CORRELATION OF KNOWLEDGE ABOUT COVID-19 POST-IMMUNIZATION ADVERSE EVENTS (PIAE) WITH MOTIVATION TO CARRY OUT VACCINATIONS

Theresia Anita Pramesti[1]*, Zainal Firdaus Wardhana[2]
[1]Bachelor Nursing of Study Program, STIKes Wira Medika Bali, Jl. Kecak No.9A, Tonja, Kec. Denpasar Utara, Kota Denpasar, Bali 80239, Indonesia
[2]Hospital Administration of Study Program, Universitas Bali Internasional, Gg. Jeruk, Tonja, Kec. Denpasar Timur, Kota Denpasar, Bali 80234, Indonesia
*loly.frutcy@gmail.com

ABSTRACT
The COVID-19 pandemic has lasted more than a year and is still not under control, marked by the high number of confirmed COVID-19 cases and the number of deaths. The handling of the pandemic is more focused on efforts to control transmission, one of which is by building herd immunity through the COVID-19 vaccination program. Along with the start of the vaccination program, problems arose regarding the number of hoaxes, especially regarding the Post-Immunization Adverse Events (PIAE) which raised doubts and public anxiety about being vaccinated. This study aims to determine the relationship between level of knowledge and motivation to carry out COVID-19 vaccination. This research is a descriptive correlational research with a sample of 81 people taken using purposive sampling technique. The results showed that the level of knowledge of the respondents was mostly in the adequate category, namely 43 respondents (53.1%), while the motivation of respondents in carrying out COVID-19 vaccination was mostly in the adequate category, namely 67 respondents (82.7%). Based on the results of the Spearman Rank test ($\alpha = 5\%$) obtained a p value of 0.001 with a correlation coefficient of 0.356, so it can be interpreted that there is a correlation between the respondent's level of knowledge about COVID-19 Post-Immunization Adverse Events (PIAE) with motivation to vaccinate against COVID-19 with a moderate correlation strength. A good level of knowledge can increase the positive and enthusiastic perception of the community so that it can also increase motivation in carrying out COVID-19 vaccinations.

Keywords: COVID-19 vaccine; knowledge; motivation; post-immunization adverse events (PIAE)

INTRODUCTION
The current Corona Virus Disease 2019 (COVID-19) pandemic in Indonesia is part of a disease pandemic caused by the severe acute respiratory syndrome 2 (SARS-CoV-2) corona virus that is ongoing worldwide. The World Health Organization (WHO) on January 30, 2020 declared a global emergency against the corona virus, this is because within approximately 2 months since this disease was confirmed, the first case of COVID-19 in Indonesia was confirmed on March 2, 2020, and only in a short period of time. In a short time, it has spread to 34 provinces in Indonesia. The number of positive confirmed cases of COVID-19 in Indonesia is increasing and has reached more than 1.5 million cases. The death rate due to this infection is also increasing and although the recovery rate is also high, many of the recovered

patients complain of other complaints after being declared cured of COVID-19 (Satgas Penanganan Covid-19, 2020).

The global COVID-19 pandemic has been going on for more than a year but has not shown a decrease in cases, even similar cases have emerged caused by the mutated corona virus. Data from Johns Hopkins University on January 23, 2020 shows that the total number of COVID-19 cases in the world is 97,855,365 cases with a death rate of 2,099,047 cases. The United States is the country with the highest number of cases, namely 24,694,145 cases then in second place is India with 10,625,428 cases, and in third place is Brazil with 8,697,368 cases, while Indonesia ranks 19th in the world (*Johns Hopkins University*, 2021Indonesia ranks first with the highest number of confirmed cases in Southeast Asia and in terms of mortality, Indonesia ranks third in Asia with 27,453 deaths. Data from the COVID-19 Task Force states that as of January 22, 2021, the number of confirmed cases of COVID-19 was 965,283 cases, 156,683 in treatment, 781,147 declared cured and the death toll was 27,453 deaths (Satgas Penanganan COVID-19, 2021). The development of the COVID-19 pandemic in Bali Province is still showing an increase with the total number of cases as of January 22, 2021 being 23,219 people, 19,633 recovered, and 620 deaths (Dinas Kesehatan Bali, 2021).

The handling of COVID-19 cases has so far been more focused on efforts to prevent transmission because there has not been found a drug that can overcome this viral infection. The Indonesian government has taken many actions to overcome the pandemic, one of which is by implementing a social restriction policy and implementing a new normal. At the beginning of 2021, Indonesia started the COVID-19 vaccination program as an effort to overcome the pandemic by establishing herd immunity so that the risk of being infected with COVID-19 with severe symptoms can be avoided. Along with the start of the vaccination program in Indonesia, problems arose regarding the enthusiasm of the community towards this program. The number of untrue news or hoaxes related to this vaccination program as well as the emergence of several cases related to the post-immunization follow-up (KIPI) of the COVID-19 vaccine, has forced the government to work harder to increase the positive response of the community as an effort to make the mass vaccination program a success.

At the beginning of the preparation for the vaccination program, an online survey was conducted which took place from 19 to 30 September 2020. More than 115,000 respondents from 34 provinces took part in the survey. Based on the results of the questionnaires given, around 65% of respondents said they were willing to accept the COVID-19 vaccine if provided by the government, while eight percent of them refused. The remaining 27% expressed doubts about the Government's plan to distribute the COVID-19 vaccine. Respondents expressed concerns about the safety and effectiveness of vaccines, expressed distrust of vaccines, and questioned the halalness of vaccines. The most common reasons for rejection of the COVID-19 vaccine were related to vaccine safety (30%); doubts about the effectiveness of the vaccine (22%); distrust of vaccines (13%); concern about side effects such as fever and pain (12%); and religious reasons (8%). Doubts arise from respondents who are afraid of needles and who have experienced side effects after being immunized. Several respondents questioned the vaccine clinical trial process and its safety. The reliability of vaccine providers is considered important and many have stated that they are willing to receive vaccines if Indonesia produces them (Satgas Penanganan Covid-19, 2020).

The COVID-19 vaccination program in Indonesia has been carried out and so far it has reached 12,457,164 people who have received the first vaccination, while the second vaccine has only reached 7,678485 people. Some news related to AEFI can indirectly lead to doubts and anxiety among the public about getting vaccinated. At this time there are still many

people who refuse to be vaccinated. The large number of respondents who do not believe that COVID-19 (SARS-CoV-2) is real or has the possibility to spread and threaten health, and the circulation of hoaxes that the pandemic is a product of public propaganda, has resulted in many people choosing to refuse or delay getting a COVID-19 vaccination. This phenomenon is a new challenge for the government which hopes to accelerate the occurrence of herd immunity in Indonesia (Kemenkes, ITAGI, UNICEF, & WHO, 2020).

Based on the explanation above, the researchers wanted to see if there was a relationship between knowledge related to post-immunization follow-up events (AEFI) and motivation to vaccinate against COVID-19. The choice of place in the Abiansemal 1 Primary Health Care work area because until now the number of positive cases of COVID-19 in the area is still number four in Badung district, with the total number of positive cases being 1,480 people, 42 people dying, 1,409 people recovering with 29 people still alive in care.

METHOD
This research is a descriptive correlational research with a cross-sectional design. The population in this study was the average number of people who visited the UPTD Puskesmas Abiansemal 1 for 1 month, namely 421 visits. The sample size in this study was 81 people who were taken using non-probability sampling, namely purposive sampling technique. Collecting data using a questionnaire that will previously be tested for validity and reliability. Data analysis using the Spearman Rank test with a 95% confidence level or =0.05 ($p < α$) was used to test the relationship between knowledge level and motivation to vaccinate COVID-19

RESULTS
The results of the study based on the characteristics of the subjects and research variables as well as the results of the analysis can be seen in the following tables:

Table 1
Characteristics of Respondents

No.	Characteristics	f	%
Gender			
1	Male	42	51.9
2	Famale	39	48.1
Age			
1	18-30 Years	46	56.8
2	31-40 Years	16	19.8
3	41-50 Years	15	18.5
4	51-60 Years	4	4.9
Education Level			
1	Elementary	2	2.5
2	Junior High School	2	2.5
3	High School	49	60.5
4	College	28	34.6
Job Status			
1	Work	49	60.5
2	Doesn't Work	32	39.5
Vaccination Status			
1	1st dose	62	76.5
2	Complete	19	23.5
How to Register			
1	Initiative	16	19.8
2	Collective	65	80.2

Based on table 1, it can be seen that the majority of respondents are male, as many as 42 respondents (51.9%), are in the age category 18-30 years, namely 46 respondents (56.8%), with high school education as many as 49 respondents (60.5%), have working status as many as 49 respondents (60.5%), have received COVID-19 vaccination dose 1 as many as 62 respondents (76.5%), and received COVID-19 vaccination by registering collectively as many as 65 respondents (80.2%).

Table 2
Level of Knowledge About COVID-19 Post-Immunization Adverse Events (PIAE) and Motivation to Carry Out Vaccination

No.	Variable	f	%
Level of Knowledge About COVID-19 Post-Immunization Adverse Events (PIAE)			
1	Good	28	34.6
2	Adequate	43	53.1
3	Low	10	12.3
Motivation to Carry Out Vaccination			
1	High	14	17.3
2	Adequate	67	82.7
3	Low	0	0.0

Based on table 2 above, it can be explained that the level of knowledge of respondents regarding Post-Immunization Adverse Events (AEFI) of COVID-19 vaccination is mostly in the sufficient category as many as 43 respondents (53.1%), and the motivation of respondents in carrying out COVID-19 vaccination is mostly in the moderate category as many as 67 respondents (82.7%).

Table 3
Analysis Correlation Of Knowledge About Covid-19 Post-Immunization Adverse Events (PIAE) With Motivation To Carry Out Vaccinations

No	Knowledge	Motivation						Total		P value	Correlation Coefficient
		High		Aduquate		Law					
		f	%	f	%	f	%	f	%		
1	Good	10	12.3	18	22.2	0	0	28	34.6		
2	Adequate	4	4.9	39	48.1	0	0	43	53.1	0,001	0,356
3	Low	0	0	10	12.3	0	0	10	12.3		
	Total	14	17.3	67	82.7	0	0	81	100		

Based on the results of the Spearman Rank test (α = 5%) obtained p value of 0.001 with a correlation coefficient of 0.356 so that it can be interpreted that there is a relationship between the level of knowledge of respondents related to post-immunization follow-up events (KIPI) of COVID-19 vaccination with motivation in carrying out COVID-19 vaccination with sufficient correlation strength.

DISCUSSION

At this time the world is trying to overcome the COVID-19 pandemic in various ways, one of which is through a vaccination program. Vaccines are biological products containing antigens which if given to humans will actively develop special immunity against certain diseases (Satgas Penanganan Covid-19, 2020). Various countries, including Indonesia, are developing vaccines that are very suitable for the prevention of SARS-CoV-2 infection on various platforms, namely attenuated virus vaccines, virus vector vaccines, nucleic acid vaccines, virus-like vaccines and protein sub-unit vaccines. The purpose of making a vaccine is to reduce the spread of COVID-19, reduce morbidity and mortality due to COVID-19, achieve group immunity and protect the community from COVID-19, so as to maintain social and economic productivity (KEMENKES RI, 2020).

In general, the purpose of giving vaccination or immunization is an effort to build a person's immunity against a disease, so that if one day he is exposed to the same disease he will not get sick or will only experience mild illness (Ritunga et al., 2021). Giving invasive measures such as inserting foreign objects into the body certainly causes a reaction to the body itself, as well as vaccinations that cause Post-Immunization/Vaccination Adverse Events (AEFI). Post-immunization follow-up events (AEFI) are medical events that are suspected to be related to immunization, which can be in the form of vaccine reactions, injection reactions, procedural errors, or coincidences until a causal relationship is determined (Indriyanti, 2021). Starting from symptoms of mild side effects to serious body reactions such as anaphylaxis (severe allergy) to the vaccine content. Some of these symptoms include: pain, redness, swelling at the injection site, other severe local reactions, such as cellulitis, fever, muscle aches throughout the body (myalgia), joint pain (arthralgia), weakness, headache, urticaria, edema, anaphylactic reactions, syncope (fainting).

According to Lawrence Green's Theory, there are 3 factors that influence a person's health behavior. A person's behavior in taking vaccinations based on the Lawrence Green Theory approach is influenced by 3 factors, including: predisposing factors, namely: attitudes, beliefs, knowledge, beliefs, values and norms, supporting factors (enabling factors), namely: the presence of health facilities , the accessibility of health facilities, health regulations, and health-related skills, and reinforcing factors, namely: family, teachers, peers, health workers, community leaders, and decision makers. The results showed that of 81 respondents, 28 respondents (34.6%) had a good level of knowledge related to post-immunization follow-up (AEFI) of COVID-19 vaccination, 43 respondents (53.1%) had sufficient knowledge, and 10 respondents (12.3 %) have a low level of knowledge.

According to Dewi and Wawan (2010), the factors that influence knowledge include internal factors, namely education, occupation, and age. Education is needed to get information, for example things that support health so that it can improve the quality of life. Education can affect a person, including a person's behavior regarding lifestyle, especially in motivating attitudes to participate in development in general, the higher a person's education, the easier it is to receive information. Based on table 1, it can be seen that the majority of respondents graduated from high school as many as 49 respondents (60.5%), this allows respondents to more easily absorb information in the community. The information related to the pandemic and the vaccination program they get can affect their level of knowledge. Age is an individual's age from birth to birthday. The more old enough, the level of maturity and strength of a person will be more mature in thinking and working. Based on the results of the study, most respondents were in the age category 18-30 years, as many as 46 respondents (56.8%). This age range is an adult age range so that it allows respondents to be more

selective in filtering information. Employment status also affects respondents in obtaining information. Based on the results of the study, the majority of respondents had working status as many as 49 respondents (60.5%). Respondents who work will find it easier to get information, either the effects of their work or because of their interactions with other people, thus enabling the exchange of information.

The pandemic situation and a new information related to vaccination can affect a person's perception of it, which in turn can affect the person's behavior in seeking information sources. The amount of information that cannot be justified or hoax can lead to distortion of cognition. Public perception of health and disease prevention is an important factor. A positive and enthusiastic perception of the COVID-19 vaccination program among the community is very much needed to support the increasing success of the vaccination program in the community. The results of the study related to the level of motivation showed that out of 81 respondents, 14 respondents (17.3%) had high motivation to vaccinate against COVID-19, and there were 67 respondents (82.7%) who had moderate motivation to vaccinate against COVID-19. According to Notoatmodjo (2012), there are several factors that influence motivation, namely knowledge, education and work. It is very important to increase knowledge related to vaccines and also post-immunization co-occurrence (AEFI) that can occur, it is very important to increase the positive perception and motivation of the community in carrying out COVID-19 vaccinations. Occupational factors can also affect the level of motivation of respondents in vaccinating. The island of Bali is very dependent on the tourism sector, so the effects of the pandemic greatly affect the work of its people, the majority of whom work in the tourism sector. The acceleration of the implementation of the vaccination program brings new hope to the community, they hope that the more people who have been vaccinated, the sooner tourists will come back to Bali.

Based on table 3, it can be explained that from 81 respondents there are 10 respondents (12.3%) who have a good level of knowledge about AEFI and high motivation to vaccinate against COVID-19, 39 respondents (48.1%) have a moderate level of knowledge about AEFI and moderate motivation to do so. COVID-19 vaccination, and 10 respondents (12.3%) had a low level of knowledge about AEFI and moderate motivation to vaccinate against COVID-19. Based on the results of the Rank Spearman test with a significance of 5% or ($\alpha = 0.05$) a p value of 0.001 with a correlation coefficient of 0.356 can be obtained so that it can be interpreted that there is a relationship between the level of knowledge of respondents related to post-immunization follow-up events (KIPI) of COVID-19 vaccination with motivation in carrying out COVID-19 vaccination with sufficient (moderate) correlation strength. The positive correlation coefficient value indicates that the higher the respondent's level of knowledge regarding the post-immunization co-occurrence (KIPI) of the COVID-19 vaccination, the higher the motivation of the respondent in carrying out the COVID-19 vaccination.

This is in line with research conducted by Sari and Syahrul (2014) showing the results that the variables associated with the act of HPV vaccination in adult women are the level of education, knowledge, and family support. The results of the study by Mukhoirotin and Effendi (2014) showed that there was an effect of health education on motivation for HPV vaccination with a p-value of 0.004 (p<α). It also shows that increased knowledge will affect the level of motivation to vaccinate.

Based on the integrated approach of the Lawrence Green and McCleleand models, it can also be explained that the knowledge factor is one of the factors related to people's motivational

motivation in carrying out COVID-19 vaccinations. This increase in knowledge is important to increase positive perceptions in the community so that public enthusiasm and motivation in the vaccination program increases. Increasing the number of people who have been completely vaccinated can speed up the process of herd immunity for COVID-19 and more quickly overcome the pandemic conditions that occur.

CONCLUSION
The results showed that the majority of respondents were male, as many as 42 respondents (51.9%), were in the age category 18 - 30 years, namely 46 respondents (56.8%), had high school graduate education as many as 49 respondents (60.5%), had status working as many as 49 respondents (60.5%), having received COVID-19 vaccination dose 1 as many as 62 respondents (76.5%), and getting COVID-19 vaccination by registering collectively as many as 65 respondents (80.2%). The results of the research related to variables showed that the level of knowledge of respondents related to Post-Immunization Adverse Events (AEFI) of COVID-19 vaccination was mostly in the sufficient category as many as 43 respondents (53.1%), and the motivation of respondents in carrying out COVID-19 vaccination was mostly in the moderate category as many as 67 respondents (82.7%).

Based on the results of the cross tabulation, it can be explained that from 81 respondents there are 10 respondents (12.3%) who have a good level of knowledge about AEFI and high motivation to vaccinate against COVID-19, 39 respondents (48.1%) have a moderate level of knowledge about AEFI and moderate motivation to vaccinated against COVID-19, and 10 respondents (12.3%) had a low level of knowledge about AEFI and moderate motivation to vaccinate against COVID-19. Based on the results of the Rank Spearman test with a significance of 5% or ($\alpha = 0.05$) a p value of 0.001 with a correlation coefficient of 0.356 can be obtained so that it can be interpreted that there is a relationship between the level of knowledge of respondents related to post-immunization follow-up events (KIPI) of COVID-19 vaccination with motivation in carrying out COVID-19 vaccination with sufficient (moderate) correlation strength. The positive correlation coefficient value indicates that the higher the respondent's level of knowledge regarding the post-immunization co-occurrence (KIPI) of the COVID-19 vaccination, the higher the motivation of the respondent in carrying out the COVID-19 vaccination.

REFERENCES
Dewi & Wawan. (2010). *Teori dan Pengukuran Pengetahuan, Sikap dan Perilaku Manusia*. Jakarta : Nuha Medika

Dinas Kesehatan Pemerintah Propinsi Bali. (2021). *Data Sebaran Kasus COVID-19.* Diakses pada website https://www.diskes.baliprov.go.id/ pada Jumat, 22 Januari 2021 pukul 02.00 Wita

Hidayat, A.A. (2009). *Metodelogi Penelitian Keperawatan dan Teknik Analisis Data*. Jakarta : Salemba Medika

Indriyanti, D. (2021). Persepsi Petugas Puskesmas terhadap Pelaksanaan Vaksinasi COVID-19 pada Era New Normal Perceptions of Public Health Center Officers on the Implementation of COVID-19 Vaccination in the New Normal Era. *Jurnal Inspirasi*

Johns Hopkins University. (2021). *COVID-19 Dashboard by The Center for Systems Science and Engineering (CSSE) at Johns Hopkins University*. Diakses pada website

https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6 pada Jumat, 22 Januari 2021 pukul 01.00 Wita

Mubarak, W., I., dkk. (2007). *Promosi Kesehatan.* Yogyakarta : Graha Ilmu

Notoatmodjo, S. (2014). *Ilmu Perilaku kesehatan*. Jakarta : Rineka Cipta.

Nursalam. (2013). *Metode Penelitian Ilmu Keperawatan Pendekatan Praktis*. 3th ed. Jakarta : Salemba Medika

Ritunga, I., Lestari, S. H., Santoso, J. L., Effendy, L. V., Charles, S., Tua, P., … Nurhadi, S. (2021). Penguatan Program Vaksinasi COVID-19 Di Wilayah Puskesmas Made Surabaya Barat. *Jurnal ABDINUS: Jurnal Pengabdian Nusantara.*

Satgas Penanganan COVID-19. *(*2020)*. Situasi Virus COVID-19 di Indonesia.* Diakses pada website https://kawalcovid19.id/ pada Jumat, 22 Januari 2021 pukul 10.00 Wita

Satgas Penanganan COVID-19. *(*2021)*. Kawal informasi seputar COVID-19 secara tepat dan akurat.* Diakses pada website https://kawalcovid19.id/ pada Jumat, 22 Januari 2021 pukul 10.00 Wita

Sugiyono. (2016). *Metodelogi Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung : CV Alfabeta

WHO. (2021). *Dasar-dasar Pengamanan Vaksin – Pelatihan melalui Elektronik*. Diakses pada website https://in.vaccine-safety-training.org/how-vaccines-work.html pada Sabtu, 23 Januari 2021 pukul 11.00 Wita

WHO. (2021). *WHO Coronavirus Disease (COVID-19) Dashboard.* Diakses pada website https://covid19.who.int/ pada Jumat, 22 Januari 2021 pukul 04.00 Wita.