



RESEARCH ARTICLE

PREVALENCE AND CHARACTERISTICS OF SCABIES PATIENTS IN DERMATOVENEREOLOGY  
CLINIC BANDUNG DISTRICT HOSPITAL IN 2014-2015

\*Mareta, S., Saleh, H. and Moeliono, D. D.

Department of Dermatology and Venereology, Bandung District Hospital

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ABSTRACT

**Background:** Scabies is a contagious skin disease caused by infestation and sensitization towards *Sarcoptes scabiei var. hominis* (*S.scabiei*). The disease could possibly spread through both direct and indirect contact with skin. According to Republic of Indonesia's Ministry of Health, the prevalence of scabies in Indonesia in 2008 was 5.6%□2.95% from all patients who visited Primary Health Care. The incidence of scabies has remained high in Indonesia, with the lowest number was found in North Sulawesi, and the highest in West Java. Some factors that increase the prevalence of scabies are high humidity, poor level of sanitation, dense population, malnutrition, poor hygiene and lack of knowledge. Although scabies is not life-threatening, the disease could progress to a more severe and persistent form, complicated by low immunity and secondary skin infections.

**Aim:** Revealing the prevalence and characteristics of scabies patients in Dermatovenereology Clinic, Bandung District Hospital between 2014□2015.

**Methods:** Retrospective study from medical record of all scabies patients in Dermatovenereology Clinic, Bandung District Hospital between 2014 and 2015.

**Results:** The total amount of scabies patients in 2014 was 306 (7.11%) and in 2015 was 300 (7.14%) among patients who admitted outpatient clinic. The most common groups were male, children, students, unclear transmission source, all of patient was administered permethrin 5% and 22,33% patients had secondary infections.

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INTRODUCTION

Scabies is a contagious skin disease which is caused by infestation and sensitization by *Sarcoptes scabiei var hominis*. This mite is transparent, oval shaped with convex back, flat abdomen, no eyes, and unseen with bare eyes. (Mounsey et al., 2013) Scabies is marked with the formation of burrows in superficial skin and itchy sensation with or without secondary infections. The scabies term itself is the Latin form of itch. (Wolff et al., 2012; Zeibig, 2014) Scabies is transmitted by direct and indirect contact to skin. Direct skin contacts such as handshaking, sleeping together, and sexual contact, or indirect skin contacts such as through clothes, towels, carpets, and bed covers transmit the mite from one to another. The transmission is closely related to individual hygiene level and environment. (Wolff et al., 2012) Several literatures predict the number of scabies case all over the world that reached 300 million people per year, although the accuracy of the data is still questioned. Some recent epidemiological studies report the prevalence of scabies among slum areas in Brazil was 8.8%,

(Heukelbach et al., 2005) among indigenous Australian was 13.4%, (Andrews et al., 2009) and among clinics, schools, and orphanages in Malaysia was 31%. (Mahmud, 2010)

MATERIALS AND METHODS

This study is a retrospective and descriptive study. The data was reviewed from all scabies patients who visited Bandung District Hospital Dermatovenereology Clinic between January 2014 and December 2015.

RESULTS

After analysis was performed, it was revealed that the number of scabies patients in Bandung District Hospital's Dermatology and Venereology Clinic was 306 (7.11%) from total 4,303 patients who visited the clinic in 2014. In 2015, the number of scabies patients who visited the clinic was 300 patients (7.14%) among total 4,199 patients. Among those scabies patients, majority were males with 184 patients (60.78%), with the remaining 49 were female (39.22%) in 2014. In 2015, there were 192 male patients (64%), compared to 108 female patients (36%) (Table 1). The most common age category

\*Corresponding author: Mareta, S.

Department of Dermatology and Venereology, Bandung District Hospital

among the scabies patients in 2014 was children or 0–17 years old (64.06%), with the least common age category was middle-aged or 66–79 years old (2.61%) in 2014. In 2015, children comprised of 203 patients. (67.67%) and the middle-aged were 5 patients (1.67%). (Table 2) The most common occupation among the scabies patients in 2014 was student (30.07%) and the least common occupation was housewife (8.33%). Similar to finding in 2015 when student was the most common occupation (67.67%) and housewife was the least common (8.33%) (Table 3) Most of transmission source was unknown (52.61%) in 2014, followed by *pesantren* (Islamic boarding school) or school in 61 patients (19.33%), and the least common transmission source was neighborhood (0.65%). In 2015, the transmission source was not identified in 159 patients (53%), followed by *pesantren* or school in 69 patients (23.00%), and the least common transmission source was neighborhood (0.33%). In 2014, all 306 patients who were diagnosed as scabies were administered with Permethrin cream, so were all 300 scabies patients in 2015. (Table 5)

**Table 1. Gender Distribution**

No		2014		2015	
		Scabies Case (n)	Percentage (%)	Scabies Case (n)	Percentage (%)
1	Male	186	60,78	192	64
2	Female	120	39,22	108	36
	Total	306	100	300	100

**Table 2. Age Group Distribution**

No	Age (year old)	2014		2015	
		Scabies Case (n)	Percentage (%)	Scabies Case (n)	Percentage (%)
1	0–17	196	64,06	203	67,67
2	18–65	102	33,33	93	30,66
3	66–79	8	2,61	5	1,67
4	80–99	0	0	0	0
5	>100	0	0	0	0
	Total	306	100	300	100

**Table 3. Characteristics of Scabies Patient by Occupation**

No	Occupation	2014		2015	
		Scabies Case (n)	Percentage (%)	Scabies Case (n)	Percentage (%)
1	Housewife	28	9,15	25	8,33
2	Student	94	30,07	91	30,33
3	College Student	38	12,42	32	10,67
4	Employee	51	16,67	48	16,00
5	Businessman	39	12,74	43	14,00
6	Unemployed	56	18,30	61	20,33
	Total	306	100	300	100

**Table 4. Characteristics of Scabies Patient by Contagious Source**

No	Contagious Source	2014		2015	
		Scabies Case (n)	Percentage (%)	Scabies Case (n)	Percentage (%)
1	Family	50	16,33	43	14,33
2	Friend	32	10,45	29	9,67
3	neighbor	2	0,65	1	0,33
4	Islamic boarding school/ School	61	19,93	69	23,00
5	Unknown	161	52,61	159	53,00
	Total	306	100	300	100

**Table 5. Characteristics of Scabies Patient by Medication**

No	Topical Medication	2014		2015	
		Scabies Case (n)	Percentage (%)	Scabies Case (n)	Percentage (%)
1	Permethrin 5%	306	100	300	100
2	Precipitated Sulfur	0	0	0	0
3	Lindane Lotion	0	0	0	0
4	Benzyl benzoat	0	0	0	0
	Total	306	100	300	100

**Table 6. Scabies Patient Characteristics by Complication**

No	Complication	2014		2015	
		Scabies Case (n)	Percentage (%)	Scabies Case (n)	Percentage (%)
1	With Secondary Infection	58	18,95	67	22,33
2	Without Secondary infection	248	81,05	333	77,67
	Total	306	100	300	100

It is known that in 2014 as many as 58 patients (18.95%) suffered from secondary infection as a complication. Similar to finding in 2015, 67 patients (22.33%) suffered from secondary infection as a complication. (Table 6)

## DISCUSSION

Scabies is a disease characterized by itchy papules lesion that is home for female scabies and nymphs. The site of predilections are interphalangeal, wrists, antecubital fossa, axillae, areola and surrounding areas. (Mounsey *et al.*, 2013; Wolff *et al.*, 2012) The itchy sensation arises from hypersensitivity reaction toward the mites, egg or scybala. Mites leave the burrow only when the temperature is high enough (bed warmth) and it causes the nocturnal itch. Immunological processes in scabies remain unclear. The hypersensitivity reaction which occurs is the fast and slow type hypersensitivity. In the first infection, sensitization will occur within a few weeks after the parasitic infection. In the second infection (reinfection), itching appears within 24 hours. In the delayed type hypersensitivity, there is a formation of inflammatory papules and nodules. This is shown from the histological changes and the number of T lymphocytes in cutaneous infiltrates. In addition, there is also an increase in IgG and IgM. Meanwhile the IgE level could be within normal range or increase. (Mounsey *et al.*, 2013; Wolff *et al.*, 2012) Women have a smaller risk of being exposed to scabies because women tend to take better care of themselves as well as their appearance, while men tend to be more ignorant toward their appearance which will affect their personal hygiene. (Mounsey *et al.*, 2013; Wolff *et al.*, 2012) Most studies suggest that scabies could occur at any age, especially children. Our data showed that patients in 2014 and 2015 are mostly children. Scabies is mostly found in this age group because the transmission of scabies is very likely to be obtained from a friend in school, then the children come home and the transmission continue to spread to family members who live in the same home. Also, most children in school age have not been able to take good care of themselves. Mostly, patients obtained the mites from a friend in the boarding school, which is likely due to the frequent use of the same towels and other tools alternately. These circumstances will increase the risk of scabies among the students (Wolff *et al.*, 2012; Schachner and Hansen, 2011) Table 5 showed that

almost every scabies patients were treated with 5% permethrin cream. Main therapy of scabies is causal therapy, by administering a topical scabicide. Most common and most widely used topical scabicide is 5% permethrin, and this is suitable to a research conducted by Mumcuoglu *et al* which stated that 5% permethrin became first-line treatment option as topical scabicide. Permethrin cream 5% is considered as the gold standard in the treatment of scabies because of its efficacy which could reach 90% in most studies of the last two decades and also because of its safety. According to the Cochrane review study, 5% permethrin cream is the most effective topical scabicide, compared to lindane. Permethrin cream 5% is less toxic, has a lower percutaneous absorption, and produce a lower concentration in blood and brain when applied topically. Permethrin also has many advantages, including its practicality because it is given only once a week (single application), it could kill all stages of *Sarcoptes scabiei* and is safe to be used on newborns, children, pregnant women (category B) and breastfeeding mothers.(Gunning *et al.*, 2012; Strong *et al.*, 2011) Epidemiological evidence revealed the relationship of scabies with secondary infection caused by bacteria. Scabies is parasiticsexually transmitted disease in the tropical country. Most common bacteria that are proven to cause secondary infection in scabies patients are *Staphylococcus aureus* and *Streptococcus pyogenes*. Secondary bacterial infection in scabies associated with easy access of bacteria into the skin which already been damaged by mites. However, mites are never found on purulent lesions. (Schachner and Hansen, 2011)

Reynolds *et al.* (2014) conducted a research about molecular interaction between scabies mites and skin resident bacteria. They found several mite proteins, such as serine protease inactivated paralogues (SMIPP-Ss) and serine protease inhibitor, which promotes the growth of Streptococcus. Molecular activation mechanism has not been found clearly, It is suspected that the mechanism is associated with the activation of complement inhibition by those molecules. The results of the studies indicate that skin infection is not only related to the physical damage of the skin, but the mites synergize infestation in secondary infection caused by bacteria. Further studies are needed to determine pathophysiology and relationship with bacterial infection. (Mounsey *et al.*, 2013; Reynolds *et al.*, 2014)

## Conclusion

The most common prevalence and distribution of scabies patient in Dermatovenereology Clinic, Bandung District Hospital in 2014-2015 are male, children, student, and unknown transmission source. All the patients was treated with permethrin 5% and most of patients did not have secondary infection.

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