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Behavior Model of Cross Infection Prevention on Dentists in Makassar City

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Abstract

Dentists as health workers play a role in the prevention, management and care of teeth and mouth for people living with various diseases. A dentist has a risk for infection and can also pass the infection from patient to patient or better known as cross infection. This study aim to analyze the behavioral model of cross infection prevention among dentists in Makassar City. This type of research is analytic observational with cross sectional design. The sample in this study were 100 dentists in Makassar City. sampling using simple random sampling method. Retrieval of data on respondents using a questionnaire. The data analysis technique in this study used SPSS and Smart PLS. The results of this study indicate that there is an influence of modifying factors on control beliefs with p value (0.017) <(0.05), behavioral beliefs against intention with p value (0.013) <(0.05), control beliefs (in self) against intention with p value (0.010) <(0.05), control beliefs (environment) against intention with p value (0.001) <(0.05), and intention to behavior (practice) with p value (0.000) <(0.05). Whereas in the results of this study, the effect of modifying factors on behavioral beliefs was not found with p value (0.504)> (0.05), modifying factors against normative beliefs with p value (0.158)> (0.05), and modifying factors against control beliefs (environment) with p value (0.496)> (0.05), normative beliefs towards intention with p value (0.088)> (0.05).Increasing cross-infection prevention behavior can be done by paying attention to control beliefs and intention by diligently using complete PPE, diligently changing protective suits / clothes, changing masks every 4 hours, sterilizing tools every time you take action and always keeping the environment clean.

Keywords: *dentist, cross infection, preventive behavior*

1. Introduction

Oral and dental health cannot be separated from the dentist profession. Dentists as health workers play a role in the prevention, management and care of teeth and mouth for people living with various diseases. A dentist has a risk of getting an infection and can also pass the infection from patient to patient or better known as cross infection (Edy& Samad, 2012).

Cross infection in dentistry is the transfer of disease causes among patients, dentists, clinical students, and health workers in a dental health service environment. The transfer of infection from one person to another requires requirements, namely the existence of a source of infection, an intermediary and the mode of transmission (Shah, 2009).

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In carrying out their profession, dentists cannot be separated from the possibility of having direct or indirect contact with microorganisms in saliva and patient blood (Siampa& Samad, 2014). Dentistry is one of the areas that is prone to cross-contamination between dentists, patients and patients. nurses, the existence of a medical history in the medical record can make it easier for dentists to suspect an infectious disease suffered by a patient. However, not all patients with infectious diseases can be immediately identified by medical history, physical examination, or laboratory tests(Cunha, 2007; American Dental Association, 2011;Osmon etal., 2013).

Infection can be caused by accidents such as being punctured by sharp dental tools (use of scalers and extraction equipment, to injury when opening anesthetic ampoules), unsterile operator hands, can be through the mouth and upper respiratory tract. can be transmitted during treatment including HIV and AIDS, hepatitis B (HBV), hepatitis C (HCV), herpes simplex virus, Mycobacterium tuberculosis (TBC), H1N1 influenza virus, staphylococci, streptococci, as well as various viruses, bacteria that colonize and infect oral cavity, which can be transmitted from patient to dentist and dentist to patient (Cottone, 1987; Ayatollahietal., 2012; Lardo et al., 2016).

According to the World Health Organization (WHO) blood is the most common medium for transmitting infections to health workers. It is found that approximately three million health workers are exposed to viruses that come from blood each year, two million health workers are exposed to the hepatitis B virus, nine hundred thousand health workers are exposed to the hepatitis C virus and three hundred thousand health workers are exposed to the HIV virus. The Center of Disease Control and Prevention (CDC) reported the results of a study of 360 health workers who were injured in practice, namely 36% dentists, 34% oral surgeons, 22% dental nurses and 4% dental students.

Infection control is a way for dentists to avoid potential dangers such as infectious diseases. Infection control can be applied in various ways, such as proper patient history taking, wearing gloves, mouth and nose masks, practical clothes, head or hair coverings, and protective goggles while working, as well as working more asepsis, paying attention to tool sterilization, washing hands (scrubbing-up) properly, and the cleanliness of the workplace environment which includes cleaning tools and the environment. One of the targets of the WHO 2020 is to increase the number of competent health services to recognize and reduce the risk of transmission of infectious diseases in the dental and oral health service environment (Marmot & Bell, 2018).

This study uses two theories in dealing with the incidence of cross infection in dentists in Makassar City, namely the theory of Health Belief Models (HBM) and combined with the theory of behavior, namely Theory Planned Behavior (TPB). HBM is one of the oldest behavioral sciences, and has been used for 50 years in the resolution of health problems, particularly disease

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prevention (Lardoetal., 2016; Marmotetal., 2018). Based on the reasons above, it is necessary to conduct research on the behavioral model of cross infection prevention among dentists in Makassar City.

2. Methods

The research used in this study was an observational analytic study with a cross sectional design with the aim of seeing the cross infection prevention behavior model of dentists in Makassar City.The population in this study were all dentists in Makassar City, amounting to 710 people. The sample in this study were some dentists who were in Makassar City, totaling 100 dentists who had worked for at least 5 years. Data collection techniques used in this study, namely through observation (observation), questionnaires (questionnaire), and documentation. The data analysis design used in this study was univariate, bivariate and multivariate data analysis with path analysis using the SmartPLS application presented in tabulated and narrative form.

3. Result and Discussion

The results of this study provide information about the behavioral model of cross infection prevention among dentists in Makassar city. The total population of dentists in the city of Makassar is 710 with a total sample of 100 dentists who have worked for at least 5 years. The following is a table of the results of the analysis through the univariate test based on the characteristics of the respondents and the variables studied as follows:

Table 1. Results of Univariate Test Analysis Based on Respondent Characteristics and Variables Researched at Dentists in Makassar City in 2020

Age group (years)	**Frequency (n)**	**Percent (%)**
30-44	31	31.0
45-59	44	44.0
60-74	25	25.0
Gender		
Male	48	48.0
Female	52	52.0
Incidence of Cross Infection		
1 time	9	9.0
2 time	42	42.0
3 time	22	22.0
4 time	11	11.0
More than 4 time	16	16.0
Income		
<Rp.4.000.000	8	8.0
>Rp.4.000.000	92	92.0

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Modifying Factor (knowledge)	Frequency (n)	Percent (%)
Good	59	59.0
Bad	41	41.0
Behavioral Beliefs		
Positive	35	35.0
Negative	65	65.0
Normative Beliefs		
Positive	42	42.0
Negative	58	58.0
Control Beliefs (in self)		
Positive	48	48.0
Negative	52	52.0
Control Beliefs (environment)		
Positive	34	34.0
Negative	66	66.0
Intention		
Positive	48	48.0
Negative	52	52.0
Individual Behavior (practice)		
Good	34	34.0
Bad	66	66.0

Based on Table 1, it shows that of the 100 dentist respondents, the most respondents were 45-59 years old, namely 44 (44%), and the least respondents were 60-74 years old, namely 25 (25%). Then the characteristics based on sex showed that the most women were as many as 52 (52%) and the rest were men, namely as many as 48 (48%). Characteristics of respondents based on the incidence of cross infection, most of the dentists felt that they had 2 cross-infection incidents, namely 42 (42%) and a small proportion once which was 9 (9%). Meanwhile, the characteristics of respondents based on their income indicated that most dentists' monthly income was> Rp. 4,000,000, - which was 92 dentists (92%), while the rest was <Rp. 4,000,000, - which was 8 (8%). Most of the dentists had knowledge about cross infection as much as 59 (59%). Then the characteristics are based on behavioral beliefs (attitudes), indicating that most of the negative categories are 65 (65%) and the rest are positive as many as 35 (35%). For characteristics based on normative beliefs, most of the categories are negative (58%). For the characteristics of control beliefs (in self) the most were negative categories, namely 52 (52%). For the characteristics of control beliefs (environment) the most are negative categories, namely 66 (66%), and for characteristics based on intention, most of them are in the negative category, namely 52 (52%), while

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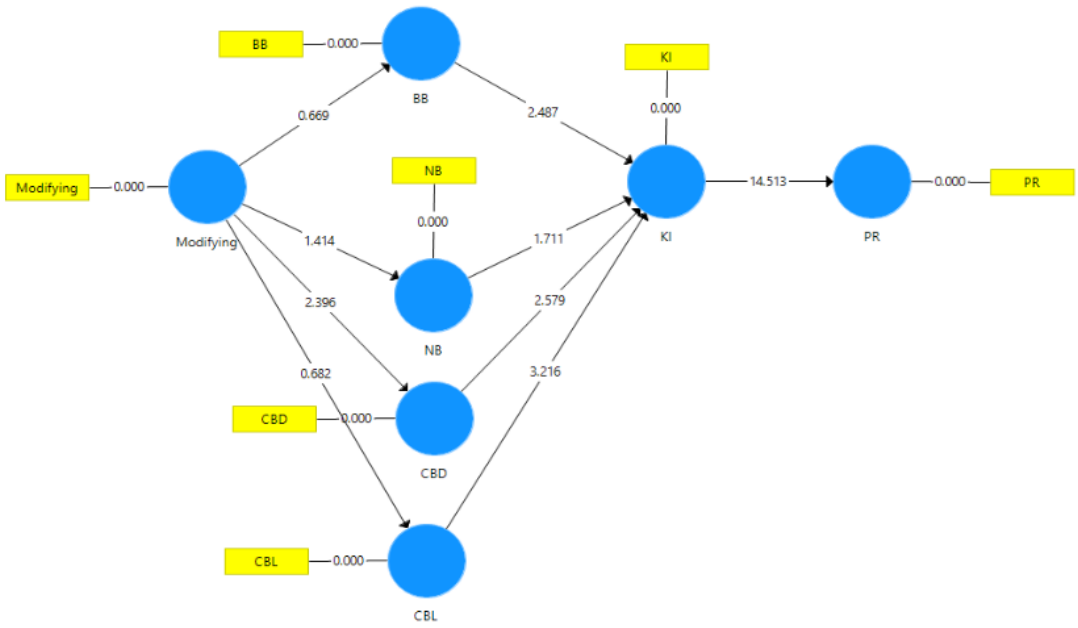
for characteristics based on behavior (practice) of 100 respondents, it shows that most dentists' behavior (practice) in preventing cross infection transmission is in the bad category, namely 66 (66%).

Based on the results of the analysis using path analysis using the smartPLS application, it was found that there was an influence of modifying factors on control beliefs (self). with p-value 0.017 <0.05, behavioral beliefs against intention with p-value 0.013 <0.05, control beliefs (self) against intention with p-value 0.010 <0.05, control beliefs (environment) against intention with p-value 0.001 <0.05, intention towards behavior with a p-value of 0.000 <0.05. Meanwhile, there was no influence of modifying factors on behavioral beliefs with p-value 0.504> 0.05, modifying factors against normative beliefs with p-value 0.158> 0.05, modifying factors against control beliefs (environment) with p-value 0.682> 0.05, normative. beliefs towards intention with p-value 0.088> 0.05. the results of the path analysis test can be seen in the following figure:



In this study, using two theories in dealing with the incidence of cross infection in dentists in Makassar City, namely the theory of Health Belief Models (HBM) and combined with the theory of behavior, namely Theory Planned Behavior (TPB). Modifying factors such as age, gender, race / ethnicity, knowledge, income in HBM theory can influence intentions coupled with beliefs that are expected to change dentist behavior in work to avoid the incidence of cross infection. In this study, it shows that modifying factors have an influence on control beliefs (in self), this is confirmed by Widniah's

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research (2019) which states that there is an influence of modifying factors (knowledge) on control beliefs (in self). However, there is no influence of modifying factors (knowledge) on behavioral beliefs, normative beliefs, and control beliefs (environment). This is in line with research by Kutiba (2019) that knowledge has no effect on dentists' attitudes in cross infection control measures, Riskika (2019) states that there is no influence of modifying factors (knowledge) on normative beliefs and control beliefs (environment).

This study also shows the influence of behavioral beliefs on the intention of dentists in carrying out cross infection prevention behavior, this is confirmed by Kurniawan (2020), which states that attitudes have a positive effect on intention. Meanwhile, there was no influence of normative beliefs on intention in this study, this is in line with Dhaneswara's research (2016) which states that normative beliefs do not affect a person's intention to carry out a behavior. However, in this study it was found that there were influence of control beliefs (in self and environment) on intention, this is confirmed by research which states that there are influence of control beliefs (in self) on intention (Widniah, 2019) and control beliefs (environment) on intention. the effect is very small (Ramadaey, 2020).In this study, it was also found that there was an influence on the intention or intention of dentists to improve behavior (practice) so as to prevent cross infection, this was confirmed by Quraini (2019) research which stated that the variable that had a very strong influence on intention was behavior.

4. Conclusion

This study concludes that there is an influence of modifying factors (knowledge) on control beliefs (in self), behavioral beliefs against intention, control beliefs (in self and environment) on intention, and intention on behavior (practice). And there is also no influence of modifying factors (knowledge) on behavioral beliefs, modifying factors (knowledge) against normative beliefs, modifying factors (knowledge) against control beliefs (environment).Advice for dentists, dentists are expected to be able to understand and carry out cross-infection prevention behavior properly and correctly to increase control beliefs and intention by diligently using complete PPE, diligently changing protective suits / clothes, changing masks every 4 hours, sterilizing every tool. has taken action and always keeps the environment clean.

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