

DATA ON ANXIETY LEVEL OF DENTAL HOSPITAL UNIVERSITAS SUMATERA UTARA FIXED ORTHODONTICS PATIENTS IN NEW NORMAL

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Abstract: The lockdown policy for certain dental care during pandemic COVID-19 could cause mental distress. This prolonged pandemic has frustrated orthodontists and patients before the emergence of vaccination. Since the initiation of COVID-19 mass vaccination in January 2021 by the Indonesian government, the aim of this study is to describe the anxiety level of patients undergoing fixed orthodontics treatment regarding routine care from February to May 2021. The highest anxiety level towards routine care during the COVID-19 pandemic was in moderate level (57.4%) and in severe level (40.7%). Both male and female patients showed moderate level of anxiety against routine care during the COVID-19 pandemic. Most patients who came for routine care are from late adolescence (17 to 25 years old) and with a bachelor degree. Orthodontists have to consider patients' anxiety level in order to obtain a successful orthodontic treatment due to the previous temporary lockdown of the dental hospital. Since the definite time for the COVID-19 pandemic to end is still unknown, social intervention for patients should be considered in managing the mental distress that emerged. In this current time, the expansion of COVID-19 new variants has also become a dilemma for orthodontists and patients. The vaccination and routine screening for COVID-19 is advisable as the requirement for safe routine orthodontics control. Thus, education for oral health maintenance during orthodontics treatment will be an integral part of preventing the COVID-19 local transmission.

1 INTRODUCTION

Orthodontics is a branch from art and science of dentistry that correct developmental occlusion in skeletal, dental, and functional. This treatment will affect oral and body health, aesthetics, and mental. However, this treatment is not an instant procedure and have complex biological process in order to correct skeletal, dental, and muscle problems. By keeping scheduled appointments and control self-oral hygiene can influence the duration and successful of orthodontic treatment.

The components of fixed orthodontic appliance

can be a site of plaque accumulation resulting from increased biofilm formation, which requires adequate oral hygiene maintenance. Patients with fixed orthodontics might experience conditions that require rapid treatment such as loose brackets, ulceration due to wire extension, pain and discomfort (Mantiri et al., 2013).

The potential of virus transmission through droplets, saliva, and aerosols among asymptomatic subjects who come for dental treatment was a problem that should be considered among dental service. Dentists are anxious about getting infected and further spreading the COVID-19 virus. Dentists



tend to reduce the treatment duration, which led to patients losing confidence in the dentist and reducing their motivation in the ongoing orthodontic treatment. This is to prevent further transmission to families, other patients and colleagues. Around 66.8% of dentists only dealt with emergency cases, 19% continued to perform routine treatment and 14.2% of dentists closed dental clinics and did not work since the government declared quarantine (Cotrin et al., 2020).

The pandemic of COVID-19 has created a new paradigm for the response to orthodontic treatment between patients and dental clinicians. Prolong orthodontic treatment duration caused negative impact on the patients' mental health. Thus, this prolonged time of routine orthodontic visits may increase the number of patients with mental stress and anxiety (Xiong et al., 2020). On the contrary, the goal of orthodontic treatment itself should improve mental health and quality of an individual life (Imani et al., 2018). The lockdown policy for certain dental care, such as orthodontics treatment, during the COVID-19 pandemic causes mental distress. This prolonged pandemic has frustrated orthodontist and patients before mass vaccination is commenced. According to former situations, some evidence suggests that depression is the most common psychological problem in today's life, including the mental health of orthodontics patients (Turkistani, 2020).

There were 19.6% of patients who prefer to postpone their treatment due to awareness of cross-infection due to routine procedure. These patients must be convinced that a proper protection can be applied to prevent the transmission of COVID-19 (Shenoi et al., 2020). There were 38% orthodontics patients with mental distress and 77.29% of them was female (Xiong et al., 2020). Another study also reported that 16% of the patients undergoing orthodontic care were anxious with COVID-19 transmission, which led to 42% of patients being concerned about relapse, 27.3% of patients choosing not to visit their orthodontists during the COVID-19 pandemic. There were 14% of patients experienced with painful orthodontics appliances including 31% had loose the brackets and 44% patients complained about the exposed end of wire. The other side, 27% of the patients tended to neglect the problems that emerged during the COVID-19 pandemic (Bustati & Rajeh, 2020).

Based on the reported Worldmeter data regarding the COVID-19 global health threats, Indonesia ranked at 21 out of 219 countries in the world that have experienced the spread of COVID-19 cases, in

which the total number of confirmed COVID-19 cases is 470,648 and 15,296 deaths by November 2020. As one of the largest cities in Indonesia, Medan, located in Sumatera Island, has been classified with a red zone due to the high potential case with 2,233 confirmed cases of COVID-19 and 308 deaths (Worldmeter, 2020).

The community health service at Dental Hospital Universitas Sumatera Utara (USU) started the operation on December 2020 after a temporary lockdown for installation preparation since March 2020. The orthodontic services also reopened under COVID-19 safety regulation. By considering the duration of orthodontic treatment and COVID-19 vaccination program in mass immunization starting from mid of January 2021, this study was conducted to evaluate the anxiety level of orthodontics patients in USU Dental Hospital from February to May 2021.

2 RESEARCH METHODS

This is a cross sectional study of fixed orthodontic patients who came for orthodontics routine control during february 2021 to May 2021. Ethical clearance was obtained by the Medical Research Ethics Commission at the Faculty of Medicine, Universitas Sumatera Utara. (No:87/KEP/USU/2021). Those respondents who were willing to participate in this study will be questioned with Corah Dental Anxiety Scale (CDAS) (Humpris et al., 2009) to measure the anxiety level and COVID-19 Fear Scale (Bitan et al., 2020). The demographic data include information about current chronological age and education level.

The validity and reliability of questionnaires are measured in this research. Validity is an index to determine the extent to which a research instrument can be used in this study. The validity of each item in the questionnaire is quantified using the SPSS (Statistical Package for the Social Sciences) program with Pearson's Product Moment Analysis using the scores of each questionnaire item and the total score or the number of each questionnaire score. The indicator of a valid questionnaire is that the calculated r value is greater than the value of r table. In this article, the calculated r value is greater than the value of r table (0,444) for 20 subjects, indicating a valid questionnaire. Reliability is an index of confidence in the consistency of the results of a measurement in research. The reliability is measured with the Cronbach Alpha analysis. The questionnaire is considered reliable if it has a Cronbach alpha value (α) greater than or equal to 0.6. The questionnaire in this study resulted in a Cronbach alpha value greater



than 0.6, rendering a reliable questionnaire. The result of the validity and reliability tests is shown. This is followed by the data collection of patients visiting from February to May 2021. The data that has been obtained by the researcher is then analyzed using the Statistical Package for Social Science (SPSS) 20.0. The data analysis technique used univariate and bivariate analysis.

3 RESULTS AND DISCUSSIONS

There were 54 orthodontic routine control patients who came between February 2021 to May 2021 and were willing to participate in this study. The female respondent (85%) were higher than male (15%); The late adolescent patients (17-25 years) amounted to 90.7% (n = 49) while ; and by level of education was bachelor degree amounted to 2.6% (n = 50).

Tab. 1 Distribution of the characteristics of the research respondents

Characteristics		N (%)
Gender	Male	8 (14.8%)
	Female	46 (85.2%)
Age	Early Adolescence (12-16 years)	1 (1.9%)
	Late Adolescence (17-25 years)	49 (90.7%)
	Early Adult (26-35 years)	4 (7.4%)
Level of education	High school	1 (1.9%)
	Diploma	3 (5.6%)
	Bachelor Degree	50 (92.6%)

The distribution of anxiety level towards the routine treatment during the COVID-19 pandemic are mild (25.9%, n = 14), moderate (57.4%, n = 31) and severe (16.7%, n = 9). The distribution of anxiety level towards the COVID-19 virus, are mild (13%, n = 7), moderate (46.3%, n = 25) and severe (40.7%, n = 22).

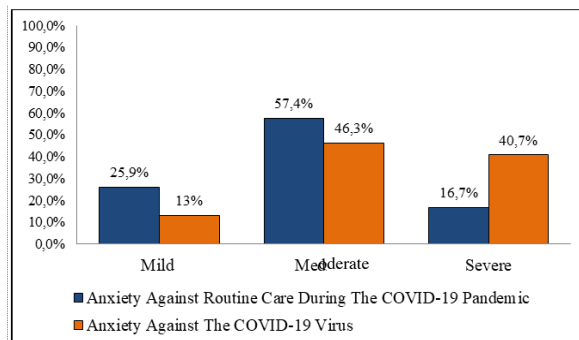


Fig. 1 The percentage of anxiety against routine

care during the COVID-19 pandemic and levels of anxiety against the COVID-19 virus.

By sex, the percentage of the highest level of anxiety is women. Percentage anxiety level of patients using orthodontic against routine treatment during the COVID-19 pandemic, namely mild anxiety by 26.1% (n = 12), moderate anxiety by 56.5% (n = 26) and severe anxiety by 17.4% (n = 8). The level of anxiety about the COVID-19 virus is mild anxiety level was 13% (n = 6), moderate anxiety was 43.5% (n = 20) and severe anxiety was 43.5% (n = 20).

Tab. 2 Distribution of the percentage of anxiety against routine care during the COVID-19 pandemic and levels of anxiety against the COVID-19 virus by gender

Research Variable	Sex	Anxiety Level		
		Mild n (%)	Moderate n (%)	Severe n (%)
Anxiety Against Routine Care During The COVID-19 Pandemic	Male	2 (25%)	5 (62.5%)	1 (12.5%)
	Female	12 (26.1%)	26 (56.5%)	8 (17.4%)
Anxiety Against The COVID-19 Virus	Male	1 (12.5%)	5 (62.5%)	2 (25%)
	Female	6 (13%)	20 (43.5%)	20 (43.5%)

By age, the highest percentage of anxiety level is in late adolescence (17-25 years). Percentage the anxiety rate of fixed orthodontic patients regarding routine treatment during the COVID-19 pandemic was a mild anxiety level of 26.5% (n = 13), moderate anxiety was 61.2% (n = 30) and severe anxiety was 12.2% (n = 6). The level of anxiety about the COVID-19 virus was a mild anxiety level of 14.3% (n = 7), moderate anxiety of 46.9% (n = 23) and severe anxiety of 38.8% (n = 19).

Tab. 3 Distribution of the percentage of anxiety against routine care during the COVID-19 pandemic and levels of anxiety against the COVID-19 virus by age.

Research Variable	Age	Anxiety Level		
		Mild n (%)	Moderate n (%)	Severe N (0%)
Anxiety Against Routine Care During The COVID-19 Pandemic	Early Adolescence (12-16 years)	0 (0%)	1 (100%)	0 (0%)
	Late Adolescence (17-25 years)	13 (26.5%)	30 (61.2%)	6 (12.2%)



Anxiety Against The COVID-19 Virus	Early Adult (26-35 years)	1 (25%)	0 (0%)	3 (75%)
	Early Adolescence (12-16 years)	0 (0%)	1 (100%)	0 (0%)
	Late Adolescence (17-25 years)	7 (14.3%)	23 (46.9%)	19 (38.8%)
	Early Adult (26-35 years)	0 (0%)	1 (25%)	3 (75%)

The anxiety level of bachelor degree is the highest. The percentage of anxiety levels of patients using fixed orthodontics towards routine treatment during the COVID-19 pandemic were 26% (n = 13) mild anxiety, 56% (n = 28) moderate anxiety and 18% severe anxiety (n = 9). The level of anxiety about the COVID-19 virus was a mild anxiety level of 12% (n = 6), moderate anxiety was 46% (n = 23) and severe anxiety was 42% (n = 21).

Tab. 4 Distribution of the percentage of anxiety against routine care during the COVID-19 pandemic and levels of anxiety against the COVID-19 virus by level education.

Research Variable	Age	Anxiety Level		
		Mild n (%)	Moderate n (%)	Severe n (%)
Anxiety Against Routine Care During The COVID-19 Pandemic	High school	0 (0%)	1 (100%)	0 (0%)
	Diploma	1 (33.3%)	2 (66.7%)	0 (0%)
	Bachelor Degree	13 (26%)	28 (56%)	9 (18%)
Anxiety Against The COVID-19 Virus	High school	0 (0%)	1 (100%)	0 (0%)
	Diploma	1 (33.3%)	1 (33.3%)	1 (33.3%)
	Bachelor Degree	6 (12%)	23 (46%)	21 (42%)

Based on the results of this study, more females filled out the questionnaire compared to male. Females are more likely to undergo orthodontics treatment due to aesthetic reasons and parental concern for the physical appearance of their daughters, as teenage female pay more attention to their appearance rather than the male group (Maysa et al., 2015). Women who enter the age category of teenagers pay more attention to their appearance than men. By age, the results showed that the research questionnaire was filled out mostly by the late adolescence group (Laothong & Cheng, 2017). The level of anxiety in adolescents is also influenced by the increasing level of maturity of a person towards the problems or threats they face and the increasing ability or perspective of a person in

dealing with life experiences as they get older.

Furthermore, the late adolescence group (17-25 years) is the most common age category undergoing fixed orthodontics treatment. In late adolescence, physical appearance is important in daily social life because it is associated with growing up, hence they will have a more positive view towards orthodontics treatment compared to younger people (Maysa et al., 2015). Adolescents are more likely to be active on social media and the internet, which has an effect on increasing their knowledge and awareness of aesthetic needs in personal appearance (Rachman & Pramana, 2020).

By education level, there were most participants with a bachelor degree in this study's results. Education can determine a person's behavior and perception of dental and oral health. Education may be able to reflect a picture of oral and dental health knowledge, behavior and habits. Patients who use fixed orthodontics are able influence their peers to go through orthodontics treatment as well. The higher the level of education, patients have more increased awareness in maintaining oral and dental health (Maysa et al., 2015).

Percentage level of anxiety towards the routine treatment during the COVID-19 pandemic are mild anxiety was 25.9% (n = 14), moderate anxiety was 57.4% (n = 31) and severe anxiety was 16.7% (n = 9). The level of anxiety towards the COVID-19 virus, namely a mild anxiety level of 13% (n = 7), moderate anxiety of 46.3% (n = 25) and severe anxiety of 40.7% (n = 22).

Research by Bustati, et al, 2020, as many as 16% of patients in orthodontic treatment experienced anxiety due to fear of contracting the COVID-19 virus during routine treatment. Patients who experience anxiety tend to delay routine care. In general, the research respondents were in the category of 57,4% moderate anxiety against routine care during the COVID-19 pandemic and 46,3% anxiety against the COVID-19 virus. Moderate anxiety allows patients to focus on what is important in orthodontic treatment during the COVID-19 pandemic. This anxiety can narrow the field of individual perception (Bustati & Rajeh, 2020). The increase in anxiety during the COVID-19 pandemic in patients undergoing fixed orthodontic treatment is only slightly influenced by several factors. One of the influencing factors is that the research was carried out after vaccinations were given by the government to Indonesian citizens (Rachman & Pramana, 2020).

The research of Martina, et al., 2021 showed that of 272 patients currently undergoing orthodontic



treatment, 71.3% (n=194) thought that the risk of transmitting COVID-19 would increase if they were under control at the dentist's practice. The existence of a pandemic makes patients feel afraid to visit the dentist, in the study 70.8% (n = 170) stated that the pandemic increased their anxiety to go to the dentist. Thus, dentists must improve communication with patients, especially patients who experience severe anxiety so that they can remember and obey the rules of the control schedule that have been set (Martina et al., 2020)

Good knowledge also has an effect on reducing anxiety. Knowledge of the meaning, causes, signs and symptoms, transmission, prevention and treatment of the COVID-19 virus enables people to manage their anxiety. The conditions of anxiety experienced by humans are different which can trigger emotions. For patients who experience moderate and severe anxiety also cannot be ignored, the need for the role of the dentist is also needed in reducing anxiety during orthodontic treatment (Ukra et al., 2012). Patients who experience anxiety must be assured that proper protection can prevent the transmission of the COVID-19 virus during orthodontic treatment activities.

Patients can be reminded by telling them that orthodontic treatment is a treatment with a lower aerosol transmission rate compared to other dental treatments. Dentists can also reassure patients that the practice space used is safe in accordance with the COVID-19 virus prevention procedures. Dentists can also rearrange patient schedules during the COVID-19 pandemic, namely by reducing the number of routine care visits, preventing too long communication in the waiting room and carrying out instrument sterilization procedures and room disinfection effectively for service rooms used during orthodontic treatment procedures (Martina et al., 2020).

Thus, women patients experience higher levels of anxiety than men caused by more women to fill questionnaire. Women tend to experience greater anxiety than men (Wahyuni et al., 2020). Men generally do not often express the feelings of anxiety and fear that they experience directly. Men cover feelings or tend to be dishonest in emotional matters (Jain & Pandian, 2015). Women lack strategies in controlling and belief in metacognitive which brings emotional problems and affects anxiety levels. In other words, women tend to be open to emotional states and uncontrollable concerns about health (Almeida et al., 2020).

Based on the results of the study, the category of late adolescence (17-25 years) dominated the

research respondents. This is related to research conducted using online research methods so that the research results are dominated by that age category. Patients undergoing orthodontic treatment are often between the ages of 17-25 years. Dentists tend to treat adolescent and adult patients during this stage of psychological development. The relationship that exists between doctors and patients can influence a number of variables related to the patient's condition (Fitria & Ifdil, 2020). Moderate anxiety can occur from several factors, one of which is unpreparedness for changes that occur suddenly and have a big impact, lack of knowledge of adolescents about physical and psychological and lack of psychological coping. Psychological coping against COVID-19 aims to prevent prolonged psychological stress during COVID-19. The level of anxiety in adolescents is also influenced by the increasing level of maturity of a person towards the problems or threats they face and the increasing ability or perspective of a person in dealing with life experiences as they get older (Puspitadewi & Auerkari, 2018).

Bachelor degree is dominants to fill this questionnaire. The level of anxiety is at a moderate level. This study is inversely proportional to the research of Surabhi., et al, 2016 which states that the level of anxiety is low at the high school level because the higher the level of education, the patient is aware of the importance of appearance and health (Jain & Pandian, 2015). However. Cao., et al, 2020 research shows that secondary school education levels are the most vulnerable population at risk of experiencing anxiety and depression during the COVID-19 pandemic, one of which is the closure of face-to-face learning to online and social restrictions. This condition requires extraordinary psychological management accompanied by continuous social and academic demands during the COVID-19 pandemic (Liang et al., 2020).

In order to adapt with prolong pandemic situation, Invisalign aligner can be suggested as an optional orthodontic appliance that does not cause pain due to protruding wires or other unexpected orthodontic harmful failures, as opposed to fixed orthodontic appliances (Sycinska-Dziarnowska et al., 2021). In this current time, the expansion of COVID-19 variant has become dilemma for orthodontist and patients. The vaccination and routine screening COVID-19 will be advisable to be the requirement for safety routine orthodontics control.



4 CONCLUSION

The novelty of this study has become the baseline study in management mental distress of orthodontics patients who have orthodontic treatment in pandemic area. In this current time, the expansion of COVID-19 new variants have also become dilemma for orthodontist and patients. The vaccination and routine screening COVID-19 will be advisable to be the requirement for safety routine orthodontics control. Thus, education for maintenance oral health during orthodontic treatment will be part of preventing the COVID-19 local transmission.

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