Sanitation and Hygiene in Early Childhood Development

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Abstract. Improper sanitary conditions become a breeding ground for infectious diseases that will affect the physical development of preschool-age children. Maintaining proper sanitation in the home environment, balanced with optimal personal hygiene practices, is essential to improving family welfare and supporting children's development. This study analyzes the relationship between sanitation in the home environment and personal hygiene in preschool children, which can affect childhood development. The research method is a quantitative correlation. The population is all mothers who live in RW 01 Kegiren and RW 02 Syechmagelung Cirebon City, totalling 1335. The number of respondents is 98 housewives with children 3-6 years old using a purposive sampling technique. The instruments used were the Environmental Cleanliness Clutter Scale (ECCS) and the A Scale for Measuring Hygiene. The results showed a positive and significant relationship between home environmental sanitation and personal hygiene of preschoolers by 9%; other factors influenced the remaining 91%. These results indicate that if the sanitation of the home environment is in the clean and healthy category, the personal hygiene of preschoolers is in the clean category so that they can optimize their growth and development. Applying sanitation and hygiene in early childhood can improve cognitive, language, and physical/motor development.

Keywords: Home Environment Sanitation, Personal Hygiene, Preschool-Age Children

1 Introduction

Sanitation is an effort to monitor physical factors that affect human health and survival. A healthy home is one of the indicators of facilities and infrastructure that can achieve health. Therefore, a healthy home is determined by the availability of sanitation facilities in the home area. In relation to the environmental sanitation conditions stated by [3] in [9], West Java Province is in the 21st place for proper sanitation at 64.75%. Similarly, most people in West Java have implemented Community-Based Total Sanitation (CBTS) at 55.84%, which is 22nd out of all provinces in Indonesia [9]. However, ironically, based on data [3] related to the percentage of urban slum households by province in 2018, West Java is at the 12th percentage point at 11.16%.

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In addition to diarrhoea, pneumonia and dengue fever, there are two other diseases caused by poor home environmental sanitation and clean and healthy living behaviour (PHBS) [9]. West Java is one of the provinces with the highest occurrence of diarrhoea in toddlers, with 33 incidents with a diarrhoea prevalence of 10.2% and the 8th highest data for toddlers with pneumonia with a percentage of 58.80%. In Cirebon City in 2018, there were the first-highest diarrhoea cases with 789 cases and the second-highest pneumonia cases with 101 cases [18].

Sanitation is related to the quality of health and hygiene patterns, one of which is the practice of personal hygiene of the limbs. [17] state that personal hygiene is a step that individuals take to protect the cleanliness of their limbs to improve their health. The less-than-optimal personal hygiene practices carried out by preschool-age children, from tooth brushing activities to hand washing practices and personal hygiene, can lead to health problems [27]. These include making it easier for children to develop skin diseases (Scabies), head lice infections (Pediculosis Capitis), diarrhoea, helminthiasis (Soil Transmitted Helminth), and dental caries [20];[6]. In addition, suboptimal personal hygiene in preschool children can inhibit physical growth and cognitive impairment. Due to decreased immune conditions, physical problems can prevent children from carrying out daily learning and playing activities. Cognitive disorders (IQ Loss) can reduce children's concentration levels, impacting learning difficulties [13]. This happens because preschool children are not yet optimal at performing personal hygiene independently, so they need the help of parents, especially mothers.

Based on the description above, it is necessary to study the relationship between home environmental sanitation and the personal hygiene of preschool-age children. This study aimed to determine the relationship between home environmental sanitation and the personal hygiene of preschool children.

2 Method

This study analyzes the relationship between sanitation in the home environment and personal hygiene in preschool children, which can affect childhood development. This study used associative quantitative research associated with survey methods and correlation approaches. The independent variable in this study is home environmental sanitation, and the important variable is personal hygiene. The respondent retrieval technique used a purposive sampling method with 98 respondents. The criteria for taking respondents were housewives who had preschool children aged 3-6 years and lived in the RW 01 Kegiren and RW 02 Syechmagelung, Kejaksan Urban Village, Kejaksan District, Cirebon City.

2.1 Instruments and Data Collection Process

The measurement of home environment sanitation used the modified Environmental Cleanliness Clutter Scale (ECCS) instrument developed by[5], which contains a 29-item statement. Home environmental sanitation consists of 5 dimensions, including the dimensions of bed conditions, study room conditions, bathroom conditions, playroom conditions and kitchen and food conditions, which are referred to [5]. The

measurement scale for the type of questionnaire instrument in the Home Environment Sanitation variable is in the form of a Guttman scale 2

The measurement of personal hygiene used A Scale for Measuring Hygiene Behavior instrument developed by [23], which contains a 48-item statement. The personal hygiene variable in the study consists of 2 dimensions, namely the dimensions of general hygiene and personal hygiene, which are referred to [23]. The measurement scale for the type of questionnaire instrument in the personal hygiene variable is the Guttman scale.

2.2 Data Analysis

The data analysis technique used in this study was inferential statistics with parametric statistics. The researcher used the cut-off point method in the data analysis technique. The cut-off point method is used to identify factors in a questionnaire that researchers have made based on criteria [28]. The steps taken in the cut-off point method include 1) Calculating the weight of each item statement; 2) The scores obtained in analyzing the questionnaire items are summed up and collected in the form of an index consisting of 3 categories, namely low category = index < 60, medium = index 60-80 and high = index > 80.

Test the hypothesis of this study using a simple correlation test. A simple correlation test is used to prove whether there is a relationship between the two variables observed [29]. The hypothesis test that the researcher uses consists of several tests, namely the correlation coefficient test and the correlation significance test (t-test).

3 Result and Discussion

3.1 Participants

Respondents in this study were 98 housewives who had preschool children aged 3-6 years who lived in RW 01 Kegiren and RW 02 Syechmagelung, Kejaksan Village, Kejaksan District, Cirebon City. Respondents in this study were in the age range of 20 years to 49 years. The gender of children owned by respondents consisted of 48% girls and 52 boys. The average respondent has a history of high school education as much as 72%, and the average family income of one to two million is 46%. It is known that the history of the respondent's children related to personal hygiene is dental caries 37%, diarrhoea 24%, and skin infections 23%.

3.2 Cut Off Point Method To Identify Home Environment Sanitation

Home environment sanitation is an effort made by a person to create and foster the environment in which he lives so that social interaction can be established to sustain his life in the long term. Home environmental sanitation consists of 5 dimensions, including the dimensions of bed conditions, study room conditions, bathroom conditions, playroom conditions and kitchen and food conditions, which are referred to[5].

The results of home research environmental sanitation variables based on dimensions are presented in Table 1.

Table 1. Dimention of Home Environmental Sanitation

Bed Condition DimensionsBed Condition Dimensions	**High Category Percent (%)**
State of Bedding	94,89
Cleaning Bedding	85,71
The State of the Bed Room	92,6
The Intensity of Cleaning the Bedroom Room	90,3
Average ± Standard Deviation	**91,55 ± 12,73**
Dimensions of Study Room Conditions	**High Category Percent (%)**
The State of the Study Room	90,81
The Intensity of Cleaning the Study Room	98,79
State of Learning Equipment	89,45
Average ± Standard Deviation	**90,08 ± 15,94**
Bathroom Condition Dimensions	**High Category Percent (%)**
State of the Bathroom Room	82,14
The State of the Toiletries Storage Area	91,83
Bathroom Cleaning Intensity	83,67
Intensity of Cleaning Toiletries	91,83
Average ± Standard Deviation	**86,56 ± 17,28**
Dimensions of Play Room Conditions	**High Category Percent (%)**
State of the Playroom	91,49
Playground Equipment Storage State	81,63
The intensity of cleaning the play room	67,34
Average ± Standard Deviation	**81,77 ± 19,97**
Kitchen and Food Condition Dimensions	**High Category Percent (%)**
The State of the Kitchen Room	76,19
Trash Can Condition	80,61
State of Cooking Equipment	93,87
State of Tableware	100
Kitchen Cleaning Intensity	54,08
Average ± Standard Deviation	**85,25 ± 9,98**

Table 2 shows that most respondents provide a clean and healthy home environment, sanitation facilities and infrastructure to support preschool-age children to practice personal hygiene to improve health quality and optimize their growth and development. Referring to[22], the environment is a factor that can affect individual personal hygiene. In this case, it is important for families always to maintain a healthy and clean home environment and sanitation.

In addition, Table 2 shows that most dimensions are in the high category and can be optimal. The study's results based on the dimensions of bed conditions showed an average value of 91.55. Most respondents can maintain cleanliness and bed infrastruc-

ture such as ventilation access and windows can optimize oxygen levels to minimize the outbreak of respiratory tract infections (ARI)[19]. Referring to[15], by paying attention to the intensity and frequency of changing bedding it can minimize the causes of pediculosis capitis (head lice infection) and scabies disease (skin disease).

The study's results based on the dimensions of the condition of the study room showed an average value of 90.08. Most respondents can maintain cleanliness and provide infrastructure to support children in learning activities. Facilitating a study room with clean air ventilation and adequate window lighting needs attention. Referring to[2], air ventilation and windows that are adequately lit can support children in the learning process that is effective, efficient, safe, comfortable and gets clean air circulation exchange. In addition, maintaining the cleanliness of the study room can improve children's fluency in learning activities.

The study's results based on the dimensions of bathroom conditions showed an average value of 86.56. Most respondents were able to keep the bathroom clean. Routine bathroom cleaning using antiseptics can kill microorganisms, inhibit the growth of germs and maintain clean water quality for domestic use[25]. Referring to[26], bathroom cleaning routines can maintain the safety of house residents to avoid slipping incidents in the bathroom that are dangerous, especially for children.

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The study's results based on kitchen and food conditions dimensions showed an average value of 85.25. Most respondents can maintain cleanliness and support the kitchen and food infrastructure. Referring to[16], maintaining the cleanliness of the kitchen is important so as not to contaminate food. Keeping the kitchen area clean can kill microorganisms and minimize vector breeding in the kitchen. Ideally, cooking utensils and tableware must be clean, odourless, no food stains and free of germs to maintain the hygiene of cookware and cutlery[7].

Clean and healthy home environment sanitation is a supporting capacity that needs to be considered to support preschool-age children in carrying out personal hygiene practices to improve health quality and optimize their growth and development. Such efforts are referred to as. In addition to providing sanitation for a clean and healthy home environment, mothers have a significant role in helping, guiding, accompanying and controlling children in personal hygiene. This effort is referred to as Community-Based Total Sanitation (STBM), which aims to increase community independence in maintaining personal and environmental hygiene[1].

Table 1. Cut of Point Variable of Home Environmental Sanitation

Home Environment Sanitation Variable Category	Total	Percent
Low (Index < 60)	3	3,1
Moderate (Index 60-80)	21	21,4
Height (Index > 80)	74	75,5
Total	98	100,0
Minimum-Maximum value	58,33-100	
Mean ± Standard Deviation	87,22 ± 10,42	

Table 3 shows that overall, the respondents are in the high category, with an average value of 87.22. The home environment sanitation variable is optimal because the respondent (housewife) can maintain the cleanliness of supporting facilities and infrastructure in the sleeping area, study room, bathroom, playroom, kitchen, and food. Maintaining excellent and healthy sanitation of the home environment and providing good sanitation infrastructure and personal hygiene are efforts that need to be made by parents at home so that they can create a clean and healthy home environment and improve the health quality of the occupants of the house, especially for children aged preschool and improve the growth and development of children during the golden age of children.

3.3 Cut Off Point Method To Identify Personal Hygiene

Personal hygiene is an effort made by individuals to maintain their hygiene to avoid the spread of disease and improve the quality of their body's health. The personal hygiene variable in the study consists of 2 dimensions, namely the dimensions of general hygiene and personal hygiene, which are referred to[23].

The general hygiene dimension consists of 6 indicators that measure the level of preschool children in the intensity of hand washing: the practice of washing hands before and after activities; the practice of washing hands; the practice of washing fruits or vegetables before consumption; the use of footwear when doing activities outside the home; helping clean the playroom, bedroom and study room[23]. The personal hygiene dimension consists of 7 indicators that measure how much level of preschool-age children respondents have in the intensity of wearing clothes, the intensity of bathing every day, ownership of personal hygiene equipment, the intensity of shampooing every week; the intensity of clipping nails; the intensity of brushing teeth; and use of personal hygiene equipment[23]. The research results on personal hygiene variables based on dimensions are presented in Table 3.

Table 3. Dimention of Personal hygiene early childhood

General Hygiene Dimension	**Percent High Category (%)**
Handwashing Intensity	100
Hand Washing practice before and after activities	83,18
Handwashing Practices	79,59
The Practice of Washing Fruits or Vegetables Before Consumption	89,79
Use of Footwear When Doing Activities Outside the Home	88,71
Help Clean Playrooms, Bedrooms, and Study Rooms	86,05
Average ± Standard Deviation	**85,16 ± 16,28**
Personal Hygiene Dimensions	**High Category Percent (%)**
Intensity of Clothing Use	94,38
Daily Bathing Intensity	34,69
Ownership of Personal Hygiene Equipment and Supplies	99,23
Shampooing Intensity Every Week	48,79
Nail Scissoring Intensity	72,44
Tooth brushing intensity	93,87
Use of Personal Hygiene Supplies	99,74
Average ± Standard Deviation	**88,19 ± 6,81**

Table 3 shows that general and personal hygiene dimensions are in the high category and can be considered optimal. The general hygiene dimension study results showed an average value of 85.16. The study of the personal hygiene dimension showed an average value of 88.19. Most of the preschool-age children owned by respondents could carry out general hygiene practices and personal hygiene well in daily life.

Table 4. Cut of Point Variable of Home Environmental Sanitation

Home Environment Sanitation Variable Category	Total	Percent
Low (Index < 60)	-	-
Moderate (Index 60-80)	22	22,4
Height (Index > 80)	76	77,6
Total	98	100,0
Minimum-Maximum value	68,97-100	
Mean ± Standard Deviation	86,62 ± 7,23	

Based on Table 4 shows that overall, the respondents are in the high category, with an average value of 86.62. The personal hygiene variable is optimal because preschool-age children owned by respondents (housewives) can practice good general hygiene and personal hygiene in everyday life. In this case, parents, especially mothers, have a very important role to play in accompanying, guiding and assisting children in practising general hygiene and personal hygiene so that they can improve the

quality of children's health and promote proper child development as an effort to optimize the child's golden age.

Based on the dimensions of general hygiene and personal hygiene, respondents in this study can carry out their roles well in helping, guiding, accompanying and controlling preschool-age children to carry out general hygiene practices and personal hygiene optimally in daily life. This is done because, based on the level of development of preschool-age children, they are not independent and optimal in carrying out hygiene care[23].

Based on aspects of preschool-age child development referring to[21], cognitive aspects of preschool-age children can remember and understand routines related to general and personal hygiene practices. Based on the language aspect, preschool-age children can express their needs and feelings to mothers regarding public and personal hygiene practices, for example, expressing assistance in nail clipping. Based on physical/motor aspects, preschool-age children can perform simple movements such as handwashing practices and brushing their teeth. In general, the research results on personal hygiene variables showed an average value of 86.62, which was in the high category and could be considered optimal.

3.4 Hypothesis Test

The findings made by researchers, show there is a positive relationship between home environmental sanitation (X) and personal hygiene (Y) in children of preschool age ($r = 0.294$) and significance (t-count = 3.012 > t-table = 1.984).

The amount of contribution between home environment sanitation (X) and personal hygiene (Y) of preschool-age children (KD = 9%), means that 9% of the variation in personal hygiene (Y) of preschool-age children can be explained by the variable of home environment sanitation (X). Meanwhile, the other 91% is influenced by other variables. Some other factors that can affect personal hygiene include cultural factors, religion, beliefs, personal preferences, education and knowledge. Referring to research[10] that revealed the relationship between environmental sanitation and coastal socio-cultural factors with the incidence of Scabies Culture is a deep-rooted belief in specific regions that has an impact on misconceptions of community understanding regarding the importance of maintaining home environmental sanitation and negative impacts if not optimizing personal hygiene. Referring to[22], religion and personal preferences can affect personal hygiene. Religion is a belief and cultural system that connects humans to the order of life. Different beliefs between individuals can influence individual behaviour in maintaining personal hygiene.

Personal preferences are based on individual learning experiences. Differences in personal preferences can affect an individual's hygiene. Personal preferences in relation to education and knowledge can influence action. So, there is a possibility that individuals with low sanitation knowledge have an impact on the need for more provision of healthy home infrastructure[4]. This can affect the carrying capacity of the environment to carry out personal hygiene practices. Personal hygiene practices that are not optimal have an impact on several disease spreads, including soil-transmitted

health, head lice infections (pediculosis capitis), skin diseases (scabies) and dental caries[12] [11] [6].

4 Conclussion

It can be concluded that a clean and healthy home environment is a supporting capacity that needs to be considered to support preschool-age children in carrying out personal hygiene practices to improve the quality of health and optimize their growth and development. Applying sanitation and hygiene in early childhood can improve cognitive, language, and physical/motor development. The findings in this study are that there is a positive and significant relationship between home environment sanitation and the personal hygiene of preschool-age children. The relationship between home environment sanitation and personal hygiene of preschool-age children was 9%, while the other 91% was influenced by variables that researchers did not study. Other factors affecting personal hygiene include knowledge and education, culture, religion, age development level, health and energy and personal preferences..

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