

# Knowledge, Perception and Skill Factors of Cataract Patient about Hand Hygiene on Surgical Site Infection in Community Eye Health Care East Java

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## Abstract

Community Eye Health Care East Java is a technical implementing unit under Health Office in East Java Province which also operates cataract surgery service using several methods among others phacoemulsification, ICCE, and SICS either with installation of lens or without installation lens. A total of 32.7% of cataract patients had cataract surgical site infection in the form of membranes, followed by 25% iritis and TASS of 21.2% of all cataract surgical site infection. Hand hygiene is the most important practice to reduce the transmission of disease. Therefore, the aim of this research to analyze knowledge, perception, and skill factors of cataract patient about hand hygiene on surgical site infection in Community Eye Health Care East Java. The result of this research about patient's knowledge showed that  $p\text{-value} > 0.05$  (0.060) which means no relation between respondent's knowledge about hand hygiene with incidence of cataract surgical site infection. Patient's perception variable showed that  $p\text{-value} > 0.05$  (0.125) which means there is no relation between respondent's perception of the six-step method of hand hygiene method with cataract surgical site infection. An the last, patient's skill variable showed that  $p\text{-value} < 0.05$  (0.036), which means there is a relation between respondent's perception toward six steps method of hand hygiene with incidence of cataract surgical site infection. The OR value of 0.158 (0.28 - 0.904) means that patients unable to demonstrating the hand hygiene have a 0.158 times greater risk of developing the cataract surgical site infection than patients capable of demonstrating the six steps method of hand hygiene. It is concluded that only patient's skill variable is a relation between respondent's perception toward six steps method of hand hygiene with incidence of cataract surgical site infection in Community Eye Health Care East Java.

**Keywords:** Patient, Knowledge, Perception, Skill, Cataract surgery, Injury infection

## I. INTRODUCTION

The organization of health services in hospitals has very complex characteristics and organization (Health Ministry of Indonesia, 2008). Hospitals with the complexity of providing health services to the community at the same time having the risk of transmission of disease, can cause serious injury and even death of the patient (WHO, 2004). The terminology of nosocomial infection introduced by the Center for Disease Control and Prevention (CDC) in 1996 underwent a change to Healthcare-Associated Infections (HAIs) (CDC, 2002). Types of HAIs that occur in the hospital include Ventilator Associated Pneumonia (VAP), bloodstream infections, Urinary Tract Infections (UTI), Surgical Site Infection (SSI) (Health Ministry OF Indonesia, 2017).

The risk of HAIs occurring in specialist eye hospitals is cataract Surgical Site Infection (SSI). Based on data of Basic Research of Health in 2013, the prevalence of cataracts in East Java is 1.6 percent. The morbidity of cataracts increases with age groups. In the age group of 45-54 years old, 55-64 years old, 65-74 years old, and  $\geq 75$  years old continued to increase respectively by 10.6%, 19.5%, 30.7% and 39.6%. Types of cataract surgical site infection include postophthalmitis postoperative cataract and Toxic Anterior Segment Syndrome (TASS). TASS is an acute inflammatory reaction that arises after surgery, caused by the entry of noninfectious substances in the anterior segment of the eye. Agent toxicants that cause TASS include edotoxins, residues, antibiotic injections (Verma et al., 2017).

Community Eye Health Care East Java is a technical implementing unit under Health Office in East Java Province which also operates cataract surgery service using several methods among others phacoemulsification, ICCE, and SICS either with installation of lens or without installation lens. A total of 32.7% of cataract patients had cataract surgical site infection in the form of membranes, followed by 25% iritis and TASS of 21.2% of all cataract surgical site infection. Guideline for Infection Control in Healthcare Personnel (1998) states that the source of cataract surgical site infection can come from within the hospital or outside the hospital environment. Sources of cataract surgical site infection that exist in the hospital environment include patients, environment, instruments, and officers. Hand hygiene is the most important practice to reduce the transmission of disease (WHO, 2002). Therefore, the aim of this research

to analyze knowledge, perception, and skill factors of cataract patient about hand hygiene on surgical site infection in Community Eye Health Care East Java.

## II. METHODS

The type of this research is observational analytic with case control design study. This research was conducted at Community Eye Health Care East Java in Surabaya for 7 months. The sample size was 60 respondents with case and control ratio (1: 2). Data sources in this research are primary and secondary data. The secondary data were obtained through the review of Community Eye Health Care East Java document and The primary data were interview with the questionnaire guide. To know the relation between each variable with injury incident of cataract surgery in Community Eye Health Care East Java, Statistic analysis, Chi square test, used with degree of significance  $\alpha = 0.01$ . So if  $p$  value  $\leq 0,1$  then show there is relation between independent variable and dependent variable, whereas if  $p$  value  $> 0.1$  then show there is no relation between independent variable with dependent variable.

## III. RESULT

### A. Patient's Knowledge About Hand Hygiene

The patient's knowledge about hand hygiene includes knowledge of the benefits of hand hygiene in preventing cataract surgical site infection, the recommended time for hand hygiene among others after the bathroom, the activity, when will eat and finish eating, when will clean the face, when will use eye drops, and before the respondents prepare sterile gauze to clean the face and the area around the face.

Table 1. Distribution of Respondent Knowledge About Hand Hygiene

Knowledge About Hand Hygiene	Cataract Surgical Site Infection		Not Cataract Surgical Site Infection		Total	
	f	%	f	%	f	%
Do not know	15	75.0	37	92.5	52	86.7
Know	5	25.0	3	7.5	8	13.3
Total	20	100.0	40	100.0	60	100.0

As much as 86.7% of the total respondents do not know about hand hygiene. Only 25% of patients with cataract surgical infections are aware of hand hygiene. The result of statistical analysis with chi-square showed  $p$ -value  $> 0.05$  (0.060) which means no relation between respondent's knowledge about hand hygiene with incidence of cataract surgical site infection.

### B. Patient's Perception of The Six-Step Method of Hand Hygiene

The respondent's perception of hand hygiene describes the respondent's opinion on how important the respondent is to carry out six handwashing steps to prevent infection. Perceptions of respondents are divided into two, namely the first perception of respondents feel enough to moisten the hands with soap to prevent infection. The perceptions of both respondents felt that they should do six steps of hand hygiene to prevent infection. From the table 2, it can be seen that 85% of the total respondents of both case and control groups felt enough by wetting their hands with water and soap to prevent infection. Only 15% felt the need to implement the six hand hygiene steps according to WHO recommended steps.

Table 2. Distribution of Respondents' Perceptions of The Six-Step Method of Hand Hygiene

Perceptions of The Six-Step Method of Hand Hygiene	Cataract Surgical Site Infection		Not Cataract Surgical Site Infection		Total	
	f	%	f	f	%	f
Simply moisten the hands with water and soap	15	75.0	36	90.0	51	85.0
Must implement six steps of hand hygiene	5	25.0	4	10.0	9	15.0
Total	20	100.0	40	100.0	60	100.00

The result of statistical analysis with chi-square shows the value of  $p$ -value  $> 0.05$  (0.125) which means there is no relation between respondent's perception of the six-step method of hand hygiene method with cataract surgical site infection.

### ***C. Patient's Skills to Demonstrating the Six Steps Method of Hand Hygiene Correctly***

The researchers measured the skills of respondents in demonstrating six steps method of hand hygiene according to WHO standards. The respondents' skills are seen from the precision of the sequence of performing six steps method of hand hygiene, and the precision of the way of doing each step of hand hygiene. Respondents were asked to demonstrate the six steps method of hand hygiene at the end of the interview including the obedience of removing the accessories before carrying out the hand hygiene. From the research, it was found that a small percentage of all respondents in two groups (13.3%) were able to practice the six steps method of hand hygiene as directed by WHO.

Table 3. Distribution of Patient's Skills to Demonstrating the Six Steps Method of Hand Hygiene Correctly

Ability to demonstrating the six steps method of hand hygiene, exact sequence, exact way, remove the accessories before hand hygiene	Cataract Surgical Site Infection		Not Cataract Surgical Site Infection		Total	
	f	%	f	f	%	f
Unable to demonstrating	15	75.0	38	95.0	53	88.3
Able to demonstrating	5	25.0	2	5.0	7	11.7
Total	20	100.0	40	100.0	60	100.0

The result of statistical analysis with chi-square shows p-value <0.05 (0.036), which means there is a relation between respondent's perception toward six steps method of hand hygiene with incidence of cataract surgical site infection. The OR value of 0.158 (0.28 - 0.904) means that patients unable to demonstrating the hand hygiene have a 0.158 times greater risk of developing the cataract surgical site infection than patients capable of demonstrating the six steps method of hand hygiene.

## **IV. DISCUSSION**

### ***A. Patient's Knowledge About Hand Hygiene***

The patient's knowledge about hand hygiene was low and statistically unrelated to the incidence of cataract surgical site infections at Community Eye Health Care East Java. Some experts classify forms of behavior into three domains of knowledge, attitude and action, or often known as knowledge, attitude, practice. Respondents know about hand hygiene but have not taken action so that knowledge cannot prevent the incidence of cataract surgical site infections. This research is linier with the Theory of The Health Belief Model by Rosenstock in Meisa. The theory show that a person behaves not necessarily based on knowledge, such as prevention of certain diseases may be because a person feels threatened to get the disease and not because of his knowledge of the disease (Miesa, 2012).

### ***B. Patient's Perception of The Six-Step Method of Hand Hygiene***

Respondents more perceived the six steps method of hand hygiene has the same effectiveness in preventing cataract surgical site infections by moistening the hands with water and soap. Statistically the respondent's perception is not related to cataract surgical site infections at Community Eye Health Care East Java. Perception is in the second behavior domain of attitude or attitude. Respondents have an attitude towards the six steps method of hand hygiene but have not taken action related to his attitude so that the attitude cannot prevent the incidence cataract surgical site infections.

### ***C. Patient's Skills to Demonstrating the Six Steps Method of Hand Hygiene Correctly***

Few respondents were able to demonstrate the six steps method of hand hygiene in the exact order and how to perform at each step. Statistical analysis shows that there is a relationship between the ability of respondents to demonstrate the six steps method of hand hygiene correctly with the incidence of cataract surgical site infections. The risk of patients unable to demonstrate the six steps method of hand hygiene is 0.158 times greater for incidence of cataract surgical site infections. Statistically the risk is small and negligible, but the relationship between variables is statistically significant.

## **V. CONCLUSION**

This study can be concluded that there are no relation between patient's knowledge and perception hygiene with incidence of cataract surgical site infection. But, there is a relation between respondent's perception toward six steps method of hand hygiene with incidence of cataract surgical site infection. Patients unable to demonstrating the hand hygiene have a 0.158 times greater risk of developing the cataract surgical site infection than patients capable of

demonstrating the six steps method of hand hygiene. Based on the result of this research, the suggestion is improve the patient skills in carrying out six steps method of hand hygiene by providing specific training to patients and their families before undergoing cataract surgery.

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