



PROCEEDINGS

The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

Universitas Muhammadiyah Yogyakarta (Indonesia)

October 13 - 14 2020

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Focal Conferences



- ✔ (ICPU) The 2nd International Conference on Pharmaceutical Updates
- ✔ (ICOMS) The 6th International Conference on Management Sciences
- ✔ (ICLAS) The 9th International Conference on Law and Society
- ✔ (ICMHS) The 4th International Conference Medical and Health Sciences
- ✔ (ICAF) The 6th International Conference for Accounting and Finance
- ✔ (ILEC) The 2nd International Language and Education Conference
- ✔ (ICONURS) The 2nd International Conference on Nursing
- ✔ (ICITAMEE) The 1st International Conference on Information Technology, Advanced Mechanical and Electrical Engineering
- ✔ (IConARD) International Conference on Agribusiness and Rural Development
- ✔ (ISHERSS) The 2nd International Symposium on Social Humanities Education and Religious Sciences
- ✔ (ICONPO) The 10th International Conference on Public Organization
- ✔ (DREAM) The 5th Dental Research and Exhibition Meeting
- ✔ (ICHA) The 5th International Conference on Hospital Administration
- ✔ (ICOSA) The 3rd International Conference on Sustainable Agriculture





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Preface by the Chairperson of the 4th ICoSI 2020



Dr. Yeni Rosilawati, S.IP. S.E., MM.

Assalamu'alaikum Wr. Wb.

All praise is due to Allah, the Almighty, on whom we depend for sustenance and guidance. Prayers and peace be upon our Prophet, Muhammad SAW, his family and all of his companions.

On behalf of the organizing committee, it is my pleasure and privilege to welcome the honourable guests, distinguished keynote & invited speakers, and all the participants.

With the main theme of “Cutting-Edge Innovations on Sustainable Development Goals (SDGs)”, the 4th International Conference on Sustainable Innovation (ICoSI) 2020 serves as a forum to facilitate scholars, policy makers, practitioners, and other interested parties at all levels from Indonesia and abroad to present their novel ideas, promote cutting-edge research, and to expand collaboration network. The conference has about 1373 participants participating from more than 8 countries 4 continents all over the world, making this conference a truly international conference in spirit.

This multidisciplinary conference was first held in 2012 and has undertaken various changes and adopted to the current technological trends of our education system. From having this conference with just 175 participants back in 2012 we have come a long way in making the conference a huge success with more than 1373 participants participating in this two-day conference.

Formerly, this conference consisted of only 9 (nine) focal conferences. This year, there are 14 focal conferences from various disciplines, namely: 1) The 2nd International Conference on Pharmaceutical Updates (ICPU), 2) The 6th International Conference on Management Sciences

(ICoMS), 3) The 9th International Conference on Law and Society (ICLAS), 4) The 4th International Conference Medical and Health Sciences (ICMHS), 5) The 6th International Conference for Accounting and Finance (ICAF), 6) The 2nd International Language and Education Conference (ILEC), 7) The 2nd International Conference on Nursing (ICONURS), 8) The International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE), 9) The 2nd International Conference of Agribusiness and Rural Development (IConARD), 10) The 10th International Conference on Public Organization (ICONPO), 11) The 2nd International Symposium on Social Humanities Education and Religious Sciences (ISHERSS), 12) The 5th Dental Research and Exhibition Meeting (DREAM), 13) The International Conference on Hospital Administration (ICHA), and 14) The 3rd International Conference on Sustainable Agriculture (ICoSA).

Accordingly, We are proud to announce that this year, the 4th ICoSI 2020 breaks the Museum Rekor-Dunia Indonesia (MURI) record as the Virtual Multidisciplinary Conference with the Largest Number of Area of Fields in Indonesia

In addition, this year, this conference holds special value since this is the first conference in the history of our university where the entire conference is taking place remotely on a digital platform through the use of advance technologies due to the Covid-19 Pandemic.

I would take this opportunity to express my highest respect to the Rector of Universitas Muhammadiyah Yogyakarta, Dr. Gunawan Budiyanto who gave approval and ensured the maximal support from all the faculty members of Universitas Muhammadiyah Yogyakarta (UMY) that made this event a big success. In addition, my appreciation goes to all the support teams who have provided their valuable support and advice from planning, designing and executing the program.

Let me conclude my speech by encouraging the delegates to participate with an increasing number in all the activities and discussions through the digital platforms for the next two days. I wish everyone a successful, safe, and fruitful conference.

Thank you!

Wassalamu'alaikum Wr. Wb.

Yogyakarta, Indonesia, 14 October 2020



Welcoming Remarks by the Rector of Universitas Muhammadiyah Yogyakarta



Assoc. Prof. Dr. Gunawan Budiyanto

Innovation is the beginning of the development of technology, and technology is a development machine that is expected to provide benefits to humans and provide the smallest possible impact on environmental quality. In the concept of sustainable development, development must improve the quality of human life without causing ecological damage and maintain the carrying capacity of natural resources.

International Conference on Sustainable Innovation (ICoSI) is an international conference which is an annual conference held by the University of Muhammadiyah Yogyakarta (UMY), Indonesia. In 2020 this raises the issue of "Cutting-Edge Innovations on Sustainable Development Goals." Therefore, on behalf of all UMY academics, I would like to congratulate you on joining the conference, hoping that during the Covid-19 Pandemic, we can still provide suggestions and frameworks for achieving sustainable development goals.

About The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

The 2030 Agenda for Sustainable Development is enacted by the United Nations as a shared blueprint for peace and prosperity for people and the planet, now and into the future. It consists of strategies to improve health and education, reduce inequality, and spur economic growth while also conserving natures by 2030.

This year, however, at the first one-third of its timeline, the SDG Reports shows that the outbreak of COVID-19 did hinder the achievement, or at least decelerate the progress of achieving the 17 goals. In fact, according to the report, “some number of people suffering from food insecurity was on the rise and dramatic levels of inequality persisted in all regions. Change was still not happening at the speed or scale required”, accordingly.

Therefore, in this event of pandemic, the quantity and quality of research, innovation, and more importantly multi-disciplinary collaboration are indispensable. Furthermore, there needs to be clear ends of those works. That is how those research are applicable and benefits directly to the society. That is how those research is incorporated as the drivers of policy making, and used practically in the society. Hence, the stakeholders especially the triple helix of higher education institution, government, and industry must be re-comprehended and supported to reach the common goal of the SGD.

International Conference on Sustainable Innovation (ICoSI) has been essentially attempting to strengthen this regard since its first establishment. One of the goals of ICoSI is to provide primarily a platform where scholars, practitioners, and government could grasp the development and trends of research. Hopefully, meeting these actors altogether would result in stronger collaboration, sophisticated and advantageous research, and brighter ideas for further research. Based on these reasoning, this year, the 4th ICoSI 2020 UMY is themed ‘Cutting-edge Innovations for Sustainable Development Goals’.

Improving from last year conference which brought nine focal conference, this year ICoSI 2020 UMY brings 14 disciplines, from social sciences, natural sciences, and humanities. ICoSI 2020 received as much as 1005 papers. The paper works submitted in ICoSI 2020 UMY will be published in Atlantis Proceedings, IOP Proceedings, National/International Journals, and ICoSI ISBN-indexed Proceedings.

Nevertheless, ICoSI believes that publication is only the beginning of research dissemination. The publications will enhance the chance of the research known by wider audience, and then used, applied, and incorporated at either system, institutional, or personal level of human lives.



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TRACK ECONOMICS, LAW, EDUCATION, SOCIAL, AND HUMANITIES



The Oral Hygiene Level Of Dentistry School Female Students Using Fixed Orthodontics

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ABSTRACT

Dental plaque is a soft deposit sticking tightly to the tooth surface, consists of microorganisms that can multiply when the oral hygiene is not well-maintained. Plaque is formed by the accumulation of food debris which is not immediately cleaned, so the bacteria are accumulated in the oral cavity. Orthodontic Plaque Index (OPI) is an advanced method to measure the level of oral hygiene and the level of plaque during orthodontic treatment. The objective of this study was to determine the oral hygiene level of female students using fixed orthodontics. This study was a descriptive observational study with a cross-sectional design. The study employed the 1st-4th year students from School of Dentistry, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta aged 18-23 years old and the students have been using fixed orthodontic for at least six months. The subjects were selected by purposive sampling method to obtain samples that have inclusion and exclusion criteria. The oral hygiene level of fixed orthodontic appliances from 55 female subjects showed that 61.82% is at the moderate level. This study concluded that the female students who have been using fixed orthodontics have moderate level of oral hygiene.

Keywords: Oral cavity hygiene, fixed orthodontics, orthodontic plaque index (OPI)

1. INTRODUCTION

Dental and oral health is part of the body's health which cannot be separated because it will affect the whole body's health. Teeth have an important role in the process of mastication, speaking, and maintaining the shape of face and aesthetics. Thus, dental problems will interfere with the function or the role of the teeth in the oral cavity. The dental and oral hygiene which is not well-maintained will cause some problems in the oral cavity such as dental caries, early enamel caries (white spot), hypoplasia enamel and plaque [1]. Dental and oral hygiene is also influenced by some factors; dental and oral hygiene maintenance behaviour, the use of denture, social economic class, gender, age and the use of orthodontic appliances both removable and fixed [2]. The use of orthodontic appliances can decrease the oral cavity hygiene. The dental and oral hygiene level can be seen from the plaque formation process. Plaque is formed due to an accumulation of food debris which is not immediately cleaned results in a lot of bacteria in the oral cavity. The increase of the bacteria and the poor condition of oral cavity hygiene will trigger the plaque formation [3]. Dental plaque is a soft deposit which closely adheres to the tooth surface, consisting of microorganisms that reproduce if the dental and oral hygiene cannot be maintained. Dental plaque can only be cleaned perfectly by mechanical means. Minor plaque cannot be seen unless staining with a disclosing agent is conducted. The dental plaque which is accumulated and discoloured by pigments in the oral cavity can cause plaque colour changes

into grey, yellowish, and yellow. The dental plaque starts to form in the one-third of gingival surface and the rough tooth surface [4]. Dental plaque is the first cause of the dental and oral problem, especially caries and periodontal disease [5]. The number of plaque and tartar indicates a poor oral cavity hygiene [6]. Plaque measurements of the orthodontic appliance users, especially fixed orthodontic appliance, are different with the measurements of the people who do not use orthodontic appliance. (OPI) Orthodontic Plaque Index is an index used to measure the level of plaque during the orthodontic treatment and is an advanced measurement method of dental and oral hygiene level [7]. A fixed orthodontic appliance is a set of appliance adhesively on the patient's teeth so it cannot be removed by the patient until the treatment is finished [8]. The fixed orthodontic appliances should have a design which are easy to clean. Thus, it will not cause the accumulation of plaque in the fixed orthodontic appliance. The components of the fixed orthodontic appliance are divided into two consisting of attachment and archwire. A complicated and complex design of the fixed orthodontic appliance causes its users topay special attention in cleaning the oral cavity [9]. Orthodontic treatment has the potential to cause dental disease and periodontal because any equipment used inside the mouth will be responded to as an unknown object [10]. Based on the information above, the researcher is interested in studying the overview of oral hygiene level of the fixed orthodontic users of dentistry female students,

Universitas Muhammadiyah Yogyakarta.

2. METHOD

A descriptive observational study was used in this study with a cross sectional design. This study was conducted in the School of Dentistry, Faculty of Medicine and Health Science, Universitas Muhammadiyah Yogyakarta, from December 2015 until January 2016. The research population was all of Dentistry female students, Faculty of Medicine and Health Science, Universitas Muhammadiyah Yogyakarta. The subjects in this study were the students aged 18-25 years old with the fixed orthodontic appliance. The subject used in the research are 55 people. Before the research was conducted. The research of about a hygiene level overview, the subjects of the research had been explained the aim and the method of the research, and they had been asked to fill the informed consent sheet as a proof that they were willing to be the subjects of the research. A purposive sampling method was employed to determine the number of research subject,

resulted in samples with inclusion and exclusion criteria. The inclusion criteria are female students of School of Dentistry Universitas Muhammadiyah Yogyakarta. They use fixed orthodontic appliance, aged 18 up to 25 years old, cooperative, have been using fixed orthodontic appliance on the upper and lower jaw for at least 6 months, do not have any systemic disease, do not smoke, are not in the psychological disturbance, do not consume drugs, are not using protesa, and brush the teeth two times per day. The exclusion criteria are the patients who reject to participate in this research.

The preparation stage was begun with preparing the approval sheet to be the subject of the research. Implementation stage was begun with requests for approval sheet to be filled in by the the female students to be the research subject. Furthermore, the subjects were given disclosure and fixed orthodontic appliance on their teeth surface. They were treated with clinical accumulation plaque by using OPI then the result was recorded as the table 1.

Table 1. Orthodontic Plaque Index (OPI) form

Then, the next step was calculating the result of the clinical examination by using the following formulation :

$$OPI = \frac{Total\ Score}{The\ Number\ of\ The\ Examined\ Teeth\ x6}$$

If the value of OPI had been obtained, then it can be classified into three categories as below:

- Good category: 0-25
- Medium category: 25-50
- Bad category: score >50

3. RESULT

Table 2. The distribution of the research subject's' gender.

Gender	Sum	Percentage
Male	0	0 %
Female	55	100%

Table 3. The distribution of the research subject's age.

Age	Sum	Percentage
18	4	7.36%
19	3	5.45%
20	21	38.18 %
21	20	36.30 %
22	6	10.90%
23	1	1.81%

Table 3. informs that the research subjects were aged 18-23 percentage of 38.18%, 20 people aged 21 years old with the years old. There were four people aged 18 years old with the percentage of 36.30%, six people aged 22 years

old with the percentage of 7.36%, three people aged 19 years old with the percentage of 10.90%, and one people aged 23 years old with percentage of 5.45%, 21 people aged 20 years old with the the percentage of 1.81%.

Table 4. The distribution of use duration offixed orthodontic

How long	Percentage
6 months	3.64%
> 6 months	96.36%

Table 4. informs that the time of using fixed orthodontic of The dentistry students consisted of six months and more than six months. The number of student who used fixed orthodontic for 6 months was 2 people with the percentage of 3.64%, while, there were 53 people who used fixed orthodontic for more than 6 months with the percentage of 96.36%

Table 5 informs that 31.18% (21 people) of the subjects were categorized in the level of good oral hygiene . The subjects who were in a medium category of the oral hygiene were 34 people (61.82%). There was no subject that has a bad category of the oral hygiene (0%). The average level of the oral hygiene of all the subjects used fixed orthodontic are 26, 72 and includes in the medium category.

Table 5. The distribution of Orthodontic Plaque Index Assesment

Category	Percentage
Good	38.18%
Medium	61.82%
Bad	0%

4. DISCUSSION

The Blum theory stated that the level of dental and oral cavity hygiene of someone or the people is influenced by four factors namely, offspring, environment, behaviour, and health service. Behaviour factor, because all the research subjects were female, is categorized as good. Women usually prioritize the appearance by taking care of themselves as best they can. In addition, there were no female students that use fixed orthodontic appliance has a smoking habit. Smoking can cause a disturbance in the oral cavity which usually begins with bad oral hygiene level. The smoker’s oral hygiene is bad because the content in the cigarette can affect the formation of plaque quickly [5].

Smoking is a habit which can worsen dental and oral hygiene. Smoking is mostly done by men. The first environmental factor is the research environment [8]. UMY School of dentistry is a smoke-free campus, so nobody smokes in the area. The second environmental factor is the oral cavity. The balance condition of the oral cavity is influenced by the use of appliances inserted in the oral cavity such as an orthodontic appliance, the use of denture, etc. In the field of health service, dentistry female students of UMY

get the optimal health service through the *Dana Sehat Muhammadiyah (DSM)* -Muhammadiyah health funding - which can be used in PKU Muhammadiyah Hospital and Asri Medical Centre. DSM aims to guarantee the health of the students of Universitas Muhammadiyah Yogyakarta which covers basic general health and basic dental health. However, fixed orthodontic users are not guaranteed by DSM [8].

Besides the environmental factor, offspring can also affect the health of students. In this study, age of research subjects were ranged from 18 until 23 years old. At the range of age, a human has already aware of the importance of aesthetic, so a lot of the fixed orthodontic users from this age group are female. However, this case is not balanced with the awareness of the importance of the oral hygiene [5]. According to Boediharjo, the most important thing to maintain oral hygiene is the individual behaviour and awareness. Awareness and behaviour factors depend on the factors of understanding, education, and individual will [8].

In term of understanding, the users of fixed orthodontic, especially UMYdentistry female students, have known that condition of dense teeth and dental implements in the oral

cavity will reduce the level of dental and oral hygiene. However, this case is not balanced with the effort of maintaining the good dental and oral health. In term of education, the users of fixed orthodontic of each year class, from 2012 until 2015, were categorized in the medium level of oral hygiene as described in Table 4. The older the year class, should be more aware of dental and oral health. However, the will is not in line with understanding. This will factor strongly depends on each people [1].

Fixed orthodontics are the fixed appliance mounted on the individuals to improve the order and function of the teeth. The use of fixed orthodontic can reduce the oral hygiene because the constituent components of fixed orthodontic can become food storage areas. If it is not cleaned as soon as possible, it will cause the formation of plaque deposits. As shown in Table 6, the subjects who have good oral hygiene level are 21 people (38.18%) and the subjects who have medium oral hygiene level are 34 people (61.82%). There are no subjects who have a bad level (0%). The average oral hygiene level of all the fixed orthodontic users of dentistry female students is 26, 72 and it includes in the medium category [50].

The problem arose from dentistry female students who come from outside Yogyakarta. They find it difficult to control their dental and oral health every month routinely due to the policy of their current dentist. Students or people in general is obliged to control their teeth to dentist who first put the fixed orthodontic appliance. Many students want to switch to a dentist who lives in the same city as where they study, Yogyakarta, however they must start over the installation with new fixed orthodontic. As a result, many delay routine dental and oral control [1].

The duration of the use of fixed orthodontic affects the oral hygiene. In this study, the minimum use of the fixed orthodontic was 6 months. The first to fifth month, the users still routinely control their teeth to the dentist. Starting in the sixth month, there is a decrease in control activities. because the dentist can forget to remind the patients to control and not educate the patients the importance of dental and oral control to prevent disturbance in the oral cavity. Likewise with its users, some of the patients, in particular, fixed orthodontic users, begin to decrease their awareness resulted in the new problem on the fixed orthodontic users. One of the problems which often occurs is gingivitis. Gingivitis of fixed orthodontic users according to other authors is categorized as mild gingivitis [5].

5. CONCLUSION

Based on the findings, the conclusions are as follow: there are 55 subjects which are 100 % female, 61, 82% of them are in the medium category. The awareness level of the female students who use fixed orthodontic is poor in maintaining the oral hygiene. It is seen from the medium level of their oral hygiene.

REFERENCE

1. Gorton, J. & Featherstone, J.D.B. In vivo inhibition of demineralization around orthodontic brackets. *Am. J. Orthod. Dentofacial Orthop.* 2003; 123 (1): 10-14.
2. Momongan Revenske E.C., Lampus B.S., dan Juliatri. Status Kebersihan Gigi dan Mulut Siswa SMA N 9 Manado Pengguna Alat Orthodontik Cekat. *Jurnal Manado.* 2015; 3 (1), 1-8
3. McDonald and Avery's. *Dentistry for the child and Adolescent.* Mosby. 1994. 9ed. Chapter 11.
4. Putri M.H., Eliza H. dan Neneng N., (2011). *Ilmu Pencegahan Penyakit Jaringan Keras dan Jaringan Pendukung Gigi.* Jakarta : EGC. Hlm: 53-77.
5. F.A. Carranza dan M.G. Newman., (2002). *Clinical Periodontology, 9th Ed.* Philadelphia : W.B. Saunders. Hlm: 96-113.
6. Cahyati Widya H. 2013. Konsumsi Pepaya (Carica Papaya) dalam Menurunkan Debris Index. *Jurnal Kesehatan Masyarakat.* 2013; 8 (2): 127-136
7. Attasi dan Awartani. 2010. *Oral Hygiene Status Among Orthodontics Patients.* The Journal of Contemporary Dental Practice. 11 (4): 1-10
8. Ardhana Wayan. 2013. Identifikasi Perawatan Ortodontik Spesialistik dan Umum. *Maj Ked Gi.* Juni; 20(1):1-8.
9. Foster T.D., (1997). *Buku Ajar Orthodontik.* Alih Bahasa : Lilian Yuwono. Edisi 3. Jakarta. EGC. Hlm: 240.
10. Hollender, L., Ronnerman, A. & Thilander B., 1980. *Root resorption, marginal bone support and clinical crown length in orthodontically treated patients.* Eur J Orthod, 2nd edition. 2 (4): 197-205