

# Correlation of Knowledge Level and Age with Preventive Behaviour in Risk Communication to Prevent the Spread of Covid-19 by the Government of Kediri Regency, Indonesia

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**Abstract.** The study determines the correlation strength between the level of Covid-19 risk knowledge and age with communities 'preventive behaviour in the context of risk communication done by the Government of Kediri. The study advanced Social Amplification of Risk and Social Learning Theory and utilized quantitative methods through questionnaire survey. The results showed that there is a strong positive correlation between the level of Covid-19 risk knowledge and age simultaneously with preventive behaviour. The result also emphasized that cultural, social, economic, and political conditions may affect the assessment in the psychological realm of individual that may trigger strongly the response mechanisms. Therefore, the study highlights on how the Government of Kediri should tailored risk communication design effectively by considering above approaches.

**Keywords:** Covid-19, riskcommunication approach, social amplification of risk, social learning theory, preventive action.

## 1 Introduction

The Covid-19 Pandemic, originated from the city of Wuhan China, spread massively to various countries in the world. WHO (World Health Organization) stated that Covid-19 is a disease caused by a coronavirus (SARS-CoV-2). WHO explained that the condition of the Covid-19 pandemic has become more serious when this virus can be spread through fluids from people who have infected to anyone that has direct contact [1]. Indonesia is one of the countries that also has high cases of Covid-19. According to the data from the official website of the Indonesian Covid-19 Handling Task Force at Covid19.go.id, the Map of the National Distribution of Positive Cases of Covid-19 showed in 34 provinces [2], including in East Java Province. Kediri is one of the regions that is affected by the massive spread of Covid-19; whereas until November 15, 2020, the number of positive cases of Covid-19 is continuing to increase. The development of positive cases of Covid-19 in Kediri is increasing and raised thus high concern. The Covid-19 pandemic has had an impact on various sectors and affect people's lives. There are several sectors at risk and affected by the Covid-19 Pandemic in Kediri; namely the Health, Education, Social, and Economic Sector and have a ripple effect in the field of risk

and crisis [3]. The impact of Covid-19 on Social Sector caused social restrictions is the limitation of crowd activities regulated by the government such as CFD (Car Free Day), art performances, to sports matches. In the Education Sector, the impact of Covid-19 forced the schools (formal and informal education) to implement the learning activities at home. In the Health Sector, the Covid-19 has an impact on the increasing need for the medical personals, and lead to refocusing of local budgets. While in the Economic Sector, the Covid-19 resulted in the closure of several restaurants, the increase in the price of agricultural ingredients, and the halt of logistics distribution of agricultural products from Kediri to other regions. The Regent of Kediri, Haryanti Sutrisno, stated that the restriction on activities of social welfare in the community affects the economy of the people in Kediri and made it difficult for MSMEs to continue their business [4]. Various mitigation efforts have been taken by the Government of Kediri, which is one of them is to carry out risk communication to urge the public always implement health protocols to prevent and reduce potential threat of Covid-19 transmission. Risk communication according to Fischhoff in Heath, and O'Hair [5] is the process of understanding and measuring risk, communicating risks, pooling the benefits of risk measurement, implementing risk reduction actions, respecting and ensuring the public understands the risks, and creating partnerships to properly manage the risks. Risk communication that has been carried out by the Government of Kediri is manifested in the form of communication, such as the delivery of health protocols message. This health protocols message is accentuating the risk reduction actions in the form of the W2P movement namely Washing hands, Wearing masks, and Physical distancing to prevent the spreading of Covid-19 to the community.

One of the important components of risk communication and risk prevention of the spread of Covid-19 is how the society is exposed to information, consume information, and influenced by that information to take risk reduction actions. Retnaningsih [6] stated that knowledge about health risk is obtained by the community through mass media and the internet. The process of obtaining the knowledge prioritises how the community obtain the right information and instructions regarding the prevention of Covid-19 transmission. Media exposure is an important component in the process of forming community risk knowledge and perceptions, which there is a learning process in it. Green in Purnamasari et al [7] stated that several dominant factors influence a person's actions on a risk, namely internal, supporting, and external factors. Internal factors include knowledge and belief. Then the supporting factors include age, level of educational, social, and economic condition. While external factor is media exposure coupled with the influence of public figure as the spoke person. Afrianti and Rahmiti [8] also added several factors that affect a person's level of adherence to health protocols namely knowledge, age, education, attitudes, and individual motivation. In risk communication there is a process of internalising information that influences the public knowledge. A good knowledge is supported by the acceptance of information circulating in the public about the risks of Covid-19 [8].

Law et al in Afrianti and Rahmiti [8] also stated that knowledge is one of the important factors in preventing the spread of a virus. In a study conducted by Retnaningsih et al [6] of the community in North Sumatra, it was found that the dominant factor for Covid-19 preventive measures is knowledge, of which this knowledge is eventually forming an attitude. This is also supported by the research conducted by Paul et al in Retnaningsih et al [6] who found that knowledge is one of the biggest factors influencing action one's prevention of risks, especially Covid-19. According to Green in Purnamasari [7] the supporting factors that influence a person's actions towards risk include age, level of education, social and economy. WHO stated

that all age groups are at risk to get infected by the Covid-19; for most the elderly group [1]. Center for Disease Control and Prevention (CDC) stated that the risk of severe illness with Covid-19 increases is inline with the increasing of age. WHO recommends high-risk age groups for more stringent in carrying out Covid-19 prevention measures [9]. Seeing the risk of Covid-19 and based on these age categories; it is necessary to understand that WHO urges all age groups to take precautions actions in reducing the risk of Covid-19.

Based on the research conducted by Kim and Crimmins [10] in USA, it was found that preventive measures against Covid-19 were differed by the age and those (preventive measures against Covid-19) were changing according to age, depending on the type of behaviour. This research found that older people are aware that they are at high risk of Covid-19 infection and thus follow higher precautionary behaviours. It was found as well how age influences preventive action due to a higher risk of elderly group. Those high-risk drove someone, who is stricter in carrying out preventive measures, to implement consistently health protocols.

Based on the aforementioned issues, therefore the authors aim to identify if there is a gap between theory and reality that exist in the people of Kediri Regency. Risk communication steps to prevent the spread of Covid-19 has been done; but the number of positive cases of Covid-19 continues to increase. The main goal of risk communication process that the authors draw from several understandings of risk communication, is the provision of information, persuasion, and the formation of perceptions of knowledge of risks about Covid-19, which in turn may affect the community's behavioural response to the risk of Covid-19. Behavioural response referring to this case is to apply the health protocol as a preventive measure wrapped up in W2P Movement as the risk communication of Government of Kediri. Therefore, the question that may arise in this research: is there any correlation between knowledge of the risk of Covid-19 and the age of the people of Kediri with preventive measures, in the form of behaviour in the implementation of health protocols (W2P Movement implementation); with the proposed hypothesis that there is a correlation between risk and age knowledge to trigger preventive action in the context risk communication. Thus, the aims and objectives of the researchers in conducting this research are to find out the correlation between knowledge of Covid-19 risk and age of the community with preventive measures that will trigger the preventive risk behaviour in implementing the W2P Movement health protocols

## **2 Concept and research framework**

Following are the concept, including theoretical background and research framework that are utilized in this research

### **2.1 Strategic communication**

Strategic communication is defined by Paul [11] as actions, messages, images and other coordinated signals intended to inform, influencing, or persuading an audience to support or follow a arranged. According to Effendi in Tosepu [12] strategic communication is a guidance from planning communication and management to achieve a goal and using tactics and approaches depending on the situation and conditions. In producing effective communication four things must be done, namely: getting to know the audience, compiling messages, determining message delivery techniques and selecting media [12]. Paul [11] asserts that there

are four elements that factor into an effective communication strategy, namely: (i) it is important to inform, influence and convince audiences, (ii) there needs to be clear objectives in compiling and conveying information, (iii) it is important to inform, influence and convince audiences, and (iv) there needs to be clear objectives in compiling and conveying information. In the context of risk and crisis communication, according to Coombs in Heath & O'Hair [5] strategic communication is an important component used to provide or instruct information, provide explanations, and recommend self-protection measures. This is in accordance with the Regulation of the Government of Kediri No. 44 Year 2020 that clearly stated the objectives of the risk communication strategy Covid-19 in Kediri is to break the chain of the Covid-19 spreading by increasing discipline and compliance of the community in implementing health protocols.

## **2.2 Risk communication**

Many disciplines define risk and one of the standard definitions of risk according to Heath & O'Hair [5] is "each one is the product of probability of occurrence and intensity or magnitude of harm". The definition explains that risk is all the possibilities of something that can cause harm. The Center for Disease Control and Prevention (CDC) defines communication risk, especially in the health sector, as an effort or method to educate community about risk and build strategic messages to change behaviour against things that are at risk, stated by Covello in Heath. & O'Hair [5]. Zhang et al [13] stated that in the midst of the Covid-19 pandemic, the public placed in a state of uncertainty; thus, it is important to develop communication risk as a preventive measure and public health preparedness effective. Thus, effective risk communication will be meaningful, if: information provided by the risk communicator to the public as the recipient open and timely and aimed at correcting information gaps; so that the recipient can proactively address the risks involved by taking the right risk reduction (behavioural) action decisions at the right time. According to Coppola and Maloney [14] the success of risk communication is when risk communication messages are integrated with the knowledge structure and generate changes in individual attitudes on the topic; included in the approach psychological (Psychological Approach on risk). The components of the attitude in question are as follows: (1) cognitive is a person's opinion or belief in a risk, (2) affective, namely a person's feelings towards a risk, and (3) behaviour, namely a person's behaviour towards a risk. Those three components of the attitude are interrelated, because of the cognitive and affective conditions a person can basically cause/ trigger a change in behaviour in everyone [14].

## **2.3 Social amplification of risk approach**

The social amplification of risk approach is one of 14 approaches risk communication proposed by Kaspersen in 1988 [15]. This approach suggests that an event that has the potential to hazards related to psychological, social, institutional and cultural which can enhance or weaken individual or group risk knowledge and perceptions and shaping behaviour towards risk/behavioural response [16]. This concept focuses on the process of "amplification" of a risk that can cause a ripple effect. Lungren and McMakin explain that the effects of risk are often unpredictable and extend beyond the initial impact and affect various fields [17]. This ripple effect can be widespread and affected many facets. For example, risk can affect business processes, law, to social activities. According to Slovic [18] the discipline of Communication Science emphasizes the process of transmitting information on the Social Amplification of Risk

approach. This concept explains how the process of information or risk messages being conveyed from the communicator to the recipient (message recipient). Lungren and McMakin also confirmed that, amplification of this approach is how the communicator in this research, the Government of Kediri can actively plan COVID-19 risk communication and respond to the ripple effect that occurs [17]. Furthermore, the approach used in this research is to follow one of the main principles of risk communication takes place. which is to ensure that risk information is communicated early, frequently, and completely.

According to Kaspersen et al [15] the social amplification of risk approach has two stages, namely: (1) Transfer information about the risk. Basically, the direct experience of people who are exposed to the risk is becoming one of the risk amplifiers that affects behaviour response (response behaviour/action). However, for people who have a high level of risk, but do not have direct experience; then the transfer information becomes an important stage in the process of information flow that goes wrong one of the keys to public response and public behaviour as implications in the process risk communication [15]. When associated with social amplification of risk, this stage is relevant to the institution or institution in carrying out risk communication by utilizing existing media. This approach distinguished the process of transferring information into two communication networks, namely: media and informal/personal. (2) The response mechanism of the society. The response mechanism from society is the second stage of amplification, which at this stage involves the cultural context to the social context. This stage is a process of information that is interpreted from the values that exist in each individual. The social amplification of risk approach has the assumption of a mechanism response when information about risk is interpreted by individuals starting with four triggers, namely the application of individual values, the influence of social groups, intensity risk signals obtained, and the negative stigma that individuals have on risk. Slovic [18] explains that this stage focuses on the process of persuasion that determines how the community acts in response to the existing risk (behavioural response).

#### **2.4 Media effect**

McQuail [19] stated that the view of media effects or media effects start from assumption that the mass media is a powerful instrument to influence opinion and influence behaviour. The study of media effects has the basic assumption that media has a significant effect or influence. Although some studies state that the media is not the only factor influencing behaviour; trust, rationality, affection and respect are contributing factors as well. But there is power communication that can be used, including through information, stimulation of action, directing attention and persuasion. In media effects there is a media concept named effectiveness, which utilizing the efficiency of the media to achieve a goal and implications of the planned communication strategy. There are levels that desired, namely the level of individuals, groups/organizations, social institutions, national society and culture. The properties of media effects here include cognitive effects, affective effects and effects behaviour. There are several typologies of the media effects process, one of which is a typology of media effects proposed by Golding in McQuail [19] is the planned effect and short term are as follows: media campaign, new learning, and individual response. Aside from studies on media effects that looks at the types that may cause an effect; there is a study of the effects that relate media with social and cultural aspects that is called a Social Cultural Effect. One of theory in the social cultural effect

that describes the media learning process is Social Learning Theory proposed by Albert Bandura that is explained in the following section.

## **2.5 Social learning theory**

One of the media effects model, namely Social Learning Theory, was proposed by Albert Bandura. Social Learning theory is based on the idea that humans have the ability think and regulate behaviour, there are cognitive abilities in the thinking process and learning through social observation Bandura in Abdullah [20]. According to Bandura in McQuail [19] in the human learning process cannot learn all things and all that is needed through observation and experience, so there are many indirect sources that guide the learning process and behaviour that is through indirectly, for example the mass media. The learning process according to Bandura [21] is a process of observation, observation, the formation of ideas and knowledge; where in the next stage, the information and the knowledge acquired becomes a guide for taking action. There are four processes in the learning process of observation: attentional, retention, motor reproduction, and motivational processes.

To comprehend motivation, emotion and action, one of the important aspects is social processes and cognitive processes. One of the basic assumptions of Social Learning Theory is reciprocal determinism and human agency are described by Bandura in Abdullah [20] that humans are agents who can change according to the situation with their behaviour. Humans are seen as agents who have control over thought processes, motivations, and actions. The model in Social Learning Theory stated that to see behaviour it is not necessary to can only be seen from one side, so there is triadic reciprocal determinism as a factor influencing behaviour. These three factors are environment, personality, and behaviour itself. Thus basically, a person's behaviour is influenced by internal and external factors that reciprocal, in this study the authors looked at the factors that influence a person's behaviour; including environmental factors, namely the environment and the media; following personal factors include personality and knowledge factors, in this case it concerns affective processes and cognitive processes.

## **2.6 Knowledge, age, and preventive action of Covid-19**

Knowledge, according to Davenport and Prusak in Liliweri [22] is a mix of experiential frameworks, contextual information, values, and views from the experts. Liliweri [22] stated that knowledge is something that transmitted to others, either directly or through the media electronic. Kasperson et al [15] stated that risk message recipients, in terms of this is the community, playing a role in the amplification process, i.e., the recipient of the risk message plays a role as an amplification station for risk-related knowledge. Coppola and Maloney [14] confirmed that the attitude component individuals are the result of the integration of risk communication messages and structures knowledge. Altarawneh et al [23] stated that the level of subjective knowledge defined as awareness of the dangers associated with individual experiences on risk and risk knowledge formed by cognitive assessment and judgment affective. According to Altarawneh et al [23] behaviour at risk has a strong relationship reciprocity with cognitive judgments and affective judgments described in Cognition-Affect- Intention (CAI) Model. Referring to previous, thus the risk knowledge component can be seen from the cognitive and affective assessment of a person's risk.

The affective process in the study of risk perception plays a role in the assessment process and behaviour retrieval, because in addition to the occurrence of information processing is also guided with emotional and affective processes [18]. Affective itself is defined by Coppola and Maloney [14] as a person's feelings or judgments about something risk. According to Damasio in Slovic [18] research shows that affective and emotional processes interact with rationality-based reasoning. Slovic [18] stated that the characteristics of this affective process can be seen from the components as follows: (1) Emotions are measured from feelings, evaluations of external stimuli include: positive (like) or negative (dislike); (2) The extent to which risk creates fear [18]; and (3) Individual evaluation is measured by the value of the benefits obtained, if the individual If the perceived benefit is low, then the perceived risk is high vice versa.

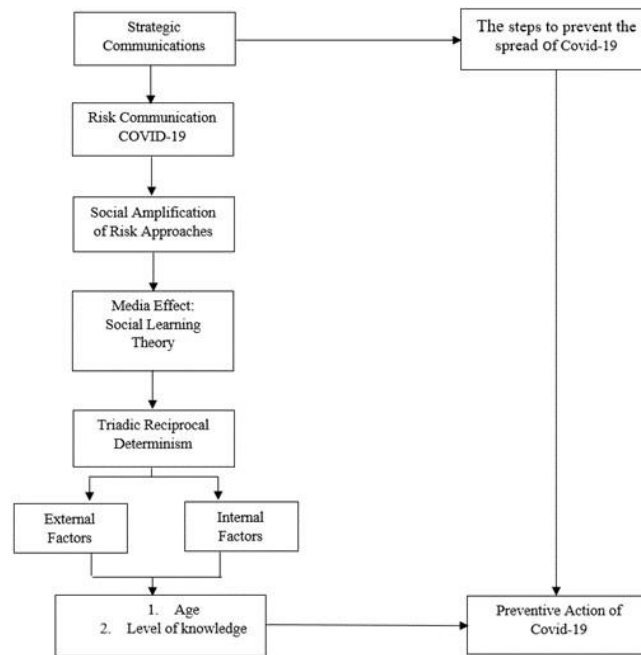
Green in Purnamasari [7] stated the supporting factors that influence the action a person's risk includes age, level of education, social and economic. According to Pura in Afrianti and Rahmiati [8] age is one of the determining factors a person's compliance and non-compliance in a preventive measure. In this case age is used as one of the variables to see its relationship with action Covid-19 prevention. Age is one of the personal factors that can influence a person's actions. Center for Disease Control and Prevention (CDC) stated that the risk of severe illness with Covid-19 increases with increasing age and WHO (2020) recommends high-risk age groups to be more stringent in carrying out Covid-19 prevention measures including other age group.

Community behaviour is one of the important components in the study of management and Communication of Health Risks to the Spread of Infectious Diseases (Pandemic). Kowk et al [24] explain that when no treatment or vaccination is available during the Covid-19 pandemic; non-pharmaceutical intervention is the only one choice. It focuses on Covid-19 behavioural response, level involvement, and compliance of a person in prevention behaviour against the spread of infectious diseases (pandemic); such as the use of face masks, hand hygiene, maintain distance and self-isolation.

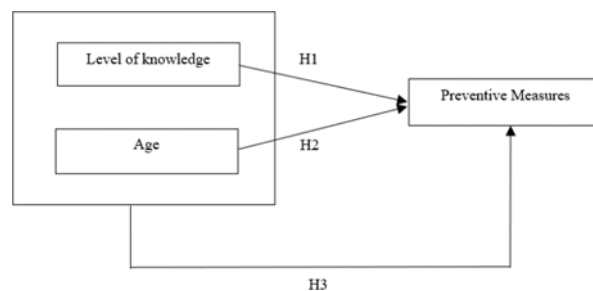
## **2.7 Research framework**

The framework of thought in this research is starting from the big concept of communication risks, especially the risk of infectious/pandemic diseases that provide insight as a strategy in educating the public, building persuasive messages, and modifying risk behaviour. The author's thinking begins with the strategy that has been carried out by the Government of Kediri in conducting risk communication Covid-19. One of the risk communication approaches used as a basis this research is through Social Amplification of Risk. This approach explains about how risk can ripple effect and affect various sector. The stages of risk communication proposed are the transfer of information or the risk and the response mechanism of society. Government of Kediri is transferring risk information by utilising a variety of media and direct communication to ensure the message knowledge of Covid-19 risks is conveyed to the public; because the main goal risk communication is conveying risk knowledge messages/information to trigger appropriate response actions to those risks. While in the second stage namely the response mechanism of society, consisting of components that: affect the achievement of Covid-19 risk communication goals such as social conditions and the culture of the community that affects each other's cognitive and affective processes individual in it. At this stage there is a learning process described by Social Learning Theory includes internal and external factors that influence behaviour. In this study the author wanted to see whether there was a correlation or

relationship between knowledge of the risk of Covid-19 and the age of the people of Kediri Regency with action prevention through the implementation of health protocol implementation behaviours, especially W2P Movement (Washing hands, Wearing masks, and Physical distance) as a form of behaviour response desired by Covid-19 risk communicators in this case the Government of Kediri.



**Fig 2.** Research framework



**Fig. 2.** Research hypotheses.

Notes:

H1: There is a correlation between the level of knowledge of the risk of Covid-19 and prevention measures (2WP Health Protocols Implementation Behaviour).

H2: There is a correlation between age and preventive measures (W2P Health Protocols Implementation Behaviour).



H3: There is a correlation between the level of knowledge of Covid-19 risk and age with preventive measures (W2P Health Protocols Implementation Behaviour).

## **2.8 Implications for Research**

H1 stated that the level of knowledge of the risk of Covid-19 leads to preventive measures taken to reduce the risk of spread Covid-19. In this study, when viewed from the increasing number of positive Covid-19 increased, along with the Covid-19 risk communication carried out by the Government of Kediri; then people who have a level of knowledge about the risk of Covid-19 is high, the preventive measures taken to reduce the risk of spreading Covid-19. And vice versa, if the people who have the level of knowledge of the risk of Covid-19 is low, so the reduction measures are also low risks to the prevention of Covid- 19 carried out.

H2 stated that the age of the respondent is related to the precautions taken to reduce the risk of spreading Covid-19. On In this study, when viewed about the higher risk of old age, the higher the age community, the higher the preventive action taken. So as otherwise.

H3 stated that there is a correlation between the level of the knowledge of the risk of Covid-19 and age with Covid-19 preventive measures. Hence, the level of knowledge of the risk of Covid-19 and age can be used as variables that need both to be considered as coherent effort to trigger the implementation of preventive measures in breaking the chain of Covid-19 spreading

## **3 Methodology**

The research was explanatory and conducted quantitatively with positivism paradigm approach. The type of research is explanatory research, namely research that produce answers about the relationship between objects or variables [25]. According to Neuman [26] explanatory research aims to explain the emergence of social problems/phenomena. Primary data obtained from survey results to research respondents. Secondary data obtained from the results of the study literature, journals, news and research that has been done previously to strengthen theoretical basis and data related to research. In this study, the authors tested two variables, namely knowledge of Covid-19 risk and age with preventive measures in the form of implementing behaviour health protocols for the people of Kediri. Data were collected through questionnaire survey on the specified 100 samples. The sampling method utilized the Yamane formula [27] with 90% of confidence level. The sampling technique is non-probability sampling (incidental) with Likert-scale based questions (46 questions) that the researchers operationalise the variables into dimensions and indicators such as individual profile, source of information and type of media the respondents acquired risk information, knowledge of Covid-19 risk, age, and preventive actions that encompasses the W2P Movement. The data was statically analysed and interpreted with Pearson's Product Moment and the quality was tested by validity and reliability test.

## **4 Result and Discussion**

A strong positive correlation was identified between knowledge of risk of Covid-19 and preventive actions/measures (Pearson Correlation of 0.675 in Table 3) that shows the more

knowledge people have on Covid-19 risk, the more preventive they will be. However, when it comes to age, a weak correlation (Pearson Correlation of 0.175 in Table 4) was identified to preventive action, but yet has a positive value that means the higher the age is, the more preventive they will be too. In addition, there is a strong positive correlation identified as well between knowledge of risk of Covid-19 risk and age with preventive actions/measures (Pearson Correlation of 0.679 in Table 5). Below tables illustrate the results of statistical analyses carried out in this research. The validity test was carried out by statistical tests using the Pearson correlation technique. Each question item is declared valid if the value of  $r_{count} > r_{table}$  with level significance ( $\alpha$ ) 10%. This validity test uses 52 respondents. Hence, obtained  $n=52$ ,  $r = 0.1$ ,  $df$  (degree of freedom) = 50.

**Table 1.** The validy test of the question.

Variable	Question Item	R count	R Table	Validity
The knowledge of risk of Covid-19	1	0.701	0.2306	Valid
	2	0.640	0.2306	Valid
	3	0.672	0.2306	Valid
	4	0.755	0.2306	Valid
	5	0.807	0.2306	Valid
	6	0.462	0.2306	Valid
	7	0.671	0.2306	Valid
	8	0.660	0.2306	Valid
	9	0.670	0.2306	Valid
	10	0.578	0.2306	Valid
	11	0.715	0.2306	Valid
	12	0.722	0.2306	Valid
	13	0.543	0.2306	Valid
	14	0.521	0.2306	Valid
	15	0.616	0.2306	Valid
	16	0.701	0.2306	Valid
	17	0.328	0.2306	Valid
	18	0.763	0.2306	Valid
	19	0.525	0.2306	Valid
	20	0.314	0.2306	Valid
	21	0.695	0.2306	Valid
	22	0.710	0.2306	Valid
	23	0.686	0.2306	Valid
	24	0.655	0.2306	Valid
	25	0.630	0.2306	Valid
	26	0.484	0.2306	Valid
	27	0.514	0.2306	Valid
Preventive Actions/Measures (Implementation of Health Protocols W2P Movement)	28	0.449	0.2306	Valid
	29	0.446	0.2306	Valid
	30	0.568	0.2306	Valid
	31	0.589	0.2306	Valid
	32	0.701	0.2306	Valid
	33	0.547	0.2306	Valid
	34	0.739	0.2306	Valid
	35	0.744	0.2306	Valid
	36	0.730	0.2306	Valid
	37	0.571	0.2306	Valid

Variable	Question Item	R count	R Table	Validity
	38	0.535	0.2306	Valid
	39	0.771	0.2306	Valid
	40	0.811	0.2306	Valid
	41	0.818	0.2306	Valid
	42	0.670	0.2306	Valid
	43	0.791	0.2306	Valid
	44	0.630	0.2306	Valid
	45	0.858	0.2306	Valid
	46	0.832	0.2306	Valid

The reliability test is a data testing technique by looking at the Cronbach's Alpha value to find out how much the data can be trusted. It means that the data has no error during the measurement and sampling process. The reliability test carried out for this study was to look at the Alpha value of Cronbach. The Cronbach's Alpha value for the knowledge of risk of Covid-19 is 0.912 and 0.936 for preventive actions/measures (Implementation of Health Protocols W2P Movement). When the value is greater than 0.6 then this research data is declared reliable.

**Table 2.** The reliability test of the data used in the research.

Variable	Cronbach's Alpha
The knowledge of risk of Covid-19	0.912
Preventive Actions/Measures (Implementation of Health Protocols W2P Movement)	0.936

Table 3 presents the result of the correlation of the variable knowledge of risk of Covid-19 with preventive actions/measures (H1).

**Table 3.** The correlation result between variable knowledge of risk of Covid-19 with preventive measures.

		The knowledge of risk of Covid-19	Preventive Actions/Measures (Implementation of Health Protocols W2P Movement)
The knowledge of risk of Covid-19	Pearson Correlation	1	.675**
	Sig. (2-tailed)		.000
	N	100	100
Preventive Actions/Measures (Implementation of Health Protocols W2P Movement)	Pearson Correlation	.675**	1
	Sig. (2-tailed)	.000	
	N	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Based on the Table 3 above: The significance value is  $0.000 < 0.1$ . Hence it states that there is a correlation between the variables of knowledge of risk of Covid-19 and preventive measures.

It can be concluded that H1 in this study is accepted. The value of the correlation coefficient is known to be 0.675, which means it shows the close relationship between the variable of knowledge of risk of Covid-19 and the variable preventive measures are strongly related. The value of the correlation coefficient shows a positive value; hence it is interpreted that there is directional correlation, i.e., if knowledge of risk of Covid-19 is high then the preventive measures are also high.

Table 4 presents the result of correlation of variable age with preventive actions/measures (H2).

**Table 4.** The correlation result between variable age with preventive measures.

		Age	Preventive Actions/Measures (Implementation of Health Protocols W2P Movement)
Age	Pearson	1	.175
	Correlation		
	Sig. (2-tailed)		.081
	N	100	100
Preventive Actions/Measures (Implementation of Health Protocols W2P Movement)	Pearson	.175	1
	Correlation		
	Sig. (2-tailed)	.081	
	N	100	100

Based on the Table 4 above: The significance value is  $0.081 < 0.1$  Hence it states that there is a correlation between the variables age and preventive measures. It can be concluded that H2 in this study is accepted. The value of the correlation coefficient is known to be 0.175 which means it shows a weak relationship between the variables age variable and preventive measures. The value of the correlation coefficient shows a positive number; hence it is interpreted that there is a directional correlation, namely if the age is high then the prevention measures should also be high.

Table 5 presents the result of correlation of variable knowledge of risk of Covid-19 and variable age with preventive actions/measures (H3).

**Table 5.** The correlation result between variable knowledge of risk of Covid-19 and variable age with preventive measures.

R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df 1	df 2	Sig. F Change
.679 <sup>a</sup>	.461	.449	6.61321	.461	41.408	2	97	.000

Based on the Table 5 above: The probability value (Sig. F Change) is 0.000 which is  $< 0.1$ . Hence it can be concluded that the variable of knowledge of risk of Covid-19 and the variable of age are related simultaneously and significant with preventive measures. The value of the correlation coefficient is 0.679, hence it can be concluded that both the knowledge of risk of Covid-19 coupled with the age; together, are strongly correlated with preventive measures.

To sum up all the hypotheses were proven and accepted. The strong correlation between knowledge of Covid-19 risk and age with preventive measures reflected that when the risk communication of Government of Kediri would be succeeded, the risk information tailored to audience should trigger people to think and raise their awareness to finally decide in taking preventive actions of implementing the Health Protocols of W2P.

The approach of Social Amplification of Risk stated that there are two stages in the process risk communication, namely the transfer of information and response mechanisms. One of the stages What is important to understand before the response mechanism stage is how the media effect and the respondent's learning process occurs which is explained through the theory of media effects, Social Cultural Approach: Social Learning Theory. Researchers understand the risk communication strategy carried out by the Government of Kediri using the Social Amplification of Risk approach. Stage The first in this approach is the transfer of information. Based on research that conducted by the authors, respondents received messages of knowledge about Covid-19 risk from various sources, both from the media and from informal sources. Survey results shows 90% of respondents accessed or received risk knowledge messages through the media. The media used in accessing risk information include print, electronic media, digital media, and social media. Social media becomes media that most widely used by respondents that is equal to 74%. To see if the Covid-19 risk knowledge message communicated by the Government of Kediri accessed by respondents, research shows that the percentage of media to access Covid-19 risk information by the public, namely showed by 43% respondents accessed the Health Office's Instagram, 43% accessed the Task Force's website Covid-19 Kediri Regency and online news, as well as 37% accessing the official Instagram Communication and Information.

The view of Social Amplification of Risk according to Kasperson et al [15] regarding the stages of transfer of information from the risk communicator to the recipient information in communicating risk should follow three conditions, namely: conveying large amounts of information to reinforce risk messages, sources of information credible information, as well as strengthening risk knowledge information to amplify public fear. Of the three components, information strengthening risk knowledge to reinforce public fear needs to be designed to ensure that the four media platforms used in the risk communication strategy are prepared by the Government of Kediri can have an affective impact on the public. The information transfer stage has a big role in communication risk, according to Kasperson et al [15] the recipient of the risk message acts as a amplification station where at this stage the decoding and processing process occurs risk knowledge information. After the information transfer process carried out by the Government of Kediri, there is a process of internalizing risk information by each individual in the public. The results of this study indicate that research respondents have accessed and using risk communication media as a source of risk information. at this stage It is necessary to pay attention to the existence of a learning process, namely the cognitive effect of exposure to mass media as measured by looking at the audience's memory, their recognition or understanding [19]. The process when people are exposed to information through various media risk communication and how they learn the information as false one cognitive effect is explained through the Social Learning Theory. Social Learning theory is based on the idea that humans have the ability think and regulate behaviour. There are cognitive abilities in the thinking process and learning through social observation [20]. The process of which society are consuming media messages can be explained through attention, retention, reproduction, and

motivation are basically to ensure that society has access and be exposed to information about the risk of Covid-19; hence the cognitive, affective and behavioural effects may appear. The results of this study indicate that all research respondents have accessed and exposed to risk communication media, by using different or varied sources of information platforms. One of the basic assumptions of social learning theory is reciprocal determinism and humanism agency that stated that humans have control over thought processes and behaviour influenced by triadic reciprocal determinism. The first factor is the environmental factor, namely the influence of people around and the media. The results of this study show that in addition to 90% of respondents accessing information through the media, 44% Covid-19 risk information accessed through friends, 49% through family and 21% through colleagues. This shows that respondents are not only gain influence and knowledge about Covid-19 risks through formal media only, but also through informal media.

The second factor is personal factors including age, personality, and knowledge, in this case it concerns affective processes and cognitive processes. Age is one's internal factors that becomes one of the supporting factors in doing risk reduction action. In this study, it was found that there was a positive correlation between respondent's age and preventive measures, but the correlation level is weak. This means that age can be one of the supporting factors for someone to do preventive measures, followed by other supporting factors.

The third factor is the behavioural factor itself, which is influenced by several other factors. In this study, it was found that the behavioural action of implementing health protocols was a form of preventive measures for Covid-19 behavioural response at the individual level by implementing W2P, Wearing Masks, Washing Hands, and Physical Distance.

Results research also shows that most of the respondent's research has adopted preventive behaviour through risk communication by Government of Kediri, which is shown that 72.5% strongly agree to take appropriate action to use masks, 66.5% strongly agree or most perform appropriate hand washing actions, and 62.3% strongly agree or mostly take action to do physical distancing. As explained by Social Learning Theory, there are three factors might influence a person's behaviour, the environment that is seen from the media and people around, and personal factors that are seen from the level of knowledge of Covid-19 risks and age. While behavioural factors are seen from preventive measures, namely the application of the W2P health protocol, namely Wearing a mask, Mashing hands, and Physical distance.

Based on the results of observations and secondary data that have been validated, the authors found the factors that contribute to why the number of cases of Covid-19 continues to increase; even though the risk communication is carried out. According to Isfandiari [28] the factors that make the number of Covid-19 in East Java (including Kediri area) increased, even though there is a level obedience; persuasive steps taken by the government (risk communication) should be followed by firmness to make people more obedient. The second factor is weak government policies. Data from Isfandiari [28] shows that there is a restriction policy community mobility and social activities; but the reality on the ground is that there are no strict policies and enforcement of sanctions related to these restrictions. Policy in the provincial level must be harmonized at the city/district level because the pandemic does not recognize administrative boundaries. Homecoming culture on religious national holidays also plays a role in increasing mobility, which should be strictly limited and sanctions. This is in line with the Social Amplification of Risk approach that at the response mechanism stage, the risk behaviour is

influenced by the cultural, social, economic, and politics condition. Another factor is the lack of health facilities, including laboratories sizable and centralized checks in the provincial capital, as well as tests and tracking; although massive testing has been carried out; the number of Covid-19 testing in district level should be lower than the WHO standard.

Above mentioned factors therefore are the reasons on why the research results reflect a strong correlation between knowledge, age and preventive measures. These should indicate that the high knowledge of risk of Covid-19 accompanied by preventive measures that should be tailored across different age groups in Kediri, should be framed as risk communication by Government of Kediri to reduce the number of Covid-19 positive cases. Additionally, it is necessary to further identify cultural, social, economic, and political factors in terms of the Social Amplification of Risk communication approach and media effects relating to social and cultural aspects with Social Cultural Effect; not only based on the psychological approach of risk communication (cognitive judgments and affective judgments that trigger the desired action behaviour) only.

## **5 Conclusion**

It is concluded, based on the research results and hypotheses set earlier, at the beginning of the research, that between the knowledge of risk of Covid-19 with prevention measures are strongly correlated; but not as strong as when the knowledge of risk of Covid-19 coupled with the variable of age may definitely trigger the risk reduction behaviour of implementing prevention measures of health protocols (W2P Movement).

Only the variable of age could not trigger the risk reduction behaviour of preventive measures. This means that the Government of Kediri should provide sufficient information of the risk of Covid-19 and tailored those risk communication messages according to the different age groups in the community through different preferred media (media effects). However, from an academic/theoretical point of view, it is suggested that even when the above risk communication is properly designed; the Government of Kediri should also strongly consider in integrating the cultural, social, economic, and political conditions (Social Amplification of Risk approach and external factors) that may influence on how the risk communication messages are conveyed and perceived by the community of Kediri effectively.

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