosinusitis in Canada averages 5.0% of the general population. [8; 12]

In a national survey in Korea, the overall prevalence of chronic rhinosinusitis is characterized by nasal obstruction and nasal discharge lasting more than three months, together with objective endoscopic findings such as discolored nasal drainage in the nasal passages or nasal polyps was 6.95%. [4] Quality of life is a concept that aims to capture the well-being of either a population or an individual regarding the positive and negative elements in its overall existence at a given point in time. For example, general aspects of quality of life include personal health (physical, mental, and spiritual), relationships, educational status, work environment, social status, wealth, sense of security and safety, freedom, autonomy in decision-making, social ownership, and the physical environment. Quality of life is defined as a subjective evaluation of a person's perception of reality relative to goals as observed through the lens of their culture and value system. [13] Health-related quality of life is a quality-of-life assessment domain influenced by individual perceptions of their health status. Measurements of health-related quality of life can enable clinicians to understand how a disease interferes with a patient's daily life, improve patient-doctor communication, and optimize clinical outcomes. [14] Based on the background above, researchers are interested in researching the Description of the Quality of Life of Chronic Rhinosinusitis Patients at the UKI General Hospital ENT Polyclinic in 2019-2021. The formulation of the problem in this study is how to describe the quality of life of chronic rhinosinusitis patients based on SNOT-22 at UKI General Hospital. The study aims to

describe the quality of life of chronic rhinosinusitis patients based on SNOT-22 at UKI General Hospital.

## **LITERATURE REVIEW**

The nose is a complex anatomical structure with wide variations. The nose plays an important role in the appearance and function of the face. The role of the nasal cavity is to keep the incoming air moist and warm and to remove small particles and other impurities before the air reaches the lower respiratory tract. In addition, the nasal cavity also serves to facilitate the drainage of secretions from the adjacent paranasal sinuses. The nasal cavity is lined by columnar epithelium. This type of epithelium functions to secrete mucus and assist in the mucociliary clearance of small aerosol particles trapped in the nasal mucosa. [15; 16]

The paranasal sinuses are air-filled sinuses that are located around the nasal cavities. All the paranasal sinuses except the sphenoid sinus communicate with the nasal cavity, employing a channel that drains through the ostia, which empties into a space on the lateral wall. The sphenoidal sinus opens onto the posterior roof. Each sinus is named after the bone in which it is located. The paranasal sinuses develop as growths emerge from the nasal cavities and erode the surrounding bones. All sinuses are lined by ciliated, mucus-secreting respiratory mucosa, innervated by trigeminal nerve branches (V). [15; 17; 18]

Development of the paranasal sinuses is marked by the appearance of a series of protrusions or folds on the lateral walls of the nose at approximately the eighth week of gestation, known as the ethmoturbinals. Initially, 6 to 7 ridges appear, but eventually, only 3 to 4 ridges survive through regression and fusion. The frontal sinuses arise from pneumatization anterior to the frontal recess into the frontal bone. The frontal sinuses do not appear until 5 to 6 years of age. The sphenoid sinus develops during the third month of pregnancy. The walls surrounding this cartilage ossify in the

last months of fetal development. Then, during the second and third years of life, the cartilage is reabsorbed, and the cavity becomes attached to the sphenoid body. In the sixth or seventh year of life, pneumatization of the sphenoid sinus progresses, and in the 12th year, the pneumatization is completed by pneumatization of the anterior clinoid and pterygoid processes. The maxillary sinuses are the first sinuses to develop in the uterus. The maxillary sinuses show a biphasic growth pattern, with growth from 3 to 18 years of age. The ethmoidal sinuses are composed of 3 to 4 cells at birth. And by the time a person reaches adulthood, they consist of 1 to 15 aerated cells. [19]

The ostiomeatal complex is the functional unit involved in the ventilation and drainage pathways for the frontal, anterior ethmoidal, and maxillary sinuses. KOM is bounded by the middle konka nasalis and lamina papiracea. [20] These sinuses can experience pathological signs if the KOM is obstructed. Obstruction of this narrow area is a key factor in developing chronic rhinosinusitis. There is pneumatization of the middle turbinate, orbital floor, and first ethmoturbinal concha bullosa, Haller cells, and Agger nasi cells, respectively, which are considered variants among the distribution of interesting structures around the osteomeatal complex. The health and normal function of the nose and paranasal sinuses and the mucous membranes that line them depend primarily on two important factors: ventilation and drainage. Normal ventilation of the paranasal sinuses requires a patent sinus ostium and a patent (pre-chamber) line connecting the ostium to the nasal cavity. Therefore, anatomic variations around the osteomeatal complex can affect the drainage and ventilation of air cells in the frontal sinuses, anterior ethmoidal sinuses, and maxillary sinuses, leading to chronic rhinosinusitis. [21]

According to Liu et al., the larger the size of the anatomical variant, the higher the frequency of association with changes in the paranasal sinus mucosa. Different types of

anatomic variants present different associations with clinical or tomographic sinus disease. The principal anatomic variants of the osteomeatal complex are the concha bullosa, paradoxical turbinate, Haller cells, deviated/hypertrophied uncinate process, deviated septum, and enlarged ethmoid bulla. [21] The concha bullosa is the middle turbinate with an air cavity. As reported, the prevalence of the bullous concha is said that the concha bullosa is a predisposing factor to rhinosinusitis. Some authors also believe turbinates may play a role in the recurrence of inflammatory sinus disease because they compress the uncinate process and cause obstruction of the middle meatus and infundibulum. [21] Paradoxical turbinates are middle turbinates with a curvature directed laterally or towards the nasal septum. Normally the curvature of the middle meatus is more medial or towards the lateral wall of the sinus. Some paradoxical turbinates were found to compress the infundibulum, and because of this pressure, the paradoxical turbinates are considered a causative factor for rhinosinusitis. Paradoxical turbinates can cause rhinosinusitis because it interferes with air circulation in the nose. [21]

Haller cells are ethmoid cells found in the inferior part of the ethmoid bulla to the roof of the maxillary sinus, which continues to form part of the lateral wall of the infundibulum. According to Davis et al., Haller cells are thought to cause rhinosinusitis because these cells affect the ostium of the maxillary sinus and infundibulum, thereby inhibiting ciliary function, which obstructs the ostium. [21] The type of anatomical variation in the uncinate process is deviation. Deviation of the uncinate process can occur laterally, which can interfere with the infundibulum, or deviation towards the medial, which will interfere with the middle meatus. Deviation of the uncinate process is thought to interfere with the normal mucociliary drainage of the anterior ethmoidal, frontal, and maxillary sinuses. [21] In normal

anatomy, the bony and cartilage portions of the septum form a straight septum. The most common variation is a curvature of the septum, especially at the junction between the septal cartilage, the lamina perpendicularis ethmoid, and the os vomer. It can broadly cause the middle nasal concha to be compressed laterally, thus interfering with the middle meatus. [21]

The ethmoid bulla is an air cell above and behind the infundibulum and hiatus semilunaris. Although they are the largest ethmoid cells, they can enlarge aggressively, and their pneumatization can impair sinus ventilation and drainage. The enlarged ethmoid bulla can damage the infundibulum and the middle meatus, sometimes growing to a size that fills the entire sinus. Enlargement of this ethmoid bulla can cause sinus infections, especially if pus, polyps, or cysts are found. However, in Lyod's study, it was reported that this anatomical variation was difficult to find. His study also found that the incidence of enlarged ethmoid bullae affecting sinus disease was less when compared to other anatomical variations. [21]

Sinusitis is a health condition that can be found worldwide, and this disease often occurs in everyday medical practice. Rhinosinusitis can be caused by a viral infection (a cold or common cold) or a bacterial infection. If it occurs in several paranasal sinuses, it is called multi-sinusitis. However, it is called pansinusitis if it occurs in all paranasal sinuses. The ethmoidal and maxillary sinuses are most commonly found. Meanwhile, the frontal sinuses and sphenoidal sinuses are quite rare. The maxillary sinus or antrum of Highmore is located near the roots of the maxillary teeth. If a tooth infection occurs and it easily spreads to the paranasal sinuses, it can cause dentogenic rhinosinusitis. If not treated promptly, rhinosinusitis can lead to several complications, especially in the orbital and intracranial areas, and even patients with asthma will be more difficult to treat. [22] Rhinosinusitis is a common condition in most parts of the world, causing a

significant burden on society in terms of consumption of health services and lost productivity. According to the 2020 EPOS, rhinosinusitis is defined as a nose and paranasal sinuses inflammation characterized by two or more symptoms, one of which must be nasal congestion, obstruction, congestion or nasal discharge, facial pain/pressure, reduction, or loss of smell. [23]

Based on the American Academy of Otolaryngology-Head & Neck Surgery 1996, it is better to use rhinosinusitis than sinusitis because the signs and symptoms are usually the same. However, rhinosinusitis is almost always preceded by rhinitis; even in terms of anatomy, the sinus mucosa is a continuation of the nasal mucosa. [6] Rhinosinusitis is well known to the general public and is a disease often reported to have various clinical symptoms. The nose and paranasal sinuses are part of the respiratory system, so infections that attack the bronchi and lungs can also attack the nose and paranasal sinuses. Rhinosinusitis is an inflammatory disease of the mucosa lining the nose and paranasal sinuses (Perhati, 2010). The prevalence of rhinosinusitis will increase because this disease will be found more often. Rhinosinusitis can affect a person's quality of life. Therefore every doctor is required to better understand this disease to carry out appropriate treatment (Roos, 2010). [24]

The cause is a combination of environmental and host factors. A virus often causes acute rhinosinusitis and usually goes away independently. About 90% of cold patients have elements of viral rhinosinusitis. Those with a history of atopy usually get rhinosinusitis. The most common viruses that cause rhinosinusitis are rhinoviruses, influenza viruses, parainfluenza viruses, and coronaviruses. Viral infection causes local inflammation and blockage of the sinus ostia. In addition, viral infections can impair sinus ciliary function leading to stasis and subsequent bacterial colonization. The most common bacterial organisms causing rhinosinusitis



are *Streptococcus pneumoniae* (30-66%), *Haemophilus influenzae* non-type B (20-30%), *Moraxella catarrhalis* (12-28%), *Staphylococcus aureus* (<10%). [1; 3]

ISPA will trigger the onset of viral rhinosinusitis. About 90% of patients in the United States are estimated to receive antibiotics from a general practitioner, but in most cases, the condition clears up without antibiotics, even if it is of bacterial origin. Most general practitioners rely on clinical findings to make a diagnosis. The signs and symptoms of acute bacterial rhinosinusitis and prolonged viral rhinosinusitis are very similar, so the diagnosis is often misdiagnosed. [25] Common causes of rhinosinusitis include viral infections, allergic and non-allergic rhinitis, anatomical variations, osteomeatal complex abnormalities, septal deviation, concha bullosa, hypertrophic middle turbinate, smoking, diabetes mellitus, swimming, diving, climbing heights, infections, and tooth procedures. Rarer causes of rhinosinusitis include cystic fibrosis, neoplasia, mechanical ventilation, use of nasal tubes such as a nasogastric feeding tube, Samter's Triad (aspirin sensitivity, rhinitis, asthma), sarcoidosis, Wegener's granulomatosis, immunodeficiency, sinus surgery, and immotile cilia syndrome. [26] Predisposing factors in patients with rhinosinusitis who experience episodes of blockage in the ostiomeatal complex or infection of the paranasal sinuses are patients with a history of diseases such as allergies and recurrent rhinitis. A bacterial infection, especially in the roots of the maxillary teeth, which include premolars and molars, can cause maxillary rhinosinusitis with a prevalence percentage of around 10%. [8]

Three things influence the occurrence of rhinosinusitis: narrowed sinus ostia, dysfunction of the mucociliary apparatus, and thick sinus secretions. Narrow sinus ostia define the site of obstruction. In addition, obstruction is also affected by swelling of the mucosa. ARI and allergic inflammation are the most common causes.

When there is obstruction, the pressure inside the sinus cavity will experience an increase. Where the pressure inside the sinus cavities is different from atmospheric pressure, this change in pressure will cause bacteria to easily enter the nose, causing infection. [27] Mucociliary apparatus dysfunction also contributes to the pathogenesis of rhinosinusitis. When you have a cold, the mucociliary apparatus's structure and function will be disrupted. Likewise, dysfunction of the mucociliary apparatus can occur due to frequent irrigation of the nasal cavity. It starts when the infection enters the nasal epithelium and then causes damage to the nasal epithelial cells, which causes edema, inflammation, extravasation of fluid, mucus production, and sinus obstruction, eventually leading to rhinosinusitis. [28] The quality and characteristics of sinus secretions also play a role in the pathogenesis of rhinosinusitis. The mucous membrane in the respiratory tract consists of two layers: the sol layer and the gel layer. The sol layer is a thin, low-viscosity layer that covers the cilia shaft and allows the cilia to move and beat freely. The gel layer is a layer that is thicker than the sole layer. Changes in the mucous layer are caused by an inflammatory process that can interfere with the movement of the cilia, and this condition is commonly found in infected sinuses. The immobility of the cilia can lead to an increase in the viscosity of the mucus, further blocking its drainage. [29] Some hypotheses suggest that bacterial biofilm infection causes antibiotic-refractory chronic rhinosinusitis. Biofilms are complex aggregates of the extracellular matrix and interdependent microorganisms of many species, some of which are difficult or impossible to isolate in the clinical laboratory. Bacteria found in biofilms have increased antibiotic resistance up to 1000 times compared to free-living bacteria of the same species. A recent study found biofilms on the mucosa of 75% of patients undergoing surgery for chronic rhinosinusitis. [30]

Health-related quality of life has been identified as a goal for all people at all stages of life by leading health organizations. Health-related quality of life, relative to a person's health or disease status, concerns policymakers, researchers, and healthcare practitioners. The need to align health-related QoL research priorities with the needs and values of patients and their families is of particular importance. Because of the multidimensional aspects of health-related QoL and the varied uses of this term across many different health conditions and diseases, researchers have used various models of health-related QoL to guide their research. A conceptual model is a schematic representation of a theory that acts as a heuristic tool to better understand a phenomenon by describing the interrelationships between concepts. The term conceptual model has been used interchangeably as a conceptual framework, a theoretical model, or a theoretically based conceptual model. [31] Health-related quality of life is generally understood as dynamic, subjective, and multidimensional, which includes physical, social, psychological, and spiritual factors. Different conceptualizations of health-related quality of life limit the ability to have coherent evidence to guide further health-related quality of life research and practice. The general health-related QoL model provides an important structure for conceptualizing health-related QoL using a common language that can be shared across studies. Identifying and evaluating general health-related QoL models can guide research and practice promoting or achieving optimal QoL for the population of interest. [32] In the past, quality of life referred to living a good life and obtaining satisfaction from life. However, currently, quality of life is defined as a statistical index based on several economic parameters related to health and the environment related to the living conditions of individuals or groups. The socio-psychological model of quality of life is defined as the areas of human life in which a person is directly

affected and as an individual's perception of his or her position in life. Some factors shape the quality of life, including physical health, psychological state, level of independence, relationships with other people, and the environment in which the person lives. The individual quality assessment focuses on the individual's emotions and inner self. [33]

The concept of quality of life concerning health is defined as the functional effects of disease and its treatment as perceived or experienced by the patient. The state of human health can significantly affect the quality of life. Therefore, when assessing the quality of life in a medical context, healthcare providers must analyze the impact of the disease and treatment on the patient's life, as perceived by the patient subjectively. In other words, health-related quality of life can be defined as an index of patient's perceptions of their position in life during a particular disease and its treatment. [33] Health-related quality of life is defined as an individual's perception of their position in life in the context of the culture and value system in which they live and concerning their goals, expectations, standards, and concerns. Quality of life-related to health consists of four dimensions: physical and motor skills, mental state, social and economic conditions, and somatic perception (e.g., pain). Most importantly, the concept draws attention to distinguishing between an objective health state (as determined by observed symptoms) and a patient's subjective experience (health-related quality of life) regarding that state using both objective and subjective assessment methods. Objective judgment refers to methods for determining a person's actual situation or facts independent of their subjective opinions or feelings about their situation. In contrast, the subjective judgment refers to a method of determining a situation as described by the patient with sufficient consideration of the emotional dimension of their experience. This assessment should consider a variety of

psychological states by diagnosing not only negative emotional states, such as depression and anxiety, but also the positive components of a person's experience, such as satisfaction, hope, and ease. Overall, both types of assessment should be used to ensure a full evaluation of the patient's quality of life. [33]

Chronic rhinosinusitis is a multifactorial process without an underlying specific etiological process. Symptoms of chronic rhinosinusitis have been shown to significantly negatively impact a patient's quality of life that is similar to or worse than that of other chronic diseases, such as asthma or heart disease. Treatment of patients with chronic rhinosinusitis costs billions of dollars each year. These costs include direct health care costs arising from doctor visits, medical and surgical treatment, and indirect costs arising from lost productivity. Meanwhile, the symptoms of chronic rhinosinusitis are known to cause disturbances in the quality of life related to general health. Several studies have shown that symptoms related to sleep quality, nasal, facial pain, or emotional functioning are the predominant symptoms in chronic rhinosinusitis patients. [34]

Loss of quality of life-related to chronic rhinosinusitis is becoming increasingly worrisome. In particular, from the patient's point of view, how chronic rhinosinusitis affects daily life is much more important than the results of medical examinations such as CT scans. Health-related quality of life, which integrates the physical, social, and psychological effects of illness on patients, has been widely used as an important variable to measure symptom severity and evaluate the effectiveness of therapy for chronic rhinosinusitis. Several clinical studies have shown that adequate treatment of chronic rhinosinusitis can significantly improve quality of life. [35]

## **RESEARCH METHOD**

This research is a descriptive study with a cross-sectional approach. Researchers will collect and analyze the data obtained, using

medical records as secondary data collection and questionnaires as primary data collection media. The location of this study was UKI General Hospital, which was carried out from November 2021 – February 2022. The population of this study was chronic rhinosinusitis patients at the UKI General Hospital ENT Polyclinic. The sample in the study used the consecutive sampling method, where patients met the inclusion and exclusion criteria during 2019-2021. The data collection procedure was conducted after obtaining permission to conduct the research from the Educational Institution and the Ethics Commission of the Faculty of Medicine, Christian University of Indonesia. After obtaining approval, data collection is based on medical records. Researchers analyzed medical records based on the completeness of the data, and the variables studied according to the criteria. After that, the researcher will contact the patient via telephone or WhatsApp and then explain the procedure and benefits of agreeing to participate in the study. Filling out the questionnaire, the researcher will conduct interviews to have the same perception for each question. The patient will be read aloud and explained each item of the questionnaire by the questionnaire officer, and then the researcher circles the numbers on the questionnaire according to the respondent's answers. After the respondent's data has been collected, data processing will be carried out through several stages: editing, coding, entry, data cleaning, saving, and data analysis. The analysis in this study is presented in the form of univariate analysis. The univariate analysis aims to explain or describe the characteristics of each research variable.

## **RESULT AND DISCUSSION**

This research was conducted at UKI General Hospital with secondary data from medical records of chronic rhinosinusitis patients in 2019-2021 and primary data obtained from patients who filled out the SNOT-22 questionnaire. The number of



patients who met the study criteria was 30 people.

**Table 1. Distribution of Chronic Rhinosinusitis Patients by Gender**

Gender	Frequency	%
Male	13	43,33%
Female	17	56,7%
Total	30	100%

Based on the table above, there were 13 male patients (43.33%) with chronic rhinosinusitis and 17 female patients (56.7%).

**Table 2. Distribution of Chronic Rhinosinusitis Patients by Age**

Age (year)	Frequency	%
<15	4	13,3%
16-25	8	26,7%
26-35	6	20,0%
36-45	2	6,7%
46-55	6	20,0%
>55	4	13,3%
Total	30	100%

Based on the table above, it was found that eight people (26.7%) had the most chronic rhinosinusitis patients in the 16-25 year age group, and two people (6.7%) suffered the least in the 36-45 year age group.

**Table 3. Distribution of the Quality of Life Description of Chronic Rhinosinusitis Patients Based on the SNOT-22 Questionnaire**

Quality of Life SNOT-22	Frequency	%
Good	0	0%
Bad	30	100%
Total	30	100%
	<b>Average value</b>	
Need to blow nose	0,10	
Nasal congestion	3,20	
Sneezes	0,77	
Runny nose	1,67	
Complaints of cough	0,67	
Production of nasal discharge behind	0,17	
Thick nasal discharge	1,47	
A feeling of fullness in the ear	0,53	
Dizzy	2,60	
Ear pain	0,57	
Pain or pressure in the face	1,07	
Reduced sense of smell/taste	0,63	
Difficulty getting to sleep	0,90	
Wake up at night	1,00	
Lack of a quality night's sleep	1,27	
Woke up tired	1,20	
Fatigue all-day	0,87	
Decreased productivity	1,97	
Decreased concentration	1,87	
Frustrated or irritable	0,33	
Sad	0,23	
Shy	0,17	
Total SNOT-22 score	1,06	

Based on the table above, 0 people (0%) have a picture of chronic rhinosinusitis patients with good quality of life, and 30 people (100%) have a picture of chronic rhinosinusitis patients with poor quality of

life, with the five highest average values experienced are nasal congestion ( 3.2), dizziness (2.6), decreased productivity (1.97), decreased concentration (1.87), runny or runny nose (1.67). The average value of the total SNOT-20 score is 1.06.

The results showed 30 chronic rhinosinusitis patients at UKI General Hospital, with the highest proportion being females, 17 patients (56.7%) compared to 13 patients (43.33%). The same results were shown by Hesti et al. at RSUP Dr. M. Djamil Padang in 2012, where the highest proportion was experienced by women with 38 sufferers (60.32%) than men with 25 sufferers (39.68%). It is because ARI tends to be experienced by women. [27] A study by Pablo et al. in Salvador reported that out of 78 patients with chronic rhinosinusitis, the female sex (46 sufferers) was more dominant than the male (32 sufferers); this was associated with differences in life and culture. [36] Research by Hanum at RSUP Dr. Sardjito Yogyakarta in 2013-2015 showed that women (248 sufferers) were found to have more chronic rhinosinusitis than men (237 sufferers); this was associated with a history of allergies experienced by the patients. [37]

Research by Della et al. at RSUP Dr. M. Djamil Padang in 2016-2017 stated that women with a percentage of 56% experienced more chronic rhinosinusitis than only 44% of men, this was due to women's concern for health services, or it can be said that women tend to seek medical care when they find out that they have complaints of pain compared to men. [38] Research by Andre at Haji Adam Malik General Hospital Medan in 2017 reported that the comparison between women and men who had chronic rhinosinusitis was almost the same, where the frequency of women was 26 sufferers (52%) more than men who were 24 sufferers (48%), this is related to hormonal factors (estrogen, progesterone, placental growth hormone) that affect the nasal mucosa and blood vessels. [39] Research by Asni at Wahidin Sudirohusodo Hospital in 2017 showed that

out of 27 people who had chronic rhinosinusitis, of which there were 16 female sufferers and 11 male sufferers, this was caused by infections, anatomical abnormalities, allergens, and pollutants. [40] Research by Komang at the Rumkital ENT Clinic-KL, dr. Ramelan Surabaya, in 2018-2019 stated that women experience more chronic rhinosinusitis with a frequency of 73 sufferers than only 37 sufferers for men; this is because women have a smaller ostium which triggers obstruction and further infection. [40] Research by Lachien showed that women, with a percentage of 62.5%, were more likely to suffer from chronic rhinosinusitis than men, with 37.5%. It was associated with comorbid diseases such as asthma. [41] Research by Zebua said that out of 546 participants diagnosed with chronic rhinosinusitis without polyps, the highest frequency was women, with 259 sufferers; this was because women had a habit of smoking or using tobacco. [40]

The results showed that 30 patients with chronic rhinosinusitis at UKI General Hospital had the highest proportion in the 16-25 year age group with eight patients (26.7%), followed by 26-35 years and 46-55 years with six patients (20.0%); age <15 years and age >55 years a total of 4 patients (13.3%); and the lowest proportion was in the age group of 36-45 years with two patients (6.7%). The same results were shown by Priscilla at RSU Deli Serdang in 2018-2019 for 44 chronic rhinosinusitis patients, where the highest proportion occurred in the 16-25 year age group with 20 patients (45.5%); this was influenced by several factors, including allergens or pollutants which include environmental aspects, bad lifestyle, irregular eating and the presence of an infection. [8] Research by Nikita at Medan Haji Adam Malik Hospital and North Sumatra University Education Hospital in 2018 on 40 patients with chronic rhinosinusitis, where the highest proportion occurred in the 16-30 age group of 15 people (37.5%). This was influenced by the

environment, changes in lifestyle, diet, and infection. [42]

Research by Risfa and Siti at Medan Haji General Hospital and GL Tobing Hospital in 2019-2020 on 40 patients with chronic rhinosinusitis, where the highest proportion occurred in the 16-30 year age group of 15 people (37.5%), is because an active age they often outdoor activities so that they are more easily exposed to pollutants which can cause damage to the respiratory epithelium and disrupt mucociliary transport. [40] Research conducted by Zebua revealed that chronic rhinosinusitis is more common in young adults, and at this age, they also often experience relapses because the allergy rate in young adults is higher than in the elderly. [40]

The results showed that 30 patients with chronic rhinosinusitis at UKI General Hospital had a description of chronic rhinosinusitis patients who had a good quality of life in several 0 patients (0%) and a description of chronic rhinosinusitis patients who had a poor quality of life in 30 patients (100%). The same results were shown by Victoria et al. at the Mbarara Regional Referral Hospital Otolaryngology Clinic in 2016 for 49 chronic rhinosinusitis patients, where 43 respondents had a poor quality of life. Priscilla showed similar results at the Deli Serdang General Hospital in 2018-2019 for 44 chronic rhinosinusitis patients, all of whom had a poor quality of life. [8] Most patients with chronic rhinosinusitis have a significantly reduced quality of life compared to those without chronic rhinosinusitis. [8; 43]

The highest average scores from first to fifth based on each SNOT-22 question point were nasal congestion (3.2), dizziness (2.6), decreased productivity (1.97), decreased concentration (1.87), and nose watery or runny (1.67). It shows that 2 points are related to rhinological symptoms, 1 point is related to ear and facial symptoms, and 2 points are related to psychological problems that occur due to disorders of the nose, which include mechanisms of mucosal inflammation and ostium obstruction in

chronic rhinosinusitis. The symptoms that appear in patients with chronic rhinosinusitis can disrupt daily activities such as doing work, relaxing, and even when resting/sleeping. [8; 22]

## CONCLUSION

Based on the results of this study regarding the description of the quality of life of chronic rhinosinusitis patients at the UKI General Hospital ENT Polyclinic in 2019-2021, it can be concluded: a) The highest proportion of chronic rhinosinusitis patients based on gender was female, with 17 sufferers (56.7%); b) The highest proportion of chronic rhinosinusitis patients based on age was in the 16-25 year age group with eight patients (26.7%); and c) Based on the SNOT-22 questionnaire, a description of the quality of life of chronic rhinosinusitis patients with poor quality of life was 30 people (100%), with the five highest average values experienced being nasal congestion (3.2), dizziness (2.6), decreased productivity (1.97), decreased concentration (1.87), and runny or runny nose (1.67). Therefore, health services for patients with chronic rhinosinusitis that are informative and educative are further improved because the incidence rate is quite high in the community. Therefore it is very necessary to get serious attention from health workers. It is expected to be able to complete the completeness of the patient's medical record data so that the data becomes more accurate and supports further research.

## Declaration by Authors

**Ethical Approval:** Approved

**Acknowledgement:** None

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

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How to cite this article: Fransiskus Harf Poluan, Kasih Setiaman Zebua, Lina Marlina. Overview of the quality of life of chronic rhinosinusitis patients at the ENT polyclinic in 2019-2021. *Int J Health Sci Res*. 2023; 13(5):268-280.  
DOI: <https://doi.org/10.52403/ijhsr.20230531>

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