Effectiveness of Education Using Videos and VCO Application Modules in Reducing ISPA Symptoms in Children

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ABSTRACT
Acute respiratory infections are one of the most common causes of death in children. Around four out of fifteen million estimated deaths in children under 5 years of age. ISPA is a disease that often occurs in developing countries and is one of the causes of patient visits to health centers (40%-60%) and hospitals (15%-30%). The ISPA prevalence period is calculated within the last month of the

INTRODUCTION
Acute respiratory infections (ARI) are one of the most common causes of death in children in developing countries. About four out of fifteen million estimated deaths in children under 5 years old. (Wiwin, Syaiful, & Rasimin, 2020). ISPA includes air bone disease, which is transmitted through the air (Ministry of Health, 2017). ISPA can attack all age groups, but toddlers are most vulnerable to being infected with this disease because toddlers have immature immune systems and they tend to come into contact with other people who may be sick or facilities and equipment that are not necessarily guaranteed to be clean so toddlers tend to be at higher risk of being infected. disease (Wilson, Wang, & Meads, 2006). One disease that easily attacks toddlers, especially if there is a source of infection both inside and outside the home, is ARI (Mirtha et al., 2016).

ISPA is a disease that often occurs in developing countries and is one of the causes of patient visits to health centers (40%-60%) and hospitals (15%-30%). ISPA is caused by viruses or bacteria. This disease begins with a fever accompanied by one or more symptoms: sore throat or painful swallowing, runny nose, dry cough or phlegm. The ISPA prevalence period is calculated within the last month of the
Indonesian Ministry of Health (2019). In general, there are 3 risk factors for ARI, namely environmental factors, individual child factors and behavioral factors (Alimul, 2008).

The five provinces with the highest ISPA are, East Nusa Tenggara (NTT) (41.7%), Papua (31.1%), Aceh (30.0%), West Nusa Tenggara (NTB) (28.3%), and East Java (28.3%). Based on the Indonesian Ministry of Health (2019), the highest characteristics of the population with ISPA occur in the 1-4 year age group (25.8%). Based on the NTB Health Profile (2020), in 2019 ARI was the number 1 (one) case in the category of the 10 most common diseases in NTB with the highest number of visits, namely 174,213 visits (NTB Health Office, 2018). Based on the results of the Indonesian Health Profile in 2020, the number of patient visits with ISPA in the West Nusa Tenggara (NTB) area was 182,204. Based on data from the 2020 Indonesian Health Profile, West Nusa Tenggara is ranked 6th with the highest number of visits from patients with ISPA in Indonesia.

Knowledge is the result of human sensing or the result of a person's knowledge of objects through the senses they have (eyes, nose, ears and some of them), most of a person's knowledge is obtained through the sense of hearing (ears) and the sense of sight (eyes), a person's knowledge of objects has intensity or different levels (Notoatmodjo, 2017). Mother's knowledge about ISPA is one of the factors that plays a very important role in protecting toddlers from ISPA, such as how to prevent and treat it so as to improve skills. Mothers who lack knowledge about preventing ARI can cause wider infections that attack the lower respiratory tract system and cause systemic complications, chronic pneumonia can cause death in children. This can be based on the mother's level of knowledge in protecting toddlers from life-threatening diseases, both contagious and non-contagious. One effort that can be made to increase mothers' knowledge about managing ISPA is by providing health education. This increase in knowledge is really needed by mothers in order to understand the management and prevention of ISPA, health education is an important illustration of the role of professional nurses in health promotion and disease prevention (preventive) efforts (Fitriani, 2011).

Modules and short videos can help increase people's knowledge and skills in recognizing signs, symptoms, early detection, and providing appropriate treatment for ISPA sufferers. According to research conducted by Anjarina Witianti Putri, et al in (2021), there was an increase in public knowledge and prevention of ISPA with poster and video media in Ujung-Ujung Village, therefore the current research wants to try modules and short videos in reducing the incidence of ISPA in different places (Forbes et al., 2016; Green et al., 2019).

Factors that cause ISPA. ARI can be caused by viruses, bacteria, rickettsia. Bacterial infection is a complication of ISPA by viruses, especially if there is an epidemic/pandemic. Bacteria that cause ISPA, for example from the genus Streptococcus, Haemophilus, Staphylococcus, Pneumococcus, Bordetella, and Corynebacterium. Viruses that cause ARI include the Mixovirus group (influenza virus, parainfluenza, respiratory syncytial virus), Enterovirus (Coxsackie virus, echovirus), Adenovirus, Rhinovirus, Herpesvirus, Cytomegalovirus, Epstein-Barr virus. Fungi that cause ARI include Aspergillus sp, Candidia albicans, Blastomyces dermatitidis, Histoplasma capsulatum, Coccidioides immitis, Cryptococcus neoformans. Apart from that, ISPA in children is caused by the mother's lack of knowledge and attitudes about ISPA (Bodovski & Youn, 2010; Mortensen & Barnett, 2019).

Based on the description above, researchers are interested in conducting research on the effectiveness of education using videos and VCO application modules in reducing ARI symptoms in children.

**METHODS**

Quasi experimental research design Design with pre test and post test with control group design. This design attempts to reveal cause and effect relationships by involving a control group in addition to the experimental group. The experimental group was given treatment while the control group was not
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and both groups underwent a pre-test and post-test (S. Nursalam, 2013). The research was carried out in the work area of the Bolo Community Health Center, Bima Regency, February – June 2023.

Determining the number of respondent samples uses the hypothesis sample size estimation formula with a difference of 2 independent group means (Dahlan & Pengambilan, 2009) as follows:

\[ n_1 = n_2 = (z_\alpha + z_\beta) \frac{S}{(X_1 - X_2)} \]

Information:

- \( n \): Number of samples
- \( Z_\alpha \): Standard deviation Alpa = type I error = 95% = 1 - 0.95 = 0.05 = 1.96 (\( Z_\alpha \) (2-tailed) distribution table).
- \( Z_\beta \): Power of test = type II error = 80% = 1 - 0.8 = 0.2 = 0.842
- \( X_1 - X_2 \): The mean difference between the intervention group and the control group which is considered significant based on the literature is 0.79
- \( S \): Estimated standard deviation of the intervention group and control group is 1.58

\[ n_1 = n_2 = ( (1.96 + 0.842) \times 1.58 )^2 = 25,863 \]

The minimum sample size in this study for health workers is based on this formula for the sample size for the intervention group rounded to 50 respondents in the treatment group and 50 respondents in the control group.

The sampling technique uses consecutive sampling, which is a sample sorting method that is carried out by selecting all individuals encountered who meet the selection criteria, until the desired sample size is met (Dharma, 2011). So that the sample characteristics do not deviate from the population, before sampling, inclusion and exclusion criteria need to be determined.

1. Researcher introduce self to candidate respondent, conveyed information research, explained objective research, procedures research and ask willingness candidate respondents for participate as respondents in study with fill in sheet agreement study.
2. Pre-test given to willing mother participate as respondents with requested for fill in questionnaire. Activity pre-test done on the day 2nd, with use PPE in the form of a mask with consideration spared from spread of the covid-19 virus. Then carried out a pre-test before given treatment form modules and videos against knowledge and skills Mother in lower ARI symptoms using VCO application.
3. Treatment: Counseling health done on the day 3rd. Group treatment given counseling with video media and in groups control given counseling with media modules. Counseling done for 30-35 minutes, starting with phase orientation for 5 minutes, media playback is performed for 15 minutes, and discussion as well as closing for 10-15 minutes, done for 1 week with 3 meetings.
4. After counseling finished done post test for measure knowledge and skills mother.

In this study, a questionnaire to measure knowledge and attitudes was given to respondents who were not part of the sample and a validity test was carried out on 46 respondents at the District Health Center. Bima. Then each questionnaire is given a score according to the assessment system applied. Next, it was tested using the Pearson product moment test. In this study, the rcount is greater than the rtable, which is significant at 5%, namely 0.291, so the difference in scores for each item is significant, so the knowledge questionnaire is declared valid.

Table 1. Questionnaire 1
RESULTS

Based on research conducted by researchers, general data was obtained including the characteristics of respondents consisting of age and level education, employment, knowledge, and skills before and after the intervention in the form of modules and videos are presented in the following table:

<table>
<thead>
<tr>
<th>Respondent Characteristics</th>
<th>Respondent Group</th>
<th>p</th>
<th>n</th>
<th>%</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early adulthood age 26 - 30 years</td>
<td>19</td>
<td>38.0</td>
<td>19</td>
<td>38.0</td>
<td>0.658</td>
<td></td>
</tr>
<tr>
<td>Late adulthood 31 - 35 years</td>
<td>16</td>
<td>32.0</td>
<td>18</td>
<td>36.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early old age aged 36-40 years</td>
<td>15</td>
<td>30.0</td>
<td>13</td>
<td>26.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level of education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JUNIOR HIGH SCHOOL</td>
<td>6</td>
<td>12.0</td>
<td>6</td>
<td>12.0</td>
<td>0.381</td>
<td></td>
</tr>
<tr>
<td>SENIOR HIGH SCHOOL</td>
<td>19</td>
<td>38.0</td>
<td>19</td>
<td>38.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PT</td>
<td>25</td>
<td>50.0</td>
<td>25</td>
<td>50.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRT</td>
<td>13</td>
<td>26.0</td>
<td>13</td>
<td>26.0</td>
<td>0.436</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>13</td>
<td>26.0</td>
<td>11</td>
<td>22.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honorary</td>
<td>10</td>
<td>20.0</td>
<td>12</td>
<td>24.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil servants</td>
<td>14</td>
<td>28.0</td>
<td>14</td>
<td>28.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 3, it can be seen that the majority of respondents in the intervention group and control group were aged 26-30 years, which was in early adulthood, namely 19 people (38%) with mark p value 0.658 which shows proportion age respondents between group interventions and groups control equivalent, most respondents have level PT (University) education as many as 25 people (50%) in the group interventions and groups control with mark p 0.381 which shows proportion level education respondents between group interventions and groups control equivalent, Respondent part big own work as civil servants were 14 people (28%) in the intervention group and control group with mark p 0.436 which shows proportion age respondents between group control and group treatment equivalent.

Table 4. Frequency Distribution of Knowledge and Skills In the Intervention Group and Control Group Before and After Treatment in the Work Area Bolo Community Health Center, Bima Regency Year 2023

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre Test</th>
<th>Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intervention</td>
<td>Control</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on table 4, it can be seen that most of the respondents' knowledge measurements in the intervention group pre-test were in the sufficient category, namely 31 people (62%) and almost half were in the poor category, namely 19 people (38%). Then in the control group, the majority were in the sufficient category, namely 25 people (25%) and in the poor category, namely 25 people (25%). After being given treatment, the results of the post test scores showed that almost all respondents' knowledge was in the good category, namely 30 people (60%) in the intervention group and most of the respondents' knowledge was in the sufficient category, namely 27 people (54%) in the control group and a small portion was in the good category, namely 23 people (46%). In measuring the skills of respondents in the pre-test intervention group, most were in the sufficient category, namely 28 people (56%) and most were in the poor category, namely 22 people (44%). Then, in the control group, most were in the sufficient category, namely 27 people (54%) and most were in the poor category, namely 23 people (46%). Then, in the post test measurement of the intervention group, it was found that most of the respondents' skills were in the good category, namely 29 people (58%) and in the sufficient category, 21 people (42%). And in the control group, the majority were in the good category, namely 20 people (40%) and the majority were in the fair category, namely 30 people (60%).

Table 5. Analysis of Differences in Average Knowledge Values Before and after videos and modules provided in the work area Bolo Community Health Center, Bima Regency Year 2023

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>n</th>
<th>Descriptive statistics</th>
<th>Paired t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>mean (Std. D)</td>
<td>Δmean  t   p</td>
</tr>
<tr>
<td>Intervention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>5</td>
<td>4.84 (1.235)</td>
<td>-2.9 -26,888 0.000</td>
</tr>
<tr>
<td>Post-test</td>
<td>5</td>
<td>7.74 (1.157)</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>5</td>
<td>4.64 (1.120)</td>
<td>-2.7 -24,199 0.01</td>
</tr>
<tr>
<td>Post-test</td>
<td>5</td>
<td>7.34 (1,062)</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 explains test results were obtained average value of knowledge in the group pre-test intervention, namely 4.84 then The average post-test score is 7.74 with \( p \) value equal to 0.000 < 0.05. Then to groups control obtained The average value of pre-test knowledge is 4.64 and the average value of post-test is 7.34 with \( p \) value equal to 0.01 < 0.05. On the second group You're welcome happen enhancement knowledge, however based on mean value in the group intervention happen enhancement of 7.74 or difference of 2.9 and 7.34 or difference of 2.7 across groups control. So you can concluded There is difference significant between mean knowledge Mother before and after given education VCO application in reducing children's ARI symptoms in the group interventions and groups control.

Table 6. Analysis Difference in Average Skill Scores In the Intervention Group and Control Group Before and after videos and modules provided in the work area Bolo Community Health Center, Bima Regency Year 2023
Table 6 explains test results were obtained average skill value group intervention on the pre-test, namely 4.70 then average post test score namely 7.68 with $p$ value equal to 0.000 < 0.05. Then to groups control obtained The average pre-test skill score is 4.52 and the post-test average score is 7.10 with $p$ value of 0.05. On the second group You’re welcome happen enhancement skills, however based on mean value in the group The intervention provided by the media is in the form of a short video happen enhancement of 7.68 or difference of 2.98 between groups intervention and 7.10 or difference of 2.58 in the group control provided by the media in the form of module.

**Discussion**

**Characteristics of Mothers in Work Areas Bolo Community Health Center, Bima Regency Year 2023**

This study show that the average age woman age fertile aged 26-30 years, while in education show that respondents part big educated College. One influencing factors knowledge is level education, where level more education tall influence perception somebody For take decision and act. The more tall level education you have mother, increasingly It is also good for preventing ARI and more low education you have Mother so the more bad prevention ARI disease. Compare backwards with research that states that No There is connection between level education Mother with ability Mother nurse ISPA toddlers at the respondent's Bahu Community Health Center can seen from respondents with level junior high school education has good ARI care compared to with educated respondents high. Respondent’s education Can influential to knowledge somebody However No means No If educated low so knowledge become low anyway, besides That mother who pays attention condition health child will more know about sign symptom beginning disease so that can do correct action. Although respondents in study This the most is educated College and high school educated however For knowledge about ISPA evenly or No Far different with respondents educated high. Knowledge can increase and influence somebody if that person often interact and earn information from outside like from friends, neighbors and related media ARI disease.

Analysis results showing part big Mother Work as a civil servant. Work influence knowledge, frequent person interact with others will more Lots exposed information or knowledge compared to with people without There is interaction with other people. A Mother House busy stairs with work will seldom interact with family or with another mother when currently guard his son and rarely play accompany child outside so that can seldom can exchange information and experience One about each other information health.

**Knowledge And Skills In the Intervention Group and Control Group Before and after providing education Through Video and VCO Application Module in Reducing ISPA Symptoms in Children in Work Areas Bolo Community Health Center, Bima Regency Year 2023**

Research results on measurements knowledge obtained average pre-test knowledge score in the group intervention namely 4.84 and the average score on the post-test is 7.74. This thing signifies there is difference or happen enhancement after given treatment. Then group pre-test mean score control namely 4.64 and the average post-test score is 7.34. From the results second group the can seen happen increase in the average score of pre-test and post-test. However average post-test score in the group treatment Far more tall than the group control. In research by Adawiya, (2021), Syahrani (2012) stated that education health can increase knowledge and skills Mother in do maintenance toddler with
ISPA. Then results study Huriah (2008) also states that education health give significant influence to enhancement knowledge, attitudes, skills, and practices Mother in do maintenance toddler with ISPA. Research conducted by Suyami et al. (2014), proves that education using leaflets, videos and baby phantom media increase efficacy self in 18.2% of mothers in treating LBW with \( p \text{ value } < 0.05 \).

It is necessary to increase maternal knowledge regarding the understanding and prevention of ARI diseases. In research, Aggraini (2019) said that maternal knowledge can influence maternal actions in preventing ISPA. Increasing maternal knowledge about ISPA will be directly related to reducing the incidence of ISPA. This low level of knowledge is caused by low education, lack of information, low economic status. Mothers’ knowledge regarding caring for children affected by ISPA is one of the most common causes of death. Increasing knowledge by providing health education through the media will be more fun and attract attention, so it is easy to understand and remember. Health education is also a dynamic process of change, where change occurs because of awareness within the individual or society itself (Naziyah & Pramudiyawati, 2019).

In research This researcher using visual media in the form of modules and audio-visual media in the form of videos. This was explained by Cone Edgar Dale’s experience in Susilowati (2016) explains that read information from the media can increase ability remember by 10%, then see picture from information media can increase ability remember by 30%, more Lots senses used somebody in catch information, then will the more his abilities are good somebody in remember information that. Apart from that, it was also stated that ability Power remember to providing verbal and visual media for 3 days after given that is by 65%. By general, video media has more advantages Lots compared to module media from facet visual appearance as well various pictures, also more explanations concise, \( p \) This regarding with the more many senses used in absorption information, of which video media is one media type audio visual that relies on sense hearing and senses sight. Audio visual media is wrong one medium that can used in learning listening.

Videos can serve information, explaining the process, explaining complex concepts, teach skills, abbreviate or extend time, and can influence attitude. This thing in line with study Kasanah (2015) shows that video media is more influential compared to leaflet media practice foot care for diabetes mellitus patients. Video media is influencing variables enhancement behavior maintenance Mother with pneumonia in toddlers. This thing in line with research by Wea (2015) states that education health with video media improves behavior Mother in handling infection channel breathing acute in toddlers in the village Lebijaga regency Nada.

**Analyze Knowledge And Skills In the Intervention Group and Control Group Before and after providing education Through Video and VCO Application Module in Reducing ISPA Symptoms in Children in Work Areas Bolo Community Health Center, Bima Regency Year 2023**

Based on the results of research on the knowledge of respondents in the treatment group, it was found that \( p \text{ value } = 0.000 < 0.05 \), this shows that there is an influence of audio-visual media in the form of short videos on mothers’ knowledge. And for skills, the \( p \text{ value } = 0.000 < 0.05 \), this shows that there is an influence of audio-visual media in the form of short videos on mothers’ skills. Then in the control group, the \( p \text{ value } = 0.005 < 0.05 \), so it can be concluded that there is an influence of the media module on maternal knowledge. And for skills, the \( p \text{ value } = 0.005 < 0.05 \), this shows that there is an influence of the media module on the mother's skills. Knowledge is the result of knowing and occurs through the five human senses. A person’s knowledge about an object contains two aspects, namely positive and negative aspects. This statement is supported by research that there is an influence of mother’s knowledge on ISPA care skills for toddlers using the VCO application.

Enhancement knowledge This in accordance with study Fitria, Ida, et al (2016) that background behind education person old is something element education that influences people old to set an example, guide and directing children to go through development phases optimally. Parents with a higher educational background are more likely to sensitive to development, And problem Which
Currently faced child. With background behind education Which tall, person old can absorb information so choose the right method in guiding and motivating children. For improve cognitive abilities. In research Kurnianingsih (2019) revealed that to increase knowledge need given method learning education health Which interesting so that can involve all over five sense moment process learning. Intervention using the booklet media provided only form writing And picture which is simple so it only involves the sense of sight.

In the post test of the treatment group, it showed that all respondents experienced an increase in positive attitudes and no respondents had a negative attitude. This is because respondents were given intervention in the form of animated video modeling. Kartika et al., (2016) in their research stated that the success of toilet training using modeling techniques is more effective than using oral techniques because the advantage of modeling techniques is that they can be seen and imitated by respondents. This statement is in accordance with the opinion of Nursalam, (2017) that toddlers prefer to imitate what other people do, especially their family members. Mothers who are given animated video modeling can provide good training through imitation of the steps in the video. Children will understand something new more quickly by seeing other people do it. In line with Wiana's statement (2018) which stated that "Media in learning has a function as a tool to clarify the message conveyed by the teacher".

It can be concluded that media is a tool to clarify learning. According to Febriani & Irdawarni (2019), the use and provision of media during learning makes it very easy for students to understand the subject matter, namely material that is abstract and becomes concrete. Supported by Fahrurozi et al., (2017) that multimedia is used to make lessons more interesting and at the same time provide students with real examples of how multimedia works. Even though the respondents were not completely able to do it themselves, there were changes in a positive direction in improving children's abilities. According to Parulian et al., (2020), children's abilities are influenced by several factors, including the child’s interests, the child’s experience, the child’s environment, and the development of the child’s abilities.

**CONCLUSION**

Average value of knowledge in the group pre-test intervention, namely 4.84 then The average post-test value is 7.74 with a p value of 0.000 < 0.05. Then to groups control obtained The average value of pre-test knowledge is 4.64 and the average value of post-test is 7.34 with a p value of 0.01 < 0.05. Based on mean value in the group intervention happen enhancement of 7.74 or difference of 2.90 and 7.34 or difference of 2.7 across groups control

Average skill value group pre-test intervention, namely 4.70 then average post test score namely 7.68 with a p value of 0.000 < 0.05. Then to groups control obtained The average pre-test skill value is 4.52 and the post-test average value is 7.10 with a p value of 0.05, based on mean value in the group The intervention provided by the media is in the form of a short video happen enhancement of 7.68 or difference of 2.98 and 7.10 or difference of 2.58 in the group control provided by the media in the form of module.

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