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The Disruptions-Related Tuberculosis Case Finding and Treatment in Indonesia during COVID-19

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ABSTRACT

Background: This study aims to find out the disruptions related to the TB new case finding and treatment program during the COVID-19 pandemic in Indonesia. This understanding is needed to conceive effective strategies to face and prevent the issues of toward TB programs implementation in health services and health care. **Methods:** This review used selected articles conducted in Indonesia, published during the COVID-19 pandemic from March 2020 to July 2022 from ScienceDirect, PubMed, ProQuest, and Google Scholar journal databases. **Results:** 7187 related studies were identified by the keywords. In the final process, there were 7 studies included in the review. The studies covered 5 provinces - mentioned 3 cities and 2 regencies. The disruptions in TB new case finding and treatment health services were affected by participants' knowledge to differences between TB and COVID-19, family support, family history of COVID-19, comorbidity, double workloads of the health workers, and accessibility of healthcare accommodation. New methods for new case findings and treatment adherence such as scheduled home visits, community-based finding health empowerment, the development of a new invention of eNose-TB, modification of the administration process, and the use of virtual care were implemented to overcome these issues during this pandemic. **Conclusion:** The majority of tuberculosis issues during COVID-19 were related to social determinants. The health empowerment that involved community and several modifications to health services were applied in healthcare as resolutions besides preserving the achievement of new case findings and treatment programs.

Keywords: Covid-19, Health empowerment, Health service, Indonesia, Tuberculosis.

INTRODUCTION

The pandemic of COVID-19 since early 2020 had had significant impacts on essential health services for any priority disease, including tuberculosis infection, which led to the unmet TB treatment coverage and new case finding targets worldwide (Djalante *et al.*, 2020; WHO, 2021). Tuberculosis (TB) by the *Mycobacterium tuberculosis* complex is a communicable disease that can cause pulmonary and extrapulmonary infection in healthy individuals from inhaled infected droplets of the sick from coughing, sneezing, or talking (WHO, 2019). In 2020, the World Health Organization (WHO) reported the majority of TB cases geographically were in

Southeast Asia regions (43%), Africa (25%), and Western Pacific (18%) (WHO, 2021). While slight cases were in Eastern Mediterranean (8.3%), America (3.0%), and Europe (2.3%). Among regions in Southeast Asia, Indonesia (8.4%) placed in third rank following India and China in 2021 with 824,000 cases and 93,000s death per year (Chakaya *et al.*, 2021; WHO, 2021).

TB case finding becomes a priority program of the World Health Organization for TB elimination (Malik *et al.*, 2020). Based on the WHO Global Tuberculosis Report in 2021, there was a sharp fall in TB newly diagnosed case notifications between 2019 to 2020 (18%) from 7.1 million to 5.8 million. The WHO reported the three countries that significantly contribute to this global drop as India

(41%), Indonesia (14%), and Philippines (12%) (WHO, 2019, 2021). While in Indonesia, the TB newly diagnosed case notifications dropped to 351,939 in 2020 from 568, 987 in 2019 according to Indonesian Health Profile 2020 (Kemenkes, 2021). This finding leads to the increasing number of TB deaths becoming 1.3 million in 2020 from 1.2 million in 2019 among HIV-negative population worldwide. These severe situations were affected by the COVID-19 pandemic since early 2020 which caused a drastic decline in the coverage of TB case findings due to the shifted focus on COVID-19 control (Alene, Wangdi and Clements, 2020; McQuaid *et al.*, 2021; Rodrigues *et al.*, 2022).

The COVID-19 pandemic brought various interferences in several countries, as manifested in a significant decrease in the number of healthcare visits, the number of TB finding cases, TB identification, the number of new patients starting treatment, and use of interventions (Aznar *et al.*, 2020; Odume *et al.*, 2020). These issues would impact on newly TB diagnosis findings delay and increase the treatment failure of TB which might cause drug resistance (DR-TB) and TB-related deaths (Aznar *et al.*, 2020; Jain *et al.*, 2020; Rodrigues *et al.*, 2022).

This review aims to find out the disruptions related the TB new case finding and treatment implementation during the COVID-19 pandemic, the efforts, and innovations that have been made to overcome the issues in Indonesia. This understanding is needed to conceive effective strategies to face and prevent the issues toward TB programs implementation in health services and healthcare.

METHODS

This review was conducted and designed in April 2022. The relevant articles were obtained from reputable journal databases including ScienceDirect, PubMed, ProQuest, and Google Scholar as a final search completion. The searching strategies were using “tuberculosis,” “health service,” “healthcare,” “pandemic,” “COVID-19,” and “Indonesia” as keywords. In addition, “tuberkulosis” and “pelayanan” keywords were also used to accentuate the relatable articles which used Bahasa. The relevant articles were in English and Bahasa with selected time

interval of two years between 2020 and 2022. The search for articles required the screening process of titles and abstracts to specify the selected articles. During this process, the first author involved the co-authors to determine the articles if there was uncertainty. This article selection procedure used the PRISMA diagram scheme. Inclusion criteria of this study were: publication time of studies were March 2020 to July 2022; qualitative or quantitative studies; the studies were conducted during the COVID-19 pandemic; took place in Indonesia; and focused on problem of tuberculosis new case finding and treatment program implementation in healthcare. The articles which used systematic review and meta-analysis were not involved in this study.

Quality appraisal of the studies

The selected articles must be indexed by Scopus and or Science and Technology Index (SINTA) Indonesia Ministry of Education, Research, and Technology. The quality appraisal of all articles was assessed by the first author and co-authors using CASP (Critical Appraisal Skill Program) checklist for both qualitative and quantitative studies (CASP, 2018). This checklist consisted of 10 items. The selected articles had to pass half of the checklist items to be included in this study (Elm *et al.*, 2014)

RESULTS AND DISCUSSION

Of 7187 related studies identified by the keywords, 24 records were included and analyzed for objectives and results. This study found 12 articles were not comprehensive in objectives and results. Another four articles did not pass the quality appraisal and an article that query. In the final process, there were seven studies that included in review. The review selection process is presented in Figure 1. The result of selection process in this articles review is provided in Table 1.

All studies were conducted and published during March 2020 - July 2022. The studies covered five province-mentioned three cities and two regencies. Selected studies were frequently conducted in Makassar, South Sulawesi. Study designs were varied in quantity, quality, mixed method (quantitative-qualitative), and implementation research. Observation, interview, and

questionnaire were dominantly used as sources of data collection.

A total of 144 participants were involved in these studies as informants and respondents. All selected articles in Bahasa and published in Indonesian journal were cited in SINTA of Indonesia Ministry of Education, Research, and Technology journal database, while others were cited in Scopus and varied in Quartile (Q) level.

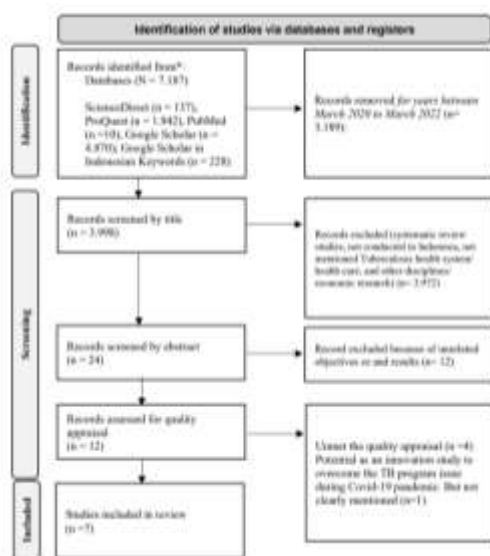


Figure 1. PRISMA flow diagram for reporting systematic review selection process for articles published between March 2020 to July 2022 (Page *et al.*, 2021).

Mainly the studies were conducted in urban areas. Interferences of the TB health services and TB treatment in healthcare were participants' knowledge about TB, knowledge about COVID-19, family support toward treatment, provide any help, and assistance, family history of COVID-19, participants' anxiety of going to healthcare, comorbid status including diabetes mellitus and anemia, the tardiness of program and case reports, double workloads of the health workers, insufficient health promotion toward TB program, accessibility of healthcare accommodation, healthcare location, given social and culture acceptability by health workers. Diverse strategies were implemented: support on the community-based TB active case-finding program and regular virtual supervision.

Two articles mentioned the ability or knowledge to differentiate between TB disease and COVID-19 affected the patients' visit for seeking care of the TB health services (Appulembang *et al.*, 2021;

Syahridha *et al.*, 2021). Considering both TB, COVID-19, and other chronic obstructive pulmonary diseases (COPD), main transmission route was respiratory with the lung as the main target, this led to the misconception. In certain patients with poor educational levels, similar symptoms between TB and COVID-19 stigmatized them. The similar clinical symptoms of COVID-19 and TB disease potentially misled the information for patients and led to interference of TB new case finding in the population (Odume *et al.*, 2020; Visca *et al.*, 2020). While patients were unwilling for seeking healthcare for certain diagnoses and treatment, as a result, the number of lost to follow up, drug resistant cases, drop out, duration of recovery, and underreported TB new cases increased during this pandemic (Aznar *et al.*, 2020; Santos *et al.*, 2021). Further, cases of household transmission might increase due to home- isolation of suspected patients with active TB in this pandemic.

Syahridha *et al.* (2021) mentioned the presence of comorbid (partial diabetes mellitus and asthma) and a family history of COVID-19 were determined treatment successfulness on TB with the common comorbidities found were cardiovascular, diabetes mellitus, obesity, and hypertension. The concomitant of comorbidity with TB or COVID-19 associated with the high risk of mortality (Migliori, 2022).

The comorbidity could exacerbate the symptoms, worsen disease progression, and lead to mortality. The condition of moderate to severe asthma might affect respiratory tracts which lead to asthmatic attacks, pneumonia, and acute respiratory distress. This reasoning become the setting of patients' limiting access to routine healthcare and reduced accessibility of healthcare (Sanyaolu *et al.*, 2020; Bastani *et al.*, 2021; Rodrigues *et al.*, 2022). Furthermore, a family history of COVID-19 increased the anxiety and depression in patients which become the other most common reasons for avoid health-care visits during this pandemic. Thus, family support toward treatment, providing any help, and assistance during treatment affected the decrease of patients' anxiety level toward healthcare visits (Stephenson *et al.*, 2021).

Reducing operational work hours, lockdown of some health services, COVID-

19 centered-focused by health workers, and the patients' consideration of getting infected by coronavirus in the healthcare became the additional factors exacerbating TB programs (Alene, Wangdi and Clements, 2020; Jain *et al.*, 2020; Rodrigues *et al.*, 2022). The misconception of those issue affected their decision to seek for health services for anti-TB treatment (McQuaid *et al.*, 2021).

The double workload of health workers included the reduction of both number of health workers, the delay of the health services, and frequency of screening programs were also observed in other studies (Azhar *et al.*, 2020). Min *et al.* (2022) studied a Korea TB cohort database from January to May 2020 using multivariate analysis and found that healthcare delay could be reach up to >5 days during the first wave of the COVID-19 pandemic (Min *et al.*, 2022). Diversion of health workers to focus on COVID-19 control hampered the TB programs to work according to the plan of action. Health workers were responsible for assisted and supported treatment adherence by ensuring the continuity of essential health services, including prevention, active case finding, diagnosis, directly observed therapy (DOT) program, treatment implication, and giving precautions and advise for patients with TB during this pandemic (Zimmer *et al.*, 2021). Health workers aligned the social and culture acceptability toward TB and COVID-19 misconception further.

Several performances were made to overcome the disruptions. Healthcare provided new methods of new case finding using scheduled home visit, community-based finding, and the invention of eNose-TB in 2020 (Chan *et al.*, 2021; Mading *et al.*, 2021; Saktiawati *et al.*, 2021). The development of eNose-TB is a new invention for TB screening with the purpose to find new cases using electronic nose to screen TB by breath test with inexpensive production cost, non-invasive, convenient, and low maintenance cost. This study was conducted in the first and second phases with the result of a sensitivity value of 95% and a specificity value of 82% (Saktiawati *et al.*, 2021).

Other efforts, including modification of the TB administration process, the use of mobile health or virtual care, social media optimization for health education, and home delivery for

treatment were made as potential TB treatment adherence accomplishment. Mobile health, virtual care, telemedicine, or related became the most used system to replace healthcare visits during the pandemic predominantly among elderly and patients with comorbid, direct education, and to provide outpatient treatment (for example DOT) (Eberly *et al.*, 2020; Stephenson *et al.*, 2021; Zimmer *et al.*, 2021; Arora, Mehta and Ha, 2022). The use of virtual care was also as a response to unmet aspects (acceptability, accessibility, and accommodation) of health services in healthcare, substitution of direct program supervisor, and information system (Napitupulu and Prasetyo, 2021; Rezkiani, Batara and Amelia, 2021).

CONCLUSION

Comprehensive recognition of the issues faced in the implementation of the TB program, including health services, of TB new cases findings and TB treatment in healthcare, were an important part in determining the performance strategies for health services (program implementation, treatment, program management, etc.) and healthcare (hospital, primary health care, clinics, etc.) (Visca *et al.*, 2020; Rodrigues *et al.*, 2022). Based on literature findings, the majority of new tuberculosis case finding and treatment of crucial issues during COVID-19 were related to social determinants. Although the individual health background and shift of health services have the responsibility, health empowerment that involved community and several modifications of health services were applied in healthcare as resolutions besides preserving the achievement of new case findings and treatment program during this time.

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Smoking Cessation Behavior in Children: What is the Role of Parents and Peers?

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ABSTRACT

Background: Pangarengan District is one of the areas in Sampang Regency with a fairly high number of child smokers, namely the age of 14 years as much as 26.6% and 11 years old as much as 15.4%, among elementary schools as much as 24.3%. **Aims:** The purpose of this study was to analyze the form of social support from parents and peers on smoking behavior in children in Pangarengan District, Sampang Regency. **Method:** This research is qualitative research with a phenomenological approach. There are 15 informants consisting of 5 main informants and 10 additional informants. Determination of informants used purposive technique. Data collection techniques in this studied were in-depth interviews, observation and documentation. Data analysis used thematic content analysis. Credibility test used source triangulation and technical triangulation. **Results:** Based on the results of the study, all informants received emotional support in the form of smoking bans, attention, care, and advice. Informants get instrumental support in the form of suggestions, input and appeals to reduce cigarette consumption. In addition, the informants received support in the form of positive enthusiasm and encouragement to stop smoking, as well as gifts promised by their parents. Informants also received information support about the dangers of smoking and diseases made worse by smoking. **Conclusion:** The conclusion of this study is that all informants have received social support from their parents and peer groups. This study is expected to change smoking behavior in children by reducing cigarette consumption.

Keyword: Informants, Parents, Peers, Smoking children, Social support.

INTRODUCTION

Smoking is the act of sucking paper-coated tobacco rolls and being burned, this is done as a form of response that comes from within or outside oneself (Sundari et al., 2014). Smoking behavior in children, according to Yamlean, is that they often imitate the behavior of others around them, both adults and their peers. This action is based on the character of children who often do new things even though they do not know the impact on themselves and those around them. Most children start smoking because of the invitation of friends or the environment (Yamlean, 2012). *The Global Youth Tobacco Survey (GYTS)* says that the State of Indonesia ranked the third highest in the world as the highest number of teenage smokers in 2019. Data from the Central Bureau of

Statistics for Youth in East Java show the number of smokers in children under the age of 18 has increased from 2020 by 27.78% to 28.53% in 2021.

Sampang Regency has a fairly high number of child smokers, namely 21.1% with a range of smokers from the age of 15 years and over. In 2017, most occurred at the age of 15 years, which was 9.1%, while they started smoking at the age of 11, which was around 4.3%. The number of children aged 11-15 years in Pangarengan District already includes a lot of smokers, with a prevalence of 14 years old as much as 26.6% and 11 years old as much as 15.4%. While smokers among elementary school children are 24.3% (Sutha, 2018). Even though the impact of smoking is clear, for example, smoking behavior in children will have an impact on protest attitudes toward their parents, have uncontrolled emotions

and can change at any time and can lead to criminal acts such as theft (Ariasti & Ningsih, 2020). In addition, almost all diseases that exist in the body's organs are caused or exacerbated by smoking behavior. In this case family social support, especially from parents and peers, can be the main support that has an influence on children regarding smoking dependence.

Children who already smoke can spend approximately one pack a day and this will become a habit for children; this makes it difficult for children to stop smoking because cigarettes for them are like daily necessities that must be fulfilled (Riadinata, 2018). Smoking behavior which has been considered a habit and even a daily need for children is also strengthened because of the environment where the children are located. This is because the surrounding environment also has a significant influence on smoking behavior, such as the peer group environment, the community environment and their own family environment who are also active smokers (Hastin Fitria, 2019).

The family is the main thing that plays a role in teaching basic things about social education to children, this is because parents are the earliest possible sources to develop a level of social awareness in children such as a sense of help, mutual cooperation and other social life (Wahidin, 2019). Parents also have a role in carrying out social activities that are good and right, such as teaching polite behavior, greeting each other, loving each other between friends, making good and positive friends, teaching fair and honest attitudes in socializing, so this will have an impact on children regarding their smoking behavior (Efrianus Ruli, 2020).

According to Susanto, parental support is a form of encouragement that is considered very important, because this support affects academic success, positive self-image, behavior, self-quality, ideals and mental health. (Susanto, 2013) Families, especially parents, have an important task in shaping the child's personality, because parents will be role models in the development of children's behavior. In this case, the social support provided by parents has an influence on smoking behavior in children because in addition to peer environmental factors, parents are also a factor in children's smoking behavior (Lengkana et al., 2020).

Peers are interactions between teenagers who are the same age as other teenagers. Adolescent friendship is a social interaction that teenagers do. It is in this friendship that a relationship emerges in the teenager as a result of this form of social interaction. (Departemen Agama RI, 2012) Basically friendship has an important meaning, especially with peers or friends of the same age because in this case there is an interaction of social relations which will lead to reciprocal flows with the interlocutor. This reciprocal flow will later bring up the attitudes and behavior of the teenager, whether good or bad (Amalia et al., 2018).

Peers are the first and newest environment where they learn to live with other people who are not family members, who have characteristics, norms, and habits that are very different from those in the family environment (Wulan, 2017). Peer support is important information regarding the ensuring safety of children from the dangers of smoking due to following their environment. This is because childhood is a time to adjust to the environment as well as a turbulent period for high curiosity about something, wanting to get recognition from those around them and wanting to be appreciated in their peer group (Irwan & Nule, 2019).

In peer friendship it is very easy to influence their behavior. This is because their mindset is still said to not have a firm stand in taking and filtering what is obtained in their peer group. This peer relationship is used to develop socio-emotionality in children, because children who are not accepted in their peer group or become victims of bullying will feel lonely and can experience depression. Therefore, the influence given in peer groups on children is very important and influences the behavior (Sarmin, 2017).

The term social support often refers to various types of social relationships or social interactions between individuals who have close relationships to support the process of increasing or promoting the well-being of these individuals by acting on negative outcomes. The form of this support is in the form of understanding, advice, comfort, and real support from the surrounding environment (Hellfeldt et al., 2020).

Social support is a form of help, attention, acceptance, and appreciation

that individuals get from others. Gottlieb (2004) states that social support is in the form of advice or input given either orally or in writing, real or not, and this form of support is obtained from people who are close to the subject in their environment (Tsalits, 2013). Sarafino (2006) stated that social support is a behavior that gives comfort to others, looks after them, and appreciates them (Pontoh & Farid, 2015).

According to Santoso (2020), the forms of social support needed are emotional support (involving empathy, attention, encouragement, advice, and suggestions), information support (in the form of providing solutions, advice, and suggestions), instrumental support (in the form of material, facilities and infrastructure, advice, and suggestions), and award support (in the form of praise, gifts of goods or services, advice, and suggestions). Therefore, this study aims to analyze the social support of parents and peers in the case of child smokers in Pangarengan District, Sampang Regency.

METHODS

This type of research is qualitative research using a phenomenological approach. This research was conducted in Pangarengan District, Sampang Regency regarding the social support of parents and peers in the case of child smokers.

There are two types of informants in this study, namely main informants and additional informants. The main informants in this study were child smokers, totaling five people. While additional informants in this study amounted to 10 people, namely parents and peers. The selection of informants in this study used a purposive approach with the selection of informants determined through special considerations, namely willing to be an informant, able to communicate well, physically and mentally healthy, an active smoker or who had smoked, and aged under 18 years (Sugiyono, 2016).

Data collection techniques were carried out by in-depth interviews with informants using an interview guide. In addition to interviews, the researchers also conducted an observational study to assist this research if the data obtained from the interviews did not sufficiently provide the desired information. Documentation studies were also carried out in this study in the form of photographs

to support the desired information (Afrizal, 2016).

Data analysis was carried out using Thematic Content Analysis. The stages of data analysis carried out consisted of understanding the data, compiling codes, and looking for themes. Credibility in this study uses source triangulation by comparing information from main informants and additional informants, as well as technical triangulation by conducting observations and documentation studies (Rokhmah et al., 2019). This research has gone through an ethical review process at the Health Research Ethics Committee, Faculty of Public Health, University of Jember No. 191/KEPK/FKM-UNEJ.

RESULTS AND DISCUSSION

Description of Research Location

General description of the research location is Pangarengan District, Sampang Regency. Pangarengan District is the smallest sub-district in Sampang Regency and is located on the outskirts of the city, only approximately 9 kilometers from the center of Sampang City. Pangarengan sub-district has a population of about 21,586 people, all of whom adhere to Islam. The Pangarengan community often holds combo and dual dug-dug events as a form of preserving art and culture in the Sampang City area which is held every mid-month of Fasting and Eid (BAPELITBANGDA, 2019).

Pangarengan District has a tradition that is carried out when there is a celebration event such as a tahlilan. The owner of the event will provide food, drinks and cigarettes as a dish; cigarettes are a mandatory requirement that is always provided by the owner of the house. After the event is over, some people will stay up late at the owner's house, this will make the host provide cigarettes, even up to 3-4 boxes to be given or served to these people, including the children. This is due to the belief of those who think that, by socializing and chatting while smoking cigarettes, it will be easier to get a topic of conversation and is considered to strengthen the relationship. So it is not surprising to find children who are still in school already smoking. Moreover, it is supported by the absence of writings or advertisements regarding the dangers of smoking along the streets of Pangarengan District.

Description of Informants' Characteristic

The informants in this study consisted of five main informants and 10 additional informants. All the main informants of the study were aged 15-17 years and were in junior high school (SMP). All of the informants started to know about cigarettes from elementary school, while the informants started smoking from grades 5-6 of elementary school. The main informants often chat, play, exchange ideas and even tell stories with their peers rather than chatting and hanging out with their parents. Informants also often spend time with their peer group, especially on holidays. So it is not uncommon for informants to start smoking because of the influence of their peers.

Additional peer informants were at the age of 16 and 17 years and all of them were still in junior high school. This peer group is a group of friends from the main informant, but does not include friends who smoke. In addition, parents are aged 40 and over and the last education status of parent informants is three only elementary school graduates and two high school graduates. Additional informants are parents who work as pond workers and coolies, while some of the other parents work as traders.

Emotional Support for Child Smokers

This emotional support involves a sense of caring, empathy, sympathy, and a sense of concern for someone and provides a sense of comfort, warmth, confidence, a sense of care, and a sense of belonging and being loved when someone experiences a problem or stress. This emotional support is obtained by individuals from people who have close ties, such as parents and friends (Smigelskas et al., 2018).

The results of the study showed that all key informants received emotional support from additional informants. The following are excerpts from interviews with informants regarding emotional support:

"...I was reminded and told that smoking is not good and wasteful, but if your parents don't prohibit it too much, you can as long as you don't do too much, don't continue too, it's not good. Parents care, bro, often give advice too, often tell me not to smoke too much, don't smoke too often because it's not good for health, I'm afraid

that when you're an adult, you get sick, if you're a friend, it's just a reminder, bro, don't smoke too often, it's not good for health..." (IU 2, 16 Years).

Based on the results of the interview excerpt above, the informant has received a form of emotional support in the form of attention, concern, and positive encouragement from additional informants. So that the main informants feel happy because they get emotional support provided by their parents and peers.

According to Christiana, emotional support is characterized by the presence of someone who always accompanies, pays attention and appreciates what someone does (Christiana, 2020). This statement is in accordance with the research above, that parents and peers are someone who is close to the main informant and have provided emotional support to child smokers.

The emotional support provided by parents and peers has an influence on the child's psyche which makes him feel valued, cared for and loved by those closest to him, especially parents and peers. The attention given by parents and peers here is to provide encouragement, motivation, enthusiasm and psychological assistance so that children do not feel excluded and feel that they are cared for, loved and appreciated (Fauzyah et al., 2020).

Instrumental Support for Child Smokers

Instrumental support is support given by others directly in daily life. (Rif'ati et al., 2018) This support is usually given directly by the informant in everyday life and can be in the form of goods or services such as lending money, helping with assignments, giving advice or suggestions, and providing needed goods. The instrumental support referred to in this study is a form of daily support provided by additional informants to the main informants, whether in the form of services, goods, as well as advice.

The results showed that all parents and peers had provided instrumental support for child smokers. The following are excerpts from interviews with child smokers regarding the instrumental support provided by parents and peers:

"...If it's cigarettes, it's up to you, bro, sometimes you buy alone, sometimes together with friends. If my parents are not members, but they took my cigarettes, they were robbed, they continued to be lectured, also advised, told not to smoke, it's just like lecturing, mas, not giving it, and if a friend is the same, just give advice, tell me that's all it is, what about friends? -How is it different from your father..." (IU 4, 17 years).

Based on the interview excerpt above, parents and peers stated that they had provided instrumental support in the form of advice to child smokers. The support provided is not an item, because in this case both parents and peers do not support smoking in children. Therefore, the support provided is only in the form of advice not to smoke.

The explanation above is in accordance with previous research, namely according to Hurlock (in Kumalasari and Nur) saying that children get more social support from their peers. (Kumalasari & Nur, 2012) In this case, children are more comfortable complaining to their peers than their parents. This is done to reduce negative feelings, get positive encouragement and also to reduce the level of anxiety they face and to get the expected support (Rif'ati et al., 2018).

The provision of this instrumental support will help the main informant in his life, so that it does not have a high negative impact on the main informant's daily life and reduces stress levels in the main informant.

Appreciation Support for Child Smokers

Appreciation support is an expression of respect or appreciation that is positive, encouragement to move forward, positive suggestions, and a decision that has been made (Rif'ati et al., 2018). In this case, appreciation support is a form of positive support that is usually expressed to someone through suggestions, awards, praise, encouragement and agreements in the form of gifts when someone has done something positive within a predetermined grace period.

The results of the research conducted stated that all parents and peers have given appreciation support to child smokers in different forms. The

difference is in the form of support provided between parents and peers, and this has also been confirmed by key informants. The following are excerpts from interviews with key informants:

"...Just a reminder, bro, don't smoke too much because you're still young. At first, you're often said to be "as long as you're new so you don't have to stop, if you're offered, just refuse", bro. If your parents ever said you wanted to buy a monthly package, that's all you have to do is stop smoking..." (IU 3, 15 years old).

Based on the interview excerpt above, child smokers have received appreciation support from additional informants; this was conveyed by child smokers that their parents would buy a package with conditions to stop smoking.

According to Elistantia et al., parental appreciation support will provide a sense of security and will also lead to maturity in children in making decisions. Appreciation support also provides a sense of respect when the child has decided what he will choose and does not put pressure on the child. Giving awards or positive responses from parents and peers in response to smoking behavior in children is an attempt to increase the motivation of child smokers in an effort to quit smoking (Elistantia et al., 2018).

Appreciation support is given to someone when showing a positive appreciation for another individual, giving a sense of enthusiasm and positive encouragement and advice to the individual for the hard work done. In addition, award support is also given to individuals to provide motivation in making decisions. This award or positive response can be done by giving advice or praise (Pratiwi & Aksmiwati, 2013). Appreciation support in the form of suggestions, praise, and respect for the abilities and qualities that exist in children so that this will make parents a motivator for children.

Information Support for Child Smokers

Information support is support given by one person to another by conveying information he knows either directly or indirectly. This information support can be in the form of suggestions, directions, feedback as well as important information regarding a problem to be

conveyed (Rosalina & Apsari, 2020). The information support referred to in this study is the support given by parents and peers regarding the provision of information about the dangers of smoking and suggestions so that child smokers get information and increase their knowledge of the dangers of smoking.

The results showed that all parents and peers had provided informational support about the dangers of smoking to child smokers. This has been confirmed by child smokers regarding the information support provided, while the results of the interview are as follows:

"...When my parents found out I was smoking, they immediately gave me advice. The parents also told me that if I smoked from a young age, I would have lung disease, they said that my lungs could be black, bro, it could make you short of breath," he said. Parents, that's why at first forbid but now it's no longer mas even rationed cigarettes. Friends, I'm just giving advice, bro, if you give information from the cigarette pack, it keeps saying that cigarette smoke is dangerous for the surroundings, that's all, bro..." (IU 5, 16 years).

Based on the interview excerpt above, the information support provided by parents and peers is in the form of advice and the dangers of smoking, especially as a child. In addition to being given information by their peers that the cigarette smoke released can be harmful to the people around them. This is in line with research conducted by Budiyati and Suryati, that cigarette smoke released by active smokers causes health problems, especially in children; cigarette smoke can cause asthma and delays in mental development in children (Budiyati & Suryati., 2021).

According to Putri et al., information support is a form of support expressed by someone in the form of advice, providing the necessary information and conveying known information to those closest to him (Putri et al., 2019). Information support provided by parents and peers in this study is a form of concern for the health of child smokers and the desire to provide information

about the dangers that exist for health in smoking behavior in children.

CONCLUSION

The conclusion of this study is that the social support provided includes emotional support, instrumental support, reward support, and information support. Social support provided by parents and peers can affect the attitudes and behavior of child smokers, especially the attitude to quit smoking, besides it also affects the development process, self-confidence, and psychology in child smokers, because in this case, social support provides a sense of comfort, warmth, respect, and being loved by parents and peers. The advice given is that parents are expected to be more sensitive and pay attention to every behavior of their children and are expected to be closer, pay more attention to their children's health and become friends to chat with them more often at home, so that children are more open and not afraid when they want to say something.

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The Relationship between Early Marriage and Mental Health in Adolescent Girls in the KUA Ngemplak Yogyakarta

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ABSTRACT

Background: Early marriage occurs at the age of less than 19 years. The incidence of early marriage is caused by cultural factors of early marriage, married by accident, education, and low economic conditions all affect early marriage. The mental health impact of early marriage can lead to anxiety, stress, and depression. **Aims:** The purpose of this study was to determine the relationship between early marriage and mental health in adolescent girls. **Methods:** This study uses quantitative research methods using a cross-sectional research design. The total population is 49 people, and the sampling method used is total sampling. The study was conducted for 1 month. The research instrument used the DASS-21 questionnaire and data collection sheets. The data analysis of this research was univariate and bivariate analysis. **Results:** The results showed that the frequency of adolescents experiencing severe stress was 40.8%, very severe anxiety reached 42.9%, and very severe depression reached 53.1%. There is a relationship between early marriage and severe stress with a p-value of 0.001, there is a relationship between early marriage and very severe anxiety with a p-value of 0.001, and there is a relationship between early marriage and very severe depression with a p-value of 0.004. **Conclusion:** It can be concluded that early marriage has a relationship with mental health in adolescent girls in the Ngemplak Region and future research should involve husbands in in-depth qualitative research exploring in depth the causes of the mental health of young women who took early marriages.

Keywords: Adolescent girl, Early marriage, Mental health.

INTRODUCTION

Early marriage is globally highest in Sahara Africa, with 4 out of 10 women under the age of 18. Indonesia is ranked 7th in the world for the highest early marriage category around 1,220,900 Indonesian children experiencing early marriage, based on UNICEF data (UNICEF, 2019). The number of child marriages in Indonesia ranks 2nd and among ASEAN countries after Cambodia (Rahmawati 2020). Based on data from the Central Statistics Agency (BPS), there was a decrease in marriage before the age of 18 in adolescent girls in 2018 by 11.21% down to 10.82% and in 2019-2020 there was a significant increase during the pandemic to reach 24 thousand (The Ministry of Women's Empowerment and Child Protection, 2021). Adolescent girls married at the age of <18 years as much as 63.08%, meaning that 1.95% first

experienced pregnancy at the age of <15 years. For young women who get married at the age of <15 years old in their pregnancy is as much as 46.84% (Badan Pusat Statistik, 2020).

The Head of the Office of Women's Empowerment, Child Protection and Population Control said that in the Special Region of Yogyakarta in 2021, the incidence of early marriage increased drastically due to a revision to the marriage age limit, that is the age of 19 years. Early marriage in the Special Region of Yogyakarta occurred at vulnerable ages 18-19 years (Agus Dwi, 2021). The analysis of the Office of Women's Empowerment Child Protection and Population Control showed that the number of children who married younger than 18 increased from 271 to 494 due to pregnancy and childbirth before marriage. In Sleman Regency, there are 343 applications for dispensation (Agus Dwi, 2021).

The cause of adolescent girls marrying early is due to accidental marriage or the occurrence of pregnancies out of wedlock in young women, caused by lack of knowledge, curiosity, wanting to try and wrong associations. The low economic status in the families that are unable to meet the living expenses of their children and low education factors also contribute to make adolescent girls marry at an early age, such as elementary or junior high school graduates. The mental health impacts of early marriage can lead to anxiety, stress, and depression. It can happen because mental maturity is not optimal and stable yet. This situation can trigger the emergence of various problems in domestic life caused by unstable emotions (Minarni, Andayani and Haryani, 2014).

According to Riskesdas data in 2018, the prevalence of mental health disorders is increasing from year to year by 9.8% (The Ministry of Health 2018). Indonesians aged 15-24 years old experience mental disorders in the form of stress, anxiety, and depression (Data and Information Center of the Ministry of Health of the Republic of Indonesia 2019). There is a prevalence of mental disorders in D.I Yogyakarta which includes depression, anxiety and stress, in the adolescent population aged 15 years and over by 8.1 (Ministry of Health of the Republic of Indonesia (2018). The purpose of this study was to determine the relationship between early marriage and mental health in adolescent girls.

METHODS

This research uses quantitative research methods, with a cross-sectional time approach. The population in this study was 49 young women who married early. The sampling technique used was total sampling, and the research instruments used DASS-21 questionnaires and data collection sheets. The data analysis of this study used univariate and bivariate analysis. The bivariate test in this study uses the Spearman Rank Analysis Technique. This research also pays attention to the code of ethics, included informed consent, anonymity, confidentiality and conducting ethical feasibility. The location of data collection was the religious Affairs Office in

Ngemplak area, Sleman district. Before conducting the research, the researcher had conducted an ethical test with the number 2026/KEP-UNISA/IV/2022.

RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics of Respondents	Category	F	%
Wife's work	Self-Employed	4	8.2
	Entrepreneur	14	28.6
	Unemployed	25	51.0
	Do other job	6	12.2
Respondent's knowledge of the marriage law	Correct	3	6.1
	Incorrect	3	6.1
	Don't know	43	87.8
Marriage history of parents	Divorce	5	10.2
	Not divorce	44	89.8
Parents' married age	<19 years old	11	22.4
	≥19 years old	38	77.6

In Table 1 it can be seen that most of the respondents are unemployed (51%), most of respondents do not know about marriage law (87.8%), and most of the respondents have a marital history of parents who are not divorced (89.8%), and most of the respondents' parents' marriage age was >19 years (77.6%).

Table 2. Frequency Distribution of Research Variables.

Variable	Mean	Standard deviation	Min	Max
Early marriage <19 years	16.78	0.941	15	18

The average age of adolescents married was at the age of 16.78 years with the youngest age of 15 years and the oldest age of 18 years. The standard deviation is 0.941.

Table 3. Dependent Variable Frequency Distributions.

Variable	Category	N	F	%
Stress	Usual	4	1	30.
	Mild	9	5	6
	Moderate	0	0	

	Severe	1	28.
	Extremel	4	6
	y severe	2	40.
		0	8
		0	0
Anxiety	Usual	4	2 4.1
	Mild	9	4 8.2
	Moderate	8	16.
	Severe	1	3
	Extremel	4	28.
	y severe	2	6
		1	42.
			9
Depressio	Usual	4	2 4.1
n	Mild	9	0 0
	Moderate	1	24.
	Severe	2	5
	Extremel	9	18.
	y severe	2	4
		6	53.
			1

The highest frequency of adolescents who experienced stress was in the category of severe stress at 40.8%, young women who experienced very severe anxiety reached 42.9% and the frequency of depression was in the category of very severe depression reaching 53.1%.

Table 4. Relationship between Early Marriage and Stress in Adolescent Girls.

Stress level	Score	P-Value	Correlation coefficient
Normal	30.6%	0.001	0.484
Mild	0%		
Moderate	28.6%		
Severe	40.8%		

Based on bivariate results on stress, the relationship between early marriage and stress has a significance value of $0.001 < 0.05$. This means that there is a relationship between early marriage and severe stress in young women. Based on the cross-tabulation table, it was found that adolescents who married early experienced severe stress as many as 20 people. The result of the correlation coefficient is 0.484 which means that there is a significant relationship between early marriage and stress. The results of the study showed that 20 adolescents experienced severe stress due to early marriage (40.8%). Severe stress can last from several hours to several days. The inability of adolescents to adapt well to surrounding conditions (stressors)

can be a trigger for other disorders such as biological, social and spiritual. Thus, a person who has a stressor needs individual maturity in any case and vigilance in everyday life. Immature age can affect the mentality of young women as young mothers who have assumed the responsibility of being parents and wives who are not supposed to be parents at the age of <19 years (Jamil, 2019). This is in accordance with research by Fatmawaty (2017) where the development of late adolescence means emotions that tend to be higher than childhood, this is because it exists under social pressure and faces new conditions. Meanwhile, during childhood, they are not prepared enough to face people's lives so that, with age, they learn to adapt to the situation and have a good tolerance for stressors. Destia (2016) also states that women who marry early have mental health disorders, cannot control emotions and manage stress, so that if they cannot adjust to the environment and with a new status, it can lead to stress.

According to Sarwono and Sarlito (2016), the occurrence of early marriage is due to the existence of a free environment between the sexes in adolescence which as seen in daily life is increasingly unnatural and has no limits. Marriage at an early age ultimately creates problems, and in no case does early marriage in adolescence ever benefit, adolescence should be a transitional period to adulthood. Solutions to solve stress problems experienced by young women are by providing support for their mental health as a whole through increasing psychological well-being, creating supportive living conditions and environments and early detection of mental health to reduce mental health disorders (Haines, 2019).

Table 5. Relationship between Early Marriage and Anxiety in Adolescent Girls.

Anxiety level	Score	P-Value	Correlation coefficient
Normal	4.1%	0.001	0.465
Mild	8.2%		
Moderate	16.3%		
Severe	28.6%		

The results of anxiety obtained that the relationship between early marriage and anxiety had a significance value of $0.001 < 0.05$. This illustrates that there is a relationship between early marriage and extreme anxiety in young women. Based on

the results of the analysis, it was found that the majority of adolescents who married early experienced very severe anxiety, as many as 21 people. The result of the correlation coefficient is 0.465, which means that there is a significant relationship between early marriage and adolescent anxiety. From the results of the study, it is known that 21 adolescents aged <19 years (42.9%) experienced very severe anxiety. This can happen because young women do not earn income, the existence of early marriage culture, an early marriage environment, last education and pre-marital education. This anxiety disorder causes feelings of excessive fear to damage the ability of adolescents to participate in daily activities (Livia Prajogo and Yudiarso, 2021).

This is also stated by Syalis and Nurwati (2020) that the anxiety experienced by early marriage families can be interpreted as mixed feelings containing fears and worries in dealing with problems that arise in their family. Anxiety in adolescents who marry early is due to adolescents experiencing a faster process of physical maturity compared to their mentality. Young women are more prone to experience anxiety when facing problems. So that teenagers who marry early tend to experience anxiety (Rahayu, 2018). This is in line with the research of Efevbera et al. (2017) which explains that early marriage makes women experience pain, sadness, anxiety, and despair. This is in accordance with research of Mangande and Lahade (2021) in that the severe anxiety experienced by a woman as a wife in an early marriage can be interpreted as a feeling that describes the fear and worry of facing problems that will occur in her marriage. Mental health disorders in adolescents who marry younger than 18 years old are caused because adolescents cannot manage emotions properly, selfishness is still high, and there is unpreparedness in marriage (Alfina, Akhyar and Matnuh, 2016; Dwi Rahmawati, 2020; Nafikadini, Insani and Luthviatin, 2021).

Table 6. Relationship between Early Marriage and Depression in Adolescent Girls.

Depression level	Score	P-Value	Correlation coefficient
Normal	4.1%	0.004	0.406
Mild	0%		

Moderate	24.5%
Severe	18.4%

Based on bivariate results in depression, the relationship between early marriage and depression has a significance value of $0.004 < 0.05$. This illustrates that there is a relationship between early marriage and severe depression in young women. Teenagers who married early mostly experienced very severe depression in the very severe category, which is 26 people. The result of the correlation coefficient is 0.406, which means that there is a low but certain relationship between early marriage and depression in young women. Based on the results of the study, it was found that 26 adolescents aged <19 years (53.1%) experienced very severe depression.

According to Walgito and Bimo (2015), getting married at an early age has two quite severe impacts, namely in terms of physical and mental aspects. If teenagers marry at a fairly young age, their emotions are not yet stable. Emotional stability generally occurs at the age of over 20 years, because at this time a person begins to enter adulthood. Adolescence can be said to just stop at the age of 19 and where a person gets married at the age of 20-24 years, at that age they can be called a young adult or lead adolescent. In those times, the transition from adolescent turmoil to stable adulthood usually begins. In this case women are almost twice as likely as men to experience very severe depression. So, it can be concluded that women with early marriage have a heavy burden at their young age ranging from emotional adjustment, environmental pressures, lack of education, economy, and raising children. Handling mental health problems, especially severe depression, requires treatment with psychological therapy (interpersonal therapy, group counseling and social support, humor therapy, cognitive therapy) and changes in healthy lifestyles, such as exercising, thinking positively, managing diet, praying, recreation and having the courage to change yourself for the better at a young age as a mother and wife (Dirgayunita, 2016). In addition, depression can be prevented from continuing or not coming back by being realistic about what we hope for and what can be done, not blaming ourselves or others, not comparing ourselves with other people or other

people's lives, the need of family support, social needs and not being alone, staying away from relationships, socializing more, and doing activities with the surrounding environment (Dirgayunita, 2016).

CONCLUSION

From this research it would be concluded that, first, young women who had early marriages in Ngemplak District, Sleman Regency, had mental health disorders as many as 20 people (40.8%) and experienced severe stress with a p-value of 0.001. Among stress, anxiety and depression, stress has the highest correlation coefficient. So that early marriage greatly affects stress in young women. Second, young women who had early marriages in Ngemplak District, Sleman Regency, had mental health disorders as many as 21 people (42.9%) and experienced very severe anxiety with a p = value of 0.001. Third, young women who had early marriages in Ngemplak District, Sleman Regency, had mental health disorders as many as 26 people (53.1%) and experienced very severe depression with a p = value of 0.004. Fourth, subsequent research using a larger sample size should be wider in scope. Fifth, subsequent research will emerge the data on husband's characteristics, age, occupation and marriage. Last, religious offices can work together and collaborate with midwives and psychologists at the health service of the Ngemplak Community Health Center. They can conduct socialization and counseling with video media for early marriage education for young women to prevent early marriage, mental health disorders in young women, the impact of early marriage and is expected to improve cross-sectoral collaboration with PIK-R to conduct counseling as well as socialization regarding early marriage and mental health.

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Circumstances of Internet Addiction and Its Influencing Factors among Adolescents in the Second Years of the Covid-19 Pandemic

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ABSTRACT

Background: Internet use by adolescents has increased rapidly in recent decades. This has been particularly evident during the Covid-19 pandemic due to the shift from face-to-face to online learning. Internet use has become convenient and commonplace. However, negative use can cause internet addiction, which interferes with brain or mental function in everyday life. **Purpose:** The aim of this survey is to analyze the prevalence of internet addiction and the factors that affect it. **Methods:** This cross-sectional analytical survey was conducted online with adolescents living in the city of Medan, North Sumatra, from August to November 2021. The demographic data came from a self-reported structured questionnaire, and internet addiction was assessed using the Internet Addiction Diagnostic Questionnaire (KDAI) in Indonesian. The data were processed with descriptive statistics and presented in the form of frequency distribution. Factors affecting the occurrence of internet addiction were analyzed using nonparametric tests. **Results:** Among the 110 adolescent respondents, the prevalence of internet addiction was 40.0%. The majority of those experiencing internet addiction had a high-school education (56.8%) and were girls (52.3%), firstborn (41.0%), and aged 17-19 (40.9%). The total daily and weekend internet use levels were medium (81.8% and 61.4%, respectively). Total daily internet use time was a statistically meaningful factor affecting the occurrence of internet addiction in adolescents ($p = 0.014$). **Conclusion:** The prevalence of internet addiction in adolescents is quite high, and total daily internet use was a factor affecting it.

Keywords: Adolescents, Covid-19, Influencing factors, Internet addiction.

INTRODUCTION

Internet use has increased rapidly in recent decades, particularly among adolescents (Ozkan and Solmaz, 2015; Issa and Isaias, 2016). Access to the Internet is now very convenient and widespread (LaRose *et al.*, 2014). Although this has brought about many positive consequences, it also has the potential to cause harm. Positive consequences include ease of communication and greater access to information and education. The potential for harm is that frequent internet use can lead to internet addiction (Yung *et al.*, 2015). Internet usage in Indonesia has increased annually, based on data from the Association of Indonesian Internet Service Providers. At the end of 2017, the number of internet users in the country reached 143 million. In 2018, this number increased to 171 million. The island of Java has the most internet users, followed by the island of Sumatra. On the latter, North Sumatra Province has the most internet users, with

6.3% of its population (Kompetitif, no date).

Internet addiction is becoming a serious problem globally, particularly in adolescents (Wang *et al.*, 2015). A study conducted on 987 adolescents in India showed that 0.7% experienced internet addiction (Goel, Subramanyam and Kamath, 2013). Meanwhile, a study of 596 adolescents in Padang, West Sumatra, revealed medium-category internet addiction in 50% of participants (Fitria *et al.*, 2018). Excessive internet use can lead to mental health problems, such as anxiety and depression (Goel, Subramanyam and Kamath, 2013), as well as reduced academic performance (Zhang, Qin and Ren, 2018; Mohamed and Bernouss, 2020). All of the above studies used the Internet Addiction Test to assess Internet addiction (Jayanthi *et al.*, 2015; Wang *et al.*, 2015; Fitria *et al.*, 2018) (Zhang, Qin and Ren, 2018; Mohamed and Bernouss, 2020). The IAT has been translated into Indonesian with excellent reliability and good

sensitivity (Fitria *et al.*, 2018; Siste *et al.*, 2021). Factors that influence internet addiction include poorer academic achievement, experiencing more family conflict, less family communication, and negative relationship with teachers (Xin *et al.*, 2018; Chi, Hong and Chen, 2020).

This study was conducted because our center did not have basic data on internet addiction and the factors affecting it in adolescents, including for the period of the Covid-19 pandemic. The main purpose of this study was to determine the prevalence of internet addiction in adolescents and the factors affecting it.

METHODS

Cross-sectional analytical survey research was conducted online with adolescent respondents living in the city of Medan, North Sumatra. The research took four months in total, from August to November 2021. The research sample consisted of adolescents aged 10 to 18, with a consecutive sampling of 110 individuals.

This research was approved by the Research Ethics Committee of the Universitas Sumatera Utara (No:727/KEP/USU/2021). The study used a self-reported structured questionnaire to collect information on age, gender, birth order, education level, and total daily and weekend internet use time. The Indonesian version of the Internet Addiction Diagnostic Questionnaire (KDAI) was used to determine internet addiction in the last 12 months. The KDAI has excellent reliability, with a Cronbach's alpha of 0.942 and a sensitivity of 91.8%. It consists of 44 statements. Each statement has seven answer options, consisting of always, very frequently, frequently, sometimes, rarely, very rarely, and not applicable. The total KDAI score is categorized as normal usage (0-107) or internet addiction (108-264) (Siste *et al.*, 2021). If a respondent did not fill in the data completely, their responses were excluded. The data were analyzed using SPSS version 23. All data were analyzed with descriptive statistics and presented in the form of frequency distribution. The factors influencing the occurrence of internet addiction were analyzed using the Kruskal Wallis test and the Mann-Whitney U test, with a significance level of $p < 0.05$.

RESULTS AND DISCUSSION

A total of 110 respondents completed the questionnaire, among whom the incidence of internet addiction was 40.0%. The majority who experienced internet addiction had a senior high-school level of education (56.8%) and were girls (52.3%), firstborn (41.0%), and aged 17-19 (40.9%). The total daily and weekend internet use levels were medium (81.8% and 61.4%, respectively; Table 1).

Table 1. Basic characteristics of research respondents.

Characteristic	Internet addiction	
	Yes (n= 44)	No (n= 66)
Age, n (%)		
10-13 years (early adolescence)	9 (20.5)	20 (30.4)
14-16 years (middle adolescence)	17 (38.6)	23 (34.8)
17-19 years (late adolescence)	18 (40.9)	23 (34.8)
Gender, n (%)		
Boy	21 (47.7)	34 (51.5)
Girl	23 (52.3)	32 (48.5)
Birth order, n (%)		
First	18 (41.0)	31 (47.0)
Second	13 (29.5)	16 (24.2)
Third or later	13 (29.5)	19 (28.8)
Education level, n (%)		
Primary school	2 (4.5)	7 (10.6)
Junior high school	12 (27.3)	16 (24.2)
Senior high school	25 (56.8)	33 (50.0)
College	5 (11.4)	10 (15.2)
Total daily internet use in hours, n (%)		
<3 h (low)	3 (6.8)	9 (13.7)
3-16 h (medium)	36 (81.8)	55 (83.3)
>16 h (high)	5 (11.4)	2 (3.0)

Total internet use hours, n (%)	weekend use in	
<3 h (low)	2 (4.5)	5 (7.6)
3-16 h (medium)	27 (61.4)	50 (75.7)
>16 h (high)	15 (34.1)	11 (16.7)

The top three electronic devices used to access the internet were smartphones (98.2%), laptops (37.3%), and PCs and tablets (both 8.2%). The top five online activities were studying (72.7%), information-seeking (68.2%), chat (63.6%), gaming (55.4%), and streaming (38.2%). The top five applications used were WhatsApp (87.3%), YouTube (72.7%), Instagram (52.7%), Google Meet (50.0%), and Zoom (44.5%; Figure 1).

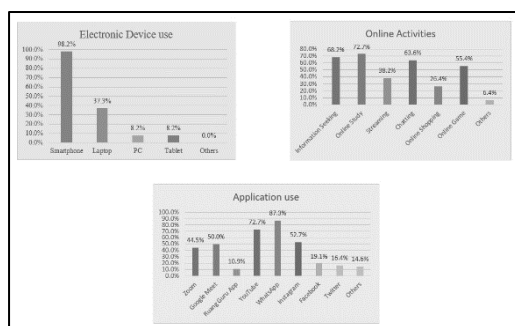


Figure 1. Electronic device use, online activities, and application use when accessing the internet.

The factor that affected the occurrence of internet addiction was total daily internet use time ($p = 0.014$; Table 2), while age, gender, birth order, education level and total weekend internet use time have no statistical effect.

Table 2. Factors influencing the occurrence of internet addiction.

Characteristic	Mean rank	p-value
Age		
10-13 years (early adolescence)	42.88	
14-16 years (middle adolescence)	59.96	0.460 ^a
17-19 years (late adolescence)	60.07	
Gender		
Boy	55.46	
Girl	55.54	0.990 ^b
Birth order		

First	51.16	
Second	59.33	0.440 ^a
Third or later	58.67	
Education level		
Primary education	34.33	
Junior high school	56.14	0.206 ^a
Senior high school	58.70	
College	54.63	
Total daily internet use in hours		
<3 h (low)	39.21	
3-16 h (medium)	55.48	0.014 ^a
>16 h (high)	83.64	
Total weekend internet use in hours		
<3 h (low)	40.93	
3-16 h (medium)	53.63	0.134 ^a
>16 h (high)	64.96	

^a Kruskal Wallis test; ^b Mann-Whitney U test

The post hoc test using Mann-Whitney U test to determine the difference in the average KDAI score between two groups of total daily internet use. Mean rank of KDAI score in low total daily internet use (7.67) is lower than high (14.00), likewise medium total daily internet use (47.64) is lower than high (73.64). There was a difference in the average KDAI score by total daily internet use, with z-value -2.366 between low and high, -2.332 between medium and high, respectively (Table 3).

Table 3. Post hoc test results.

Total daily internet use	Mean rank	z-value	p-value
<3 h (low)	38.04		
3-16 h (medium)	53.84	-1.722	0.085
<3 h (low)	7.67		
>16 h (high)	14.00	-2.366	0.018 [*]
3-16 h (medium)	47.64		
>16 h (high)	73.64	-2.332	0.020 [*]

^{*} Mann-Whitney U test

This study found that the incidence of internet addiction in adolescents in the city of Medan was high, at 40%. This is higher than in the previously mentioned study in India (0.7%) (Goel, Subramanyam and Kamath, 2013).

However, medium-category internet addiction (20%) is lower than in the study in Padang (50%) (Fitria *et al.*, 2018). This difference can be explained by how the sample in the current study was 10-20% of the study samples in India and Padang.

Internet addiction was more prevalent in girls (52.3%) and in those aged 17-19 (40.9%). This is in contrast to a Chinese study, which found a higher incidence of internet addiction among boys (54.0%) (Chi, Hong and Chen, 2020). This can be explained by how most of the respondents in the current study were girls (52.3%) and teenage girls are more likely to use social media, online shopping, sharing for information, messaging services, videos, in contrast to boys who prefer to play online games or searching for information. Late adolescents aged 17-19 years have reached the final stage of high school education and early stage of college. At this time, teenagers often access the internet for the purposes of academic and non-academic activities. This survey was conducted at the time of entering school, where face-to-face is still limited with hybrid learning methods, some students study in class, others study online and the time spent studying is about three to four hours a day. Thus, students who study online tend to continue to access the internet. However, during the holidays before starting school or college, more time is spent on the internet.

The study found that the education level of adolescents who experienced internet addiction was mostly senior high school (56.8%). This is likely because most of the respondents who filled out the questionnaire were high school teenagers. Furthermore, during the Covid-19 pandemic, high-school education has involved many internet-based activities, such as online study, searching and sharing for information, sending assignments, messaging, and online games. These results are in line with research conducted in China (Xin *et al.*, 2018).

The majority of adolescents used smartphones for internet activities (98.2%), because they are easy to carry, can be used anywhere and anytime, have interesting features such as social media, SMS services, music, podcasts, radio, video and online TV. This result is the same as that of a meta-analysis of digital-device use by adolescents (Marciano *et al.*, 2022). The most common online activity among

participants was learning (72.7%). This can be explained by the shift from face-to-face to online learning during the Covid-19 pandemic. It should be noted, however, that face-to-face learning has recently begun to return, albeit under strict health protocols. These results are consistent with those of previous studies (Gedam *et al.*, 2017).

The app most widely used by adolescents when accessing the internet was WhatsApp (87.3%), which allowed them to communicate with family and school friends by text or call. Another use of WhatsApp can be as a medium to send files in various forms such as Word, Excel, PowerPoint, pdf, and jpg. This makes it easier for adolescents to send assignments to their teachers and sharing information between teenagers. This result also featured in research conducted nationally in Indonesia (Siste *et al.*, 2020).

The most common total daily internet use time by adolescents who experienced internet addiction was 3-16 hours (81.8%). This medium daily use of the internet occurs because, during the pandemic, there was a policy for the implementation of adolescents' education through online with a time of three hours per day. In addition, adolescents also use the internet to complete homework; finally the internet usage is more than three hours per day. This result is the same as in previous studies (Mohamed and Bernouss, 2020; Siste *et al.*, 2020).

Total daily internet use was the factor affecting the occurrence of internet addiction in adolescents, with an effect when the time was greater than 16 hours. The more time spent doing online activities, the higher the total KDAI score. Internet users do not realize if the time is used more and more. Initially only a few hours, but because the internet content was interesting, it made users not realize that more and more time was being spent. If this is done for days and without parental supervision when accessing the internet, it will allow internet usage to reach 24 hours per day. Eventually, users will experience internet addiction. The results of this study are in line with research conducted nationally in Indonesia (Siste *et al.*, 2020).

The advantage of this study is that it can be conducted anywhere and at any time. Moreover, as long as the network connection is good, the results can be obtained immediately. There are,

however, several shortcomings in the study. These include incomplete answers and more than one answer to a question being filled in, with the result that only 110 of the 946 respondents (12%) filled in all parts of the survey correctly. This is perhaps due to the different education levels of the respondents, which may have caused an unequal understanding of the survey contents. If the survey were conducted in person rather than remotely, respondents could seek clarification from the researcher when confused. Unfortunately, however, face-to-face contact is not always possible during the Covid-19 pandemic. Other possibility could be due to the use of a mandatory mark in each statement, so it cannot be submitted if not filled out completely.

CONCLUSION

The prevalence of internet addiction in adolescents in Medan city is quite high and the influencing factor is total daily internet use. The problem of internet addiction among teenagers should not be underestimated, as it can interfere with their behavior, daily activities, and mental health. Parents need to monitor their adolescent children's internet use to ensure that it is not excessive. Teenagers should also be made aware of the risks of internet addiction and be taught how to protect themselves against it. Other stakeholders also involved in internet addiction prevention include school or college authorities, health and social care providers, and digital and gaming companies.

For school authorities, it can start with developing an online safety learning system, communicating rules and policies of online learning for students and parents, and training teachers to detect earlier the possibility of internet addiction. Health and social care providers play a role in providing education on the risk of internet addiction, how to detect and prevent it and provide support. Digital and gaming companies can add parental control features in online activities and games, or create a game program involving more physical activity.

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I Don't Want to Think About It!: A Qualitative Study of Hypertensive Women's Awareness and Perception of Heart Disease

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ABSTRACT

Background: Research has shown an increasing number of young women between the ages 35 and 54 having heart attacks. However, data demonstrated a persisting failure to raise women's awareness of cardiovascular disease risk. Moreover, very little has been done to date in low- and middle-income countries to educate women on cardiovascular disease risks and the high mortality rates for women. **Aims:** The aim of this study was to explore hypertensive women's awareness and perceptions of heart disease. **Methods:** A qualitative research design using semi-structured interviews was performed. Data were analyzed using an inductive thematic analysis approach. **Results:** In total, 25 women participated in this study. Three main themes emerged: (1) perception of heart disease and its risk factors, (2) 'I don't want to think about it': perspectives on future risk, and (3) strategies to prevent heart disease. From the participants' narratives, it was evident that the women in this study had limited knowledge related to heart disease. Although all participants suffered from hypertension, the women still underestimated their risk of developing heart disease in the future. Many women believed that praying to God and maintaining an optimistic mindset could protect them from heart disease. **Conclusion:** The study's findings highlight a clear indication of the need to implement renewed strategies for educating women about cardiovascular health tailored to target the rural populations in Indonesia. Raising women's awareness might reduce their risk of suffering from cardiovascular disease in the future.

Keywords: Awareness, Cardiovascular disease, Health promotion, Perception, Qualitative research, Women.

INTRODUCTION

CVD (Cardiovascular Disease) has been widely associated with male illness (Emslie, 2005; Lockyer & Bury, 2002); however, the latest nationwide study in the US reported an increasing number of women's mortality under 65 from heart disease (S. U. Khan et al., 2022). Recent studies have found an increasing number of women in their late forties and early fifties that have heart attacks (Arora et al., 2020; S. U. Khan et al., 2022).

Prompt recognition of the symptoms of a heart disease and prompt access to emergency care after the onset of heart disease symptoms are critical to the achievement of optimal acute medical therapies for women (DeVon et al., 2011). Unfortunately, the studies found that women were more likely than men to experience delays in getting their first medical contact after the symptoms

occurred (Bugiardini et al., 2017). Although the actual reasons for this delay from the patients' perspectives are still unclear, it might be related to women's lack of knowledge regarding heart disease signs and symptoms. Several studies reported that many women with chest pain often considered their pain as normal and searched information from unreliable sources (McSweeney et al., 2016; Mehta et al., 2016).

Regardless the massive efforts and national awareness campaigns by many organizations to increase women's awareness of heart disease for the last decade, the latest study found that there has been a decline in women's awareness of CVD and its symptoms (Cushman et al., 2021). As in the previous survey, many women still did not realize that heart disease is the number one cause of death for women and instead identified cancer as the leading cause of death. Moreover,

many women still perceived themselves to be at a low risk for heart attack before the menopause (Sniderman et al., 2016). Ironically, studies of young heart attack patients show that women with heart disease were less likely to receive timely heart disease medications and aggressive treatments (Arora et al., 2020; Bugiardini et al., 2017) and also less likely to be told by their physicians that they were at risk for heart disease before the attack (Bucholz et al., 2017). This complex situation probably explains why women delay seeking treatment after the onset of signs and symptoms of heart disease.

Patients' awareness of the disease and their ability to recognize its signs and symptoms are vital so that they can receive timely CVD treatments. Despite CVD being the number one cause of death among women in Indonesia, studies exploring women's awareness of CVD could not be found. Investigating women's knowledge and awareness about CVDs in community settings would provide a basis for healthcare providers in designing appropriate and culturally relevant educational programs for women to close the gender gap of heart disease knowledge and care. Therefore, the aim of our study is to investigate the awareness and perceptions of heart disease among women with hypertension in rural and suburban areas of Yogyakarta, Indonesia.

METHODS

This study employed a qualitative descriptive study design. This study was supported by a constructionist epistemology, which assumes that "meanings are constructed by human beings as they engage with the world they are interpreting" (Crotty, 1998). This qualitative study conforms with the tenets laid out in the Declaration of Helsinki (Rickham, 1964) and was approved by the Institutional Review Board at the university (No. 157/EC-KEPK FKIK UMY/V/2020).

This research was conducted in four districts in Yogyakarta province that represent rural and suburban areas from June to August 2020. The researchers used purposive sampling to select the participants. The inclusion criteria for the participants were: (1) women who were above 18 years old; and (2) women who had been diagnosed with hypertension by a physician, received hypertension

medication, or had a history of systolic blood pressure (SBP) ≥ 140 mmHg and/or a diastolic blood pressure (DBP) ≥ 90 mmHg. Health cadres in *Posbindu*, which is an integrated community-based intervention for non-communicable diseases surveillance, helped the researchers to recruit participants.

The participants were informed verbally of the overall purpose of the study before they signed the informed consent form. Semi-structured and in-depth interviews were conducted between June and August 2020. The interviews focused on the participants' perceptions about heart disease risk factors, their awareness and perceptions of heart disease, prevention strategies, and their future risk perceptions.

We followed the steps of inductive thematic analysis as outlined by Braun and Clarke (2006). We conducted verbatim transcription. We began the data analysis by reading and re-reading the transcripts and revisited audio recordings to get the data's immersion. Afterwards, we coded the interview transcripts line-by-line using the data analysis software Atlas.ti 8. Once all the data were coded, we searched for patterns and themes and reviewed the themes until we produced the final analysis. The authors met regularly to discuss and review the themes until consensus was reached. In writing the report for this study, we adhered to the 32-item consolidated criteria for reporting qualitative research (COREQ) developed by Tong, Sainsbury and Craig (2007).

To ensure the trustworthiness of this study, we followed the steps outlined by Lincoln and Guba (1985), including credibility, transferability, dependability, and confirmability.

To ensure the findings' credibility, we spent sample time in data collection and analysis. We also kept memos regarding sampling, data collection, and data analysis to record analytic decisions throughout the study. Transferability was strengthened by providing a detailed description of the research setting, method, participants, and theoretical assumptions underpinning the study. Dependability was maintained using Atlas.ti 8 to store and manage data to facilitate the audit trail.

RESULTS AND DISCUSSION

In total, twenty-five women (n = 25) with hypertension (Table 1) participated in this study. Women's age ranged from 43 to 66 years (mean [SD], 52.52 [6.04] years), received a hypertension diagnosis between 5 months and 30 years (mean [SD], 9.74 [10.30] years) before the interview, and 19 out of 25 women (76%) took blood pressure medication regularly.

Table 1. Participants' characteristics

No.	Age	Education	Medication	Time since diagnosis
1	55	PS	Yes	5 months
2	51	SHS	Yes	6 years
3	55	PS (DO)	Yes	7 months
4	45	PS	Yes	17 years
5	56	PS	Yes	2 years
6	46	SHS	Yes	20 years
7	47	Bachelor	Yes	4 years
8	66	PS	Stopped	10 years
9	53	PS	Stopped	23 years
10	46	SHS	Yes	18 years
11	60	JHS	Yes	28 years
12	62	SHS	Yes	32 years
13	50	SHS	Yes	16 years
14	65	PS	Yes	30 years
15	47	SHS	Yes	11 years
16	49	SHS	Stopped	2 years
17	49	JHS	Yes	5 months
18	50	SHS	Stopped	2 years
19	51	SHS	Stopped	10 years
20	50	SHS	Stopped	2 years
21	43	SHS	Yes	2 years
22	56	SHS	Yes	3 years
23	55	SHS	Yes	2 years
24	55	JHS	Yes	1 years
25	51	SHS	Yes	1 years

PS: Primary school

JHS: Junior high school

SHS: Senior high school

DO: Drop out

From the data analysis, we identified three major themes, namely: (1) perception of heart disease and its risk factors, (2) 'I don't want to think about it': perspectives on future risk, and (3) strategies to prevent heart disease.

Perception of heart disease and its risk factors

During the interview, we asked participants' perception related to heart disease, in terms of its definition, risk factors, and signs and symptoms.

a) Risk factor of heart disease

The participants described heart disease as a severe disease that happened unexpectedly and could attack everyone, even those who practiced a healthy

lifestyle. CVD risk factors as described by participants could be divided into two types: 1) modifiable risk factors (i.e. high blood pressure, smoking, stress, overweight/obesity, lack of physical activity, and unhealthy diet), and 2) non-modifiable risk factors (i.e. age, sex, and family history). Participants explained:

"I think older people are at a higher risk of suffering from heart disease..." (P18)

"If the parents suffered from heart disease, there is a higher chance of the children will also suffer from it." (P20)

Almost all participants attributed emotional stress as the primary cause of heart disease. Several stress sources, including job stressors, family responsibilities, financial issues, physical exhaustion, or unexpected stressful event could lead to heart disease. For this reason, according to participants' description, heart disease's most prominent risk factor for both men and women came from their minds. One participant who suffered from hypertension for 30 years stated:

"Yeah, I think it's all started from the mind. If the mind has a lot of burden, then the blood pressure will increase. If the mind is calm, the blood pressure will go down. It doesn't matter what you eat; if your mind has lots of burdens, then it will affect your blood pressure." (P14)

Moreover, the study participants agreed that eating unhealthy food (i.e. oily food, salty food, or containing high fat) could lead to a heart attack. One participant that had a college degree education explained,

"Poor eating habit could lead to high cholesterol level, I mean from fatty food, it can cause obesity, and then it also causes high cholesterol level. Also, salty food... but apart from that, if you are too tired or do not have enough rest, and stress can also cause heart disease..." (P7).

b) Symptoms of heart disease

The results of the interview showed that participants acquired information related to heart disease directly from experiences of others in their environment, and from the internet. The interview revealed an apparent lack of knowledge among the participants regarding the manifestation of heart disease symptoms. Most of the study

participants expressed that they did not know the signs and symptoms when someone had a heart attack. Only a few participants recognized chest pain as a major presentation of heart disease.

“When someone had a heart attack, suddenly they would feel sore from the chest area to the arms and then spread all over the body.” (P23)

The women also identified excessive sweating and breathlessness as heart disease symptoms:

“I personally have never experienced it.[...] From what I heard from my relative, in the beginning he was like sweating a lot, we thought that he was catching a cold. That’s all that I know about the symptoms, so from cold sweat, and then breathlessness.” (P12)

The participants believed that heart attack usually occurs suddenly without warning. They mentioned fainting and collapsing, as well as tingling sensations in the hands or arms as symptom of heart disease. However, other symptoms such as upper back pain, upper body discomfort, indigestion, nausea/vomiting were not surfaced during the discussion.

Misconceptions regarding heart disease

Data analysis showed that the women in this study did not consider heart disease as the major health threat to women. Fifteen out of twenty-five participants stated that cancer is the greatest health threat among women in Indonesia. In fact, heart disease has been identified as the leading cause of death in women in the country. The results of this study are evidenced by the participants’ statements below:

“To my knowledge cancer causes the highest death, yes, because it is chronic disease. So, when people suffered from it, between 90% cannot be saved and only 10% can still be saved.” (P17)

“Women usually suffered from cancer I think, cervical cancer, breast cancer...” (P21)

Although many participants believed that men are at a higher risk for heart disease, one participant argued that women are at a higher risk because women had a tendency to overthink things more than men. Regarding this, the participant described women as having a ‘weak mind.’ She explained:

“I think women might be at a higher risk of heart disease, you know, because

women have a weak mind...weak mind led to a weak heart.” (P8)

The study participants understood that underlying medical conditions, such as hypertension and diabetes, are the risk factors for developing heart disease in the future. However, they believed that overthinking was the most important risk factor for heart disease, as described by one participant:

“High blood pressure, diabetes, eating habits, overthinking, exhaustion... all of that can lead to heart disease. However, I think overthinking is the most dangerous one. That’s why I try to stop overthink and just relax...” (P2)

I don’t want to think about it’: Perceptions on future risk

During the interviews, the women were asked whether they considered themselves likely or unlikely to develop a complication of hypertension or suffering from a heart attack in the future. Although all participants suffered from hypertension, they tended to underestimate their personal risk of future heart disease.

a. Avoidance

Being asked about the risk of suffering from heart disease in the future, many participants preferred to use avoidance strategy. Instead of thinking about the negative possibilities that could happen to them in the future, they choose to revolve their thoughts into positive mindset. Many women believed that praying to God could protect them from suffering heart disease in the future. A participant stated,

“I don’t want to think about it. I always pray to God so I will stay healthy, always in good condition, and not contracting any disease.” (P3)

b. Positive thinking

The participants explained that overthinking about future risk would make them worry and, in turn, it would negatively affect their health. Therefore, they believed that maintaining optimism and a positive mindset was the key to protecting them from any disease. During the interview, the women mentioned that, as long as they were on medication, they did not need to further contemplate their future risk because they considered themselves at low risk.

“I try to keep an optimistic outlook on life. Keep your thoughts positive because your thoughts become your words. So yeah, just do the best that I

can. Sometimes I worry, but I don't want to exaggerate the problem because it will make me feel stressed. So, I just take it easy. If I followed the medication regimen, all would be fine.” (P7)

Strategies to prevent heart disease

During the interview, the women discussed some strategies that can be adopted to prevent heart disease in the future.

a. 'Not thinking too hard': managing stress

It is interesting that all women in this study believed that the key aspect to prevent them from suffering heart disease in the future was by avoiding stress. They stated that it was crucial to create a calm mind during stressful times. As explained by one participant,

“Don't think too hard; yes, the key is not to think too hard. You should just take life easy; you should just be relaxed and enjoy your life... Sometimes I feel anxious or angry, so I just recite Astaghfirullah (meaning: I ask Allah's forgiveness).” (P12)

b. Making lifestyle changes

Overall, the participants agreed that a heart-healthy diet was one of the most important aspects in preventing heart disease. Regarding this approach, the participant mentioned several strategies to stay healthy, such as increasing the intake of fruits and vegetables, reducing the salty, oily, and fatty food, and drinking plenty of water. However, according to participants, putting this knowledge into practice was a different story.

“The dietary pattern to prevent heart disease... we should reduce the consumption of fatty food, such as food contained coconut milk, fried food. (P16)

Not only managing their diet, but participants also cited the importance of physical exercise. Doing physical exercise regularly, once or twice a week, was considered good to maintain their health and prevent CVD. One participant explained:

“...it doesn't need to be a heavy exercise, you can just walk, most importantly you do it at least 15 to 30 minutes per day. I think that's enough. We should make time for it.” (P18)

The study's findings demonstrated gaps and inaccuracies in knowledge

related to heart disease among Indonesian women. One of the reasons for this limited knowledge might be related to the participants' education levels as most of them only finished high school education and lower. The evidence showed that the lack of knowledge was more apparent among women from ethnic minority groups (i.e. Hispanic, Black, and Asian) and lower level of education (Coke & Hayman, 2021; Cushman et al., 2021; Mohammad et al., 2018).

Our study finding is in line with the findings of previous studies conducted among women in other countries which reported that women had inadequate knowledge and awareness related to heart disease (Galbraith et al., 2011; Hamner & Wilder, 2008; S. Khan et al., 2016; Mohammad et al., 2018). As a result of a nationwide survey conducted in the United States, Cushman et al. (2021) reported a significant decline in women's awareness regarding heart disease as the leading cause of death between 2009 and 2019. In contrast, there has been an increase in the recognition in breast cancer as the leading cause of death among women in same time period. The same results were also found in this study; participants considered that heart disease was not a major death threat like cancer. In fact, the data showed that heart disease kills nearly seven times as many women as breast cancer (Prevention, 2020).

The lack of health initiatives to educate women about cardiovascular disease could be the reason for this poor perceptions and awareness (Cushman et al., 2021). The Indonesian Government has taken several initiatives to overcome cardiovascular disease, but the educational program to educate people about CVD is just limited to the "Integrated Health Training Post" / Posbindu (Hussain et al., 2016). Posbindu is a national community-based program in Indonesia that aims to evaluate risk factors for non-communicable diseases, such as CVD, and provide early detection services for adults in the rural area (Indonesia Ministry of Health, 2012). Unfortunately, the knowledge and skills of community health volunteers (cadres), as the main role of this program, are lacking. Hence, this can impact the process of disease early detection and their role in educating people (Putri & Andriyani, 2018). Therefore, education about life-

threatening heart disease in hypertensive women, including signs and symptoms as well as risk factors, needs some improvements and a new strategy.

An interesting finding from our study was that the participants used avoidance method when they were asked about their future risk of suffering from heart disease. Instead of thinking about negative possibilities in relation to their health in the future, they emphasized the importance of prayer to God to protect them from suffering from heart disease. They believed that the illness comes from God, so it is only God who can protect them from any disease. In Indonesia, religion becomes a fundamental part of people's lives, and it was reflected in participants' descriptions in this study. Islam is the country's dominant religion, involving about 87% of the total population (Indonesia et al., 2013). An earlier study among Indonesian women with diabetes revealed three keys to happiness based on participants' narratives, including prayer, being grateful, and surrendering to God's will (Pitaloka & Hsieh, 2015). This study's finding is consistent with a previous study that reported religion and spirituality as crucial factors in coping with cardiovascular disease (Najafi Ghezaljah et al., 2014; Seah et al., 2016). It is also in line with the assertion from Mackenzie et al. (2000), who reported one's relationship with God forms the foundation of their well-being.

Although the women in this study suffered from hypertension, they still underestimated their personal risk of future heart disease. When women were asked about their risk perceptions for developing heart disease in the future, many of them wanted to avoid thinking about the future risk of disease; instead, they desired to approach life with a positive attitude. In this viewpoint, it is argued that thinking about future risk causes anxiety, and this anxiety makes the body more vulnerable to disease, which impairs health. Similar findings were reported in previous studies that found young women with acute myocardial infarct (AMI) failed to assess their own risk of heart disease even though they had a family history of CVD (Lichtman et al., 2016). It indicates the need for health education to increase awareness of hypertensive women about the risk of

heart disease so they can take preventive measures.

There has been growing evidence suggesting that positive psychological attributes such as optimism were associated with lower risks of chronic health conditions, especially cardiovascular diseases (DuBois et al., 2015; Kubzansky et al., 2018). Boehm et al. (2011) reported that positive psychological well-being could improve cardiovascular health and reduce the future risk of suffering from CVD. This study's findings revealed an underlying interpretation of a close relationship between body and mind, in which future risk of heart disease could be reduced by positive mindsets (Kirkegaard et al., 2013).

The participants in this study attributed the most important risk factor for heart disease to emotional stress. This condition indicated that individuals who bore anxiety and suffered stress were at a higher chance to develop heart disease irrespective of their sex or age. This finding is corroborated by previous evidence, which has also suggested that psychological and emotional stress could have an impact on the onset and course of ischemic heart disease, especially in women (Khayyam-Nekouei et al., 2013; Wekesah et al., 2019; Yusuf et al., 2004). Although previous studies have claimed that stress was attributed to lifestyle and social expectations adopted by men (Ruston & Clayton, 2002), in the current study, the women felt that they had equally stressful lives as men. These stressors were mainly related to their multiple responsibilities in the family and society. Therefore, our findings revealed that managing stress was identified as the main strategy to prevent people from suffering heart disease in the future.

The need for health promotion

Participants had poor perceptions and awareness of heart disease. Therefore, health promotion regarding heart disease in hypertensive women needs special attention, especially among low-educated women in rural and suburban areas. The lack of awareness could contribute to delayed health-seeking behavior (S. Khan et al., 2016). This study showed that participants tended to underestimate their possible risk of heart disease, although all participants suffered from hypertension. Education about heart disease, including definitions, signs and symptoms, and risk

factors, is the primary health promotion program that needs to be conducted. Hopefully, it can improve hypertensive women's awareness regarding the risk of heart disease.

This study has made meaningful contributions to awareness and perceptions of heart disease among Indonesian women. However, there are a few limitations that should be considered when interpreting the results. The researchers conducted this study in the rural and suburban areas in Yogyakarta, and all participants were from lower education levels. Due to logistic reasons, the researchers only could recruit a small number of participants in each sub-district. Therefore, this study's findings might not reflect larger Indonesian women's perspectives. Secondly, the researchers believe that including views from women from different socioeconomic backgrounds (urban, highly educated, high income) could have provided a more in-depth insight into women's awareness of heart disease in Indonesia. Hence, further research on Indonesian women from different socioeconomic backgrounds will support a more in-depth insight of Indonesian women's awareness and perceptions of cardiovascular disease.

CONCLUSION

This study found a clear gap and misconception about heart disease knowledge and perceptions, which could contribute to delayed health-seeking action among Indonesian women. These findings were probably related to the absence of health initiatives to educate women on Indonesia's CVD as well as the participants' low educational background. This study revealed that most women preferred to avoid any thoughts about their CVD future risk and emphasized the importance of prayer to God and an optimistic mindset to protect them from the disease. Our study's findings suggest a considerable need to develop and implement strategies for educating women about cardiovascular risk and health tailored to target the rural populations in Indonesia. More importantly, this education program should be culturally appropriate, include peer-to-peer relationship, and can be offered within workplaces. Future studies should be directed to investigate women's awareness

of heart disease from different socioeconomic backgrounds as well as the effect of cardiovascular health education intervention on women's awareness in a low-resource setting in Indonesia.

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Usability of Chronic Kidney Diseases Electronic-Health Information: A Systematic Review

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ABSTRACT

Background: Information on chronic kidney disease is easily accessible in a variety of digital formats and is posted in health information resources, electronic-health, or eHealth. In that it can enable people with chronic kidney disease to manage their condition, the field of eHealth is promising. **Aims:** The purpose of this study is to evaluate the usability of eHealth in the treatment of chronic kidney disease by critically analyzing the published papers in this area. **Methods:** The following databases were searched systematically: The following databases were thoroughly searched: EBSCO, CINAHL, ProQuest, MEDLINE, PubMed, Cochrane, and Google Scholar. Eight studies looked into the specific impact of eHealth on chronic kidney disease. These studies addressed a variety of subjects, including the user, healthcare professionals, and system bonding, mobile eHealth, content, and eHealth evaluation on chronic kidney disease. **Results:** There is a knowledge gap in the field of eHealth for chronic kidney disease. The findings reveal a significant disparity in the terminology and conceptualizations used in eHealth information on chronic kidney disease. The availability of eHealth information on chronic kidney disease that prioritizes patient education, behavior modification, and prevention has led to inconsistent usage. Lack of sufficient data may hinder the development of eHealth interventions for people with chronic kidney disease. **Conclusion:** This study emphasizes the urgent need for content acceptance and access as well as evaluation that is evidence-based for the conceptualization of eHealth for chronic kidney disease.

Keywords: Chronic kidney disease, Electronic-health, Digital health, Health service, Health risk.

INTRODUCTION

The advancement of health information technology (HIT) is recognized as having a major impact on how users, providers, and health systems use and alter information (Bonner et al., 2018). HIT directly provides users with access to health information. This easy access to information is intended to promote consumer interest in any health-related product. Around 62% of Americans with chronic diseases are connected to the health information system (HIS), and half of them used the Internet to look up medical information (Fox & Purcell, 2010).

A generic phrase used to describe paperless information, communication, education, diagnostic, and treatment services provided by electronic means is "eHealth" (Ossebaard & Van Gemert-Pijnen, 2016). Past eHealth studies categorized this term into a number of electronic information delivery methods, such as telemedicine, telecare, or

telehealth (Ossebaard & Van Gemert-Pijnen, 2016). Significant health effects were found in previous research exploring the impact of information technology (IT) tools on the empowerment of people with chronic renal disorders (Diamantidis et al., 2018).

Individuals with CKD are expected to feel empowered by eHealth knowledge on the condition (Diamantidis et al., 2018). Since there has been a significant rise in CKD globally, patient empowerment is essential. According to the Renal Data System, there were about 15% of Americans who had CKD (Saran et al., 2017). In Indonesia, the Ministry of Health of Republic Indonesia recorded a rise of 7% in new cases of end-stage renal disease (ESRD) from 2007 to 2017, with 52% of those being between the ages of 25- and 54-year-old (IRR, 2017).

However, Stevenson et al (2019) the impacts of of eHealth on CKD yielded conflicting findings. They suggested that was brought on by the included studies'

poor quality (Stevenson et al., 2019). There may be a number of factors that contribute to the listed studies' poor quality. Health information technology (IT) on CKD should investigate present and potential uses of health IT platforms to promote care and provide knowledge, engagement, and communication through creative ways (Diamantidis et al., 2018; Diamantidis et al., 2015). Ross et al. (2015) suggested a further element that could present a barrier to the adoption of electronic health; however, until the current study is completed, the findings of the review on this problem (Ross et al., 2015) have not yet been released. In light of this, the objective of this study is to identify the comprehensive eHealth on CKD platform and content by conducting a critical analysis of previously published papers.

METHODS

In this literature research, a procedure for conducting a literature review was developed and employed. The systematic review guidelines (Creswell & Creswell, 2017) were detained as the resources to construct the procedure. The steps of as the followings:

Identification of Keywords and Database Search

The primary search terms and Medical Subject Headings terms used in combination or singly. Within the context of the study, keywords for database research were selected to reach studies in relevant fields of eHealth intervention. The keyword search was elaborated by the first results for increasing accuracy in the search. In total, combinations of following keywords were used: "e-health", "m-health", "eHealth intervention", "mHealth intervention", "effectiveness", "information system acceptance", "adoption", "technology acceptance", "technology adoption", "chronic disease", "chronic kidney disease", "renal insufficiency", "kidney insufficiency", "patient engagement", "patient activation", "Patient empowerment", "Patient-center-care", "eHealth CKD content".

The search was conducted on web-based academic: EBSCO, CINAHL, ProQuest, MEDLINE, PubMed, Cochrane, and Google Scholar. Seven databased was explore to retrieve sufficient and relevant studies.

Study Selection

In this phase, the keywords and the titles of articles were reviewed. The relevance to the context was explored. Accordingly, a set of inclusion criteria was applied to receive and ensure articles meet with the context of the research objective, as followings: Language for publication is restricted to English language articles, published articles, full-text articles, published within two decades (Starting from January 1999 to December 2021), synthesis of quantitative articles, articles providing instrument measurement, articles providing interpretation guideline, article providing categories and their interpretation. The search and selection processes are illustrated followed Prisma (Moher et al., 2015) as it is shown in figure 1 (Prisma flow diagram).

Data extraction

Data were extracted, measured and condensed as the addressed outcomes. The four outcomes of interest were (1) the conceptual framework of individual acceptance and use technology in daily life, (2) bonding entities among individuals with CKD, health care professionals, and health system, (3) eHealth intervention's an eHealth platform, and (4) the content of eHealth intervention for individuals with CKD. Each study may address one or more outcomes. Several excluded studies were used in the results and discussion section to sharpen the findings.

RESULTS AND DISCUSSION

The results of the literature review were dominated by articles published after 2010. In sequence, it was a study taken by Kuo, Su, & Lin (2018) measuring on the effectiveness of eHealth intervention who focused on patients with metabolic diseases where was dominated by type 2 diabetes mellitus (T2DM) patient but none with CKD (Kuo et al., 2018) and Stevenson et al., (2019) who concerned on eHealth intervention for people with CKD (Stevenson et al., 2019). Kuo, Su, & Lin (2018) found eHealth intervention effectively improves the health status of adults with metabolic diseases. However, Stevenson et al., (2019) reported the different findings. This finding leads to critically analyze of implementing eHealth for individuals with CKD.

The recent literature reported the successfulness of eHealth intervention for

people with CKD implementation were patients, health care professionals, and health systems (Granja et al., 2018). Technological learning theory and usage, belief, attitudes, and attention are important factors in the adoption of health information systems (Bagozzi et al., 1992). To reach the actual usage of accessing eHealth intervention and resulted in an engagement, these three entities; individuals with CKD, health care professionals and healthcare systems (Granja et al., 2018) responsible for the successfulness of eHealth intervention. The results of the literature review (table 1 included studies) as seen below.

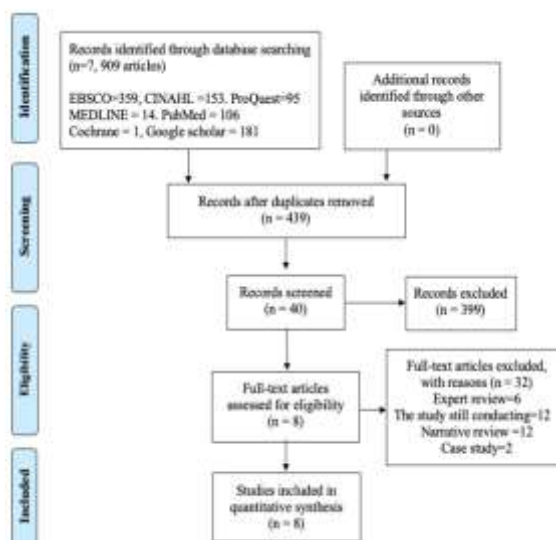


Figure 1. Search and selection process.

Table 1. Characteristics of studies and findings.

Studies	Number of studies/participants	Findings
Evidence-based evaluation of eHealth interventions: a systematic literature review. Journal of medical Internet research, 20(11), e10971 (Enam et al., 2018)	46 papers were selected for the qualitative analysis	<ul style="list-style-type: none"> Evaluation of eHealth program is seldomly performed in the design and pretesting phases. evaluation as an ongoing process throughout the program. The following factors impact on efficiency and effectiveness eHealth; organizational, technological, human and social, clinical, cost and economic, ethical and legal, and transferability.
eHealth interventions for people with chronic kidney disease. Cochrane Database of Systematic Reviews(8). (Stevenson et al., 2019)	43 studies involved individuals with dialysis, transplant candidates, and transplant recipients	<ul style="list-style-type: none"> eHealth modalities include; telehealth, mobile or tablet application, text or email messages, electronic monitors, internet/websites, video or DVD.
A Systematic Evaluation of Websites Offering Information on Chronic Kidney Disease. Nephrology Nursing Journal, 41(4), 355-363. (Lutz et al., 2014)	40 websites were included in the analysis involved patients with CKD in a pre-dialysis CKD program	<p>Characteristics of the Sample of Websites</p> <ul style="list-style-type: none"> The characteristics of websites provided CKD eHealth information were as follow: The webs were operated by either a not-for-profit organization or a for-profit commercial company. One-third of the websites targeted individuals living with CKD and their family Roughly half of the sample provided an overview of CKD, including causes, risk factors, common symptoms, and diagnostic tests. Of those, two websites offered information about coping with CKD or prevention, and one website addressed common

		<p>questions that might be raised by patients who have been newly diagnosed with CKD.</p> <ul style="list-style-type: none"> ▪ One website was focused on peritoneal dialysis. ▪ One-quarter of 40 websites were not clear about their aims. ▪ Most websites with identifiable aims presented information consistent with the aims. ▪ Websites rated as higher quality tend to be more difficult to read and understand.
Factors determining the success and failure of eHealth interventions: a systematic review of the literature. <i>Journal of medical Internet research</i> , 20(5), e10235 (Granja et al., 2018)	903 articles with a total of 221 studies complied with the inclusion criteria.	<ul style="list-style-type: none"> ▪ The most mentioned as contributing to the success of eHealth application was the category quality of healthcare and to failure was the category costs ▪ For the category with the highest unique article frequency was workflow and six barriers related to workflow were workload, role definition, undermining of face-to-face communication workflow disruption, alignment with clinical processes, and staff turnover.
Self-management interventions for adults with chronic kidney disease: a scoping review. <i>BMJ Open</i> , 8(3), e019814. (Donald, Kahlon, et al., 2018)	A scoping review of electronic databases and grey literature were searched in October 2016 to identify self-management interventions for adults with CKD stages 1-5 (not requiring kidney replacement therapy).	<ul style="list-style-type: none"> ▪ The content of CKD eHealth literacy as follow; diet/nutrition, general CKD knowledge, medication, modalities, physical activity, comorbidities, symptom management, lifestyle ▪ Mode of delivery; face to face person to person or group, multiple modes, printed material, distance (telephone, email), digital (DVD, PowerPoint, audio recording), electronic (website, mobile application) ▪ Type of providers; nurse/nurse practitioner, dietitian, multiple providers, social worker, physician/primary care physician, nephrologist/nephrology fellows, patient volunteer/mentor, pharmacist ▪ The most frequently reported outcome domain was; cognitions (changes in general CKD knowledge, perceived self-management and motivation).
Why do people use information technology? A critical review of the technology acceptance model. <i>Information & Management</i> (Legris et al., 2003)	22 articles published 22 articles from 1980 to the first part of 2001	<ul style="list-style-type: none"> ▪ The usability of information and technology need to be integrated into a broader one which would include variables related to both human and social change and the adoption of the innovation model.
The unified theory of acceptance and use of technology: A synthesis and the road ahead. <i>Journal of the Association for Information</i>	Synthesize 1,267 papers on UTAUT from September 2003 until December 2014	<ul style="list-style-type: none"> ▪ Integrating the results of theoretical analysis with eight dimensions of the context for technology acceptance.

Systems, 17(5),
328-376.
(Venkatesh et al.,
2016)

Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information Systems Frontiers*, 21(3), 719-734 (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2019)

A meta-analysis of 1600 observations on 21 relationships coded from 162 prior studies information acceptance and use.

- The usability of information and technology was influenced by user attitude.
- Attitude had a direct effect on behavioral intention, which implies that attitude partially mediated the effects of performance expectancy, effort expectancy, facilitating conditions, and social influence, and attitude exerted a direct influence on user behavior.

Concerning the findings as written on the table 1, the conceptual framework of individual acceptance and using technology in daily life explains the crucial thought of individual engagement with the health information system and health information technology. Since early 2000, the theory and conceptual model of individual acceptance technology have been proposed (Legris et al., 2003). A study conducted by Legris et al., (2003) stated Technology Acceptance Mode (TAM) created by David 1989 (Davis, 1989) was the fittest theory explaining the engagement process of individuals and technology. Later, Venkatesh et al., (2016) continue working on the theory of acceptance and use of technology (Venkatesh et al., 2016) where TAM was reviewed. Currently, Dwivedi et al., (2019) re-examined the unified theory of acceptance and use of technology (UTAUT) (Dwivedi et al., 2019). In comparison to TAM, UTAUT seems like the fittest theory and model of individual engages with technology (Dwivedi et al., 2019). UTAUT explained the process by first individuals reacted to use information technology, individuals with CKD, then used intentionally the eHealth application and resulted in the actual use of information technology.

Regarding the concept developed by Venkatesh, Thong and Xu (2012) and Dwivedi et al., (2019) and its relations to the acceptance and usage of eHealth by individuals with CKD, Sarker & Wells (2003) reported eHealth as the most effective way of building the know-do

bridge (Sarker & Wells, 2003). In between the concept and the role of eHealth in education, Sezgin, and Yildirim (2014) explained the use of mobile technology in health service was depending on the degree of relation between the user and the system (Sezgin & Yıldırım, 2014). This degree relationship between the user and information system was explained based on the theoretical model such as attitude and behavioral intention (Fishbein & Ajzen, 1977). Venkatesh Thong, & Su (2012) described the actual use of information technology directly influenced by an individual's reaction to using technology and indirectly vice versa (Venkatesh et al., 2016).

Accordingly, the theory and model on the degree of relation between the user and the system have been proposed and used to examine information or information technology acceptance and usage (Dwivedi et al., 2019; Nadal et al., 2020; Williams et al., 2015). Thus, the figure shows that user behavior was directly influenced by facilitating conditions where organization and technical infrastructure support the use of the system. Related to this review, these theories, concepts, and frameworks capture the basic blue plan of eHealth intervention for people with CKD. The first step should address the characteristic of individuals and establish supporting conditions where health professionals' teamwork in collaboration with the technical system. Secondly, bonding entities of individuals with CKD-health care professionals and systems.

The study on the successfulness of eHealth intervention (Granja et al., 2018) reported three entities need to be concerned; patients, health care professionals, and health systems. This successfulness included the failures as barriers and success as facilitators of implementing eHealth. Costs have mentioned the category most mentioned as contributing to the failure of eHealth interventions while patients were considered of most importance that the eHealth interventions support (Granja et al., 2018). Third, eHealth as a platform of eHealth interventions evidence reported a variety of modalities has been implemented. For example telenephrology (ALAzab & Khader, 2016; Ishani et al., 2016), a web-based clinical dashboard accessed by smartphone (Ong et al., 2016), e-learning (Barahimi et al., 2017) and iPad application (Diamantidis et al., 2015). While an observational study used the initiation of a Web-based consultation process for patients with CKD (Nynke D Scherpbier-de Haan et al., 2013). Fourth, related to the content, an evaluation of 40 websites offering CKD information (Lutz et al., 2014) reported the website quality was poor. A majority of websites presented a brief overview of CKD, with little information about lifestyle changes to delay CKD progression or how to cope with the illness (Lutz et al., 2014).

Another study on eHealth CKD content has been conducted by Donald et al., since the year 2018 to 2019 (M. Donald et al., 2019). These eight topics of eHealth CKD content was a condensed of four different studies on the CKD self-management; (1) a scoping review; (2) a national survey; (3) a quantitative study on analysis of behaviors of patients with CKD and caregivers utilizing the theoretical domains framework, and; (4) a qualitative study on CKD self-management program (Baay et al., 2019; Maoliosa Donald et al., 2019; M. Donald et al., 2019; Donald, Gil, et al., 2018; Donald, Kahlon, et al., 2018). The summary of eHealth CKD content are; understanding chronic kidney disease, diet, medications, symptoms, finances, mental and physical health, travel and work/school, as well as features including mixed-content formats (e.g., visuals, text, user-generated content)(M. Donald et al., 2019).

The preferences for topic areas and features for a self-management e-health

tool for patients with CKD resulted from a consensus workshop and personas. The content of eight predetermined topic areas was presented following the Guidance for Reporting Involvement of Patients and Public (GRIPP2) (M. Donald et al., 2019). Besides content, an evaluation based on the target outcome achievement is needed. An evaluation is acquired because eHealth program for individuals with CKD is an education program where was the learning outcome need to be measured (Enam et al., 2018). Accordingly, the evaluation of CKD program is essential to estimate effectiveness (KDIGO, 2012). Campbell et al., (2016) developed an evaluation of eHealth program for people with CKD (Stevenson et al., 2016; Stevenson et al., 2019) where patients' side focused on the clinical parameters and patients' change, while cost was a parameter of evaluation for evaluating the health system.

The relevancy of content of eHealth application for individuals with CKD might increase the acceptance and the usage of eHealth among individuals with CKD. Thus, the positive environment where the health professional and health system work in collaboration to support the learning process, evaluate CKD outcome among those users, evaluate HIT and HIS regularly might positively contribute to patient empowerment and establish patient-center-care.

One of the chronic diseases deemed to be a major global public health issue and in need of a comprehensive treatment is CKD. The current study discovered that rather than being supported by evidence, the use of health information technology (HIT) and health information systems (HIS) in healthcare was mostly motivated by expectations of the benefits to be gained. The users' behavior supports the prediction of eHealth information (Jacobs et al., 2016). Yet, it is apparent that the amount of eHealth evidence for people with CKD may not be comparable to the quantity of published studies. Also, authors incorporated a variety of literary notions and eHealth terminology. Stevenson et al., (2019) applied the word modalities to covered all the term related eHealth applications such as; Telehealth; mobile tablet application; text or email messages; electronic monitors; internet/websites; and video or DVD (Stevenson et al., 2019). The term "modalities" was used by

Stevenson et al. (2019) to refer to all eHealth-related apps, including Telehealth, mobile tablet applications, text or email messages, electronic monitors, the internet/websites, and video or DVD (Stevenson et al., 2019). While some researchers defined "eHealth" as being accessible via a smartphone (Doyle et al., 2019; Ong et al., 2016). These contradictions may have made eHealth studies premature, making it difficult to draw conclusions about a new trend that were both comprehensive and explicative (Sezgin & Yldrm, 2014). Current health information systems are being evaluated using acceptance theories and constructs (Adesina & Abiodun, 2019; Dwivedi et al., 2019), and their implementation on the mobile platform (Grekin et al., 2019) has revealed the relevance and inconsistencies in theories of acceptance.

It is challenging to draw thorough conclusions regarding current eHealth trends for people with CKD since eHealth research may be on a premature level in compared to eHealth. Because of this, there is little research on eHealth programs for patients with CKD in this review. As a result, there were concerns about the accuracy of eHealth material related to CKD. For instance, a 2014 investigation on the evaluation of websites delivering information about CKD (Lutz et al., 2014) found that websites with higher ratings for quality tend to be more challenging for users to read and comprehend. As a result, neither the majority of websites nor their content is written at a level that most people could easily grasp, regardless of whether the material was based on research or an expert's opinion. Telehealth is another eHealth application platform for people with CKD.

From those terms of eHealth or eHealth, there was an inconsistent concept of telehealth application. For instance, previous researcher suggested telehealth can be a website application (Bryan et al., 2009). Later, Stevenson et al (2019) used the word modalities rather than a platform to define the used of eHealth in eHealth program for people with CKD (Stevenson et al., 2019). The word platform itself was applied in HIT and HIS studies by several scholars (Bonner et al., 2018; Diamantidis et al., 2013; Grove et al., 2019). Other variabilities of platforms have been

applied in the CKD field such as an interactive website (N. D. Scherpbier-de Haan et al., 2013), telehealth (Ishani et al., 2016), telenephrology (AlAzab & Khader, 2016) and e-learning (Barahimi et al., 2017). However, these platforms did not explicitly describe whether these were eHealth delivered through mobile devices or immobile or mixed.

In line with the result of the study on the websites offering CKD information (Lutz et al., 2014), there was also no evidence on the eHealth CKD intervention's content should be. The most current study on the content of CKD was aimed to gain self-management among patients with CKD (M. Donald et al., 2019). The development of patient education which aim to empower patient with chronic disease has been gradually shifting from face-to-face interaction to virtual, and from paper to paperless. As a result, after the baby-boomers generation, more people lay on the internet access to find any information on health (Paige et al., 2018; Sudbury-Riley et al., 2017).

This study determined preferences for CKD content and features of an e-health tool (M. Donald et al., 2019). The scarcity of evidence on the electronic-health CKD content possibly interrupts the progression of eHealth application for individuals with CKD. It is noticeable that the need for eHealth platform and effectiveness eHealth content evidence were not clearly stated in any of the papers. Likewise, the evaluation of the empirical studies typically focused on the CKD goal-outcomes, and the usage of health information technology and health information system, and the benefit received. This then resulted in an incomprehensive effect on the rising of eHealth in health care services.

This study has several limitations. First, it focused on academic database. Second, relied on the MeSH classification. Third, obtained limited relevant sample on English publication. To a large extent, more articles expanding the search to other languages. To a large extent, more articles could be obtained by expanding the search to other terms and languages.

CONCLUSION

The current findings underline information on CKD in eHealth had a wide range of topics. Those findings might relate to individual acceptance and usage

of eHealth information was discovered to have an impact on its acceptability and usability. It may not be clear at this point how eHealth information for people with CKD differs in terminology, concept, and application. As electronic health information is context-specific, it may be difficult to obtain, reach, and convey the content. This study emphasizes the urgency of conducting research on the technology acceptance and usage, platform, and content of eHealth information associated CKD.

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Is Instagram Effective for Reproductive Health Promotion in Adolescents during the COVID-19 Pandemic?

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ABSTRACT

Background: The majority of teens have smartphones and are involved with digital media. Almost 45% of teens described being online "almost constantly." During the COVID-19 pandemic, access to learning reproductive health directly in schools is very limited. Various risks posed by the COVID-19 outbreak have an impact on changes in the new order of life. Teenagers learn more from home. Many teenagers use social media and the internet to learn about reproductive health. **Objective:** The purpose of this study was to determine the effectiveness of reproductive health promotion through Instagram during the COVID-19 Pandemic. **Methods:** An analytic observational study with a cross-sectional approach was conducted among 31 respondents from December 2021 to July 2022. The sample was all who are followers of PIKM Larashati Instagram and ready to be a respondent. The sampling technique was taken by accidental sampling. Data collection was carried out using Google Forms. Data were analyzed with both univariate and bivariate analysis. **Results:** The findings in this study indicate that adolescents who are followers of PIKM Larashati Instagram have good knowledge about adolescent reproductive health as much as 58.07%. This study also states that the positive attitude of adolescents who are followers of the Larashati PIKM Instagram toward reproductive health is 61.29%. It was found that there was no relationship between the knowledge and attitudes of adolescents because the value of sig = 0.072 which means it is greater than 0.05. **Conclusion:** Promotion of reproductive health through Instagram by PIKM Larashati regarding reproductive health during the COVID-19 Pandemic is effective for adolescents and adolescents are recommended to follow accounts containing health education.

Keywords: Adolescent, Instagram, Reproductive health, Pandemic Covid-19

INTRODUCTION

Today teenagers are often described to be "digital natives." This is because teens grow up in an immersive technological society. The majority of teens own a personal smartphone and engage with digital media. According to some sources, about 45% of teens describe they are online "almost constantly." Several studies have documented the frequent and almost ubiquitous use of adolescent media (Kelleher and Moreno, 2020). Teens who use the media frequently consistently have many advantages and risks. Advantages of using media include the possibility for content creation and social encouragement. Risks of media use include negative health effects sleep problems, moreover relational risks such as risky sex-partner and bullying. During the COVID-19 pandemic, access to reproductive health learning directly in schools is very limited. The various risks posed by the COVID-19 outbreak have an impact on changing the new order of life,

which lately has been learning more from home and doing activities online. Adolescent behavior is something that attracts attention from various parties. Even reproductive health services at the public health center are also limited, due to the focus on dealing with the COVID-19 problem. There are many young people using the internet and social media to learn about reproductive health, but the accuracy of the information found online has concerns. The new digital era is dramatically changing the way young people communicate and get information. Although already very popular with young people, this tool is popular in bringing health information to many teenagers faster than ever before. "Social media" refers to blogging, text messaging, video sites, forums, social networks like Instagram and more. The site is characterized by interconnected technologies that support people to engage digitally in local and global communities. Health communication is the study of the use of communication

strategies to disseminate health information, which can influence individuals and society in making appropriate choices in health management. In today's internet environment, health information can be accessed easily. The student counseling information center was formed as one of the organizations located at the university level to address reproductive health problems, especially adolescent health problems. PIKM Larashati currently uses Instagram as a promotion to address adolescent health problems including risk behavior problems. Instagram is a social media that is equipped with the live Instagram feature (IG TV). Therefore, Instagram is very appropriate to use for health promotion which recommends minimizing face-to-face contact during the COVID-19 pandemic. In this paper, we would like to present the effectiveness of reproductive health promotion through Instagram in adolescents during the COVID-19 pandemic.

METHODS

This research incorporates an analytical observational technique with a cross-sectional approach as the research and observations are conducted concurrently, simultaneously or at one time (Sugiyono, 2017). The population of this study were all teenagers who were Instagram followers of PIKM Larashati. The sample in this study was youth members of Instagram followers who provided complete responses and filled out the provided Google Form. Accidental sampling was used as a sampling technique. Anyone found by the researcher is used as a sample if that person is a data source (Sugiyono, 2017). The number of samples in this study were 31 respondents. The Instagram media used is Instagram PIKM Larashati. Instagram PIKM Larashati discusses issues regarding adolescent reproductive health, such as about menstruation, body image, screen time during the pandemic and its impact on adolescents, adolescent relationships, and others. This activity is presented with a direct discussion model on Live IG by bringing in speakers. The resource persons in this activity were the STIKes Akbidyo lecturer and as a moderator the PIKM Larashati management. This activity usually takes place once a week at 19.00-

20.30 WIB. In addition, adolescent reproductive health messages on Instagram are also presented in the form of posters, a combination of information and images, and supporting animations. The instrument used in the survey is a Google Form questionnaire. The questionnaire used was adapted from Mediastuti's (2017) research. The data analysis used is univariate and bivariate. Between variables, the post-test results used logistic regression.

RESULTS AND DISCUSSION

This study involved teenagers who are Instagram followers of PIKM Larashati and are willing to be respondents in this study. The total number of respondents who were willing to fill out the Google Form during the research time was 31 respondents. The respondents' characteristics in this study are shown in Table 1.

Table 1. Characteristics of Respondents.

Description	Frequency	Percentage (%)
age		
Late teens (18-21 years)	31	100
Total	31	100
Last education		
College	7	22.6
Senior High School	14	77.4
Total	31	100
Domicile		
Boarding House	21	67.7
Live with friends	3	9.7
Live with family	1	3.2
Live with parents	6	19.4
Total	31	100
Father's occupation		
TNI/POLRI/PNS	21	67.7
Entrepreneur/Trader	3	9.7
Farmer/Laborer	1	3.2
Private sector employee	6	19.4
Total	31	100
Mother's occupation		
PNS/TNI/POLRI	1	3.2
Self-employed/trader	11	35.5
Farmer/labor	14	45.2
Private sector employee	5	16.1
Total	31	100
Time using Instagram		
1 year	1	3.2
2 years	3	9.7
3 years	26	83.9

Less than one year	1	3.2
Total	31	100

Based on the data on the respondents' characteristics, all respondents in this study were included in the category of late teens (100%). The majority of respondents have the latest education, namely high school (77.4%) and the majority of respondents live in boarding houses (67.7%). The occupation of the respondent's father is the majority of the TNI/POLRI/PNS (67.7%). The majority of mothers' occupations are farmers/laborers (45.2%). The duration of using Instagram by the majority of respondents is three years (83.9%).

The results of the survey regarding the knowledge of teenagers who are followers of Larashati PIKM Instagram are displayed in Table 2.

Table 2. Knowledge of PIKM Larashati Instagram Followers about Reproductive Health.

Description	Frequency	Percentage (%)
Good	18	58.07
Sufficient	5	16.13
Less (Arikunto, 2013)	8	25.80
Total	31	100

Table 2 reveals that the majority of knowledge of teenagers who are followers of the Larashati PIKM Instagram is in a good category (58.07%). The results of the survey regarding the attitudes of teenagers who are followers of the Larashati PIKM Instagram Are shown in Table 3.

Table 3. Attitudes of adolescents who are Instagram followers of PIKM Larashati regarding reproductive health.

Description	Frequency	Percentage (%)
Positive	19	61.29
Negative (Azwar, 2012)	12	38.71
Total	31	100

Based on Table 3, the majority of the attitudes of teenagers who are followers of the Larashati PIKM Instagram are included in the positive category (38.71%).

Table 4. Relationship between Adolescent Knowledge and Attitudes About Reproductive Health in Adolescents Instagram Followers of Larashati PIKM.

		Correlation	
		Knowledge	Attitude
Knowledge	Pearson Correlation	1	.327
	Sig. (2-tailed)		.072
	N	31	31
Attitude	Pearson Correlation	.327	1
	Sig. (2-tailed)	.072	
	N	31	31

Social media is an effective tool for health communication. However, reliable information and interesting messages tailored to meet the diverse needs of adolescents are needed (Plaiime et al., 2020). Social media offer a new perspective in healthcare. Sustainable assessments are needed to improve health communication (Moorhead et al., 2013). Social media's ability to attract and retain large audiences helps create the tremendous potential to increase knowledge, awareness, and drive changes in health behaviors related to fitness and physical activity among adolescents (Vandelanotte et al., 2014).

Instagram is the most prominent social media, providing a space for interaction between public health observers and people in the digital space. Instagram was founded in 2010 and had more than one billion active users in 2018. Instagram users are mostly dominated by young people, 41% of users are aged up to 24 years. This app uses images as media content (infographics, photos and videos) on mobile devices. This platform is suitable for Health Promotion (HP), as it enhances the dissemination of content massively through images.

PIKM Larashati uses Instagram to convey information/education and support/motivation about health issues. Instagram is also used by healthcare organizations, NGOs, and businesses. Instagram has a number of tools that allow content to be shared with other social media. Instagram works with an emphasis on user preferences through a criteria algorithm. The dominance of usage in urban areas and the low loyalty of older users are considered limitations of this

platform within the framework of HP. The structure of Instagram is based on customizing content with Yahoo. This fact limits the possibilities for users to interact with multiple themes while allowing them to explore interesting themes. Users play an active role in building social media by sharing images (feeds, stories, Instagram TV (IGTV or direct messages), when interacting with like-minded people (i/like, following/profiling, mentioning profile or hashtag comments), and when do active search in deployment and exploration. It is through this medium that users create their content, and establish and maintain social relationships. By bringing the HP topic closer to this logic, users can be encouraged to discuss public health issues (Pinto, Antunes and Almeida, 2021).

The participatory use of the internet, known to most people as social media, has revolutionized and changed communication patterns, especially among teenagers. The COVID-19 pandemic has prompted people, particularly teenagers, to try to find health information online. One source for online media is Instagram. Instagram PIKM Larashati provides information on adolescent reproductive health to prevent risky behaviors in adolescents. Social media sites ensure that a large amount of health-related material can reach young people by recommending and suggesting content: youth suggested or recommended content for related information (social) and content suggested or recommended (interactive) (Santarossa and Woodruff, 2018). Instagram PIKM Larashati provides health messages in the form of images, text or via IGTV.

The results of this study show that teenagers who are Instagram followers of PIKM Larashati have good knowledge. It is prone to youth's susceptibility to experiencing problems and declining in quality. This is also supported by research (Zakaria et al., 2020) which states that a survey among adolescent girls aged 16-18 years has shown that adolescents who have a good level of knowledge and practice of sexual health have a good status. This study also suggests conducting research among adolescent boys to assess their health and reproductive status.

Reproductive health is an important part of public health and can affect overall well-being and quality of life. Promoting reproductive health is a

very important part of students as this demographic is at high risk of sexually transmitted infections (STIs) and unwanted pregnancies. Students who reported frequently engaging in risky sexual behavior had higher knowledge and attitudes scores. The relationship between knowledge and attitude is positive. The relationship is stronger in males than females, indicating that knowledge is more important for the formation of attitudes in males than females (Camacho-Miñano et al., 2021). However, this study demonstrates that there is no significant correlation between knowledge and attitudes.

Social media such as Instagram is widely used by teenagers. The use of Instagram is mainly for education/information and motivation/support. The app has great capability to serve as a visually rich disciplines social networking platform owing to its powerful, though not unique, photo and video sharing features. Another study by Al-Eisa et al. (in Kamel Boulos, Giustini and Wheeler, 2016) concluded that using Instagram with a home exercise program as a motivational method can be attractive and effective in strengthening adherence and maintaining appropriate levels of physical activity. However, Tiggemann and Zaccardo (in Kamel Boulos, Giustini and Wheeler, 2016) report that Instagram Fitspiration images (which promote exercise and healthy eating to inspire viewers to lead healthier lifestyles) may have unintended negative body image consequences for certain users. Nevertheless, Instagram remains one of the tools used by the World Health Organization (WHO), the US Centers for Disease Control and Prevention and other public health agencies to deliver visually compelling public health messages that educate and benefit the general public coming, as well as for risk communication during public health crises and man-made or natural disasters (Kamel Boulos, Giustini and Wheeler, 2016).

CONCLUSION

The findings in this study stated that the knowledge of teenagers who became followers of PIKM Larashati's Instagram about reproductive health was high at 58.07%. This study also states that the attitude of teenagers who are followers of PIKM Larashati Instagram

related to reproductive health is that the majority have positive characteristics, namely 61.29%. In this study, it was also found that there was no relationship between the knowledge and attitudes of teenagers who became Instagram followers of PIKM Larashati because the value of sig = 0.072 which means it is greater than 0.05. Based on this, it proves that health promotion through Instagram PIKM Larashati is effective for adolescents. Teenagers are advised to actively follow social media, especially Instagram PIKM Larashati, in order to gain knowledge about reproductive health.

In health promotion activities for adolescents, it is better to activate social media, especially Instagram and collaborate with the Student Counseling Information Center (PIKM) so that the content provided is in accordance with the character of adolescents and is effective for adolescents.

PIKM Larashati continues to improve the quality and quantity of content, especially in conducting health promotions, particularly in preventing risky behavior in adolescents. PIKM larashati can spread information IG account in collaboration with Counseling Guidance Teachers in schools.

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Stress Coping Strategies among Teachers at Madrasah Ibtidaiyah Al-Qomar Nganjuk during the Covid-19 Pandemic

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ABSTRACT

Background: COVID-19 pandemic has become a new source of stress among teachers. Education was originally carried out directly and has now changed to network-based (online), so it is not uncommon for teachers to experience work stress. **Objective:** This study aims to analyze stress coping among teachers at MI Al-Qomar Nganjuk during the COVID-19 pandemic. **Methods:** This study used qualitative research with a case study. There were 9 informants consisting of 1 key informant, 5 main informants, and 3 additional informants. Data collection techniques are in-depth interviews, observation, and documentation. Data analysis used thematic content analysis. The credibility test used triangulation of techniques and sources. **Results:** The results of the study state that the source of stress among teachers who come from stressors is task demands during the pandemic such as teachers being required to create learning innovations, achievement of student learning outcomes that have not been running optimally and increasing task demands. There are two stress coping used by the informants, problem-focused coping and emotional-focused coping. As many as 4 informants mostly use problem-focused coping with aspects of planful-focused coping and seeking social support. In addition, all key informants also use emotional-focused coping, which mostly uses positive reappraisal aspects. **Conclusion:** The informants are positive, as indicated by the condition of the informants after using the two copings, they feel better and have a positive impact on the stress they experience.

Keywords: Covid-19, Coping strategies, Teacher, Work stress.

INTRODUCTION

The COVID-19 pandemic has had an impact on all aspects of people's lives, such as the economic, social and health sectors, including the education sector. Many countries have finally decided to close schools in various regions to minimize the spread of the COVID-19 case. Based on data from UNESCO, 39 countries have implemented school closures with a total number of affected students reaching 421,388,462 children (Rokhani, 2020). The Ministry of Education and Culture of the Republic of Indonesia noted that as many as 534,630 Education Units in Indonesia closed face-to-face teaching and learning activities. It is estimated that there are 68,729,037 students and 4,183,591 teachers who are learning from home as a result of the COVID-19 pandemic (Indasari *et al.*, 2020).

One of the areas that contributed the highest number of COVID-19 cases,

ranking 9th in East Java Province, namely Nganjuk Regency with a total of 10,638 cases as of 8 August 2021. The areas in Nganjuk Regency with high cases of COVID-19 are in Bagor District, namely 739 cases as of August 8, 2021. Along with a very significant increase in the number of COVID-19 cases, the government issued a regulation regarding the Imposition of Restrictions on Community Activities, so that Nganjuk Regency occupies level 3, which means that the learning process is carried out face-to-face and is limited to only 50% of all students.

The COVID-19 pandemic has become a new source of stress for teachers due to changes in the work environment. Based on a survey conducted by the Yale Center for Emotional Intelligence and Collaborative for Social Emotional and Academic Learning, it was found that in the United States, more than 5,000 teachers experienced work stress while carrying

out the learning process and working from home (work from home) during the COVID-19 pandemic (Weken, Mongan and Kekenusa, 2020). This is in line with research conducted by Klapproth *et al.*, (2020), stated that more than 50% of teachers experienced moderate and high stress during the pandemic, and as many as 50% of individuals who work as teachers experienced moderate stress (Oducado, Dewi and Immanuel, 2020).

The process of adaptation to digital technology causes them to experience stress. Teachers are required to always be creative and innovative in providing learning materials online by using several applications such as e-learning, telephone, zoom, or via WhatsApp. After learning the teacher must also carry out an assessment or check the assignments of student work collected and make a report, so that it takes more time to complete the work (Weken, Mongan and Kekenusa, 2020).

In addition, teachers who are married tend to have a dual role, that is, apart from being able to teach at home, teachers must also be able to share their time and energy by doing other household chores. This often makes teachers not focus on work due to interactions between families, so that work does not run optimally (Indasari *et al.*, 2020). The many tasks and responsibilities that must be carried out by the teacher cause the high mental workload and stress experienced (Sari, Akbar and Nafikadini, 2021).

Teachers have great demands in developing and increasing the knowledge of their students, especially MI teachers. Learning at MI tends to use a full day school system, which means that the learning process takes place all day from 06.45 - 14.20 WIB. Apart from teaching, the MI teacher also has a dual role, namely being the homeroom teacher, deputy head, extracurricular teacher, and recitation teacher. This shows that learning in MI tends to be more complex, so it is undeniable that there are more demands on MI teachers. Decree of the Minister of Religion of the Republic of Indonesia No. 890 of 2019 concerning Guidelines for Fulfilling Workload for Madrasah Teachers who are Certified Educators include that in one week the workload for madrasa teachers is a minimum of 24 hours face-to-

face and a maximum of 40 face-to-face hours.

Work stress on teachers will have an impact on reducing teacher productivity or performance in delivering learning material, so that it will trigger disruption of the teaching and learning process. Teachers who experience stress are indicated by symptoms such as anxiety, anxiety, worry, anger, and difficulty sleeping. If this is not addressed immediately, it will have an impact on decreasing concentration in teaching, so that the teacher will lose control over students and cause irritability (Muhbar and Rochmawati, 2019).

In addition, stress on teachers will also have an impact on physical health such as on the cardiovascular system which causes an increase in pulse frequency, causing headaches and digestive system disorders (Pertiwi and Wardani, 2019). Therefore, teachers must have the ability to overcome sources of stress so that they do not affect their work, so that the learning process can run optimally (Muhbar and Rochmawati, 2019). Efforts that can be made by the teacher one of them by coping with stress appropriately and effectively.

Coping is a person's process of dealing with threatening situations (Dewi, 2012). Coping with stress on workers aims to deal with problems that occur and so that workers can survive in their working conditions. Using the right coping strategy will reduce the risk of burnout and fatigue in workers so that workers have the ability to adjust to the demands of the work load (Anggi and Siswati, 2020).

Based on data from BPS East Java (2020), the number of MI teachers in Nganjuk Regency is 1,396 teachers. Bagor District occupies the 6th position after Kertosono District with the highest number of MI teachers, namely 73 teachers. MI Al-Qomar Nganjuk is one of the MIs that has the largest number of teachers and students in Bagor District, with 24 teachers and 400 students. During the pandemic, the learning process at MI Al-Qomar Nganjuk implemented a limited learning system which meant that learning was carried out face-to-face with a maximum of only 50% of students and 50% of other students learning online, so that in one week three days of face-to-face and three days of others are done online. Even though the learning process was carried

out in a limited manner, there were still several obstacles experienced by teachers which caused teachers to experience stress during the pandemic.

Based on a preliminary survey conducted by researchers in December 2020 at MI Al-Qomar Nganjuk by measuring levels of work stress, out of 24 teachers there were 13 (54.1%) teachers who experienced moderate stress and 11 (45.83%) teachers experiencing mild stress. The results of these measurements indicate that most MI teachers experience moderate stress. To deal with stress effectively, teachers must make efforts to deal with stress, one of which is coping with stress. Each teacher certainly has coping stress strategies that differ depending on the source of stress and the impact felt, so this research needs to be conducted to prevent the emergence of work stress on teachers and teachers can use appropriate and effective coping strategies in minimizing work stress in the workplace.

METHODS

This type of research is qualitative research with a case study approach. This research was conducted at MI Al-Qomar Nganjuk regarding stress coping strategies for MI Al-Qomar Nganjuk teachers during the COVID-19 pandemic. This research was conducted from August 2021 to January 2022.

The research was conducted on 3 groups of selected informants using a purposive technique. Informants are determined based on the conditions that have been considered by researchers. Informants in this study amounted to 9 informants consisting of, the key informant was the principal of MI Al-Qomar Nganjuk as much as 1 person. The main informants were 5 MI teachers who had experienced mild and moderate stress during the pandemic. There were 3 additional informants, namely 1 family from one of the main informants and 2 fellow teachers from one of the main informants.

Data collection techniques using in-depth interviews (in-depth interviews), observation, and documentation. Interviews with key informants covering the policies that existed in MI, and the conditions of teachers and students during the pandemic, the main informants included sources of work stress for teachers during the pandemic and stress

coping strategies for teachers during the pandemic, and for additional informants carried out to clarify the information that has been conveyed by the main informant. Observations made included observing the YouTube channel used by informants as a learning method during the pandemic. Documentation studies include photos of stress coping strategies carried out by informants, photos of online learning training held by madrasas, and photos of media used in learning during the pandemic.

Data analysis was performed using Thematic Content Analysis. The stages of data analysis carried out consisted of understanding the data, compiling the code, and looking for themes. Credibility in this study uses source triangulation by comparing information from key informants, main informants, and additional informants, as well as technical triangulation by conducting observations and documentation studies. This research has gone through an ethical review process at the Health Research Ethics Committee, Faculty of Public Health, University of Jember No.125/KEPK/FKM-UNEJ/XI/2021 on November 8, 2021.

RESULTS AND DISCUSSION

Description of Informant Characteristics

The informants in this study consisted of 5 main informants. Most of the research informants are in the age range (26-35 years) and fall into the early adult age category and most are female. In addition, most of the informants had worked for less than 10 years, and all of the informants were married.

Sources of Stress for MI Al-Qomar Nganjuk Teachers During the COVID-19 Pandemic

The workload for MI Al-Qomar Nganjuk teachers in one week consists of 2.5 hours of rest and 24 to 38 hours of effective work covering the activities of preparing plans, implementing lessons, conducting mentoring, assessing learning outcomes, and carrying out other additional tasks such as extracurricular teaching, and reciting the Koran, as well as duties as the principal and vice principal of the school. However, during the pandemic, sometimes teachers also have additional workloads when they are at home, such as having to make learning

tools/editing learning videos to be delivered during online learning, so this certainly requires quite a lot of time to complete the demands of their assignments. Here are some sources of stress that occur in an organization:

a) Job Demands During the COVID-19 Pandemic

The existence of task demands at work is a natural thing, but if the task is not in accordance with the individual's capacity or ability, it will cause stress to workers (Ekawarman, 2018). Based on the results of in-depth interviews, information was obtained that as many as 4 main informants stated that the workload during the pandemic had increased and 1 main informant stated that the workload carried out during the pandemic had not increased. Following are excerpts from an in-depth interview with one of the main informants regarding the workload during the pandemic:

"... During the pandemic, the workload would definitely increase, because the parents would definitely demand it while we have tried to provide methods but the parents did not apply them. I'm tired of making material like that in the hope that children will be interested. I edited it myself in such a way but it turned out that the children couldn't even see the video. Maybe it's because oh the video, maybe the parents think oh maybe they took this video, because there are also teachers who don't make their own videos, take them from which YouTube channel. So it's like taking it for granted" (IU5, 27 years old)

"...Yes, in my opinion, the hardest thing is when the children have been told but have not been able to accept it. So, that's a teacher's homework, sis. How can the child receive the lesson. Now that is the biggest homework for teachers. So you have to make innovations so that the child can accept it" (IU2, 27 years)

The demands of the task felt by the informants, namely teachers are

required to create learning innovations so that students can be interested and can understand learning well during the pandemic. However, IU2 also felt complaints about having to review material presented during face-to-face learning due to students' lack of understanding during online learning.

This is because, during online learning, it is the parents of students who deliver assignments or teaching materials and sometimes parents do not have time to accompany their children to study, and not all students have mobile phones. This is in accordance with research conducted by Khotijah *et al.*, (2021) stated that during online learning most students did not understand the material presented by the teacher, so parents and teachers needed to review the material that had been given. This, of course, provides more effort compared to learning before the COVID-19 pandemic. The greater the effort given by teachers to provide subject matter to their students and the amount of time needed to teach lessons to their students, the higher the level of frustration experienced by teachers during learning during a pandemic (Utami, Suarantalla and Hermanto, 2020).

In addition, IU4 also feels complaints about the lack of appreciation from the community for work results. The informant admitted that he had tried as much as possible by taking the time to provide interesting learning methods such as making learning videos which were uploaded via a personal YouTube channel, but the students ignored them and did not apply them at home, so this showed a lack of appreciation. on work results in supporting the learning process during the pandemic.

According to Kristanto deeply Putri, Wahyuni and Lestantyo, (2019) states that giving awards and work appreciation correlates with work stress and can minimize the occurrence of work stress on employees. The results of this study are in line with research

conducted by Indra *et al.*, (2021) stated that there was an increase in the workload experienced by informants during the COVID-19 pandemic which was caused by the online learning system making them feel burdened by making the learning process, making projects and lesson plans, so they had to think extra and give more effort to carry out the demands the task.

The source of stress on teachers during the pandemic was also caused by the process of determining the assessment that had not run optimally. The following is an excerpt from an in-depth interview with one of the informants:

"...If so far what has been felt a bit heavy is that assessment. Yes, a bit too complicated. Before the pandemic, it could be corrected together, then enter the value, right? Because the time is long. But now the time is short, right at the end of the face-to-face time to explain, then sometimes right after the face-to-face meetings, the LKS is collected and the teacher corrects it at home. Now, when it's online, it's for correcting input grades too. So when all the worksheets were collected, they immediately corrected how many pages. Yes, finally the assessment assignments piled up" (IU4, 34 years old)

Based on the excerpt from the interview above, IU stated that, before the pandemic, IU4 could assess student learning outcomes directly through LKS during breaks at the office or correcting assignments together with other students. However, during the IU4 pandemic, it was difficult to assess student learning outcomes. This is because, when face-to-face learning is used to explain lesson materials and practical activities, so that when face-to-face learning informants do not have time to correct student assignments. Finally, the informant could correct students' assignments when they were at home, so that the assessment assignments piled up and they had to correct up to several pages.

The existence of the demands of the task makes the informant have to take quite a lot of time to complete the work. Based on research conducted by Ariesca, Dewi and Setiawan, (2021) stated that grade 1 teachers had difficulty evaluating students, sometimes parents did not accompany their children when studying at home, and parents did not care about doing the lesson assignments given by the teacher to their children. In addition, the collection of assignments was not in accordance with a predetermined schedule, so that this caused the measurement of the results of the evaluation of student abilities to not run optimally.

During the pandemic, 1 key informant (IU4) felt that the workload as a curricula was also increasing. The following are excerpts from in-depth interviews with one informant:

"...During the pandemic yesterday, the schedule often changed. So almost every month, if not every two months, you have to change the schedule, then during the one academic year pandemic, the schedule has changed 5 times. So that's a long schedule. In the past, once a year was enough, now it's up to five times in one new teaching hehe. Then again, the number of classes is also large. So checking between this teacher and this teacher. Tempuknya is difficult then adjust. Then there are more teachers, for example in the morning then in the afternoon they recite the Koran. And when you teach, you can't fill in the MI. So finding the free hours is more difficult" (IU4, 34 years)

The increased workload felt by IU4 was due to the fact that the informant had the task of organizing and making a learning schedule. Before the pandemic, the informants only made a learning schedule once in one academic year, but during this pandemic, the informants made a learning schedule repeatedly and experienced many changes up to five times in one academic year. This schedule change is due to the fact that the distribution of the previous learning schedule was deemed ineffective, so it had to adapt to the current conditions and

situation. In addition, in making the learning schedule, the informant had to adjust it to the schedule of each teacher and the large number of classes in MI.

Based on research conducted by Jalil (2020) states that the increased workload that must be carried out by teachers is due to the demands of tasks that exceed individual capacities. Most of the teachers at MAN 2 Palu City have a dual role, namely as teaching staff, homeroom teacher and extracurricular coach. In addition, there are teachers who have additional positions such as the head of the madrasa, deputy head of the madrasa. This certainly gets additional tasks outside of the main duties and functions, namely teaching, so that this makes the teacher feel less efficient and effective at work.

In contrast to IU3, who felt that the workload they had to endure during the pandemic had not increased. The following is an excerpt of an in-depth interview with IU3:

"...In my own opinion, the more you enjoy it, the better it is. Not too stressful. Because it doesn't go in either" (IU3, 48 years old)

During the pandemic, IU3 felt that the workload had not increased. This was because the informant felt that the task that had to be borne during the pandemic was lighter because there was no need to come to school to teach students. In addition, he provides subject matter and student assignments only through the WhatsApp group, so that the workload becomes lighter.

This is supported by research conducted by Elisa Kupers, Jolien M. Mouw, (2022) states that a teacher who experiences stress with a mild level of stress can be caused by low job demands and adequate resources in the work environment. During the pandemic, social activities tended to be limited and teachers worked relatively few teaching hours compared to the regular work schedule, so this made teachers work more relaxed.

b) Role in School

An organization certainly has role demands that must be carried out by workers. Inappropriate role demands can cause work stress such as role conflict and not being involved in decision making, and there are pressures from within the organization that are not in accordance

with the abilities of workers (Nur, Hidayati and Maria, 2016). Role conflict arises when the responsibilities given are not clearly defined and the employee's lack of involvement in decision making, thus causing job dissatisfaction (Ekawarman, 2018). Based on the results of in-depth interviews, information was obtained that all key informants stated that they were always involved in decision making. The following is an excerpt from an in-depth interview with one of the informants:

"... At the beginning of every month there is a meeting, sis. If you make a decision, so be it, together. All teachers have" (IU.1, 32 years old)

Based on the interview excerpts above, it shows that the involvement of informants is indicated by providing opinions and suggestions when conducting joint deliberations to reach agreement in decision making. Full involvement and participation in work will improve employee performance and participate actively in completing their duties. Vice versa, if workers are less involved in decision making, it will create a tendency which is characterized by decreased motivation to work and try to avoid work (Panjaitan, 2018).

Based on previous research conducted by Ansori and Martiana, (2017) states that the work role is a condition of work that can cause work stress in dental nurses. Dental nurses experience stress due to a lack of understanding of the tasks and responsibilities that have been assigned both when they work individually and when collaborating with other colleagues and the existence of an unpleasant role at work.

c) Relations within the School

Building good relationships between colleagues and organizational leaders aims to create comfort at work (Ekawarman, 2018). Based on the results of in-depth interviews, information was obtained that all informants continued to maintain good relations with superiors and co-workers. The following is an excerpt of an in-depth interview with one of the main informants:

"...Alhamdulillah it's good, there is a family here. Helping each other" (IU5, 27 years old)

Based on the interview excerpts above, it shows that all informants maintain good relationships with colleagues and superiors as shown by a sense of kinship and helping each other when experiencing difficulties. The informant also admitted that he often exchanged stories/sharing related to work problems with other fellow teachers, so that this made teachers become familiar with each other and prevented the emergence of work stress in the work environment.

Although sometimes there are still some misunderstandings regarding job descriptions, this triggers debate among others. However, this can be resolved properly, so it doesn't make the problem drag on. The better the quality of working relationships with superiors and fellow workers, the less stress workers will experience in the work environment (Amalia, Wahyuni and Ekawati, 2017). Communication within an organization has an important role to link interactions between individuals. Communication aims to convey ideas and expectations of everyone so as to prevent misunderstandings and conflicts between employees (Mallapiang *et al.*, 2017).

Based on research conducted by Amalia, Wahyuni and Ekawati, (2017) states that poor communication between members of the organization can trigger stress in the work environment. If an organization does not establish good relations and communication between fellow members and superiors, it will cause delays in the development of attitudes, self-abilities and thoughts between one worker and another, so that the fulfillment of needs in an organization is hampered.

d) School Relations with Outsiders

Good communication within an organization does not only apply to superiors and fellow members of the organization, but also must establish good communication with outsiders of the organization. The parties outside the organization referred to in this study are the teacher's relationship with the guardians or parents of students. Based on the results of in-depth interviews, it was found that as many as 4 main informants stated that during the pandemic the informant's communication with parents of students was going well. The following is

an excerpt of an in-depth interview with one of the main informants:

"...Communication with the parents of the students, thank God, is smooth, Ms. But yes, getting to know children's character during this pandemic is still lacking" (IU4, 34 years)

The teacher's communication relationship with the student's guardian continues to run well, even though they are not too familiar with the character of each student. Good relationships between schools, teachers, children, parents and the community can make the learning process run well. Parents have a role as teacher partners in supporting the learning process and as a means of consultation between teachers and other parents of students to strive for the best for their children. Parental participation in the learning process is very necessary in order to facilitate access to communication related to children's daily life and child development at home, so that the treatment given by teachers and parents is aligned. (Dermawan, 2016).

The main informant maintained a good relationship with the student's guardian as shown by the parents always communicating about the conditions and constraints of the child while studying at home to the teacher and the participation of the student's guardian in providing evaluation materials related to the learning process during the pandemic. The evaluation given is in the form of input and suggestions to strive for the best for the child.

Strategies for Coping Stress in MI Al-Qomar Nganjuk Teachers During the COVID-19 Pandemic

Every human being certainly needs the ability to deal with appropriate stress, both with mild stress levels to severe stress levels (Zahro and Megatsari, 2021). A person's ability to deal with stress is called coping stress. According to Lazarus and Folkman (dalam Maryam, 2017) coping strategy is an action or individual behavior to deal with demands that pressure, burden and exceed the resources they have. Each individual has different coping strategies for stress according to the type of problem they face and the coping resources they have (Nugroho and Khasan, 2016).

According to Lazarus and Folkman (dalam Maryam, 2017) suggests that there are two types of coping strategies used to deal with stress, namely problem-focused coping and emotion-focused coping. Based on the results of in-depth interviews conducted by researchers, it was found that the 4 main informants carried out stress coping strategies with these two methods.

1) Stress Coping Strategies that Focus on Problems (problem focused coping)

Coping strategies that focus on problems (problem focused coping) is an action in dealing with problems by solving problems directly and learning about new skills (Maryam, 2017). Based on the results of in-depth interviews, it was found that the 4 main informants carried out coping strategies by finding solutions to solve the problems they were experiencing. The following is an excerpt from an in-depth interview with one of the informants:

"... Yes, usually looking for a solution like this, for example, what's the name? I also have a YouTube channel so usually when I send it to WA, parents are burdened because there are a lot of entries. So the memory is full like that, so I uploaded it to my YouTube channel so that I can remember it later" (IU5, 27 years old)

The coping strategy carried out by the informant was by using a planful problem solving aspect such as trying to do good planning by finding solutions to solve problems during the pandemic caused by multiple roles and the delivery of subject matter that was not optimal.

Coping strategies carried out by 4 informants include making plans to overcome problems in assessing student learning outcomes, namely by giving assignments through worksheets and google forms and then the informants will provide several evaluations related to the assignments that have been given to support the results of learning assessments, find solutions by creating learning innovations such as by creating new methods and making

teaching aids to attract students' attention when learning online, making plans such as writing down activity plans on small notes (sticky notes) containing activities and assignments, and seeking information related to learning methods via the internet. In addition, the informant also uploaded learning videos via YouTube, so as not to burden the student's parents if the cellphone memory is full.

This is in line with research conducted by Nugroho and Khasan, (2016) menyatakan bahwa sebanyak dua The main informant carried out a coping strategy with a planful problem solving aspect, namely by planning in dealing with a problem such as seeking information from the internet media. Based on research conducted by Pertiwi and Wardani, (2019) states that the problem-oriented coping strategy (problem focused coping) most often used by teachers is planfull problem solving (52.3%). This strategy is used by individuals in solving problems by using an analytical approach in order to change the current situation.

In addition to using problem focused coping with the planfull problemsolving aspect, the results of this study also found that the 4 main informants also used problem focused coping with the aspect of seeking social support, namely efforts made to solve problems by seeking social support from both co-workers and from the closest family. like husband. Informants seek support from people closest to them by exchanging stories or sharing related problems and asking for advice to obtain information and solutions in solving the problems they face. The following is an excerpt from an in-depth interview with one of the main informants;

"...A lot of. My husband, O Allah, support me. I wish hehehe. Yes, I try to stay harmonious with my husband. If it's with other people, thank God it's still fine. My husband also sometimes doesn't invite me to do activities like that. So that's proof that my husband is very supportive. In a complicated house

my husband is like making snacks. Thank God, my husband is also very patient and my loyal listener" (IU1, 32 years old)

Farista (2018) states that an effective stress management strategy for women is to get social support from both the support of their immediate family and fellow co-workers. The results of this study are also in accordance with research conducted by Sumarni, Ismail and Damayanti, (2019) which states that in problem focused coping individuals tend to use seeking social support in solving problems, namely by seeking social support by telling the problem and asking for advice or opinions to solve the problem.

According to Weken, Mongan and Kekenusa, (2020) Social support is a variable that is significantly correlated with work stress. The higher the social support received, the lower the risk that someone will experience work stress, and vice versa, the lower the social support received, the higher the risk that someone will experience work stress.

Social support has a very important role for a teacher. With the support of family, co-workers, and superiors, it will result in a comfortable work atmosphere and feel more valued, so as to minimize work stress experienced by teachers. Teachers who get good social support tend to be more optimistic in dealing with current and future problems, improve interpersonal skills and make it easier for teachers to adapt to the problems they face (Akbar and Tahoma, 2018).

In this study, the form of support provided by husbands and fellow teachers to the main informants was in the form of attention and affection, such as inviting them to eat together/culinary and taking walks around the house to calm their minds, willingness to help when experiencing difficulties when dealing with students and determining methods. effective learning, willingness to be a listener to the problems they are facing, and then help find solutions together, and provide advice for even better things.

2) Emotionally focused coping strategies (emotion focused coping)

Coping strategies that focus on emotions (emotion focused coping) are individual efforts to solve problems by

responding emotionally and tend to suppress efforts made to reduce negative emotions towards a problem (Zahro and Megatsari, 2021). This strategy is carried out when the individual is unable to change a stressful situation and can only accept the situation, due to a lack of resources owned by the individual (Maryam, 2017).

Based on the results of in-depth interviews, it was found that all the main informants carried out coping strategies religiously to a problem that occurred during this pandemic. The following is an excerpt of an in-depth interview with one of the main informants:

"... Yes, I am closer to Allah, sis. closer to the heart becomes calmer, more sincere. As long as the problem can still be solved, don't be too confused. When there is this, the solution is this and that" (IU3, 48 years)

Based on the interview excerpts above, it shows that all the main informants carried out emotional focused coping strategies with positive reappraisal aspects, namely coping stress which is done by giving a positive assessment of a problem that causes work stress by getting closer to Allah SWT, such as praying to be given ease in solving the problems he faced, given health and always grateful for what he had obtained, and by reciting the Koran and praying made the informant feel calmer. Informants also interpret positively about a problem by taking lessons from every problem that is happening. Problems that are happening have wisdom to be able to practice patience, sharpen maturity, and improve self-ability or teacher performance.

According to Lazarus and Folkman quoted in Baqutayan (dalam Pertiwi and Wardani, 2019) someone who uses coping strategies with positive reappraisal aspects tends to try to reassess situations that are considered to be stressful and find positive meaning/take lessons from a problem they face.

This research is also in line with research conducted by Farista (2018) which states that one of the effective methods of reducing stress is to be positive about a problem, so you don't exaggerate too much about the problem that is happening.

In this study, information was also obtained that the 4 main informants carried out stress coping strategies by controlling themselves/controlling emotions towards a problem. The following is an excerpt from an in-depth interview with one of the informants:

"...Definitely trying to control emotions. Yes, calm down first, chat or tell stories, share then calm your mind first, like that"
(IU1, 32 years old)

Based on the interview excerpts above, it shows that the efforts to control oneself were carried out by the 4 main informants, namely by winning thoughts such as me time in a comfortable and cool place, as well as lots of green plants which make the mind fresher, and do not bring problems regarding work to others. in family. This effort was used by informants not to rush into making decisions, so that problems can be solved with careful planning and by entertaining themselves can find ideas to overcome a problem. This is a coping strategy with self-controlling aspects, namely informants will think before doing something and avoid doing things in a hurry (Maryam, 2017).

According Khairunnisa (dalam Ermayulis, Masril and Hardi, 2019) argues that self-control is an individual's ability to control himself so that it is better and more directed. Self-control can be done by calming the mind such as doing breathing techniques (relaxation). The use of this breathing technique will send messages to the brain, thereby making thoughts and feelings calmer and more relaxed (Rahmansari, 2020).

In addition, as many as 3 main informants stated that when there

was a problem the informant tried to keep his distance so he didn't think too much about the problem he was experiencing. The following is an excerpt of an in-depth interview with one of the main informants:

"... When I'm stressed, I usually like to drink coffee with friends, hang out or hang out hehee. You're still young nowadays like that hehehe. So when I go to work, I'm fresh again" (IU5, 27 years old)

Based on the interview excerpts above, it shows that, as many as 3 main informants tried to keep their distance from the problems they were facing by taking walks, eating together/culinary and gathering at cafes with friends. The informant admits that he prefers to gather at cafes with his husband/friends when there are problems because being able to socialize with other people, exchange ideas in new places takes positive energy from the natural surroundings and can breathe fresh air which makes the mind and heart calmer.

The results of this study are in accordance with research conducted by Nugroho and Khasan, (2016) states that efforts are being made to deal with stress on teachers by trying to ignore existing problems. the way to ignore it is through *srawung* (gathering) activities/hanging out with other people/teachers and joking around. This is a coping strategy with the aspect of distancing, namely the informant will try to keep his distance so he doesn't think too much about the problems he is facing (Maryam, 2017). The use of this strategy made the informants feel that their workload was reduced and made their minds clearer in solving problems.

Stress Management Strategy for MI Al-Qomar Nganjuk Teachers Conducted by Schools

Strategies for dealing with work stress for MI Al-Qomar Nganjuk teachers carried out by the school are providing online learning training, and providing study tours. The following is an excerpt from an interview with one of the

informants which shows that the school held online learning training during the pandemic:

"Yesterday, but right at the start of the pandemic. Then after going online there were trainings like zooming then making powerpoint video models like that, then there was e-learning training" (IU4, 34 years old)

Based on the interview excerpts above, it shows that stress management is carried out by the school by holding online learning training such as zoom training, e-learning training, and making learning videos. The aim of the training is to improve the skills and abilities possessed by teachers and to be able to adapt learning during the pandemic. Procurement of training in the work environment can minimize the stress experienced by teachers, because with job training teachers gain new insights and skills to be able to improve their performance. Research conducted by Hoesny and Darmayanti, (2021) states that in improving the competence possessed by teachers, it is necessary to improve their skills in mastering technology.

In addition, stress management is carried out by the school, namely by holding a study tour program. The following is an excerpt from an interview with one of the informants:

"For recreation, it's usually held once a year, right because there is this pandemic so there has been no recreation for a long time. But God willing, there will be another recreation at the end of the year" (IU5, 27 years old)

Study tour activities aim to provide refreshments to teachers and students after carrying out school exams, so that this activity is quite effective in reducing teacher workload which triggers work stress. Research conducted by Alfian *et al.*, (2020) shows that one of the stress management programs carried out by schools is the joint recreation program which is carried out once a year. Through this program, all levels of teaching staff feel supported for performance while working.

CONCLUSION

Based on the results of the study, it can be concluded that the source of stress for MI teachers comes from the demands of their assignments during the pandemic. During the pandemic, MI teachers used both types of stress coping strategies during the pandemic, namely problem focused coping and emotional focused coping. The most widely used problem focused coping strategies by informants are aspects of planful focused coping and seeking social support. In addition, the most widely used emotional focused coping strategy is the positive reappraisal aspect. It is hoped that related agencies can work together with local health cross-sectors to provide counseling services and improve the psychological health of teachers.

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Breastfeeding Experience of Adolescent Mothers in Bengkulu City

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ABSTRACT

Backgrounds: The number of early marriages which has continued to increase since the COVID-19 pandemic, the unpreparedness of parenting for adolescent mothers will have an impact on the nutritional status of children, especially in breastfeeding. **Objective:** The purpose of this study was to obtain in-depth information related to breastfeeding experiences in adolescent mothers. **Methods:** This study used qualitative methods on 6 adolescents aged under 20 years who have babies aged 0-24 months, conducted in-depth interviews about breastfeeding experiences including intentions to act, thoughts and feelings, social support, breastfeeding references, enabling breastfeeding outside the home and socio-cultural context. **Results:** The findings of this study showed that adolescent mothers failed to provide exclusive breastfeeding due to supplementary feeding to infants before the age of 6 months. However, adolescent mothers continue to breastfeed their babies because of the perceived benefits of breastfeeding, social support in the form of motivation and counseling from families and health workers. Adolescent mothers experience physical experiences of soreness, abrasions, swelling and pain in the breasts. They are pleased because they believe that it can make the inner bond between mother and baby closer and more intimate. There are taboos and recommendations in society that are believed to affect breastfeeding babies such as abstinence from consuming long-term foods or recommendations to consume vegetables that are believed to facilitate breast milk. **Conclusions:** Painful breastfeeding does not stop adolescent mothers from breastfeeding. Adolescent mothers continue to breastfeed although not exclusively.

Keywords: Adolescent Mother, Breastfeeding, Experience.

INTRODUCTION

The COVID-19 pandemic that has occurred since the end of 2019 has resulted in a high number of early marriages. The Ministry of Women and Children Empowerment said that the number of early marriages during the COVID-19 pandemic increased by 24,000, 60% of which were teenagers under 18 years old (Kemen PPA, 2020). The high rate of early marriage has an effect on the increase in the number of adolescents who become pregnant deliver her baby and breastfeed. Adolescent mothers and fathers have higher levels of medical, educational, behavioral, relational and psychological problems (Candidate and Science, 2018). Early marriage accompanied by unpreparedness to become parents will have a negative impact on the nutritional status of children and parenting patterns,

especially in exclusive breastfeeding (Hidayah, Chikmah and ..., 2020). Babies who do not get breast milk can result in children's immune disorders, increased morbidity, spending money to buy milk, reduced intelligence, and mortality (Fau, Nasution and Hadi, 2019).

The failure or success of adolescent breastfeeding mothers can be influenced by several things, such as economic status, mother's education, occupation, type of residence, and counseling on infant feeding through health workers. Low education in adolescent mothers results in low knowledge about breastfeeding and breastfeeding practices. Adolescent mothers are less likely to start breastfeeding and tend to stop exclusive breastfeeding prematurely (Benova *et al.*, 2020). Adolescent mothers who stop breastfeeding will switch to formula milk (Nuampa *et al.*, 2018). Teen mothers

think that breastfeeding can make it difficult to return to school or work. Lack of preparation, social support, acceptance from peers and shyness also make it difficult for them to continue breastfeeding, so they prefer to give formula milk (Smith et al., 2012). Breastfeeding mothers receive more negative views than positive views (Priscilla, Afiyanti and Juliastuti, 2021a).

Rohmah's (2016) research in Indonesia found that there were feelings of irritation in adolescent mothers because breastfeeding made it difficult to sleep at night. In addition, the feeling of pleasure is also felt by mothers in their teens, because breastfeeding can increase the bond between mother and baby. Adolescent mothers are also happy because they get support from their husbands or other family members (Rohmah et al., 2016). Nelson in his research in Canada states that adolescent mothers decide to commit to breastfeeding starting with breastfeeding as early as possible, learning to breastfeed, adjusting to breastfeeding, and finally reaching the peak to end breastfeeding (Nelson, 2019). Factors that influence adolescent mothers to continue to be committed to breastfeeding include perceptions about breastfeeding, breastfeeding experiences from others, and socio-cultural factors (Anindia, Widjanarko and Kusumawati, 2021).

The results of research in various countries show the failure of adolescent mothers to continue breastfeeding. Therefore, the researcher wanted to know how the breastfeeding experience of adolescent mothers in Kota Bengkulu was. The themes that will be studied include intention to continue to act, thoughts and feelings of adolescent mothers, social support, breastfeeding references, continuity of breastfeeding in public places and influential socio-cultural influences.

METHODS

This study uses a qualitative design with a phenomenological approach to obtain information on the breastfeeding experience of adolescent mothers in the form of intentions to act, thoughts and feelings, social support, breastfeeding references, enabling to breastfeeding outside the home and in-

depth socio-cultural influences.

The sample in this study is women under 20 years who have babies 0-24 months, obtained as many as six adolescent mothers. As well as supporting informants who live with adolescent parents, there are four supporting informants consisting of three parents of adolescent mothers and one husband. In addition, interviews were conducted with health workers and posyandu cadres. Instrument in this study used was an interview guide.

Data collection was carried out from April to June 2022 directly with participants in Kota Bengkulu. Data were obtained through in-depth interviews with interview guidelines as many as 17 questions regarding breastfeeding experiences for adolescent mothers according to the themes, namely intentions to act, thoughts and feelings, social support, continuity of breastfeeding outside the home, references to breastfeeding and socio-cultural or habits, and society that affects breastfeeding adolescent mothers. Data collection was carried out continuously until it was complete and the data were saturated.

The analysis was done by summarizing, selecting the main points, focusing on the important things according to the theme and pattern and discarding the unnecessary. After being reduced, the results of the interviews were presented in descriptive form. The last stage of the analysis was drawing research conclusions by comparing research questions and research results.

To make writing easier, the researcher made codes for the main participants so that they were easy to understand. Adolescent mothers were coded in order of 1-6 and age. The encodings are (IR1.17), (IR2.16), (IR3.18), (IR4.19), (IR5.19) and (IR6.18). The way to read the code is like the example (IR1.17), which is the mother of one teenager who is 17 years old. This research has met the ethical standards of health research with No. KEPK.M/044/02/2022 issued by the Bengkulu Ministry of Health Poltekkes institution dated February 26, 2022.

RESULTS AND DISCUSSION

Based on Table 1, it can be seen that there were six participants in this study.

When this research was conducted, four adolescent mothers were still breastfeeding their babies, one teenage mother stopped breastfeeding at 18 months of age, and one other teenage

mother stopped breastfeeding at 4 months of age. Only one (16.7%) adolescent mother exclusively breastfed and five (83.3%) other adolescent mothers were not exclusive.

Table 1. Demographic Characteristics of Participants.

Characteristics	Frequency	Percent
Personal		
Age of Participants		
14-17 Years (middle teens)	2	33.3
18-19 Years (late teens)	4	66.7
Level of education		
SD		
Junior High School	4	66.7
Senior High School	2	33.3
Work		
Housewife	6	100
Work outside the home	0	
Type of Stay		
Nuclear family	1	16.7
Extended family	5	83.3

Breastfeeding Experience in Adolescent Mothers

From the analysis carried out, six main themes emerged in this study, namely the theme of intentions, thoughts and feelings, social support, breastfeeding references, enabling situations and socio-culture. The results of in-depth interviews can be seen through the following descriptive presentation.

Intention to Act

The initial journey of an adolescent mother to continue breastfeeding her baby is certainly based on intention or determination so that she is able to make decisions. Adolescent mothers decide to continue breastfeeding because they realize the good benefits obtained when starting breastfeeding (Anindia, Widjanarko and Kusumawati, 2021). Adolescent mothers have understood the benefits of breastfeeding for the health of their babies as the main

motivation to continue

breastfeeding (Rokhmah and Astuti, 2020).

The benefits are felt not only for the baby but for adolescent mothers and the family economy. They say that breastfeeding can make babies grow faster, healthier and have a stronger immune system. As expressed by the following adolescent mother:

"He grows faster, his weight at birth is only 2.9 kg after 1 month of age to 5.2 kg. bigger." (IR2.16).

Another statement from adolescent mothers who assessed that breastfeeding can make the baby's immune system healthy. Adolescent mothers compare the benefits of breastfeeding and formula milk.

"So children's immune systems are stronger, different from formula milk." (IR4.19)

This is in line with the statements of supporting participants who saw the development of babies who were given breast milk as helping the growth and health of babies. This supporting participant is the grandmother of the baby. Here's her statement:

"The baby is healthy, the development is good, it increases the child's immune system for the baby's immune system." (IP3).

One of the benefits of breastfeeding for babies according to Brahm and Valdes (2017) is to increase the baby's immunity because breast milk contains IgA which is the main immune system factor to prevent a disease, improve the health and survival of the baby. Adolescent mothers strongly believe that breastfeeding can boost the baby's immune system. Adolescent mothers explained the benefits of breastfeeding for babies and, among other things, breast milk can improve baby's health with a stronger immune system (Nuampa *et al.*, 2018).

The benefits of breastfeeding do not only affect the development of the baby, as for the benefits that can be felt by the mother in breastfeeding. Adolescent mothers admitted that breastfeeding is more instant than formula milk so that adolescent mothers are more comfortable to breastfeed. Adolescent mothers easily give breast milk directly to their babies without having to buy and prepare the milk first. Closeness between mother and baby can also be formed due to breastfeeding; adolescent mothers felt closer with the baby.

"It's more comfortable, it's more practical if formula milk must be prepared first, if breast milk is direct, besides that, it can also be more familiar with babies." (IR2.16).

Saryaman (2020) said that breastfeeding is also beneficial for mothers. The benefit is that the breastfeeding process can have a good psychological effect on the mother. Mothers who breastfeed will feel proud and feel needed, a feeling that is needed by all humans (Saryaman, 2020). In addition, breastfeeding is also considered

more practical because there is no need to prepare hot water, bottles and pacifiers (Smith, 2015).

In addition to the benefits for the baby and adolescent mothers, breastfeeding can help the family's economy. Adolescent mothers don't have to spend money to buy formula milk.

"Yes, because I breastfeed my baby so there is no need to buy other milk. It helps the economy to be more efficient." (IR1.17).

By breastfeeding, adolescent mothers do not need to spend money to buy formula milk, so that money can be used for other purposes and save the economy (Smith, 2015).

Thoughts and Feelings

In this theme we explored how they think about their experiences while breastfeeding and how they feel. Adolescent mothers described painful experiences, free to do activities and how they felt as a result of breastfeeding, supplementary feeding and the reasons they finally chose to stop breastfeeding.

When researchers asked about the freedom they felt when they became mothers and had to breastfeed and the physical experiences they felt, there were various answers that emerged from this question. Some stated that they had no disturbance in their freedom of activity, but they experienced painful physical experiences such as breast pain, swelling, blisters and being thinner. This was as expressed by the following 19-year-old teenage mother.

"Not bothered, it's nice to be able to spend time with the baby, but the weight is dropping. Breasts feel sore, swollen, sore and blistered." (IR4.19).

Unlike the others, one of the participants felt that they were not free to take care of the household and felt physical changes that caused discomfort. An 18-year-old teenage mother explained that she had to stop the activity because the baby wanted to suckle.

"Yes, it's like when I was going to clean up but the baby wants to breastfeed and cries, so work is delayed. For example, while washing clothes, a child is sleeping when he suddenly wakes up wanting to breastfeed, so he cancels the washing. Yes, the

weight continued to decrease when I was breastfeeding yesterday, the nipples were blistered with pus like that, a fever due to frequent swelling but only until the age of 3 months. Complaining a little yesterday about being so skinny compared to this it's still better." (IR6.18).

Most of the adolescent mothers in this study did not experience impaired freedom of activity as in previous studies. Adolescent mothers feel the lack of freedom in their activities because they spend all the time with their babies. Adolescent mothers feel alienated because they have to breastfeed at a young age (Nuampa *et al.*, 2018).

Painful physical experiences felt by most adolescent mothers include pain, blisters, swelling and tenderness, cracked breasts and weight loss. However, they continue to breastfeed because it is their responsibility (Hidayah, Chikmah and ..., 2020).

In addition to the physical experiences experienced by adolescent mothers, the researchers also asked how they felt about breastfeeding their babies. Adolescent mothers in this study said that they enjoy breastfeeding their babies because they can provide the best. This is as expressed by the following 19-year-old teenage mother.

"Happy to be able to give the best for children." (IR5.19).

Mothers who breastfeed show more positive feelings and increase secure attachment between mother and baby (Rohmah *et al.*, 2016). Researchers also asked how mothers give complementary foods to babies before the baby is six months old. Adolescent mothers in this study on average had given other than breast milk to infants before the age of six months. A 17-year-old teenage mother who said she changed formula milk when she was out of the house.

"Yes, I did, I don't know at what age, if I go, I will definitely be given formula milk." (IR1.17)

An 18-year-old mother also admitted to giving her baby additional food at the age of four months in the form of mashed fruit. This is because the grandmother of the baby was worried that the baby will still feel hungry with only

breast milk.

"Ever given fruit, but if it's fruit is it okay? Around the age of four months, bananas have been blended. His grandmother gave it, just to be full. Only three times but given a distance." (IR6.18).

After that, the researchers were interested in exploring what became the basis for adolescent mothers to stop breastfeeding because in this study; two participants were found who had stopped breastfeeding. One of the participants stopped breastfeeding when the baby was 1.5 years old because the baby had been given additional food so the adolescent mother decided to stop breastfeeding.

"A year and a half because he had eaten rice, he stopped." (IR1.17).

Supplementary feeding is not appropriate for the baby's age resulting in a decrease in the frequency of breastfeeding. The impact of supplementary feeding is to give the baby a feeling of fullness and shorten the period of breastfeeding the baby, which consequently reduces milk production so that breastfeeding becomes ineffective (Astuti, Kurniawati and Kurniawati, 2021).

In addition, there was an 18-year-old adolescent mother who stopped breastfeeding at the age of four months because the breast milk has dried up so the mother does not continue breastfeeding. After investigation, it turned out that the baby of this adolescent mother was born prematurely.

"No longer breastfeeding because it's dry, I've tried various ways and it still won't come out." (IR3.18)

Discontinuation of breastfeeding can be caused by insufficient milk production, sticky placenta, and lack of blood so that mothers usually switch to giving formula milk to babies (Kadatua and Rosyida, 2021).

Social Support

Social support is very important and influences the decision of adolescent mothers to continue breastfeeding. Adolescent mothers get support from their families as well as health workers and posyandu cadres. Support from the family can be in the form of advice to continue breastfeeding. This was confirmed directly by the family living in the same house as the teenage mother.

"Give support, continue to support to be given milk so as not to be malnourished." (IP1).

Other support participants said that they provided support to adolescent mothers during breastfeeding. Supporting participants said that breast milk is better than other breast milk.

"Please continue to support her, she is starting to get pregnant. Mother has supported her to be given breast milk, it's better to breastfeed rather than bottle milk." (IP2).

Meanwhile, other supporting participants who were the husbands of adolescent mothers in this study claimed to provide the best support for their children and wives.

"Definitely give the best support for children and wives, especially midwives who recommend breastfeeding, they definitely support it." (IP4).

In addition to family support, health workers have a big influence in supporting adolescent mothers to continue breastfeeding. The statement of adolescent mothers who said that they received support from health workers and cadres was in accordance with the statements of cadres and midwives who said that they supported breastfeeding adolescent mothers by providing motivation and counseling.

"Yes, support, this form of support motivates them to continue breastfeeding and provides direction so that they eat nutritious food so that their baby is healthy." (Cadre)

"Given counseling on the benefits of breastfeeding, health education on the benefits of breastfeeding for babies and mothers" (Midwife).

Support has a big role in the success of breastfeeding by mothers. One of the supports that play a role in breastfeeding is the support of a partner or husband (Rohmah *et al.*, 2016). Family support is needed by adolescent mothers since pregnancy; the family member who is most expected to provide support is the biological mother (Fauzi and Shifa, 2022). While peer support also has an impact on the effect of breastfeeding as being in an

environment that is supported by other young mothers can affect the mother's experience of breastfeeding (Grant, 2021).

It was found that mother's decision to breastfeed or not was mostly influenced by closest people such as parents, sisters and even peers as a supporter of adolescent mothers in decision-making.

The results showed that most of the closest family members of adolescent mothers gave positive support (Priscilla, Afiyanti and Juliastuti, 2021b). In facing breastfeeding difficulties, adolescent mothers stated that they received breastfeeding assistance and support, including from health workers. Thus, health workers can make a benchmark for the implementation before and post-partum guidance and interventions to deal with breastfeeding difficulties or to improve breastfeeding problems (Muelbert and Giugliani, 2018).

Teenage Mother's Reference for Breastfeeding

The success of the closest people to breastfeed becomes the influence of adolescent mothers to do so. Adolescent mothers see the success or impact of not breastfeeding among those around them, such as mothers, sisters and friends. Mothers of study participants provided important lessons to continue breastfeeding. They say that breastfeeding is mandatory until the baby is two years old.

"Yes, my mother teach to breastfeed their children for up to two years so that they are healthy, it really has to be up to two years." (IR6.18)

Not only parents are examples to continue breastfeeding, other participants say that many friends are role models and sisters who successfully breastfeed their babies up to two years. Like an 18-year-old teenage mother who said her friends suggested breastfeeding.

"Yes there is, many friends suggest that." (IR3.18).

The mother of a 19-year-old teenager said that the success of breastfeeding her older sister made her determined to breastfeed for two years.

"Yes, there is, my sister was previously required to breastfeed for two years, so I had to

breastfeed for two years, no less." (IR4.19).

Kadatua and Rosyida (2021) identified that adolescent mothers' decisions to breastfeed were strongly influenced by several female family members who were close to them and had previous positive breastfeeding experiences. These female family members were also identified as the main source of support for new mothers in breastfeeding.

In addition, there was a bad experience coming from a friend who wasn't breastfeeding which caused the baby to have to keep going to the hospital every week and constantly changing formula. Adolescent mothers decide to continue breastfeeding so that this doesn't happen to their babies (Nelson, 2019).

Sustainability of Breastfeeding Outside the Home

On average, adolescent mothers do not work or go to school, when they are in a crowd they admit that they continue to breastfeed their babies. Like a 16-year-old teenage mother who says she continues to breastfeed by finding a quiet seat and feeding her baby until it's full before leaving so the baby doesn't fuss.

"Just feed it, keep breastfeeding, find a quiet seat. Before leaving the house, breastfeed until you are full so you are not fussy." (IR2.16)

Meanwhile, another 17-year-old teenage mother chose to bring formula milk in a bottle when she was out of the house.

"Keep breastfeeding. For example, if you go, you will change to formula milk." (IR1.17).

Breastfeeding in public is often associated with morals. Although people who breastfeed is not a negative behavior, adolescent mothers often feel like they are being humiliated. However, not all adolescent mothers feel this way because they believe that breastfeeding is a normal thing that mothers do for their children (Nuampa *et al.*, 2018). The main barriers and facilitators to breastfeeding appear to be the availability of suitable seating coupled with high privacy or lack of civic attention (Rokhmah and Astuti,

2020). Social support can increase positive perceptions about breastfeeding and reduce breastfeeding difficulties. In addition, it can be a cause of returning to study or work and encourage breastfeeding in public places (Nuampa *et al.*, 2018).

Socio-cultural

Adolescent mothers in this study explained how the socio-cultural society is believed to have an effect on breastfeeding mothers. Public trust in the taboos and recommendations of pregnant women in consuming food such as hot, spicy and oily food is not allowed for fear of affecting the nursing baby. One 16-year-old teenage mother said that during breastfeeding she abstained from consuming spicy and iced foods, but the teenage mother said that it had no effect on the baby.

"Abstained breastfeeding time? Yes, you can't eat chili, eat ice. But thank God the baby has no effect even though the mother eats ice, eating chili has no effect. Stay healthy even if the mother eats anything." (IR2.16).

Meanwhile, the 18-year-old teenage mother said that she also received restrictions in the form of not being allowed to consume hot, spicy and oily food.

"Yes, you can't eat a lot of chili, you're afraid that your child will have diarrhea later, you can't eat too much oily food. Anyway, don't eat too much chili." (IR6.18)

As well as prohibitions, adolescent mothers also admit that there are recommendations to consume foods that are believed to be able to stimulate breast milk. This was revealed by a 19-year-old teenage mother in this study.

"In the past, they were told to drink red pudding so that the milk was profuse, eat katuk often and eat vegetables so that the milk was profuse." (IR5.19).

The belief in food consumption by the community may have a relationship with the production of breast milk by the mother. Katuk leaves are known to contain protein, fat, calcium, phosphorus, iron, vitamins A, B and C. Consumption of katuk leaves which are rich in nutrients can help to improve intake of mothers (Ladores and Corcoran, 2019).

The beliefs and traditions that exist in the community can directly or indirectly support breastfeeding, especially exclusive breastfeeding. There are various cultural beliefs that exist in society regarding breastfeeding, some are supportive but also some are not (Wahyuningtyas, 2022).

Cultural factors have an influence on breastfeeding by adolescent mothers. This regulates the restrictions on the consumption of food for adolescent mothers such as snacks and certain foods. However, there are recommendations for consuming certain traditional foods to help facilitate breastfeeding mothers (Astuti, Kurniawati and Kurniawati, 2021).

CONCLUSION

From the findings in this study it can be concluded that the breastfeeding experience of adolescent mothers can be categorized into two, namely pleasant experiences and painful experiences. Pleasant experiences are in the form of perceived benefits and goodness of breastfeeding, feelings of pleasure because breastfeeding bring the mother closer to the baby and the support that is obtained. Meanwhile, the painful experiences experienced by adolescent mothers are in the form of physical pain and taboos that exist in society.

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Determinants Of Preventing Diarrhea in Children in Siulak Gedang Puskesmas In 2022

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ABSTRACT

Introduction: Diarrhea is a condition marked by changes in the shape and content of watery feces. It can also be accompanied by vomiting and bloody stools. Especially in the first three years of life, when the child may experience one to three episodes of severe diarrhea, this disease frequently affects children under the age of five. **Aims:** This study's objective was to determine the relationship between education level, knowledge, and attitudes of mothers in preventing diarrhea in toddlers in the working area of the Siulak Gedang Public Health Center, Kerinci Regency, 2022. **Method:** This kind of study is quantitative, cross-sectional, and uses 96 samples as its sample size. The Siulak Gedang Health Center in Kerinci Regency's operational region served as the site of this study. Proportional Random Sampling is the method of sampling. Without taking into account the strata in the population, proportional random sampling is a technique for taking samples at random. **Results:** According to the study's findings, 56.3% of people engage in effective actions for preventing diarrhea. According to statistical analyses, knowledge (0.000) and attitude (0.000) are the two factors that mothers' conduct in preventing diarrhea is connected with (0.000). Additionally, there is no connection between behavior used to prevent diarrhea and education level (0.338). **Conclusion:** There are relationship between the knowledge and attitudes of mothers with the prevention of diarrhea in children under five in the working area of the Siulak Gedang Health Center, Kerinci Regency.

Keywords: Attitude, Diarrhea Prevention, Education Level, Knowledge.

INTRODUCTION

According to the World Health Organization (WHO), diarrhea is a condition marked by changes in the shape and content of watery feces. It can also be accompanied by vomiting and bloody stools. Especially in the first three years of life, when the child may experience one to three episodes of severe diarrhea, this disease frequently affects children under the age of five (WHO, 2019) The first three years of life or in toddlers are particularly vulnerable to this condition (Yuniati, 2021).

In terms of nutrition and disease, particularly infectious diseases, toddlers are a very vulnerable age group. Diarrhea is an infectious disease that affects young children (Cono et al., 2021). According to the World Health Organization (WHO), diarrhea is a condition characterized by changes in the shape and consistency of

watery stools, as well as an increased frequency of defecation of 3 or more times per day, and can be accompanied by vomiting and bloody stools. The disease is common in children under five years of age, especially in the first three years of life, when the child may have 1-3 episodes of severe diarrhea (Prawati, 2019a). This disease often occurs especially in the first three years of life or in toddlers (Yuniati, 2021).

The second most typical global cause of death for children under five is diarrhea. Every year, 2 billion cases are recorded worldwide, and as a result 1.9 children under the age of five die. According to the World Health Organization (WHO), there were 688 million cases of diarrheal disease and 499,000 infant deaths globally in 2015. Meanwhile, in 2017, 1.7 billion toddlers experienced diarrhea with the death toll was 525,000 (Utami et al., 2022). If this

continues to occur without prevention it can increase mortality in infants caused by diarrhea (Setyowati, I., NA, F., & Sugiharti, 2021). Even in developing countries like Indonesia, the high rates of morbidity and mortality contributed by infants and toddlers are still a global health problem that cannot be resolved (Hendrastuti, 2019).

According to the Indonesian Health Profile, in 2019 diarrhea was the highest cause of under-five deaths, namely 10.7% with a case prevalence of 11.0%, while in 2020 it was recorded that there were 201 under-five deaths caused by diarrhea with an average case frequency of 28.9 % (Kementerian kesehatan, 2020; Beyer et al., 2006). Based on RISKESDAS 2018 data where the provinces in Indonesia with the highest cases of diarrhea in toddlers occurred in North Sumatra Province and Jambi Province ranked 24th, even so cases of diarrhea in Jambi Province are still a public health problem due to the large number quite a high case (Kemenkes RI, 2018).

Based on RISKESDAS data for Jambi Province in 2018, cases of diarrhea in toddlers were 15.69% in Kerinci Regency (Kemenkes RI, 2018). According to data from the Kerinci District Health Office, With 324 cases, the Siulak District had the most under-five cases of diarrhea in 2018. Then, in 2019 there was a decrease of 192 cases of diarrhea in children under five, but in 2020 there was a decrease of 211 cases (Dinkes Kerinci, 2018). The conduct of individuals, including their degree of education, knowledge, and attitudes, has a significant impact on the prevention of diarrhea. In the results of findings conducted It demonstrates that there is a strong correlation between the prevention of diarrhea in toddlers and the amount of maternal education. There is a connection between a mother's mindset and her toddler's conduct to prevent diarrhea, claims research (Suparyanto dan Rosad, 2020).

Knowledge regarding how to process healthy and clean food maintains cleanliness and has a significant impact on mother's behavior when cooking food. Parents' knowledge and understanding of their toddler's health problems is very important to ensure that their children are always healthy and protected from various infections, and diarrhea does not get worse. Most of the deaths from diarrhea

are thought to be caused by a lack of public awareness, especially mothers, about efforts to prevent diarrhea. Knowledge about how to process healthy and clean food greatly influences the behavior of mothers in maintaining cleanliness and preparing food.

Many factors, including parental education, poor personal hygiene, unclean environment, financial level, and behavior, can influence diarrhea. The absence of parental information about diarrhea, its transmission mechanisms and effective prevention measures has contributed to an increase in cases of diarrhea (Rane et al., 2017). It was found that there was a significant relationship between the education level of mothers regarding the behavior of treating diarrhea in toddlers in the working area of the Pemulutan Health Center, Organ Ilir Regency (Suparyanto dan Rosad, 2020). There is a relationship between mother's education and prevention of diarrhea in toddlers at the Tanjung Pinang Health Center, Jambi City, (RIYA et al., 2018).

A person's attitude can affect how they behave towards certain things, people, or opportunities. A mother is a unit to avoid diarrhea if she has a positive attitude about it. According to Girsang's research, there is a relationship between mother's attitude and toddler's behavior to prevent diarrhea (Girsang, 2022). Meanwhile in Yuniati's research, there is a relationship between the mother's attitude in preventing diarrhea and the incidence of diarrhea in toddlers 1-3 years old at Mitra Medika General Hospital in Medan in 2020 (Yuniati, 2021). Based on the previous studies, the study's objective was to determine the relationship between education level, knowledge, and attitudes of mothers with the prevention of diarrhea in toddlers in the working area of the Siulak Gedang Public Health Center, Kerinci Regency, in 2022.

METHODS

This study is a form of quantitative research that uses a cross-sectional, analytical observational research design. The Siulak Gedang Health Center's operational area included five villages with the highest prevalence of diarrhea, where this study was undertaken, namely Badar Sedap Village, Dusun Dalam Village, Koto Beringin Village, Siulak Gedang Village,

and Telago Biru Village which was carried out in May 2022. All toddlers in the Siulak Gedang Health Center's working region in 2022 served as the study's population. 308 toddlers, ranging in age from 12 to 60 months, were included in this study. Proportional random sampling was used in this investigation, and a total sample size of 96 samples was used.

Collecting data using a questionnaire sheet. The variables studied were the level of education, knowledge and attitudes of the mother. Data processing and analysis uses statistical data processing software. Data analysis uses bivariate and univariate analysis. For bivariate analysis using the chi-square test. This study received an approval from the Research Ethics Committee, Poltekkes Kemenkes Jambi, No. LB.02.06/2/370/2022.

RESULTS AND DISCUSSION

This research was conducted at the Siulak Gedang Health Center with a total of 96 respondents using the chi-square test. This research is a quantitative research type with an analytic observational research design with a cross-sectional approach.

The distribution of respondents based on the mother's behavior in preventing diarrhea is divided into 2 categories, namely the poor category and the good category. In more detail can be seen in the following table:

Diarrhea Prevention Behavior	Frequency	Percentage
Negative	42	43,8%
Positive	54	56,2%
Total	96	100%

Table 1. Distribution of Maternal Diarrhea Prevention Behavior at the Siulak Gedang Public Health Center's Working Area in 2022.

Based on the table above, it can be seen that 42 people (43.8%) had negative diarrhea had positive diarrhea prevention behaviors. So, it can be concluded that the positive behavior Based on the table above, it can be seen that 42 people (43.8%) had negative diarrhea prevention behaviors, while 54 people (56.2%) of preventing diarrhea is higher than the negative behavior of preventing diarrhea in mothers in the working area of the Siulak

Gedang Health Center in 2022. The Siulak gedang health center is one of the health centers in Jambi Province. This health facility offers various health center programs, including blood pressure, checks, pregnancy checks, children checks, blood group checks, uric acid, cholesterol, and others. This health center also offers outpatient care, sewing changing dressings, suturing wounds, pulling teeth, and other medical services.

Table 2. Distribution of Mother's Education Levels at the Siulak Gedang Public Health Center's Working Area in 2022.

Level of education	Frequency	%
Low	11	11,5%
Tall	85	88,5%
total	96	100%

Based on the table above, it can be seen that 11 respondents (11.5%) had a low education level, while 85 people (88.5%) had a high education level. It can be concluded that the percentage of mothers with high education is far greater than mothers with low education in the working area Sulak Gedang health center in 2022.

Table 3. Distribution of Mother's Knowledge at the Siulak Gedang Public Health Center's Working Area in 2022.

Knowledge level	F	%
Not enough	27	28,1%
Well	69	71,9%
total	96	100%

Based on the table above, it can be seen that 27 people (28.1%) have less knowledge of diarrhea prevention, while 67 people (71.9%) have good knowledge. It can be concluded that the level of good knowledge of mothers is higher than the level of knowledge of mothers in the working area of the Siulak Gedang Health Center year 2022.

Attitude	Frequency	Percentage
Negative	35	36,5%
Positive	65	63,5%
total	96	100%

Table 4. Distribution of Mother's Attitudes in the Working Area of the Siulak Gedang Health Center in 2022.

Based on the table above, it can be seen that 35 respondents (36.5%) had a negative attitude, while 61 respondents (63.5%) had a positive attitude. It can be

concluded that the positive attitude of mothers is much higher than the negative attitudes of mothers in the working area of the Siulak Gedang Health Center in 2022.

Relationship between Knowledge and Mother's Behavior in Diarrhea Prevention

Table 5. Relationship between Mother's Education Level and Prevention of Diarrhea At the Siulak Gedang Public Health Center's Working Area in 2022.

Mother's Education Level	Diarrhea Prevention				Total		PR	P-v
	Negative		Positive		n	%		
	n	%	n	%				
Low	3	27,3	8	72,7	11	100	0,594 (0,220-1,603)	0,338
Tall	39	45,9	46	54,1	85	100		
Total	42	43,8	54	56,3	96	100		

The Chi Square test results' statistical analysis yielded a p-value of 0.338 (p-value > 0,05). It might be said that there is no connection between the mother's education level and scores PR=0,338 (CI= 0,220-1,603) in the Siulak Gedang Health Center's operating area with the prevention of diarrhea in toddlers. The Siulak Gedang Health Center in Kerinci Regency's operating region has determined from statistical analysis of the Chi-Square test results that there is no correlation between education level and prevention of diarrhea in toddlers (P-value 0,338; P-value > 0,05). After analysis additional value PR = 0,594 (CI 0,220-1,603).

This research is in line with that conducted by Radjabayacolle et al. (2018) with 50 respondents in the Work Area of the Tikala Baru Health Center in Manado City. The results of statistical analysis using Chi-square obtained a p value of 0.074 > 0.05. It can be concluded that there is no relationship between the education level of mothers and prevention of diarrhea in toddlers in the working area of the Tikala Baru Health Center (Radjabaycolle et al., 2019).

According to the statistical analysis of the Chi Square test, the working area of the Siulak Gedang Health Center has a relationship between mothers' knowledge and the prevention of diarrhea in toddlers, with a p-value of 0.000 (p-value 0.05) and a value PR=2,811(CI=1,864-4,239). Knowledge is the result of understanding and recognizing something. This is

achieved through experience and observation. Human senses allow us to perceive the world around us. Sight, hearing, smell, taste, and touch are among these senses. The senses of sight and hearing are used to gather the majority of human information.

It can be inferred that there is a relationship between mother's knowledge and prevention of diarrhea in toddlers in the working area of the Siulak Gedang Health Center, Kerinci Regency, based on the statistical analysis of the Chi-Square test, which yielded a p-value of 0.000 (p-value, 0.05). Additionally, the analysis yielded a PR value of 2.811. (CI 1.864-4,239).

Conscience et alresearch.'s and this research are complementary. The knowledge and efforts of mothers in Kamal Village, the working area of the West Kairatu Health Center, to prevent diarrhea can be inferred from the research's findings. Based on the analysis's results, which had a chi-square test p-value of 0.045 (p-value 0.05), this is what was concluded (Hasanela, 2017).

It is possible to draw the conclusion that there is a correlation between maternal attitudes and the prevention of diarrhea in toddlers in the working area of the Siulak Gedang Health Center based on the statistical analysis of the Chi Square test, which yielded a p-value of 0.000 (p-value 0.05) and a PR value of 2.832 (CI=1.781-4.503). which means mothers with positive attitudes have 2.832 times better chances of preventing diarrhea in toddlers than

mothers with negative attitudes about preventing diarrhea.

Given that the Chi-Square test's statistical analysis produced a p-value of 0.000 (p-value, 0.05), it is possible to draw the conclusion that, in the working area of the Siulak Gedang Health Center, Kerinci Regency, there is a correlation between the mother's attitude and the prevention of diarrhea in children under five. Value PR= 2,832 was also obtained from the analysis (CI 1,781-4,503).

The findings of this study are also consistent with Debby and Prawati's when the result of this research shows that attitude variable has p value = 0.019 < α (0.05), so H_0 is rejected. It means there is a significant relationship between mother's attitude and the incidence of diarrhea. Meanwhile, the behavior variable results p value = 0.003 < α (0.05) so that H_0 is rejected. Hence, there is a relationship between mother's behavior and the incidence of diarrhea (Prawati 2019).

Mothers of toddlers who have an attitude that emphasizes the value of diarrhea prevention in toddlers will usually take this step because it is ingrained in them from the start and they view diarrhea prevention as more important to prevent future health problems that can occur. increases the risk of under-five mortality. The resistance rate can be reduced if the mother has a supportive attitude to prevent diarrhea. Children under five who experience diarrhea will not experience moderate or severe dehydration if quick precautions are not implemented to help mothers, thereby reducing mortality (Hapsari & Gunardi, 2018). The way to improve one's attitude is to increase one's knowledge. The better the knowledge a person has, the better the attitude he will have. With increasing knowledge, one's view of something will change.

CONCLUSION

From the results of the research conducted, it can be concluded that there is a relationship between knowledge and attitudes of mothers towards toddlers at the Siulak Gedang Health Center in 2022. While the level of education has no relationship with the prevention of diarrhea in children under five at the Siulak Gedang Health Center in 2022, it is still recommended to increase knowledge

about how to prevent diarrhea so as to avoid many infectious diseases.

It is important to educate and promote to mothers so they could attend integrated health center and actively asking health workers related to health problems. Furthermore, the health workers also improve health programs in the promotive section such as providing health education and designing graphic leaflets and posters which contains information related to diseases, especially in the section on diarrhea diseases so that people know more about diarrhea and can prevent and treat it properly once their toddlers get diarrhea. Hopefully, with the increasing of knowledge and attitude from mothers, it could prevent and suppress the number of diarrhea disease in Siulak Gedang area.

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Does School Gardening and Nutrition Education Improve Knowledge and Fruit-Vegetable Consumption Among Elementary School Students?

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ABSTRACT

Background: Although scientific evidence has revealed the benefits of fruits and vegetable consumption (FVC) for children, 96.8% of age school children in Indonesia and 70.6% of primary school students in Jakarta did not have FVC as recommended. **Aims:** to assess how Muhammadiyah Elementary School Students' knowledge and FVC were affected by school gardening and nutrition education. **Methods:** Following 6 months program, knowledge and FVC were assessed by using Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) and knowledge questionnaire. **Results:** 1) There is a significant increase in students' knowledge scores from 43.24 ± 14.24 to 70.31 ± 18.92 (P -value 0.000). 4); 2) Mean of FCV was elevated from 211.45 ± 12.33 to 289.76 ± 19.64 , however, it was not statistically significant (P -Value of 0.058). **Conclusion:** Although knowledge has been improved following 6 months program, the FVC level was not dramatically enhanced. Future similar activities need to be done in a non-pandemic situation and should be lengthened into more than 6 months to portray a significant increase in FVC.

Keywords: Fruit and Vegetable, Health Promotion, Nutrition Education, School.

INTRODUCTION

Scientific evidence has shown the relationship between inadequate fruit and vegetable consumption (FVC) and overweight and obesity among elementary school children. In Germany, a cohort study showed that adequate FVC suppressed the increases in students' body mass index (Bayer et al., 2014). In East Java, Indonesia, a study found that FVC below the recommended level is associated with a higher risk of obesity among elementary school students (Anggraeni et al., 2017). Moreover, FVC is also associated with food choices, where children who have more FVC are more likely to eat a greater variety of foods with healthier food choices (Korinek et al., 2015).

However, globally, most school-age children do not have FVC as recommended today (5 servings a day). A study in the United Kingdom found that two-thirds of students did not eat fruit at all at lunch and only 3% consumed 1 serving of what was provided (Upton et al., 2012). In

Thailand, more than half of children consume less than the recommended amount of fruit and vegetables (≤ 2 servings a day) (Hong & Piaseu, 2017). In Indonesia, the results of basic health research in 2010 - 2018 show that most (>95%) primary school-age children have an inadequate FVC including in DKI Jakarta province, the capital city of Indonesia (Ministry of Health Republic of Indonesia, 2010,2013,2018).

Various factors have been detected as the cause of the low FVC among school children. The direct causes are poor access and lack of nutritional knowledge. Lack of access is indicated by the lack of vegetables and fruit that are marketed in the neighbourhood and at school. Only a few elementary schools in DKI Jakarta have fruit and vegetable gardens to be consumed. The nutritional knowledge that should be improved is mainly about how much fruit and vegetable to be consumed a day and how to avoid nutrient loss during fruit and vegetable cooking/processing.

A systematic review by (Yang et al., 2020) showed that poor access to

vegetables and fruits in the children's surroundings is the main cause of the lack of FVC. In Australia, higher access to sales of high-calorie foods such as fast food and minimarkets is associated with lower FVC (Timperio et al., 2008). The living environment that lacks vegetable and fruit marketing and the absence of vegetable gardens in schools are the causes of low FVC for school children in Korea (Park et al., 2013). A similar result was also reported by a study in Brazil, where a living environment that provides vegetables and fruit within a radius of fewer than 500 meters increases the FVC among students (Nogueira et al., 2018). Whereas in DKI Jakarta, poor access to vegetables and fruit in the neighbourhood and at school is one of the causes of the low FVC (Sudiarti, 2018).

Lack of nutritional knowledge and skill (cooking and measuring portions) is related to the level of intake of vegetables and fruit. Research in the Texas United States shows that children who are involved in cooking have a higher intake of vegetables and fruits (Asigbee et al., 2020). The community empowerment program conducted in Auckland, New Zealand has also succeeded in increasing the behaviour of eating vegetables and fruit by involving children in cooking (Gerritsen et al., 2019).

Lack of knowledge about nutrition is also associated with low FVC among school children. Research in the Netherlands shows that knowledge regarding the daily portion of vegetables and fruit is related to the level of intake (Fischer et al., 2011). In line with that finding, research in Bogor, Indonesia, also found a similar finding, in which nutritional knowledge is related to FVC (Mohammad & Madanijah, 2015). Generally, Indonesian primary school children's knowledge is poor, especially regarding the recommended number of fruit and vegetable servings (Priasmoro et al., 2017).

Muhammadiyah 4 elementary school, located in Cawang, East Jakarta, is a typical elementary school in the midst of a crowded capital city, Jakarta, that has complex health problems, including the problem of FVC. The results of the preliminary survey found that 70.6% of the school's students did not consume vegetables and fruit as recommended. The main cause includes poor access to vegetables and fruit, such as the absence of school gardens and the lack of fruit and

vegetable-based food outlet. In terms of nutritional knowledge, it was found that 93.5% of Muhammadiyah elementary school students have poor knowledge, especially regarding the recommended portion of vegetables and fruit to be consumed a day. Therefore, this study aimed to evaluate the effect of school gardening and nutrition education on knowledge and FVC among Muhammadiyah Elementary School Students Jakarta. We hypothesized that student's knowledge and FVC will be improved following the program.

METHODS

Study Design

This is a multicomponent school-based intervention program that occupied one group pre-test and post-test design to investigate the effect of the program on students' knowledge and FCV. On the whole, this study lasted for 6 months and was conducted by using a protocol as described by figure 1. This study has been registered for ethic approval from Medicine and Health Research Ethic Committee University of Muhammadiyah Prof.Dr.Hamka number 03/22.10/02079.

Participants

Out of 149 student-parent pairs, 126 pairs from grades 4, 5 and 6 in Muhammadiyah 4 Elementary School, East Jakarta, Indonesia participated in this promotion program (a total of 23 pairs dropped out due to unfinished activities, incomplete questionnaire, sick and or abstain during the program). Students and parents were participated in a webinar and their knowledge improvement was assessed. The parents, on behalf of their children, have agreed and filled out the informed consent form prior to the program. Half of the participants will be assigned to the intervention group, and control group for the remaining subjects.

Intake Measurement

A Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) interview will be conducted. Due to the pandemic situation in DKI Jakarta, both offline and online interaction (hybrid) data collection were occupied. Offline interview and online meeting platform were used so that the interviewer and interviewee could meet and see each other in a real-time situation. Household portions of fruit and vegetables were shared on the video conference so

that the interviewees could see and recall how much fruit and vegetables they consumed during the last 1 months.

Intervention components

a) School gardening

This activity aimed to provide fruit and vegetables accessibility at school. A self-watering hydroponic system was built to provide fruit and vegetable for student consumption prior to intervention period. About 4 hydroponic structures was built to accommodate vegetables such as spinach, Chinese kailan, cucumber, green bean, green onion, and lettuce. The vegetable seeds were planted on the growing medium in each hydroponic bucket. Whereas fruits such as strawberry, rambutan, guava, avocado, banana, tomato and mango were planted directly on the ground. We planted the fruit in the form of sapling rather than seed to get a faster result. These crops were grown for 3 months until they were ready to be harvested. After 3 months, all of the vegetables were ready to be picked. Only strawberry and tomatoes from the fruit section that were ready to be consumed at that time. All of these fruits and vegetables were then used for cooking demonstration and consumption.

b) Nutrition Education

1. Webinar for Students and Parents

This activity aimed to enhance student's and parent's knowledge of FVC. The webinar "let's plant your crops and eat them!" was held for students to educate them on how to simply grow fruit and vegetable by themselves in their homes. Meanwhile, webinar "fruit and vegetable in my plate" was delivered to the parents to improve their knowledge about the importance of, portion and management of fruit-vegetable servings in household environment.

2. Emotional demonstration (Emo-demo)

A video was made to demonstrate a step-by-step science experiment by using balance scale, marbles, and cottons. This experiment aimed to

show how a large volume of cotton made the weight pan rose as they lighter than marbles. Cotton that is weighed in larger volume will be much lighter compared to the marbles in smaller volume. Marbles, on the other hand, push the weight pan down because they are much heavier than cotton even in a small amount. Cotton represents fruit and vegetables that contain limited calories although being consumed in a large volume compared to the high energy junk-food that symbolised as marbles. This demonstration was intended to evoke students' emotion toward FVC and junk food. As they saw that consumption of a large volume of fruits and vegetables make they satisfy without obtain a significant amount of calories compared to the junk food, their perception towards FVC may be improved. It will subsequently motivate them to eat more fruits and vegetables.

3. Cooking demonstration

We conducted a cooking demonstration to educate students and parents on how to make simple dishes made from fruits and vegetables. We used the fruits and vegetables picked from hydroponic garden, including lettuce, Chinese kailan, spinach, tomatoes and strawberry. The dishes such as mixed-vegetable rice, vegetable pancake, chicken with mixed-fruit sauce, and creamy fruit sandwich was made in front of the students to enrich their skill in preparing fruit-vegetable based dishes at home. This will subsequently encourage them to eat more fruit and vegetables.

4. Nutrition-based education in class

Teachers grades 4, 5 and 6 participated in a workshop aimed to train them on how embedding nutrition science, particularly regarding FVC, into learning materials. Elementary school subjects including natural sciences, sport and health sciences, Islamic religion and Bahasa Indonesia were involved as the target of nutrition science

integration. In natural science, for example, a topic about the gastrointestinal process was enriched by nutrition science regarding the importance of fibre from fruit and vegetable to help defecation. Storytelling in Bahasa Indonesia were also embedded with balance nutrition topics. Micronutrient in fruit and vegetable was briefly explained in the sport and health sciences module for their benefit in supporting physical activity and exercise. Suggestion of consuming fruits and vegetables as halal and fine food that comes from Islamic values was taught in the Islamic religion class.

Media

We created 3 health education modules: 1) hydroponic module, 2) FVC pocket book, and 3) nutrition-based education module. The hydroponic module provides a practical guide for schools and students to grow fruit and vegetable using various hydroponic systems. The FVC pocket book was delivered to the teachers, parents and students. This book describes the benefits, types, content, recommended portion and suggested processing method of fruit and vegetable that is described theoretically and practically. Nutrition-based education module was used by the teacher to help them integrate nutrition principles into learning plan of related school subjects such as natural sciences, sport and health sciences, Islamic religion and Bahasa Indonesia. The class learning plan or Rencana Pelaksanaan Pembelajaran (RPP) was the main document that used to evaluate the integration of nutrition principles into learning materials.

In addition, we created emotional demonstration video entitled “Banyak Tapi Ringan, Sedikit Tapi Berat” (“much but light, little but heavy”). This 4-minute video is a science experiment that tells the students about the comparison of energy yielded from fruits-vegetables versus fatty, oily, high-sugar food. They could learn about how to conduct the experiment with their friends. After do the experiment, students were expected to have an insight that eat fruits and vegetables could make them satisfy without gain a lot of calories.

Statistical Analysis

The difference of knowledge score and FVC level between pre and post intervention was examined by using dependent t-test. The analysis was performed by using SPSS Statistic v. 23.0 (IBM SPSS Statistic for Windows, Version 23.0. Armonk, NY, USA).

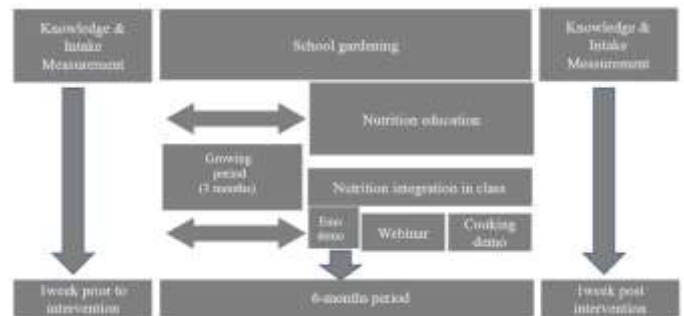


Figure 1. Intervention Protocol Summary

RESULTS AND DISCUSSION

Participant's characteristics

From a total of 149 students and parents of Muhammadiyah 4 Elementary School participated at baseline, only 126 pairs of them that completed this 6-months school-based intervention program (23 pairs were dropout due to sick absence, unfilled post-test, and other unspecified reasons). Table 1 shows that students were equally took from grade 4, 5 and 6. Boys and girls were proportionally participated in this study. Half of parents were 36-45 years old, graduated from middle school and unemployed. Mostly they live about less than 1.6 km from grocery store. In DKI Jakarta, fruit and vegetable were sold by street vendor, traditional market, supermarket, convenience store, and online store.

Table 1. Participant's Characteristics

Characteristics	Percent
Children's grade	
Grade 4	34.6
Grade 5	33.3
Grade 6	32.1
Children's gender	
Boys	44.4
Girls	55.6
Parent's age	
26-35 y	35.9
36-45 y	52.4

46-55 y	11.7
Parent's Gender	
Male	15.2
Female	84.8
Parent's educational level	
Primary education graduate	6.2
Middle school graduate	51.7
Higher education graduate	42.1
Parent's employment status	
Employed	36.6
Self-employed	8.3
Unemployed	55.2
Distance to grocery store	
<800 m	9.8
800 m - <1.6 km	36.4
1.6-2.4 km	20.4
2.4-<4.8 km	11.2
>4.8 km	22.2

Baseline surveys

At baseline, students were asked about their habit and amount of FVC in the last 1 month by using semi-quantitative food frequency questionnaire. The result reveals that the mean of FVC was 211.45 gram per day (table 3). This amount is lower than recommended by Indonesian Ministry of Health. It is suggested that Indonesian children need to consume at least 300 grams of a combination of fruit and vegetable a day (MOHRI, 2017).

As nutrition literacy theoretically linked to the food consumption (McEachern et al., 2022), student's and parent's knowledge was assessed at baseline. The same questionnaire consists of 10 general

questions about balance nutrition and fruit-vegetable consumption (benefit, portion, meal example) was delivered to the students and their parents. As shown in table 2, the baseline knowledge score was 53.08 and 43.13 for students and parents respectively. In general, there are three main questions that were incorrectly answered by the students and parents including fruit and vegetable portion, number of recommended servings of fruit and vegetable a day, and the correct meal time.

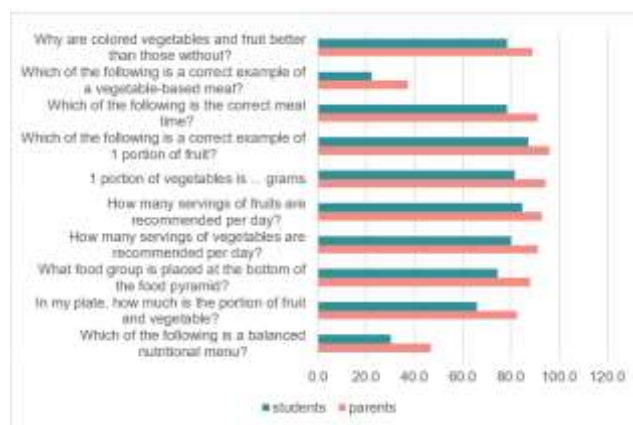


Figure 2. Proportion of participants who incorrectly answered the questions (%)

Post-intervention surveys

Statistical analysis shows a significant increase in knowledge scores post-intervention both among students and parents. Before the intervention, only 2.12% of parents and 17.3% of students have good knowledge about FVC. After the intervention, 51.06% of parents and 51.92% of students have good knowledge of FVC.

Table 2. Comparison between Pre-test and Post-test of Knowledge

	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	p-value
Parents	43.13±14.24	70.31±18.92	<0.001
Students	53.08±1.74	77.36±1.48	<0.001

Our analysis shows that the proportion of respondent who incorrectly answered the questions at post-test are lower than pre-test for all questions. The three questions that have a sharpest decrease of wrong answer from pre-test to post-test are about the correct meal time, example of 1 portion of fruit and serving of fruit a day. We believe that nutrition

education that integrated with learning material in the class, along with other intervention components (webinar and cooking demonstration) support student's knowledge improvement. In the class, teacher shows taught about balanced nutrition and food pyramid (type, portion, serving/day), meanwhile in webinar, students got the information about the

benefit of colourful fruit and vegetable, portion, serving and mealtime. During cooking demonstration, students saw how much exactly the amount of fruit and vegetable were served in the plate. All of these activities repeated the same information about FVC so that the students can absorbed and memorize that information very well. It has been shown in previous research that continuing information delivery will retain information until 1 year post-intervention (Wu et al., 2019).

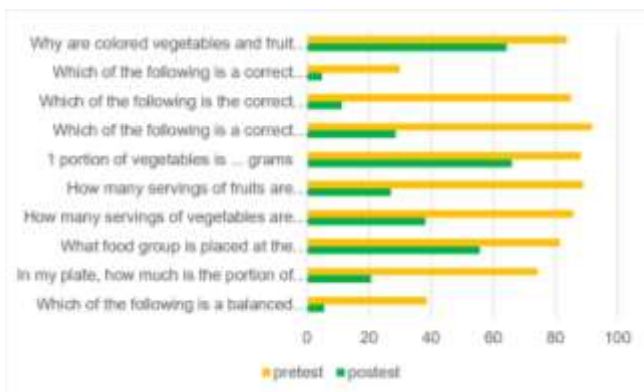


Figure 3. Proportion of participants (combination of students and parents) who incorrectly answered the questions at pre-test and post-test (%)

This increase in knowledge indicates that the information conveyed by the resource persons was well received by the participants. Various factors influence this, such as educational background, atmosphere during delivery and the quality of the media itself (Bratianu, 2015). Most of the respondents have a moderate education background. This makes it easier to absorb the information presented. The

discussion also went very well and was interesting because the questions asked were very critical so as to build a more complete concept of thinking about children's fruit and vegetable consumption. The calm atmosphere of the online counselling where participants' voices can be stopped while the resource person is speaking greatly helps in absorbing information. Lastly is the media factor. The media delivered is not only in the form of written presentations but also videos. It is known that video is more effective in increasing knowledge than writing (Wahyuni et al., 2019).

It has been proposed that understanding food could be the secret to advancement (McEachern et al., 2022). The topic of food literacy, which includes food knowledge, has received increased attention in other studies (Vaitkeviciute et al., 2015). The results of treatments to increase food literacy were assessed in a systematic review measuring food literacy among children. Overall, this review found that higher levels of food literacy were associated with favourable effects on young people's dietary behaviours. However, many of the included studies had methodological flaws, such as inconsistent dietary intake surveys or instruments used to assess nutrition literacy (Vaitkeviciute et al., 2015).

An SQ-FFQ interview was again conducted to measure the change of FVC after the program. Analysis shows that students' FVC increased following 6 months intervention period. However, this increase was not statistically significant.

Table 3. Pre-program and Post-program of Student's FVC

Variable	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	p-value
FVC (g/day)	211.45±12.33	289.76±19.64	0.058

Although we found a significant increase of student's and parent's knowledge, there is no significant improvement on student's FVC. This finding is reasonable since the change of behaviour can be seen after 1-2 year intervention program. This program lasted

much shorter compared to the other similar study. A study in Southwestern Ontario, Canada, found a relationship between knowledge improvement and FCV after 2 year intervention program. In addition, a study in Zegreb, Croatia, found a significant increase of FVC level among

the intervention group following a three-year intervention period (Ilić et al., 2022). Fruit and vegetable consumption belongs to a complex health behaviour that need a long term follow up since numerous biological and social factors may affect children's intake of fruits and vegetables, including accessibility (Phillips & More, 2022). This study record that more than half of the participants live in ≥ 1.6 km from the nearest grocery store. It could be a barrier of FVC.

A possible lower impact of the intervention could be due to the COVID-19 pandemic, where the adequacy of the implementation of the whole intervention was reduced. We intended to enhance the availability of fruit and vegetables on school lunches, but the COVID-19 pandemic prevented us from completing this task. The COVID-19 epidemic may have had an impact on students' eating patterns as well. The kids were frequently secluded at home with their parents during the intervention's implementation. The COVID-19 pandemic's effects were most noticeable in the fact that parents and kids ate more home-cooked meals; nonetheless, kids consumed more snacks on a daily basis (Ilić et al., 2022).

However, although statistically not significant, we can see that the mean of fruit and vegetable intake was increased. The results of this study add to the body of knowledge regarding how different intervention designs and strategies can influence primary school students' FVC. The notion that intervention with several components is more successful than interventions with only one component served as our guide in creating the intervention (Evans et al., 2012). We also considered the results of previous studies suggesting that fruit and vegetable consumption can be increased through education of children and parents, peer and teacher influence, reinforcement, video-peer modelling, sensory exposure, and increasing the availability of fruits and vegetables through school menus (Appleton et al., 2016). Nevertheless, it was challenging to determine which part of this multi-component intervention changed how much fruit and vegetables were consumed. Future studies need to assess separate effect of each intervention component on program outcome.

CONCLUSION

This multicomponent 6-month gardening and nutrition education program successfully increase student's and parent's knowledge about FVC recommendation. However, there is no significant improvement was observed on fruit and vegetable consumption. A longer intervention period in non-pandemic situation is needed to see a significant improvement of FVC level.

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Rethinking the Role of Local AIDS Commission in HIV Prevention After the National AIDS Commission Dissolved

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ABSTRACT

Background: The Indonesian government established a non-structural government agency, named the Indonesian National AIDS Commission (INAC) in 2006 to coordinate HIV prevention programs. However, in 2016, the INAC was dissolved by the Presidential Decree no 124-year 2016. This research aims to identify the effects and challenges faced by the AIDS commission at the provincial level after the INAC was dissolved. **Methods:** This research used a qualitative research approach with data collection methods through Focus Group Discussion (FGD) and in-depth interviews. The number of participants was 18 people, representing the AIDS Commission, governments as well as NGO-based HIV. The data were analyzed thematically and then presented by using a narrative approach. **Results:** The findings indicated that the duty and role of the Bali Provincial AIDS Commission (BPAC) to coordinate, integrate, and synergize HIV prevention in Bali remain unchanged. However, it is challenging to coordinate AIDS programs at the provincial level due to changes in parent organizations and reduced funding. **Conclusion:** The findings show that the duty and role of BPAC to coordinate, integrate, and synergize HIV prevention in Bali remain unchanged. However, change in the BPAC structure and funding reduction has an impact on its role as the HIV coordination agency in Bali. Therefore, to enhance its role and function as an HIV program coordinator, BPAC needs to be supported by regulation to support the bureaucratic independence of BPAC, to innovate, and to obtain other sources of financial/funding support apart from local government.

Keywords: AIDS Commission, HIV-AIDS Prevention, Organization Changes.

INTRODUCTION

Globally, the cumulative number of HIV patients is estimated to reach 37.7 million in 2020 with an estimated 1.5 million new cases each year and 680,000 deaths from AIDS (Joint United Nations Programme on HIV/AIDS, 2021). In order to stop HIV transmission, the Indonesian government formed the AIDS Commission in national, province and district level under the Presidential Decree No. 124 of 2006 (Sutrisna et al., 2021). Under the decree, the coordinator of the AIDS committees was under the Minister for People Welfare Coordinator to address the social and behavioral changes and strengthen the commitment of the national and local government on HIV prevention (Peraturan Presiden, 2016). However, in 2017, the government issued a Presidential Decree No. 124/2016 to

dissolve the National AIDS Commission; the decree placed the AIDS prevention management under the Directorate General of Disease Prevention and Control, Ministry of Health (Peraturan Presiden, 2016; Davies and Najmah, 2020; Iryawan et al., 2022). The basis to issue Presidential Decree No. 124 of 2016 is the result of government evaluation which shows that INAC is considered to have a less effective and less-efficient performance (Mahendra, 2019).

The dissolution of the INAC has been argued as a setback to Indonesian AIDS prevention which limits the HIV issues to the health sector despite the wider impact on the social and economic issues (The Lancet, 2018). Furthermore, without the national coordinating agency, the coordination of HIV response becomes the responsibility at provincial and district level and cross-governmental agencies

(Sudewo, 2022). Structurally, the dissolution of INAC may not directly impact on the local AIDS commission due to the decentralized Indonesian governance but it has shifted the responsibility on the HIV AIDS prevention and management from the AIDS Commission to the Provincial Health Office (PHO), the focus of the HIV management, shortage of human resources, funding and changes in the coordination pattern (Mahendra, 2019; Setiawan et al., 2020; Iryawan et al., 2022)

HIV prevention programs in Bali have been carried out since the first case was encountered in Bali in 1997. Before 2003, the effort to halt HIV prevention in Bali was based on projects by overseas donors, carried out on in a small scale by focusing on a certain key population (Lubis et al., 2021). In 2004, the Sanur Commitment was concluded as a commitment of Bali's Government to take appropriate HIV prevention measures in Bali (Pemerintah Provinsi Bali, 2015). In 2006, Bali Provincial Regulation No. 3 of 2006 concerning the Prevention of HIV AIDS governed that the duty and function of Bali Provincial AIDS Commission or BPAC is as an institution that coordinates, integrates, and synergizes HIV prevention in Bali Province. In implementing its activities, there is an annual Bali Governor Decree to support the operation of Bali Province AIDS Commission (BPAC) (Pemerintah Provinsi Bali, 2015; Widnyani et al., 2022). The dissolution of the INAC may impact the performance of BPAC's HIV prevention roles and tasks in coordinating, integrating, and synergizing HIV prevention issues in Bali. This article analyses the impact of the dissolution of INAC on BPAC's roles and responsibilities in coordinating the response to HIV AIDS in the Province of Bali.

METHODS

This research used qualitative method with exploratory approach to explore the insight of the informants on the effect of the dissolution of the National AIDS Commission on the existence of the Bali Province AIDS Commission (BPAC). Exploratory qualitative study design is described as a research tool to capture the insight of the informants in more detail. Using this

design will allow the researcher to know what were the changes in the BPAC after INAC was dissolved. Data collection was carried out from November to December 2019 using In-depth Interview (IDI) and Focus Group Discussion. The two data collection methods were chosen to allow a deep insight and to add different perspectives on the research topic and to capture interactions and dialogues among groups from various organizations, both government and non-government (Sim and Waterfield, 2019).

The in-depth interviews were carried out with eight informants, consisting of six representatives of Bali Provincial and two staff of the Districts AIDS Commission. The FGD was carried out as triangulation methods to ensure validity of the research. The FGD was conducted with 10 participants representing government and non-government organizations, which are Social Service Office, Villages and Women's Empowerment and Child Protection Provincial Office, Education Provincial Office, Tourism Provincial Office, Bali Provincial National Family Planning Coordinating Board (BKKBN) and several HIV-based NGOs. The characteristics of the participants are presented in the table below:

Table 1. Characteristic of the Informants.

Informants' Characteristics	Total
Gender	
a) Male	14
b) Female	4
Age Group (years)	
a) 30-40	9
b) 41-50	4
c) 51-above	5
Data collection by:	
a) In-depth Interview	8
b) FGD	10

We also reviewed relevant documents related to policies on the roles and tasks of HIV/AIDS prevention implementation in Bali and Indonesia. The selection of participants and informants was carried out purposively by considering the adequacy and representation values of the selected informants/participants based on the consideration of their ability to provide information related to the implementation of BPAC's roles and duties

following the issuance of Presidential Decree No. 24 of 2016.

Data analysis was carried out thematically using the Miles and Huberman model approach, namely by reading the transcript repeatedly, coding and generating themes from the data (Elliott, 2018). The analysis steps consisted of data reduction following the data collection, the results of in-depth interviews and recorded FGDs and then written into Ms. Word. Then the researcher carried out the process of selecting, classifying, directing, eliminating unnecessary materials, and organizing the data so that final conclusions can be drawn. The coding was done by researcher by reading the transcripts and comparing between the codes done by the research team. After that, the data were analyzed to provide a comprehensive data analysis and the themes. Data are presented in narrative form to ensure confidentiality; the name or position of the informants will be disguised. This research has obtained ethical approval from the ethics commission of Faculty of Medicine & Sanglah Hospital with a number 2682/UN1 4.2.V11.1 LP/2019.

RESULTS AND DISCUSSION

We obtained four main themes and eight sub-themes in the study which were analyzed iteratively. The themes and sub-themes arising from the data are presented in Table 2 below:

Table 2. Themes and Sub-themes Obtained from the Data.

Theme	Sub-Theme
The Role of BPAC on HIV prevention in Bali	<ul style="list-style-type: none"> • BPAC has a duty and role as a coordinator • BPAC has yet to carry out its duty maximally • The changes in BPAC Governance after the elimination of INAC
Barrier to conduct the BPAC mission	<ul style="list-style-type: none"> • The importance of strengthening multisectoral commitment and role • The limited budget provided by

	the local government to fund HIV prevention activities High responsibility but low authority to conduct the mission
Strategies to improve BPAC performance.	<ul style="list-style-type: none"> • The need of advocacy to the local stakeholders on the continuance of BPAC and District AIDS Commission

The Role of BPAC

Under the Local Rule number 3 year 2006, the HIV prevention intervention in Bali Province is the responsibility of the Governor of Bali who then gives a mandate to the BPAC, as a non-structural government organization. The coordination of HIV program is not limited to the government organization but also non-government organizations such as NGOs and other private sectors. The HIV prevention response in Bali has implemented in collaboration with multisectoral organizations, both government and non-government organizations. The response is not only conducted by the health sector, but also other non-health sectors. The Head of Bali Provincial Health office points out that HIV AIDS prevention is not the only responsibility of the Provincial Health Office, but also other sectors since the root causes of the HIV problems lie in the social structure. Therefore, HIV prevention must be conducted comprehensively, not only by the health sector:

“As HIV AIDS prevention cannot only be carried out by the Bali Provincial Health Office, it is expected that other sectors will be involved. The HIV/AIDS prevention program is mainly carried out by the Provincial and District Health Office, especially examination and treatment, but it still needs encouragement from upstream or from the root causes in order to achieve success. In handling cases, we cannot just wait and cure. The prevention action is the key to this issue, how the society is given a comprehensive knowledge regarding this issue. It can be

conducted among students, college students, and other layers of the society. Of course it requires collaboration with other Local Organization Apparatus or Organisasi Perangkat Daerah/OPD), for instance, the Education Office, Village Empowerment Department.” (In-depth Interview, Representative of Bali Province Health Office, Male)

Because HIV prevention is implemented by various organizations which have various resources, it needs coordination, integration and synchronization so that the HIV program implemented in Bali is in accordance with the Governor's vision and mission. In line with the Local Regulation No. 3 of 2006 Chapter III, HIV/AIDS prevention in Bali is under the authority of the Governor of Bali and is coordinated by BPAC in its daily operations. In any activities related to HIV prevention, the BPAC is responsible to coordinate, integrate, and synchronize those activities conducted by any organization in Bali whether-conducted by the government organization or private sector such as NGOs. As stated by one of the senior staff of BPAC Bali, BPAC has very strong regulatory support and is bureaucratically placed under the People's Welfare Bureau as its parent organization:

“Local Regulation No. 3 of 2006 is the basis for the establishment of Bali AIDS Commission, in where CHAPTER III specifically stated that the AIDS Prevention Commission is responsible to assist the duties and functions of the Governor who has the authority to carry out various HIV/AIDS prevention program.” (BPAC Bali senior staff, Male).

The coordination function is conducted through regular coordination meetings involving local government agencies members and NGOs. According to one of the representatives of the local government agencies, every government agency has their own agenda and the HIV prevention is not their main task; therefore, BPAC could run maximum efforts in carrying out its duty and function to coordinate and advocate AIDS prevention.

“Indeed, I think that if the function is to be redirected into the coordination

function, it really needs to be realized. Despite being supportive to each OPD, as was told earlier, we also have our priority program. However, if BPAC is able to be a coordinator, then we will be ready to support further.” (Representative of OPD, male)

The coordination process need to be improved as a mechanism to enhance the provincial and district AIDS commission's performance (Mahendra, 2019). Conducting formal meetings between BPAC, Regional AIDS Commission, and with other OPDs can improve communication between the AIDS commission and the government which leads to improvement of the coordination on HIV activities as well as to allocate the budget (Tambunan et al., 2020). The effort needs strong leadership, coordination capacity and the need to define roles and responsibilities among the members of the coordination structures, transparency, and communication as well as determination to encourage motivational sharing among stakeholders (Fauzi and Rahayu, 2019). However, from the point view of the NGOs and other government organizations, the BPAC might not yet fully implement its main duties and responsibilities. The function of BPAC is not as a program executor but as a coordinator, who is able to mobilize OPDs and NGOs to implement the action plan which was concluded in coordination with the central, city/district governments, professionals, universities and the business sectors.

“So, our hope for HIV/AIDS prevention is indeed inseparable from the continuous coordination between BPAC and OPD, with frequent communication and discussion, and involving more OPDs so the Cultural Department can conduct outreach or counselling at that time. So, it needs more coordination, and frequently gathering and discussing this program.” (Representative of local agency, Male)

One example of coordination mentioned by the informants was the role of the BPAC to ensure availability of condoms. In doing so, the BPAC is also expected to coordinate with the Bali Province Health Office (BPHO) to provide free condoms to key population who often

face obstacles. Ensuring the availability of the free condoms is the key to successful HIV prevention particularly for the key affected population, i.e. sex workers, men who have sex with men and people injecting drugs having access to safe sex. The informants stated that the BPAC should be able to liaise and coordinate with the Ministry of Health in ensuring condom availability. It is considered that the central government (Ministry of Health) is no longer able to send those condoms to the province, due to a mandatory direct request from province and local government regarding the provision of condoms in the requested area.

“For example, regarding condoms supplies, there are over six million condoms in the central. Then Kerti Praja Foundation or ‘YKP’ often ran out of condoms, and when asking the Health Office, it was stated that there must be a direct request from the City/District. It is the duty of KPA (English) to think about how the City/District can request the condoms. The National requires a request from its subordinate. Without such request, it cannot be provided. In issuing such request, it requires assistance and BPAC may not be able to calculate or have the expertise. After calculating the required amount, ~~then~~ a form will be made to the KPA in Cities/Districts or NGOs, then it will be proposed to the Cities/District, and will be recapped by the province.” (BPAC Bali Experts Group)

The NGO also asked BPAC to improve its role in providing technical assistance to cities/districts AIDS commissions. Following the elimination of INAC, BPAC which was placed under coordination of the Bali Province Health Office (BPHO), experienced a decline in its coordination function. BPAC is also expected to carry out advocacy to protect vulnerable populations for HIV such as sex workers.

“Actually, the duty of BPAC is not to conduct health education as stated by representative of the Tourism Office. Its function is as a coordinator of the HIV Program in Bali. The BPAC responsibility is including to advocate the local government apparatus to allocate funding for HIV related program in their organization. Bali Provincial AIDS

Commission feels that to conduct HIV program is also part of the local apparatus agencies, but if they don't have funds, how can they perform the HIV program? Even though this is a local apparatus agency's job what can be done if they don't have funding. Therefore BPAC must be able to advocate other government agencies, NGOs and private sectors. For example, when conducting HIV prevention programs with sex workers, will BPAC be able to advocate the Public Order Enforcers Police and Police to do not raid the sex workers? Not to mention the lack of funding for HIV faced by several District AIDS Commission. Can BPAC be able to advocate the district regent of Karangasam to allocate funds for Karangasam AIDS Commission? One of the roles of the Bali Province AIDS Commission is to advocate the district government to provide operational budget for the District AIDS Commission who has not yet an operational fund. Some district AIDS commissions have been able to establish their regular funding support from the government, such as Denpasar AIDS Commission, there is no need for advocacy, they are already very good.” (NGO Representative 2, Male)

The duty of BPAC is to coordinate, integrate and synchronize all the activity or HIV programs in various sectors to mobilize activities and funding to stop HIV transmission in Bali. In addition, the function of BPAC includes providing technical guidance that needs to be improved in District AIDS commissions. The AIDS Commission at the provincial and district level is also expected to advocate various parties to create a conducive environment for HIV prevention efforts in key populations and ensure the distribution of preventive tools such as condoms (Prabowo and Fatoni, 2019).

A research on cross sector collaboration in Indonesia has found that there are three factors that significantly affect the organization's development which are communication, shared goals and power distribution (Raharja and Akhmad, 2020). Another study on a collaborative governance in coping with HIV/AIDS in Surakarta found that ineffective collaborative governance between Surakarta AIDS Commission, working group, health office, NGOs and

citizens caring about AIDS is due to the less commitment and participation of stakeholders in coping with HIV/ AIDS. Moreover, poor coordination between stakeholders, communication, information and education of HIV/AIDS are still limited, and do not reach the entire community, and inadequate non-transparent budget is still dependent on donor institution in conducting the activities. Those aspects have limited and encouraged dynamic collaboration (Demartoto et al., 2020). One way to improve collaboration with other local government apparatus is by having a formal agreement collaboration document with the multi-stakeholders who are related to the HIV program (Elianda and Rahmawati, 2020).

The Changes in BPAC Governance After the Elimination of INAC

Following the issuance of Presidential Decree No. 124 of 2016, there are no changes in the role of BPAC as the institution mandated by the Governor of Bali to coordinate, integrate and synchronize HIV programs. In our research, representatives of the District AIDS Commission stated that Presidential Decree No. 124 of 2016 has no effect on the duties and authorities, as well as the organizational governance of the district AIDS commission. The Presidential Decree only has an impact on the national level.

“There is no difference. It means that Presidential Decree No. 124 of 2016 only applies to INAC. The AIDS Commission on provincial and district level are not affected, so everything remains the same as before the Presidential Decree was issued. Unless the source of funding is from Regional revenue and expenditure budget. Furthermore, there are also funding sources from donor institutions and other non-binding sources. The Presidential Decree only merges INAC to the Ministry of Health, which leads to the dissolution of the BPAC funds.” (BPAC Secretariat senior staff, male)

“The change is only applicable to the central government, but we in the district don't feel the difference. There is no correlation because until now, the Law on the Ministry of Home Affairs Number 20 of 2007 has not been replaced. However, since INAC was dismissed, District AIDS Commission seems to be left

without any uniformity in regulations. Because of that, BPAC works like a cowherder, yes if you can be agile, but otherwise, it will be very visible.” (District AIDS commission-2. Male)

The Presidential Decree no. 124 of 2016 has shifted the coordinator of the HIV program in Indonesia from the Ministry of Social Affairs and Welfare to the Directorate General of Disease Prevention, under the Ministry of Health. Following the decision, the Bali Provincial Government also changed the umbrella government of BPAC from the People's Welfare Bureau to the Disease Control and Prevention Desk.

The organizational changes experienced by BPAC are transitional changes to respond to the environment and the needs of the government and the society. In this case, the structural position of the BPAC must be below the Provincial Health Office in accordance to what is mandated in Presidential Decree 124/2016, where the coordination of HIV/AIDS prevention is under the authority of the Directorate General Prevention and Disease Control (Peraturan Presiden, 2016). Unlike Bali Province, the Yogyakarta City AIDS Commission was dissolved following the issuance of the Presidential Decree 124/2016. The responsibility to conduct HIV program is now under the Yogyakarta City Health Office (Mahendra, 2019).

While the role and responsibility of the BPAC remain unchanged in terms of being the HIV prevention coordinator at the provincial level, the financial support received by BPAC was reduced and now they only rely on the local government funding. It limits the activities which can be conducted by BPAC, such as conducting supervision and providing technical assistance to the AIDS commission in the district and municipality. Several District AIDS commissions have no activities due to lack of resource and funding from the district government. In several places, the District AIDS Commission has merged with the District Health Office so that no specific government agency undertakes HIV/AIDS prevention initiatives.

“For Gianyar AIDS Commission district there is no difference because Gianyar AIDS Commission has been independent since 2010. However, after the issuance

of the Presidential Decree No.124, several local AIDS commissions have joined the District Health Office, such as Karangasem, Buleleng, Jembrana. Meanwhile, Karangasem and Bangli is like temporarily suspended.” (District AIDS commission-1, male)

“On one hand, it is difficult due to the regional autonomy, but there is a need to make the stakeholders aware about how to revive BPAC and have an adequate budget in its area, and how the local governments can budget and revive the function of the AIDS commission.” (Ngo informant-1, male).

Our finding shows that there is no difference in the role of the BPAC before and after the dissolution of INAC. However, since the INAC has ended its mandate and the HIV/AIDS secretariat is under the Ministry of Health, BPAC and the District AIDS commission have had difficulty maintaining their role. In this case, the role of District Health office is important in achieving HIV programs and services (Fauzi and Rahayu, 2019).

Barriers to Conducting the BPAC Mission

BPAC is a non-structural organization under the Provincial Health Office. However, since BPAC is a non-governmental institution and —is now under the Bali Provincial Health Office, it becomes a challenge to perform their role as coordinator, integration and synchronization of HIV prevention programs in multi-sector sub-national government organizations in Bali. Therefore, the commitment of the top-level leader in provincial, district/municipality is to encourage the HIV prevention program:

“If you look at the big picture, Indonesia has the worst HIV/AIDS problem in the world compared to other countries. There needs to be a commitment from the highest leaders first. If those leaders underestimate this issue, how can we overcome the HIV/AIDS problem. Do not shift the responsibility to the subordinate if those at the top position are still careless.” (Member of BPAC Experts Group).

BPAC has composed a five yearly Bali Province Action plan on HIV prevention or *Strategi Rencana Aksi Daerah (SRAD)*. This

document contains the Bali Provincial strategy to halt the transmission of HIV/AIDS in Bali which consists of prevention and treatment. In the SRAD, coordination, integration and synergy of efforts between Local Organization Apparatus and NGOs is in carrying out their activities every five years. SRAD aims to be the referral document when the private and public sector regulate HIV prevention programs.

“Every 5 years, we update our Bali Province strategic Plan of Action so that their activities would not get off the track of government policy. This SRAD will be a strategy that will be used as a reference. There are NGOs that carry out their activities based on the requests of donors as well. However, usually HIV related activity would not be much relevant to government policy on HIV/AIDS prevention. Besides, we also carry out CIS, which is coordination, integration and synchronization. For instance, by conducting meetings, supervision, evaluation, and issuing publication.” (BPAC Bali Secretariat).

In addition to leadership commitment, other aspects are also very important in planning programs/activities at the Local Government Apparatus level, such as provincial priority programs and development programs launched by leaders at the national, in this case, the national planning bureau, or at the regional level. Program planning in each Local Government Apparatus requires that the proposed program be adjusted to the program priorities under the vision and mission of regional leaders. Several Local Government Apparatus have organized HIV/AIDS activities in Bali, but they have limited in funds, so they cannot provide a maximum contribution in assisting BPAC in efforts to combat HIV/AIDS.

“Because in the Social Service, we also have budget limitation, so we want the BPAC to deal with HIV problem, whether neglected ones or at least, if possible, they shall build the nursing home. HIV nursing home is needed so they can take medication, especially for those who live far away as they can't go back and forth. So, we hope that the BPAC who takes over will build a nursing house, as BPAC and the governor have a close

relationship. We are like this because we don't have a budget either.” (Representative of Regional Organization apparatus -3, male).

“Health Office works as a service provider. But there is an absence of mobilizer to the general public, and it is still basically needed. And here, the role of business actors or entrepreneurs and agencies is also very important. So far, it is still at the District/Provincial Health Office, but have any employers and agencies ever conducted socialization related to HIV? Rarely, we can see that.” (Representative of NGO, male).

Based on information collected from the informants, implementation of the HIV prevention relies on multi-stakeholder collaboration, and views of top-level government leaders on HIV issues. Therefore, it is necessary to conduct advocacy for government organizations as well as to the government leaders both in province and district/municipality. Effort to halt the spread of HIV is also needed from other sectors apart from the health sectors and AIDS commission.

Our research shows that after INAC was dissolved, the government organization responsible for BPAC finance and budgeting changed from the people welfare bureau in Government Office to Bali Province Health Office. The amount also depends on the portion of the budget received by the Health Office. This system makes BPAC less flexible in carrying out its activities or main functions. Meanwhile, government grants cannot be given every year due to regulation on the government grant disbursement. According to Mia (2017), the barrier factors faced by the Provincial/District AIDS commission was under the regulation of the government budget mechanism, the non-structural government organizations, such as the AIDS Commission, cannot be the direct recipient of the Regional Budget and Revenue (in Indonesia: *Anggaran Pendapatan dan Belanja Daerah* or APBD). The local government will then send the funding for the BPAC to the Provincial Health Office as the government agency.

Prior to the presidential decree, BPAC received a major grant from INAC and HIV Cooperation Project for Indonesia (HCPI) for coordination activities. Since

the funding from HCPI and INAC stopped, BPAC has only supported funds from the provincial government through the Health Office. BPAC's position as a non-structural institution means that this institution cannot receive funds directly from the provincial treasurer, but must go through the treasurer of the Provincial Health Office, as the official who makes financial commitments who may authorize the disbursement of funds within the Bali Provincial Health Office. Bali Province financial management establishes a tiered financial supervisor which has resulted in a lengthy-process of disbursing funds. With the current financial situation, where the funding source for BPAC activities only comes from the Regional Budget and Revenue, BPAC must obtain approval from the Health Office.

“The BPAC is a commission or non-governmental structure organization. BPAC cannot receive funds directly from the government, it needs a government organization to receive the fund then distributed to BPAC, so it takes longer time to be received in BPAC account. There is a regulation that states that government funds can be given directly to an institution but it cannot be continuous, it can only be given once or alternately, for instance it will be given this year but not next year. We are only follow the rules, so we can't apply for funding or grants continuously. But as BPAC must continue to operate, its funds are attached to Bali Provincial Health Office, so it is the Office who budgets but the proposal from BPAC so that the funds become fully part of the Health Office.” (BPA Secretariat).

The results of this study indicate two reasons why BPAC cannot receive direct funding from the provincial government. First, because of BPAC's position as a non-structural institution and, second, there is no legal umbrella that regulates direct funding, like several other non-structural institutions in Bali. However, the experience of the AIDS Commission in Klungkung District is different from BPAC as this institution can directly receive local government funding without having to have a supervisory agency. Some district AIDS commissions have received direct funding from district government to their institution, but some must be

attached the parent government organization. According to one informant, the management of this funding could also be influenced by the commitment of local government leaders to HIV prevention efforts. One of the efforts made by the AIDS commission at the district level is to gain support from the Regent by inviting the Regent into their activities. However, it is undeniable that the existence of Regional Regulations is expected to prevent, and overcome HIV and AIDS. HIV/AIDS prevention and control is a public concern for the community and the government in seeing the condition of cases of HIV/AIDS which spread so fast and are very worrying.

“Advocacy is actually how we can be close personally. Try to invite the regent frequently to attend events that we organize with people living with HIV. Like yesterday, the regent met with people living with HIV, and they were promised working capital. This means that whatever we want to do, try to often involve those from the top. That’s all, just show good performance and accountability. That is all. And we also have to follow the mood of the district government. In Klungkung, the regional leaders have a lot of innovation, so we have to also catch up in an innovative way.” (Representative of District AIDS commission-2, male).

“The 2013 transition period was different, everything was new, so we lobbied, when we were just inaugurated we found some time to meet and convey the AIDS commission’s vision and mission, funding. Then there is an instruction to continue, then we proceed to check the financial process. The funding issue on whether the amount could be increased or not depends on availability of the regional funding. Why do we get grant funds? because our organization has a strong legal basis at national level, such as Government Law and Ministry of Home Affairs Law. In fact, if the AIDS Commission is still standing with the secretariat, with the aid funds, it means there is still respect from stakeholders such as the regent.” (Gianyar District AIDS commission Secretariat).

Strategies to Improve BPAC Performance

Strengthening AIDS commission at the district level is a top priority that must be included in the current BPAC Bali Strategic Plan, where advocacy needs to be done to create a joint commitment in acknowledging the existence of AIDS commission that control the HIV AIDS problem in Bali Province. Institutional strengthening, including ensuring the availability of funds, is a concern because it is the key of the success of all cross-sectors in effort to combat HIV/AIDS.

“If institutions are temporarily suspended in districts, they need to be strengthened so that later they can be active again. But if there is no coordination, it will also be difficult. Moreover, each cross-sector has its own respective functions. If the institution is not strong, coordination to various places would not work, so it needs to be improved so that there is clarity, or example in terms of funding.” (Representative of BKKBN Bali Province).

However, local government apparatus considers that BPAC has not optimally carried out its main duties and function after the issuance of Presidential Decree No. 124 of 2016. Not all organization local apparatus participated in carrying out the action plans that were made, and BPAC was deemed unable to provide support to the AIDS commission at the district level because PAC has limited resources and funds attached to the District Health Office. One of the expectations that has become the priority of various multi-sectors is the budgeting. Every district local apparatus and BPAC will be able to do their job if the budget is available. So the future challenge for BPAC is to be able to advocate for policy holders.

Our research shows the need for conducting advocacy to government leaders, both at provincial and district/municipality level. When forming advocacy programs, BPAC can reactivate the Working Group, or abbreviated as “Pokja,” to provide input in developing the BPAC program. The “Pokja” can also help — mobilize stakeholders in implementing regional policies for a program, assist the implementation of mentoring, motivation, advocacy, facilitation and supervision, and periodically report the results of activities

to the Head of BPAC through the Secretary of BPAC. Working group is one of the strategies applied in AIDS Commission at Sub National level to improve the implementation of the HIV program (Diyan, 2015).

The large number of stakeholders involved in HIV/AIDS prevention and control requires good coordination from planning to evaluation (Ningsih and Setiyaningsih, 2019). Other strategies are transforming the political framing of the HIV prevention approach from an economic paradigm to a right to health that may be of interest to local governments (Sutarsa, 2021), strengthening the role of the civil society organization, and integrating— HIV response with universal health coverage (Shreesant Prabhakaran et al., 2018; Ooms and Kruja, 2019,).

CONCLUSION

The role of BPAC as a non-structural government body to manage HIV in Bali Province has seen no changes after the INAC ended its mandate. However,—BPAC faces challenges in coordinating, integrating, and synchronizing HIV prevention programs in Bali due to its limitations as a non-structural institution that is not a government entity, also it has difficulty maintaining its role as a capacity-building provider to other AIDS commissions at the district level. The limited funds received from the government and the lengthy procedures for disbursing funds are obstacles to performing their program. In order for BPAC to perform its roles better there are some points that need to be considered advocating to the provincial government on the HIV problem as one of the public health issues; enhancing communication and collaboration with other partners such as the CSO; consulting with the government regarding the potential to receive government funds directly and reduce delay; to improve the capacity of BPAC staff to seek alternative funds sources and to shift the HIV response from an economic point of view to a right-based approach.

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Media Health Literacy on Prevention of Noncommunicable Diseases in Adolescents (Systematic Review)

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ABSTRACT

Background: Health literacy has an important role in health promotion efforts, where literacy focuses on accessing, understanding, assessing, and applying the information obtained so that literacy can have an impact across generations. Health literacy in adolescents is an effort to prevent noncommunicable diseases through behaviors such as eating patterns, smoking, physical activities and others, which are areas that are less explored so it is very important to have an individual approach to healthy behavior. **Objective:** This study was to examine health literacy in preventing noncommunicable diseases in adolescents. **Methods:** Systematic review database method used, including Google Scholar, JSTOR, ScienceDirect, Springer Link, PubMed. Inclusion criteria used to select articles include articles using Indonesian and English, year of publication in the 2018-2022 range (last 5 years), full text or non-duplicate and the type of article selected is a research article. Five articles were selected that met the inclusion criteria 1 and 1 book as an additional reference. **Results:** Health literacy can help health promotion efforts to improve individual abilities in accessing, understanding, assessing, and applying information related to the prevention of noncommunicable diseases through various media. So that the health literacy in individuals and sources of information has the effect of changing lifestyles and a healthy environment. **Conclusion:** As a means of preventing noncommunicable diseases in adolescents from a young age, the development of health technology, which is a tool that improves individual abilities to obtain good health outcomes, has contributed to the prevention of noncommunicable diseases at an earlier age.

Keywords: Adolescents, Health literacy, Noncommunicable diseases, Social media.

INTRODUCTION

Currently, technology is expanding and the 4.0 Industrial Revolution has begun. This revolution is a period of new development during which a number of technologies, including physical technology, digital technology, and biological technology, have achieved significant advancements compared to the past. These three technologies can encourage the primary technologies for the Industrial Revolution 4.0, such as health services in the industrial era 4.0, which are also in flux, such as changes in technology, socioeconomics, lifestyles, and the environment, as well as numerous innovations in the field of health services (Lim 2017).

Health sector technology will essentially serve as a means to build health 4.0 capacity. In this instance, the expansion of health and medical technology

and applications, as well as wearables such as the Internet of Things (IoT) as sensors with large data capacities, will empower and enhance individuals' abilities to manage their own health, wellness, and illness. Health information technology can provide knowledge that enables individuals to have greater access to health information, thereby empowering them to make their own health-related decisions and, ultimately, enhancing their capacity. By accessing electronic health records (EHRs), individuals can gain a greater understanding of their health condition and participate more actively in health promotion, disease prevention, and care (Lim 2017).

Literacy is one of the factors that contribute to the success of the younger generation. Oral and written information will be easier to comprehend if the individual possesses strong literacy skills (Candrakusuma 2020). Health literacy is the

degree to which an individual is able to obtain, process, and comprehend basic health information and service necessary for making sound health decisions. This includes both the delivery of (the media) as a source of information and the degree to which the information can be comprehended (Dunn and Hazzard 2019).

The level of health literacy is still significantly below international standards. This is supported by the fact that many adolescents in Indonesia are more interested in literacy pertaining to gadgets, cosmetics, fashion, or even art, but rarely or never seek health-related information (CDC 2021). So that individuals require the knowledge, motivation, and ability to access, comprehend, evaluate, and apply information in order to form judgments and make decisions in their daily lives. Individual healthcare systems that emphasize prevention have played a major role in fostering health literacy.

Health literacy can also be defined as an individual's capacity to comprehend, unify behavior, and select health services in order to take action or prevent a disease. Health literacy is an important factor in preventing noncommunicable diseases (NCDs) caused by inactivity, poor diet, smoking, and alcohol consumption (WHO Regional Office for South-East Asia 2017; Duplaga 2020).

Health literacy can be used to analyze the importance of improving adolescent and adult health. A third of adult Americans have inadequate health literacy. Low health literacy is associated with lower satisfaction with disease status, so that the increase in the use of emergency care and services is greater than the increase in the use of prevention services. Additionally, low health literacy is associated with a sense of shame and a decreased propensity to make health decisions. (Fleary, Joseph, and Pappagianopoulos 2018).

With the advancement of technology, it is evident that adolescents are more media-savvy than the majority of other age groups. Despite adolescence's prominence in many global health agendas, adolescent health is less of a concern than that of other age groups (Paakkari et al. 2019). Adolescence is an important period of life. Widespread access to information via media, be it the Internet or other media, can raise significant concerns regarding adolescents'

health literacy and the reliability of the information they obtain. It is difficult for adolescents to find, select, and comprehend quality information due to their limited search capabilities and low literacy levels. Over 80% of adolescents own at least one new form of media technology (e.g., cell phones, PDAs, computers with Internet access), and they are increasingly using this technology to send text messages, email, blog, and access social networking sites (Chung 2017).

With this technology, the health of adolescents will be affected. The importance of adolescent health stems from the fact that at this age, adolescents begin to learn and are able to make independent decisions regarding their health and the health of others. According to data obtained from the 2018 Basic Health Research regarding lifestyle, people continue to lack consumption of fruits and vegetables (95.5%), have low physical activity (33.5%), and are daily smokers of productive age (29.5%) (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan 2018).

The increase in the incidence of NCDs is due to a combination of risk factors that cannot be modified and risk factors that can be modified, according to these data. Tobacco use, lack of physical activity, an unhealthy diet, and alcohol consumption are modifiable risk factors. These risk factors may induce physiological changes within the human body, such as leading to high blood pressure, high blood sugar, high cholesterol, and obesity. In addition, in a relatively short period of time, it will cause noncommunicable diseases (NCDs) (Dinas Kesehatan Provinsi Jawa Tengah 2019).

The research aims to systematically conduct a literature review to present logical evidence from previous studies or published literature on the relationship between health literacy and the prevention of noncommunicable diseases that can be carried out from a young age. From the results of a systematic review or previous literature it is hoped that it will provide an overview of the mapping study on adolescent health literacy skills on adolescent behavior such as consuming behavior, tobacco, physical activity and others, so with exposure to information from the media, adolescents must have good literacy skills as a prevention effort.

METHODS

This study employs the Cronin, Ryan, and Coughlan methodology, which consists of four steps: identifying topics/problems, searching for relevant literature or articles, collecting, reading, and analyzing relevant literature, and writing reviews. Literature obtained via the Internet was in the form of scientific articles on health literacy and social media in relation to adolescent health behavior from various online journals accessible via Google Scholar, JSTOR, ScienceDirect, Springer Link, and PubMed served as the basis for this research. The obtained articles were screened for their title, abstract, and research content.

Studies that met the specified inclusion criteria were selected for further review. To be selected, studies must examine or identify factors or interventions related to health literacy in media that influence adolescent behavior that can lead to NCDs in the future. Research must contain elements of the ability to access health information through media related to consuming behavior, physical activity.

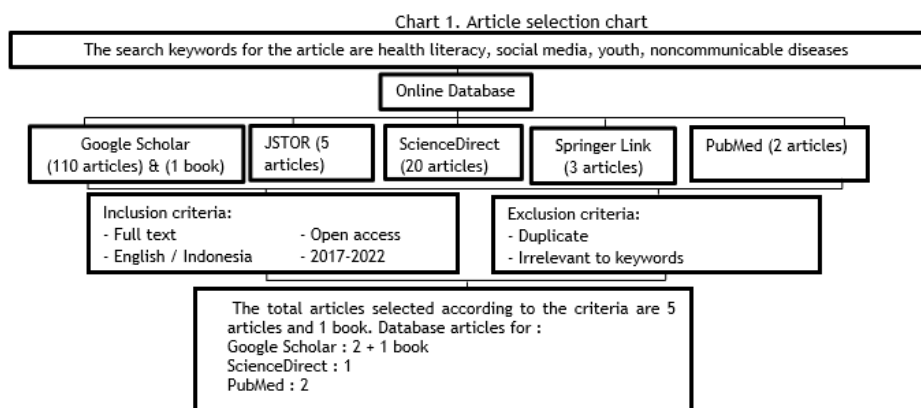
The selected studies were then assessed on the title, abstract, and then an assessment of the entire manuscript. Duplicate studies were removed from the list at initial screening. Studies that met predetermined criteria were set for further review.

The search results were for articles in the database relevant to the keywords used, and after article filtering was applied from 2018-2022, there were 450 articles and one book. Then the remaining articles were re-filtered for duplicate

articles and 350 articles remained. After screening by title or abstract, 210 articles were excluded. Finally, the selection of articles was based on several inclusion criteria, including the use of Indonesian and English, publication in the range of 2018-2022 (last 5 years), full text or non-duplicate status, and research article type. As many as 140 articles and one book were read in full, and based on predetermined inclusion criteria, five articles and one book were selected for further review.

In a span of five years (2018-2022), the most selected research was published in 2022 with a total of two studies, one study in 2020, one study in the form of a book in 2019, one study in 2018. These results indicate that the number of studies discussing health literacy in the media, published in reputable journals, varies from year to year. The data show an increasing number of studies discussing health literacy in the media and published in reputable journals from 2018-2022.

Furthermore, five studies used different research methods. Of these studies, one study used a qualitative cross-sectional study design, two interventions, one experimental, one quantitative. A total of five selected studies were extracted for information about the author, year of publication, study method/design, sample and population, characteristics of respondents and research measurement tools, health literacy goals in the media, adolescent behavior that has a risk of causing noncommunicable diseases, and core findings. The flow of selecting articles is as follows:



RESULTS AND DISCUSSION

The findings of five articles correspond to the topic, which is identifying the level of health literacy in the media in relation to adolescents' behavior in preventing noncommunicable diseases. Literacy skills can be used to shape and construct health behavioral change determinants; this is related to the expansion of media and health information sources, therefore, a comprehension of health literacy is required. Health literacy can influence changes in lifestyle or behavior.

This is comparable to Lawrence Green's theory describing the three types of behavior change. First, predisposing, which includes the knowledge, attitudes, enabling skills, and resources needed to perform health behaviors, reinforcing driving factors such as the role of parents, peers, health professionals, and the environment (Pakpahan et al. 2021). Youth can be the starting point for efforts to increase awareness, willingness, and ability to live a healthy lifestyle in order to improve health status. Because adolescence is a crucial time for the development of reproductive health and a healthy lifestyle. A healthy lifestyle is one of the most important factors in improving health status and encouraging human resources to be more productive in the future with regard to maintaining health quality (Okan et al. 2019).

A person's health behavior is influenced by illness and disease, the healthcare system, eating and drinking, and the environment. The quality of each human resource (HR) can be affected by health-related behaviors, which are influenced by two interconnected and interrelated factors. These elements include education and health. Health is the primary requirement for the success of educational endeavors, while education is one of the factors that contribute to an individual's high health status (Surahman and Supardi 2017). The following table displays the results of the articles that have been selected based on the specified criteria.

In an effort to prevent noncommunicable diseases, this section describes the findings of articles concerning health literacy among adolescents. Two of the five articles obtained intervene in adolescents to

determine whether health literacy can improve adolescent lifestyles. Interventions designed to improve adolescent health literacy and critical health literacy can maximize the impact of media socialization and promote health. Therefore, critical media health literacy skills should be incorporated into school curricula and clinical settings, as the ability to access, comprehend, evaluate critically, and apply health information to health decision-making is an essential life skill. The level of health literacy influences unhealthy behaviors, including alcohol consumption, smoking, physical activity, and health status. The importance of health literacy in planning and activities is fundamental (Smith and Magnani 2020).

Access to health-related information is the first step in enhancing adolescents' health literacy. By increasing access to information and the ability to use information effectively, the intervention through FGD or PBL has a significant impact on the health promotion lifestyle of adolescents. So that adolescents can learn what they should do to maintain and improve their health in daily life, as well as what behaviors they should engage in, and how to modify their behavior. Teenagers are taught to calculate their daily calorie intake and compare it to the maximum number of calories needed by teenagers per day based on hypothetical scenarios. They are also taught to read food labels and distinguish between healthy and unhealthy foods (Ferguson et al. 2020). They learn how to get the necessary amount of physical activity in and out of school and at home, so that it can be tailored to their age, physical condition, and level of education, allowing them to increase their physical activity without incurring additional costs (Helen et al. 2018; Solhi et al. 2019).

This intervention had a significant impact on the intervention group's health responsibility because it can heighten students' awareness and this case illustrates the problems that will arise if they disregard their health. In this case, it can be concluded that adolescents require reliable learning methods in order to apply health-related information in real life, as well as a significant need for health to communicate effectively with them. It also demonstrates the significance of equipping youth with the ability to comprehend and evaluate health-related information in

order to improve their lifestyle. To provide adolescents with health and healthy lifestyles information, it is necessary to be well-informed so that they can comprehend and evaluate the subject matter, and by considering its application in the real world, make the correct decisions. It is also essential that health information provides adolescents with a unique way to access and utilize communication channels and social networks (Karimi et al. 2018).

Associating health literacy with health education and communication that is geared toward individual behavior by addressing the environmental, political, and social factors that determine health broadens the meaning of health literacy (Nutbeam 2017).

This conception of health literacy includes a comprehensive understanding of health literacy that focuses on: (1) having the skills and capacity to comprehend that health encompasses emotional, mental, and spiritual well-being in addition to physical well-being. (2) largely influenced by the everyday circumstances in which people live (e.g., determinants of health), (3) comprehend the significance of active engagement and participation in enhancing health and well-being (Okan et al. 2019).

In an effort to prevent noncommunicable diseases in the future, the purpose of this review is to provide an updated perspective on how health literacy in the media has been used as a tool in the health sector to address adolescent health. Improving a population's health literacy requires more than just disseminating health information; To achieve greater autonomy in health decision-making and community empowerment, it is necessary to have sophisticated tools to ensure that health communication focuses not only on personal health, but also on social determinants of health (Duplaga 2020).

Health literacy can be utilized in health care systems, disease prevention, and health promotion to maintain and enhance life quality. Health literacy contributes to the sharing of responsibilities between health care providers and those receiving care, as well as to a greater mutual understanding between both parties during the communication process. Numerous factors, such as internet usage, mobile applications, demographics, sociocultural and psychosocial factors, general literacy level, personal characteristics, illness

experiences, and the health care system, are influenced by health literacy. Individuals with low health literacy are hospitalized and utilize the emergency department more frequently, participate in screening programs less frequently, receive protective health services less frequently, and have less knowledge about their illness and care. and even have an elevated mortality risk (Evans 2020).

In everyday clinical and public health practice, theory development, program evaluation and research, as well as a vast array of health and wellness-related activities, health literacy should play a central role in policy deliberation and decision-making. In contrast to many other determinants, such as gender, education, and income, health literacy is a modifiable factor. So that health literacy can achieve an influential level. Understanding in-depth health literacy regarding health education aims to influence individual lifestyle decisions and raise awareness of the determinants of health through methods that extend beyond information sharing and campaigning (Olisarova et al. 2021).

Media-based health literacy is an attractive addition to health promotion efforts and is intended to influence youth and garner support as a prevention strategy. Health literacy through media can take into account how the media influence adolescents and how adolescents can actively negotiate the meaning of messages by questioning and challenging assumptions, or by criticizing and giving statements depicted in the media (Okan et al. 2019).

Media literacy has the potential to be effective with diverse youth populations as it shifts from attempting to scare or persuade youth into healthy attitudes and behaviors to assisting adolescents in developing the skills to make better decisions (Fleary 2022).

Some individuals may adopt behaviors, values, or identities from one or more cultures where they have never existed in their life, but blend into local cultural identities and styles of behavior. So that the existence of media and the development of technology can influence adolescents to have a greater risk of consuming unhealthy foods. This is due to exposure to food advertisements featuring foods that are low in nutritional value and

high in fat, sugar and sodium (Ferguson et al. 2020).

This is related to the prevalence of risk factors for noncommunicable diseases (NCDs) among adolescents in many countries, but implementation and data on the impact of NCDs policies and laws are limited. Prevention of noncommunicable diseases (NCDs) is also crucial, and can be initiated by establishing multiple indicators for NCD surveillance that can be used to evaluate and inform programs and policies targeting NCD risk factors and health outcomes. Efforts to prevent noncommunicable diseases among adolescents and adults are intervention-required areas. The significance of structural and social determinants of NCD in this population, including national governance and youth empowerment, must be acknowledged. This underlying influence requires interventions and policies that span multiple sectors and determinants in order to be addressed (Bente, , and Rakovac, Wickramasinghe, Hennis, and Hai - Rim 2019; Roiefah and Pertiwi 2021).

Noncommunicable diseases (NCDs) pose significant obstacles for health systems in low- and middle-income nations. Therefore, as a result of the development of the media as a simple and effective instrument to aid in the prevention and management of NCDs, technology-based interventions are increasingly being developed to combat health care disparities (Goss et al. 2022). The potential roles of the media in the prevention and management of noncommunicable diseases include patient health education and information sharing, psychological support, self-management, public health campaigns, and health professional capacity building. There are few direct data on the use of media in the prevention and management of noncommunicable diseases. The media also face risks and obstacles, such as the dissemination of inaccurate information, the lack of data confidentiality, monitoring and regulation, commercial interests, unequal access, and the absence of standards. Regulatory guidelines and standards must be developed and adhered to in order to prevent negative outcomes (Akseer et al. 2020).

CONCLUSION

This study aims to identify individual information access skills. Due to the abundance of information sources, it can be convenient to find information from online media like the internet and social media. The capacity and role of adolescents in comprehending health and disease prevention information are still very low. Due to a lack of knowledge and motivation in going to health services, as well as healthcare that can be done by individuals in an effort to prevent disease, adolescents' abilities to apply information remain low. Therefore, it is hoped that health literacy can aid health promotion efforts by enhancing individuals' abilities to access, comprehend, evaluate, and apply health-related information obtained from media sources. As a means of preventing noncommunicable diseases in adolescents from a young age, the development of health technology, which is a tool that improves individual abilities to obtain good health outcomes, has contributed to the prevention of noncommunicable diseases at an earlier age. Thus, the relationship between individual abilities and information sources has the effect of altering healthy lifestyles so that health status can be improved.

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Quality of Life and the Contributing Factors among Elderly in Rural Areas in Yogyakarta

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ABSTRACT

Background: Older people are a high-risk population with decreased health status and quality of life (QoL). There are various conditions that can affect the QoL in older people. QoL in older people requires cooperation from various parties including family members, health workers, and local government to improve it. Understanding factors contributing to QoL among older people is significantly important. **Aims:** The research objective was to analyze the relationship between age, gender, education, and occupational status with QoL in older people. **Methods:** A cross-sectional design was used to identify related factors contributing to QoL among older people. QoL was assessed by using SF-36. This instrument contains eight subgroups namely role-physical, physical function, mental health, bodily pain, social functioning, role-emotional, general health, and vitality. Descriptive statistics and correlation coefficients were used in reporting and analyzing the data. The research was conducted from December 2019 to June 2020 in Pleret, Yogyakarta. The sample was collected by simple random sampling resulting in a total of 102 older people. **Results:** Factors significantly related to the QoL subgroup in this study were as follows. Age ($p < 0.001$) and occupational status ($p < 0.001$) related to physical function, gender ($p < 0.05$) related to mental health, age ($p < 0.05$) and educational level ($p < 0.05$) related to role-emotional and gender ($p < 0.05$) related to general health. **Conclusion:** This study identified factors that contributed to the QoL in older people including age, gender, educational level, and occupational status. A more in-depth investigation is recommended to determine the other QoL contributing factors among older people.

Keywords: Older people, Quality of life, Rural area.

INTRODUCTION

Older people are one of the high-risk population and has been increasing in number. Older people are also attached to a decrease in health status. This declining health status along with the increasing age of older people affects the quality of life (QoL). The decline in health conditions is contrary to the desire of older people to stay healthy even in their old age (Kiik, 2018). Increasing the number of older people will affect various aspects of life including health, social, environmental, and economic. In terms of health, older people experience a decline in anatomic function and also a decrease in immunity. Thus, the condition of older people needs

special attention from various parties (Luthfa, 2018; Mauliana et al., 2020)

Older people make up about 8% of the population in Southeast Asia, or roughly 142 million people, according to the World Health Organization (WHO). The senior population is predicted to quadruple from 2013 to 2050. The population of Indonesia is growing every year, notably among the older people group, which accounts for more than 7% of the total population in 2017, according to the Indonesian Central Bureau of Statistics. The percentage of older people in Indonesia who are 60 years or older is rated 108th globally in 2013 alone. In contrast, it is anticipated that 28 million individuals in Indonesia will be above the age of 69.67 in

older men and 73.55 in older women (WHO, 2020; Badan Pusat Statistik, 2021).

Indonesian population is fourth after China, India, and America (Ali et al., 2019). Indonesia is one of the countries in the Southeast Asian region that entered the era of an aging structured population because the population aged 60 years and above was around 9.60%. It is predicted that the number of older populations in 2025 will be 33.69 million. In 2030, there will be 40.95 million and in 2035 will be 48.19 million (Badan Pusat Statistik, 2020).

The health and well-being of this vulnerable population are significant issues of concern. The older people have an average QoL score, but a low one in the social contact area. Health education regarding activity and environmental changes and an increase in social relationships may help in improving the QoL among the older population (Toselli et al., 2020).

Many conditions of older people both directly and indirectly affect the QoL. QoL is influenced by several factors including physical conditions, material conditions, social conditions, psychological conditions, emotional well-being, personal development, and activities. Another factor that affects the QoL of older people is family support (Birren et al., 2014; Catarinella et al., 2015; Mokhatri-Hesari & Montazeri, 2020).

QoL in older people requires cooperation from various parties including family members, health workers, and local government to improve it. This, among others, aims to fulfill and improve daily activities, psychological well-being, and physical needs. On the other hand, changes in the QoL of older people when viewed from the social and environmental aspects are still not widely explored. From year to year, there is an increase in the number of older people. With the increasing life expectancy in older people, it is important to then improve the QoL of older people (Pal et al., 2017).

Data from the Ministry of the Republic of Indonesia shows that Yogyakarta is the province with the highest older people population of 14.50%. In addition, the highest life expectancy in Indonesia is also found in the province of Yogyakarta at the age of 76 years. Data from the Bantul regency health service report in 2019 showed that the largest number of older people were in the work

area of the Pleret subdistrict community health care center with 13,185 older people. For this reason, we are interested in research in the area with the highest number of elderlies by considering the feasibility of conducting research. So this region was chosen as a place of research (Riset Kesehatan Dasar, 2018; Badan Pusat Statistik, 2020). Thus, this study aimed to describe the QoL and its related factors of the older people in the rural area of Pleret Bantul Yogyakarta society.

METHODS

This descriptive with cross-sectional approach design was conducted after approval by the regional Ethics Committee in the Institute of Health Science Surya Global with the number 1.01/KEPK/SSG/X/2020. This study was conducted at the work area of the Pleret Public Health Center from December 2019 to June 2020. Respondents were older people with a minimum age of 60 years old in the work area of the Pleret Health Care Center who met the inclusion criteria. The inclusion criteria included being willing to be a respondent, able to communicate verbally, and living at the study sites. The research sample was 102 respondents who were determined using the guideline for determining sample size by Lemeshow (1997).

The sampling technique used in this research was simple random sampling. The researchers and a research assistant (nursing student) gathered the data. The staff of the Pleret Public Health Center and the first author coordinated the data collection process. The list of older people residents in the working area of Pleret Public Health Center was provided. The respondents were chosen randomly from the list by the researchers, who then approached the door to door to the respondents' houses to collect the information. There was no rejection from the selected respondents. Respondents were required to complete the questionnaire, accompanied by the researcher and research assistant. The questionnaires were filled out at the respondents' houses. Before filling out the questionnaire, the researcher explained the purpose of the study and requested the respondents to fill out the informed consent form. After filling out the

questionnaire, the researcher ensured the completeness of the questionnaire.

We used a structured questionnaire covering several aspects, including sociodemographic characteristics. QoL was assessed by using Indonesian version of SF-36 questionnaire (Novitasari et al., 2016). This instrument contains eight subgroups namely role-physical, physical function, mental health, bodily pain, social functioning, role-emotional, general health, and vitality with a total of 36 questions (McHorney et al., 1994).

We conducted data analysis using SPSS (Statistical Package for Social Sciences) version 16.0 for Windows. The baseline characteristics of participants were analyzed using descriptive statistics and were described in terms of age, sex, education, and occupation. The QoL of the older people was presented using a mean and 95% confidence interval (95% CI). Relationships between QoL according to related factors were analyzed using a one-way ANOVA test and an independent t-test. All tests were two-tailed and a *p*-value of <0.05 was considered statistically significant.

RESULTS AND DISCUSSION

The demographic characteristics of participants are shown in Table 1. The mean age of 102 older people was 66.8 (9.14) years and about 81.4% were females. Approximately fifty-eight percent of the respondents are elementary school graduates and 66.7% are working.

Table 1. Baseline characteristics of older people (n=102)

Characteristics	n	%
Age (year)		
60-64	39	38.2
65-69	25	24.5
70-74	18	17.6
≥ 75	20	19.6
Gender		
Male	19	18.6
Female	83	81.4
Education		
Illiterate	31	30.4
Elementary school	59	57.8
Junior high school	9	8.8
Senior high school	3	2.9
Occupation status		
Employed	68	66.7
Unemployed	34	33.3

The mean scores of the subgroups of QoL in participated subjects are depicted in Table 2. The mean score of role-physical was 64.18, physical function 76.14, mental health 72.96, bodily pain 71.53, social functioning 68.62, role-emotional 71.47, general health 51.56, and vitality 69.90.

Table 3 revealed the relationships between the subgroups of QoL among older people and related factors. The results showed the total average score of the highest physical role subgroups in the age group with the age range of 60-64 years (80.20). A *p*-value of <0.001 implied that there was a significant relationship between age and physical function. The physical function also had a significant relationship with occupation status with a *p*-value of < 0.001.

The total mental health subgroups had the highest average score (78.44) in the age group with the age range of 70-74 years. In the gender group, the highest average score was 81.47 for males and a *p*-value of 0.01 indicated a significant relationship between mental health and gender.

Table 2. The mean scores of QoL in the older people by each subgroup of QoL

QoL subgroups	Mean score	95% CI
Role-physical	64.18	60.25-68.67
Physical function	76.14	72.26-80.49
Mental health	72.96	68.84-76.16
Bodily pain	71.53	66.98-76.04
Social functioning	68.62	65.62-72.63
Role-emotional	71.47	65.06-76.18
General health	51.56	48.35-54.12
Vitality	69.90	66.23-73.23

The total mean emotional score in the older people age group >75 years was 88.33 and the *p*-value was 0.01 related to age. In the group of education level, the highest average score for senior high school was 88.88 and there was a significant relationship between educational level and role-emotional (*p*-value = 0.04).

Furthermore, results showed that general health subgroups related to gender (*p*-value = 0.01) and the total average

score for the role-emotional component in the male gender group was 60.30.

The results in this study showed that not all factors are related to the subgroups of QoL in older people. The factors that significantly related to a subgroup of QoL

in this study included 1) physical function related to age and occupational status, 2) mental health related to gender, 3) role-emotional related to age and educational level, and 4) general health related to gender.

Table 3. The 8 subgroups of QoL among older people according to related factors.

Factor	Variable							
	Role-physical	Physical function	Mental health	Bodily pain	Social functioning	Role-emotional	General health	Vitality
	p-value	p-value	p-value	p-value	p-value	p-value	p-value	p-value
Age ^a	0.93	<0.001*	0.08	0.37	0.01*	0.01*	0.33	0.59
Gender ^b	0.17	0.78	0.01*	0.90	0.39	0.41	0.01*	0.25
Education ^a	0.16	0.14	0.22	0.45	0.71	0.04*	0.15	0.22
Occupation status ^b	0.25	<0.001*	0.14	0.90	0.86	0.99	0.68	0.07

Note: ^aOne-way ANOVA test was performed, ^bIndependent t-test was performed, *Significant at $p < 0.05$ in physical function can be achieved by working or training. Different types of

Physical function

Similar research has been expressed in a previous study (Liu et al., 2013) and the results revealed that the factors influencing physical function in older people included age. Physical function was related to the age where the ages of 65-69 years had the strongest correlation to physical function compared to other age categories. Functional limits are a well-established predictor of future negative outcomes, such as disability, hospitalizations, admission to nursing homes, and mortality. Physical function has long been researched in older people populations. Even though physical function impairments are more common in older age groups. Midlife is a crucial life stage for the development of impaired functioning even if risk factors can build up over the course of a person's entire lifespan. While the burden is rising for midlife people, the prevalence of impairments in activities of daily living (ADLs) is fairly consistent in older adults. Increasing age is known to decrease individual physical function (Dugan et al., 2018; Wei et al., 2019).

Furthermore, a recent study showed that the individual's occupational status has a strong relationship with the physical function of a person. In line with our findings, a prior study has shown that working people reported a higher QoL compared to those who do not work after adjusting for disease factors (Rueda et al., 2012). Another study showed that physical function in older people can benefit from working status. The biggest improvements

working activities have complementary and varied advantages. Thus, physical activity in working has a stronger impact on physical function (Dugan et al., 2018).

Other studies have also revealed that the QoL of working older people was better than those who did not work. However, it should also be noted that in working older people, the QoL decreases with age and their physical function begins to decline. In addition, in terms of vitality, it was found that older people with lower vitality were influenced by aging, female sex, higher education, and formal workers. Working individuals had higher self-esteem because of steady income and employment. In addition, working in a good position increases one's self-esteem (Alizadeh et al., 2016; Huang et al., 2018; Machón et al., 2017).

Mental health

The older population's perceptions of psychological well-being appeared to be influenced by gender in one study. The association between QoL and marriage also varied by gender. Compared to single men, married men had a higher QoL. On the contrary, compared to married, separated, or divorced women, single women had a superior QoL. The respondents' educational backgrounds were another aspect that could have an impact on those conclusions (Ferretti et al., 2018; Hidayati et al., 2018).

The older people who participated in our study had little to no schooling. This element may have an impact on how they

evaluate their mental health. It was found in both the community and in the NH research settings that a lower educational background was a predictor of worse psychological QoL among the aging. In the mental health section, it is known that older people with lower mental health were influenced by younger age, male gender, lower education, and formal worker status (Manaf et al., 2016; Alizadeh et al., 2016).

Mental health has been found as an important factor in the QoL of older people in previous studies. Married women had a high rate of use of mental health facilities. When viewed from adolescence between men and women, it was found that female adolescents had a higher risk of self-suicide and depression than boys. Apart from that, the reason why women had lower mental health than men was because of the influence of social interaction in society which caused women to have life pressure and greater stress than men. In addition, women were more likely to raise concerns than men (He et al., 2016; Souza et al., 2006; Xie et al., 2014).

Based on recent studies, physical activity has been shown to have an effect on mental health. It was also found that the physical activity of women was lower than men causing the differences in mental health scores. The mental health of men was found to be higher than that of women. This may be due to better physical and social factors in men. The lower QoL in women can be caused by social vulnerability among them (Doosti-Irani et al., 2018; Farajzadeh et al., 2017; Mirsaedi, 2015; Shayan et al., 2020).

Role-emotional

A recent study revealed that emotional problems were a factor that needed more attention in older people. The focus on positive and negative emotions and aging may be very limited. A focus on emotional strength is also needed. In circumstances where strong emotions arise, older adults may not be able to regulate their emotions as well as younger people (Wirth et al., 2017).

In line with the results of this study, emotional well-being refers to subjective experiences of positive and negative emotions. These constructs are often defined in terms of happiness, life satisfaction, or a balance between positive and negative influences. In all studies using this definition, improvement in emotional

well-being has been consistently observed in people in their 30s, 40s, 50s, and 60s (Coleman & O'Hanlon, 2017; Kunzmann et al., 2014).

Individual perceptions of the QoL can influence subjective well-being, which indicates a positive and negative evaluation of life. Education influences people's perceptions of the quality of their life. The influence of educational experiences on preferences, expectations, feelings, and integrated emotional states as multiple forces that contribute not only to the formation of personality characteristics but also to social psychological traits such as self-esteem and perceived personal well-being (Ryff, 2014).

General health

In this study, we found that women had lower general health. This is in line with several studies that showed that the general health of women was lower than men (Aghamolaei et al., 2010; Enjezab et al., 2012; Hajian-Tilaki et al., 2017a, 2017b; Siboni et al., 2019). A possible explanation for the effect of gender on general health is that women may exaggerate their health conditions more than men. Numerous serious chronic diseases are in danger from physical inactivity. The gender differences in physical activity can be explained that men are likely to have better daily activity related to better health outcomes. Furthermore, it has been discovered that physical activity is linked to a higher quality of life (Arifin et al., 2012).

CONCLUSION

A significant difference was observed between age, occupational status, gender, and educational level with subgroups of QoL. However, not all factors were related to the subgroups of QoL in older people. The subgroups that significantly related to the older QoL included physical function, mental health, role-emotional and general health.

To promote the maintenance of QoL in older people, suitable healthcare services must be improved and treatment techniques must be developed by specialists in healthcare and social work. Furthermore, there is a need for inclusive and affordable care among the elderly, not only for groups of people with disabilities but also for all age groups of older people

and for gender equality. In addition, older adults' mental health must be taken into account instead of only focusing on their physical health.

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Theory of Planned Behavior: Intention to Quit Smoking at Universitas Negeri Malang during Pandemic Covid-19

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ABSTRACT

Background: Smoking has become a lifestyle. Smokers are dominated by teenagers, including college students. Smoke from cigarettes clearly poses a danger to the body's health and the environment, especially during the COVID-19 pandemic. During the pandemic, college students spend more time at home which can increase smoking behavior too. The purpose of this study is to analyze the description of the intention to quit smoking at the State University of Malang during COVID-19 based on the Theory of Planned Behavior (TPB). **Methods:** This research is a type of quantitative analysis using primary data. The instrument used is a questionnaire which is filled out independently by the respondent. Data collection was done online for 100 students of the State University of Malang. The statistical test used in the analysis is the Chi-square test and Regression Logistic. **Results:** Variables related to the intention to quit smoking were attitude ($\text{sig}=0.03 < \alpha=0.05$) and behavioral control ($\text{sig}=0.00 < \alpha=0.05$), while the subjective norm variable had no relationship with intention, quit smoking ($\text{sig}=0.077 > \alpha=0.05$). Behavioral control has a significant effect on the intention to stop smoking ($\text{sig} = 0.00 > \alpha=0.05$). **Conclusion:** There is a relationship between attitude and behavioral control with students' intention to quit smoking. Only behavioral control affects the intention to quit smoking, so it is necessary to strengthen this variable to increase the intention of students at the State University of Malang to quit smoking and as an effort at tobacco control among adolescents.

Keywords: College, Intention to quit smoking, TPB.

INTRODUCTION

For years, the issue of cigarettes has become an important part of the health policy agenda in Indonesia (Komnas PT, 2019). Smoking behavior seems to have become a lifestyle and current trend (Naisali, Putri and Nurmaningsari, 2017). Smoking has become a daily habit that is carried out anytime and anywhere, starting with small children and adults as well as males and females, whether rich or poor (Alamsyah and Nopianto, 2017).

Data from the Global Health Observatory (GHO) in 2015 estimated that >1.1 billion people in the world consume cigarettes which are dominated by men (WHO, 2016). Indonesia ranks top for the highest prevalence of smokers in Asia (Komnas PT, 2019). Based on the 2018 Riskesdas, it is estimated that >97 million people have been exposed to cigarette smoke (Kemenkes RI, 2019). East Java Province in 2018 contained at least 28.9%

of the total population (Ministry of the Republic of Indonesia, 2018).

The prevalence of smokers on a national scale in the adolescent age group has increased significantly. There is an increase in the population aged 18 years which was initially around 7.2%, increasing to 9.1% (Ministry of Republic of Indonesia, 2018). Malang City has around 55.59% of adolescents who consume >60 cigarettes per week (Central Bureau of Statistics, 2016). There are 19.6% smokers aged 15-19 years and 33.2% smokers aged 20-24 years (JDIH, 2019). This is the age at which students are included in the category.

The city of Malang is known as an education city that has several major universities in Indonesia which are the destination for students to continue their studies. Malang City has at least 62 public and private universities, with a total of ±210,862 students (Malang State University, 2019). Malang State University

is one of the largest public universities in Malang City.

Since 2009, the State University of Malang has launched a Smoke-Free Campus policy by banning smoking in the campus area as well as terminating cooperation and refusing scholarships sponsored by tobacco companies (Rampisela, 2009). However, until now this is still a discussion and no action has been taken.

It is known that cigarettes have various negative impacts on users and the surrounding environment. One cigarette contains chemical compounds in the form of carbon monoxide (CO), TAR, nicotine, and other hazardous materials (Kemenkes RI, 2017). These compounds can be harmful to health such as decreasing oxygen levels in the blood, triggering cancer or being carcinogenic, and causing addiction (Indonesian Ministry of Health, 2017). The ASEAN region contributes to the number of smokers as much as 10% of the total smokers in the world and 20% of the global causes of death due to tobacco (Alamsyah and Nopianto, 2017). Since 2017, non-communicable diseases have become the highest contributor to death in Indonesia whose risk factor is lifestyle (smoking behavior) (TCSC IAKMI, 2020).

Meanwhile, during the COVID-19 pandemic like now, smoking has a high risk. A smoker is twice as likely to be infected with COVID-19 as a non-smoker (Naresawari et al., 2020; Zhao et al., 2020). The World Health Organization (WHO) (2020) revealed that smokers are at high risk for heart disease and respiratory problems, which will exacerbate symptoms due to COVID-19.

As of December 15, 2020, there have been 19,000 deaths due to COVID-19 in Indonesia with an incidence of 629,000 cases (Covid-19 Task Force, 2020). East Java is the province with the highest number of COVID-19 cases in Indonesia, with 70,000 positive cases and 4.9 thousand deaths (East Java COVID-19 Task Force, 2020). Malang is a city with a red zone or has a high risk of spreading COVID-19; there have been 2834 confirmed cases of positive COVID-19 in Malang City, with 271 deaths (East Java COVID-19 Task Force, 2020).

The COVID-19 pandemic has not changed people's habits in smoking behavior, in fact, it has tended to increase. A survey found that 13.1% of

respondents admitted that their expenses had increased due to buying cigarettes and 77.14% of respondents had an income of <5 million (Komnas PT, 2020). The purpose of people who smoke during the pandemic is to pass the time (Naresawari et al., 2020). Online learning during the COVID-19 pandemic is an option to reduce direct contact, including at the State University of Malang which causes a lack of student activity which, in turn, increases their free time. Smoking habits were chosen as one of the popular types of activities carried out to take advantage of free time for both men and women with the percentage of men dominating, at 64.80% (Juliastuti, 2006). In addition, the transition of offline learning to online quickly causes unpreparedness in adjustment and students' mental problems (Dewi, 2020). Mental health problems experienced by students in online lectures during the pandemic are difficulty focusing (65%), anxiety (30%), and insomnia as much as 5%. "Hard to focus" is the most common form of mental health disorder dominant followed by "anxiety" and difficulty sleeping.

Based on the Theory of Planned Behavior (TPB), a person's behavior can be influenced by intentions (Putri, 2018). There are three variables that can influence an intention to perform behavior, namely attitudes, subjective norms, and controlling variables/control behavior (Putri, 2018). TPB is a development from the Theory of Reasoned Action (TRA) by combining social influences and personal factors as predictors (Topa and Moriano, 2010). This theory was developed by Ajzen (1991) explaining that an action taken by a person is based on inner intentions (Ferdiansyah, 2017). This theory has been widely used by various relevant primary studies and its predictive utility has been proven for various behaviors (Topa and Moriano, 2010).

There are aspects that make up TPB in bringing about a new behavior (Asare, 2015). The first aspect is behavioral intention. Intention is the main predictor of the occurrence of a behavior because intention is a motivating factor that affects behavior (Kumalasari, 2014; Asare, 2015). The stronger a person's intention to change behavior, the greater the possibility to carry out that behavior (Asare, 2015).

In the second aspect, Ajzen (1991 in Asare, 2015) explains that an intention is influenced by three variables, including attitudes, subjective norms, and behavioral control. Attitude is a person's assessment of a behavior. Attitude assesses the extent to which a person likes or dislikes certain behaviors. Attitude consists of behavioral beliefs and evaluation results. Subjective norm comes from the social pressure felt by a person to perform or not perform a behavior. Subjective norms are a combination of beliefs and motivation to behave. Behavioral control (Perceived Behavior Control) that is felt by a person plays a key role in shaping behavior. Behavioral control completes a construct that does not exist in the Theory of Reasoned Action. This is because a person's decision to do or not to do behavior is not only determined by subjective attitudes and norms but also there is a role in one's perception of beliefs that can control the behavior itself. The purpose of this study is to analyze smoking intentions among students of the State University of Malang during the COVID-19 pandemic.

METHODS

The type of research used is quantitative analytic through a cross-sectional approach, namely data collection in one time. This study uses primary data which was conducted by testing the relationship between the independent variables, namely attitudes (positive attitude, neutral attitude, and negative attitude), subjective norms (high, moderate, and low), and behavioral control (high, moderate and low) with the independent variable, namely the intention (positive intention and negative intention) to quit smoking.

Data collection was using a questionnaire instrument which was distributed online to students at the State University of Malang via Google Forms. The questionnaire contained questions regarding the variables studied and was filled out independently by the

respondents. Before being used in data collection, the result of the instrument was tested for validity and reliability. The Result R count > from R table, with R count 0.879 for the Attitude variable, with R count 0.868 for the subjective norm variable, and with R count 0.879 for the behavioral control variable. In the reliability test, the results of the R count show all variables above 0.6 so it is said to be reliable. This research has received ethical approval from the Ethics Committee of Health Research. The research population is Malang State University smoking students who are still actively involved in online learning during the COVID-19 pandemic. The research sample of the population was taken using a non-random sampling technique of purposive sampling total of 100 students. The criteria used in the selection of the research sample are active students at the State University of Malang (class of study 2018 and 2019), students who smoke (last 6 months), and are willing to be respondents.

The data analysis method was carried out using quantitative analysis techniques which included data tabulation, statistical calculations, and statistical tests. Statistical analysis used in this study included univariate analysis, bivariate analysis, and multivariate analysis. The statistical test used was the Chi-Square test for bivariate and the Logistics Regression test with a significance limit of = 0.05 or 95% confidence interval (CI). Before taking data, this research went through an ethical review with certificate number Reg.No.:157 / KEPK-POLKESMA / 2021.

RESULTS AND DISCUSSION

Characteristics of Respondents

This study used 100 respondents from the State University of Malang. Regarding the characteristics of the respondents, the results of the analysis are presented in the form of a frequency distribution table.

Table 1. Characteristics of Respondents.

Characteristics	Frequency	%
Gender		
Man	85	85
Woman	15	15
Student Activities		
Only active in lectures	58	58

Characteristics	Frequency	%
Join 1 student organization	22	22
Join >1 student organization	20	20
Pocket money (per week)		
IDR 0 - IDR 500.000	89	89
IDR 500.001 - 1.000.000	8	8
>IDR. 1.000.000	3	3
Cigarette Consumption		
10 sticks/day	77	77
11-20 sticks/day	22	22
21-30 sticks/day	0	0
31 sticks/day	1	1
Total	100	100

Based on Table 1, it is known that the majority of the 100 respondents who filled out the male gender were 85 students (85%) and the remaining 15 students (15%) were female. Most of the smoking students who filled out the questionnaire were only active in lecture activities with a frequency of 58 students (58%). However, some other students also usually have extra activities such as participating in organizations or other campus activities. A total of 22 students (22%) only participated in one organizational activity on campus and 20 students (20%) participated in >1 organizational activity on campus.

Theory of Planned Behavior in Intentions to Quit Smoking

Frequency distribution is done to see the number and percentage of variables categorized based on the operational definition of the research. The following are the results of a descriptive analysis based on aspects of the Theory of Planned Behavior in Intentions to Quit Smoking.

Table 2. Frequency Distribution of Theory of Planned Behavior in Intentions to Quit Smoking.

Characteristics	Frequency	%
Attitude		
Positive Attitude	6	6
Neutral Attitude	73	73
Negative Attitude	21	21
Subjective Norms		
High	27	27
Moderate	71	71
Low	2	2
Behavioral Control		
High	37	37
Moderate	57	57
Low	6	6
Intention to Quit Smoking		

Positive Intention	43	43
Negative Intention	57	57
Total	100	100

The total respondents, as many as 89 students (89%) every week get pocket money with a range of IDR.0-500,000. Meanwhile, eight students (8%) get pocket money in the range of IDR 500,001-100,000 per week. Only three students (3%). According to Trisanti (2016), there are four categories of smokers when viewed from the number of cigarettes consumed. The majority of respondents belong to the light category (≤ 10 cigarettes/day) as many as 77 students (77%). There are 22 students (22%) who smoke moderately (11-20 cigarettes/day), one student (1%) is a smoker very heavy (≥ 31 cigarettes/day), and there were no students who were heavy smokers (21-30 cigarettes/day). According to Table 2, it is known that most of the 100 respondents have sufficient attitudes (73 students or 73%) regarding the dangers of smoking during the current COVID-19 pandemic. Most of the other respondents had poor attitudes (21 students or 21%) and only a few had good attitudes (6 students or 6%). On the subjective norm variable, 71 students (71%) had sufficient subjective norms and 27 students (27%) had good subjective norms. In contrast to the attitude variable, only a few respondents had less subjective norms on smoking behavior during the pandemic, namely two students (2%). For the behavioral control variable as well as the previous two variables, most of the respondents had sufficient behavioral control, as many as 57 students (57%).

Respondents who have good behavioral control are 37 students (37%) with respondents with less behavioral

control as many as six students (6%). Based on the results of the study in Table 2, for the variable of intention to stop smoking students at the State University of Malang, it is known that the majority of students at the State University of Malang do not intend to stop smoking during the COVID-19 pandemic while at home, as many as 57 students (57%) and who intend to quit smoking as many as 43 students (43%).

Bivariate Analysis

The bivariate test of the results of this study was analyzed using cross-tabulation between attitudes, subjective norms, behavioral control, and intention to quit smoking. A bivariate test was conducted to see the relationship between the independent variable and the dependent variable.

In Table 3, it is known that most of the respondents who have sufficient attitudes do not intend to stop smoking. Based on the test results between the attitude variable and the intention to quit smoking, the significance value obtained was 0.03 (<0.05), indicating that there is a relationship between attitude and intention to quit smoking.

Attitude is a person's belief in the consequences he will get if he performs a behavior either in a positive or negative form (Ajzen, 1991). Other studies have also stated that attitudes have a relationship with smoking cessation intentions among adolescents in China (Xu et al., 2015). The attitude of the embodiment of ideas is related to emotions so it will encourage someone to make certain decisions/actions in social situations (Riyadi, 2020).

Table 3. Cross-tabulation of Attitude with Intention to Quit Smoking.

Category	Intention to Quit Smoking				Total	
	+		-			
	n	%	n	%	n	%
Well	4	4	2	2	6	6
Enough	35	35	38	38	73	73
Not enough	4	4	17	17	21	21
Total	43	43	57	57	100	100

Sig=0.03

Students with negative attitudes will tend to have distrust of the dangers of consuming cigarettes during the COVID-19 pandemic. This negative attitude can support someone to continue to have the intention to smoke (Blankers et al., 2016). Attitudes are influenced by one's assumptions about cigarettes; if a smoker

assumes that cigarettes are beneficial, then he does not have the intention to stop smoking, which tends to encourage him to continue smoking behavior (Atmojo, Soemanto and Murti, 2017; Pandayu, Murti and Pawito, 2017).

Relationship between Subjective Norms and Intentions to Quit Smoking

The results of the analysis in Table 4 show that most of the respondents who have subjective norms do not have the intention to quit smoking. The Chi-Square test conducted between the attitude variable and the intention to quit smoking obtained a significance value of 0.077 (>0.05), indicating that there is no relationship between subjective norms and the intention to quit smoking.

Table 4. Cross-tabulation of Subjective Norms with Intentions to Quit Smoking.

Category	Intention to Quit Smoking				Total	
	+		-			
	n	%	n	%	n	%
Well	16	16	11	11	27	27
Enough	27	27	44	44	71	71
Not enough	0	0	2	2	2	2
Total	43	43	57	57	100	100

Sig=0.077

Smokers who have subjective norms and good intentions to quit smoking tend to be in the young age group (adolescents), start smoking at a young age, have a low level of education, and fall into the category of light smokers or consume low amounts of cigarettes a day (Tapera et al., 2020). When viewed in the category of respondents, it is reasonable that subjective norms have no relationship with the intention to stop smoking, because the respondents taken in this study were students with a high level of education and age who were included in the category of young adults.

A person's subjective norms are influenced by social norms and social pressures he feels, the greater the social norms and pressures received by smokers, the more they will be moved to perform a behavior, including smoking cessation behavior (Atmojo, Soemanto and Murti, 2017; Riyadi, 2020). Young adults or college students may experience significant changes in social relationships because they do not have much time together (Lee et al., 2018). We know that, during the COVID-19

pandemic, the government imposed a policy of social restrictions, so that smoking students did not have time to interact with their social environment.

The Relationship of Behavioral Control with Intention to Quit Smoking

The results of the analysis in Table 5 show that the majority of respondents who have sufficient behavioral control will not have the intention to stop smoking. Based on the results of the Chi-Square test conducted between the attitude variable and the intention to quit smoking, a significance value was obtained at 0.00 (<0.05), indicating that there is a relationship between behavioral control and intention to quit smoking.

Table 5. Cross-tabulation of Behavioral Control with Intention to Quit Smoking.

Category	Intention to Quit Smoking				Total	
	+		-			
	n	%	n	%	n	%
Behavioral Control Well	2	2	9	9	3	3
	8	8			7	7
Enough	1	1	4	4	5	5
	4	4	3	3	7	7
Not enough	1	1	5	5	6	6
Total	4	4	5	5	1	1
	3	3	7	7	0	0
					0	0

Sig=0.00

Behavioral control is a belief held by individuals about the support or obstacles for someone to carry out healthy behavior (Atmojo, Soemanto and Murti, 2017). This belief can come from information obtained, previous experience, or by observing oneself or the people around them (Ajzen, 1991; Atmojo, Soemanto and Murti, 2017). Someone who has good behavioral control can control the intention to smoke when offered by a friend who smokes. This can happen if he is not involved in the sale and purchase of cigarettes. In addition, behavioral control can be influenced by the circle of friends, education level, age at first smoking, and type of smoker (number of cigarettes consumed) (Tapera et al., 2020).

Multivariate Analysis

Multivariate analysis was conducted to determine the effect of the attitude and behavioral control variables on the intention to quit smoking.

Table 6. Regression Test Results of the Effect of Attitude and Behavioral Control on Intention to Quit Smoking.

Independent Variable	Dependent variable	Sig	Description
Attitude	Intention to Quit Smoking	0.258	No effect
Behavioral Control		0.00	Take effect

Influence of Attitude and Behavioral Control with Intention to Quit Smoking

Based on the results of the logistic regression test shown in Table 6, it is known that only behavioral control variables have a significant effect on a person's intention to quit smoking. The magnitude of the influence of the behavioral control variable on the intention to quit smoking can be seen by looking at the significance value obtained, which is 0.00 (<0.05). Meanwhile, the attitude variable does not have a significant effect on the intention to quit smoking. It can be seen from the significance value of the attitude variable that is equal to sig. 0.256 (>0.05).

The Theory of Planned Behavior in theory has succeeded in predicting and explaining various health behaviors including smoking behavior. Behavioral control is a strong factor in determining a person's intention to continue smoking/quitting smoking which is influenced by individual perceptions of his abilities which include internal perceptions (e.g. skills) and external perceptions (e.g. constraints) (Tapera et al., 2020). So that students' beliefs and perceptions of cigarettes will be a reinforcement for them to have the intention to stop smoking.

Based on the results of research that behavioral control plays an important role in students' smoking cessation intentions, an approach that can be taken as an effort to stop smoking can be through a stimulus that allows students to control their smoking desire, such as providing a better understanding that the impact of smoking can worsen the situation when exposed to COVID and provide examples of cases related to smoking activities during the pandemic as well as managing and interpreting that smoking behavior can later increase the risk of other diseases due to COVID-19. Behavioral control itself is also supported by control belief, the extent to which a student understands that smoking will have a bad impact on health in the present and in the future. Besides that, is

the extent to which a student can control their smoking habits or behavior when they are in an environment of smokers or non-smokers. So it can be said that the desire to smoke in college students has multiple factors that can support the intention to stop smoking or even inhibit the intention to stop smoking.

The implications of the research results can be seen in that, although the State University of Malang has implemented the Health Promoting University program and has a smoking-free campus policy, there are still many of our students who have sufficient intentions to quit smoking. As such, the results of this study can be used as consideration for policymakers to oversee the implementation of smoke-free campuses. It may not only be enough to provide a sign prohibiting smoking in various places but also to provide sanctions to violators as well as rewards to the community who have succeeded in developing smoke-free areas within the scope of their work units.

The limitations of the research are that there is still no direct control in filling out online questionnaires and self-reporting and the research sample has not been expanded to other university community members such as lecturers and teaching staff. This might change the findings.

CONCLUSION

Based on three aspects of the Theory of Planned Behavior, namely attitudes, subjective norms, and behavioral control of state university students, Malang State University is included in the sufficient category. Only attitude and behavioral control have a significant relationship with students' intention to quit smoking. Behavioral control is an aspect that has a significant influence on the intention to quit smoking at the State University of Malang during the COVID-19 Pandemic.

Malang State University has developed a Health Promoting University, which is expected to be more optimal in creating a smoke-free campus policy for its academic community and creating a supportive environment for smoking cessation programs for all of its academic community.

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