

# The frequency of wearing protective eyewear and face shield at educational hospital and public service Hospital in Makassar



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## Abstract

**Objective:** The aim of this study is to explore the comparison of frequency of wearing a protective eyewear and face shield at educational hospital and public service hospital in Makassar.

**Material and Method:** This study is a descriptive research. It was conducted in March 2017 at dental hospital Hasanuddin University and at the dental and oral health service center (PPKGM) in Makassar. The subjects of the study are clinical students, dental professionals (resident) and dentist at department of periodontics and conservative at dental hospital Hasanuddin University and PPKGM. This research was done under direct observation on the subject of research. A descriptive analysis was done.

**Results:** Number of operators at dental hospital Hasanuddin University who wore a protective eyewear were as many as 6 operators (5%) and none of the operators wore face shields while working. While in PPKGM the number of operators who wore a protective eyewear were as much as 4 operators (19%) and 11 operators (52%) wore face shields while working.

**Conclusion:** The frequency of wearing protective eyewear and face shields at dental hospital Hasanuddin University is minimal and much lower than in PPKGM.

**Keywords:** Infection control, Protective eyewear, Face shield, Dental Hospital Hasanuddin University, Dental and oral health service center

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## Introduction

Dental health workers are at very high risk of cross-infection with pathogenic microorganisms in the oral cavity and respiratory system such as human immunodeficiency virus (HIV), hepatitis B and C, Mycobacterium tuberculosis, streptococcus, staphylococcus and other bacteria and viruses. The risk of infection can be obtained from contact with blood, saliva, aerosols, or contaminated instruments while performing treatment in patients. Control infection procedures in dental practice include risky infectious disease vaccines such as Hepatitis B, instrument and work environments sterilization, raising universal precautions, applying infection control guidelines, and using personal protective equipment such as gloves, masks, protective eyewear and face shields, and using protective clothing while working.<sup>1-3</sup>

In Makassar, the cases of infectious diseases such as HIV, hepatitis, and tuberculosis (TB) increases every year. According to a data from the health office of Makassar, the prevalence of HIV in 2008 was 2.056 cases. In 2009 it reached 2.372 cases and in 2010 it was recorded 2.711 cases of HIV in Makassar.<sup>4</sup> Due to increase in the prevalence of infectious disease in Makassar, dentist should

pay special attention in order to get maximum self-protection and avoid cross-infection.

Dental hospital Hasanuddin University is an educational hospital for students at the Faculty of Dentistry Hasanuddin University. As an educational hospital, Dental Hospital Hasanuddin University should, of course, apply the standard operating procedures to both clinicians and residents when they provide treatment to their patients, including in this regard, particularly on the use of personal protective equipment.

In everyday observations conducted by previous researchers, the use of protective goggles and a face shield is usually done by both clinical and resident's patient in Dental Hospital Hasanuddin University. While in PPKGM, the use of protective eyewear and a face shield has been agreed upon by all dentists working in the hospital to serve as standard procedures when treating patients.

Based on the above, the researcher intends to conduct this research with the aim to know the comparison of the frequency of wearing protective eyewear and face shield at education clinic of Dental Hospital Hasanuddin University and in public service hospital of PPKGM in Makassar City.

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## Material and Methods

The type of this research is a descriptive research. The study was conducted in March 2017 at Dental Hospital Hasanuddin University and at PPKGM in the department of periodontics and conservation. The subjects of the study were clinical student and resident at Dental Hospital Hasanuddin University and dentist in PPKGM. This research is done by doing direct observation on the subject of research. The data collected will be presented in the form of tables and graphs and analyzed descriptively.

## Results

**Table 1** shows the distribution of the number of clinical students, residents, dentists, and patients at Dental Hospital Hasanuddin University and PPKGM in Makassar. The total number of operators is 148 people with the largest percentage of clinical students that is 95 students (64%). The total number of patients was 834 people and as many as 607 patients (72%) were admitted to the PPKGM clinic.

**Table 2** shows that in Dental Hospital Hasanuddin University operators who use protective eyewear while working only at Periodontics Department were as many as 6 operators (50%). In PPKGM the

use of protective eyewear only at department of conservative was as many as 4 operators (23.5%) and the use of face shields in department of periodontics was performed by all operators and 7 operators (41.2%) in the department of conservative.

**Figure 1** shows that in Dental Hospital Hasanuddin University the use of protective eyewear was very low i.e. only 5%, there were no operators wearing face shield and 95% of operators did not use protective eyewear or face shields at work. At PPKGM those wearing a protective eyewear was 19%, face shield was 52% and 29% of operators do not use protective eyewear or face shields at work.

**Table 3** shows that in Dental Hospital Hasanuddin University the use of protective eyewear by the clinical students at department of periodontics was about 43%. In PPKGM, the use of protective eyewear by dentists at department of conservative was 16%, while the use of face shields by dentists at department of periodontics was 100% and in the department of conservative was 33%.

**Figure 2** shows that the percentage of operators who did not use protective equipment at Dental Hospital Hasanuddin University was very high at 96% while in PPKGM was only 47%. The use of protective eyewear at Dental Hospital Hasanuddin University was 4% and 15% in PPKGM. There were no operators who wore face shield at dental hospital Hasanuddin University while in PPKGM it was 38%.

## Discussion

Most of the clinical students and residents at Dental Hospital Hasanuddin University still have very little awareness in the use of protective eyewear. Some of them think that the use of protective eyewear is not needed. They consider the use of gloves and masks is sufficient as a self-protection to avoid cross-infection.

In addition, they noted that they feel uncomfortable wearing protective eyewear while working. It interferes their vision because some of the protective eyewear which they use are sometimes

**Table 1** Distribution of number of operators and patients at Dental Hospital Hasanuddin University and PPKGM

Operator Characteristics	Number of Operators	Number of Patients
	n (%)	n (%)
Dental Hospital		
Clinical Student	95 (64%)	144 (17.5%)
Resident	32 (22%)	83 (10.5%)
PPKGM		
Dentist	21 (14%)	607 (72%)
Total	148 (100%)	834 (100%)

**Table 2** Frequency of distribution and percentage of wearing protective eyewear and face shield by operators at dental hospital Hasanuddin University and PPKGM (n = 148)

The tools used	Dental Hospital Hasanuddin University				PPKGM	
	Clinical Student		Resident		Dentist	
	Periodontics Department n (%)	Conservative Department n (%)	Periodontics PPDGS n (%)	Conservative PPDGS n (%)	Periodontics Department n (%)	Conservative Department n (%)
Protective Eyewear	6 (50%)	0	0	0	0	4 (23.5%)
Face Shield	0	0	0	0	4 (100%)	7 (41.2%)
Not wearing	6 (50%)	83 (100%)	13 (100%)	19 (100%)	0	6 (35.3%)
Total	12 (100%)	83 (100%)	13 (100%)	19 (100%)	4 (100%)	17 (100%)

condensed during working and the absence of hospital equipment is the reason for the resident. Another reason is that some operators who use personal glasses make these glasses as a substitute for protective eyewear, although the protection is inadequate.

This is similar to Rahman et al.<sup>2</sup> who argued that the use of protective eyewear by clinical students in the United Arab Emirates was relatively low with a percentage of 30%,<sup>2</sup> as well as research by Al-maweri

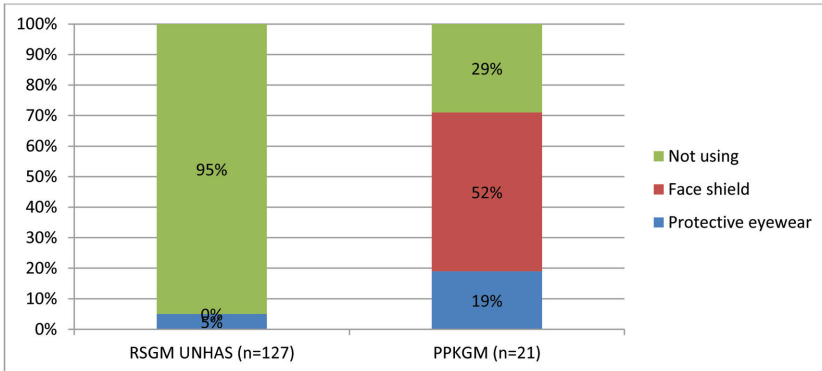
et al.<sup>3</sup> showing that only 29.1% of dentistry students in Saudi Arabia used protective eyewear at work.<sup>3</sup> Similarly, Bomireddy et al.<sup>5</sup> said that the use of protective eyewear by dentists in India was very low at only 18.6%.<sup>5</sup>

The low frequency of using protective eyewear and face shields indicates low awareness by clinical student and dentists on the possibility of disease transmission through aerosols and blood splashes.<sup>3,6</sup> However, on subjects who use protective eyewear when performing treatment is that the patient believes that the use of such protective equipment can give protection against blood splashes, saliva and other body fluids that have a potential risk of transmitting bacteria and viruses. The same was also stated by Laheij et al.<sup>7</sup> regarding the importance of the use of protective eyewear when performing treatment in patients.<sup>7</sup>

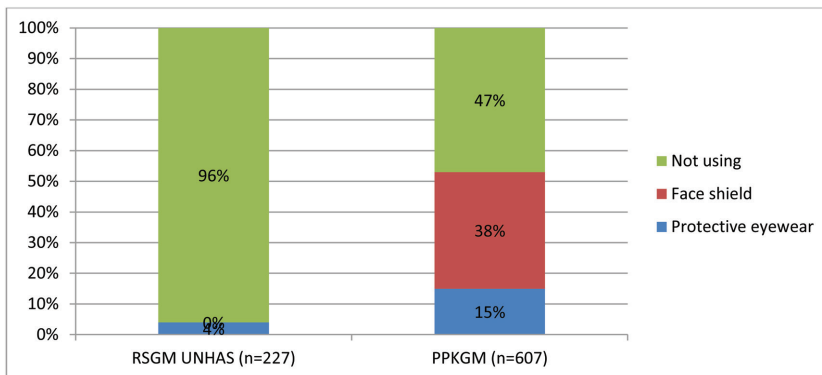
The use of protective eyewear when performing treatment in patients is strongly emphasized to avoid contamination of pathogenic bacteria and viruses from the patient's body fluids. Halboub et al. reported the presence of trauma or injuries occurring to the clinical students while performing treatment on the patient, among them caused by a scaler. The wound obtained from the scaler allows the transmission of pathogenic microorganisms, especially Hepatitis B and C or HIV.<sup>6</sup>

The frequency of using the face shield by clinical students and residents at dental hospital Hasanuddin University is also very low. Of the total operators in four parts of Dental Hospital Hasanuddin University, none of the operators use face shield equipment while working. This is consistent with some research results that reveal that the use of gloves and masks while working has become a regular habit by clinical students and dentists, but the use of protective goggles or face masks while working is still very minimal.

The data shows that in the UAE 99.2% of college students wear gloves, about 98.3% wear masks, but only 30% use protective eyewear or face shield at



**Figure 1** Total percentage of wearing protective eyewear and face shield by operators at Dental Hospital Hasanuddin University and PPKGM



**Figure 2** Total percentage of operator who wore protective eyewear and face shield based on the frequency of number of patient treated in Dental Hospital Hasanuddin University and PPKGM

**Table 3** Frequency and percentage distribution of wearing protective eyewear and face shield by operators based on the frequency of number of patient treated in dental hospital Hasanuddin University and PPKGM (n = 834)

The tools used	Dental Hospital Hasanuddin University				PPKGM	
	Clinical Student		Resident		Dentist	
	Periodontics Department n (%)	Conservative Department n (%)	Periodontics PPDGS n (%)	Periodontics Department n (%)	Conservative Department n (%)	Periodontics PPDGS n (%)
Protective Eyewear	9 (43%)	0	0	0	0	92 (16%)
Face Shield	0	0	0	0	45 (100%)	183 (33%)
Not wearing	12 (57%)	123 (100%)	4 (100%)	79 (100%)	0	287 (51%)
Total	21 (100%)	123 (100%)	4 (100%)	79 (100%)	45 (100%)	562 (100%)

work.<sup>2</sup> Also the results of research by Al-maweri et al.<sup>3</sup> shows that dental students' compliance using gloves and masks while working has a high percentage of 98.5% and 90.8%, but the use of protective eyewear or face shield is still low at only 29.1%.<sup>3</sup> The same is also expressed by Bomireddy et al/ who suggested that the use of gloves by the dentist when working high enough is equal to 87.4%, but the use of protective eyewear or face shield is still very low at only 18.6%.<sup>5</sup> Anders PL et al.<sup>8</sup> that the awareness of the importance of gloves is very high, but the use of protective eyewear and face shield is still very low.<sup>8</sup>

Based on the direct explanation by the operator, who said that most feel uncomfortable when using face shield because the tool sometimes reflects the blinding light, sometimes condensed, interferes with vision while working, and feels the face shield is too big to be used while giving treatment to the patient.

Overall, the lack of using protective eyewear and face shield by operators in educational clinics is also influenced by the less robust hospital policy of applying and controlling infection control standards particularly with regard to the use of personal protective equipment in the daily practice of clinical students and residents, and the absence of the provision of such protective equipment by Dental Hospital Hasanuddin University.

Different results were obtained on observations in PPKGM showing the percentage of dentists who used protective eyewear and face shield more than dentists who did not use protective equipment, meaning dentists knew the risk of cross-infection from the inputs or instructions given at department of conservative or department of periodontics.

The above results are consistent with the studies conducted by Yuzbasioglu et al.<sup>1</sup> which demonstrate excellent adherence to the use of protective eyewear while performing treatment in patients of 96.3%.<sup>1</sup> Similarly a study by Anders et al.<sup>8</sup> stated that the use of protective eyewear and face shields by clinical students in New York is quite high at 94% and 72.2% respectively.<sup>8</sup> Similarly, Ebrahimpour et al.<sup>9</sup> discloses that the percentage of protective eyewear used during treatment in patients is quite high at 74%.<sup>9</sup> Ibrahim<sup>10</sup> also revealed that as much as 54.7% of dentists use protective eyewear and face shield to protect themselves during the treatment procedure.<sup>10</sup>

The high awareness of dentists against the risk of cross-infection and the provision of protective equipment by the PPKGM management have a positive impact on dentist compliance in using

protective eyewear and face shield, but there is no written operational standard so there are dentists who do not use protective eyewear or face shield while working. According to Ebrahimpour et al.<sup>9</sup> the high adherence to the use of complete personal protective equipment by dental health workers is influenced by the regulation of infection control standards in each work environment.<sup>9</sup>

## Conclusion

In the dental hospital Hasanuddin University educational clinic the frequency of using protective eyewear by clinical students is 5% and there are no clinical or resident students who use face shield at work. While in the public service hospital PPKGM, frequency of using protective eyewear is at 19% and the use of face shield is at 52% by the dentist at work.

## Suggestion

Suggestion for dental hospital Hasanuddin University is the use of protective eyewear and face shield by clinical and resident students as standard procedure for self-protection while doing treatment to the patient to prevent cross-infection. Also to the PPKGM, to further improve the supervision to the dentist related to the use of personal protective equipment while working where its use can be more maximized.

## Conflict of Interest

The authors report no conflict of interest.

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