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Differences in elderly stress levels before Covid-19 vaccination: History of exposure to Covid-19 reduces stress before vaccination

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\textbf{Background:} The Covid-19 pandemic requires the government to take various prevention and countermeasures, one of which is the Covid-19 Vaccination program, however, the program experiences a high dropout at various doses and causes immunization stress related response (ISRR), especially in the elderly. The research aims to determine differences in the stress levels of the elderly before the covid-19 vaccination.

\textbf{Methods:} Descriptive study with the elderly population who will take vaccinations at the Bojong Purbalingga Health Center. Sampling used random sampling, the inclusion criteria were \(45-79\) years old, with a total sample of 90 respondents. Research instruments developed by research, relating to vaccination containing cognitive responses (such as difficulty concentrating), physiological responses (such as shortness of breath, dry lips) feelings of fear, anxiety, trust in vaccination. Data were analyzed descriptively with percentages and proportions.

\textbf{Results:} The results showed that the most moderate stress levels were middle age (22.2%), women 33.3% had higher stress levels than men (10%), the highest vaccination coverage was 26.7% at a distance of 1–2 KM. The level of stress is in the moderate category 33.3% in the elderly who have never been exposed to Covid-19 and 10% in the elderly who have been exposed. Non-family health workers, 36.7% higher than families of health workers (6.7%).

\textbf{Conclusion:} Stress levels before vaccination are higher in the elderly who have never been exposed to Covid-19, compared to those who have been exposed to Covid-19. The need for family assistance to prepare for vaccination in the elderly.

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Diferencias en los niveles de estrés de los ancianos antes de la vacunación contra el covid-19: el historial de exposición al covid-19 reduce el estrés antes de la vacunación.

R E S U M E N

Antecedentes: La pandemia de Covid-19 requiere que el gobierno tome varias medidas de prevención y contramedidas, una de las cuales es el programa de vacunación de Covid-19, sin embargo, el programa experimenta una alta deserción en varias dosis y provoca una respuesta relacionada con el estrés de la inmunización, especialmente en el anciano. Die Forschung zielt darauf ab, Unterschiede im Stresslevel älterer Menschen vor der Covid-19-Impfung festzustellen.

Métodos: Estudio descriptivo con la población adulta mayor que se vacunarán en el Centro de Salud de Bojong Purbalingga. El muestreo utilizó un muestreo aleatorizado, los criterios de inclusión fueron de 45 a 79 años, con una muestra total de 90 encuestados. Instrumentos de investigación desarrollados por la investigación, relacionados con la vacunación que contienen respuestas cognitivas (como dificultad para concentrarse), respuestas fisiológicas (como dificultad para respirar, labios secos) sentimientos de miedo, ansiedad, confianza en la vacunación. Los datos fueron analizados descriptivamente con porcentajes y proporciones.

Resultados: Los resultados mostraron que los niveles de estrés más moderados fueron la mediana edad (22,2%), las mujeres 33,3% presentaron niveles de estrés más altos que los hombres (10%), la mayor cobertura de vacunación fue 26,7% a una distancia de 1-2 KM. El nivel de estrés está en la categoría moderado 33,3% en ancianos que nunca han estado expuestos al Covid-19 y 10% en ancianos que han estado expuestos. Trabajadores de la salud no familiares, 36,7% superior a los familiares de los trabajadores de la salud (6,7%).

Conclusión: Los niveles de estrés antes de la vacunación son mayores en los adultos mayores que nunca han estado expuestos a Covid-19, en comparación con aquellos que han estado expuestos a Covid-19. La necesidad de asistencia familiar para preparar la vacunación en los ancianos.

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Introduction

The coronavirus (Covid-19) epidemic first occurred in China at the end of 2019, developed into a pandemic and almost the entire world reported cases in each of their respective countries. The Covid-19 outbreak was initially possible due to exposure to the same and common sources, including mobilization abroad, mobilization to areas with a high incidence of Covid-19, the second cause due to massive person-to-person transmission. Transmission can occur due to touch, crowds in activities, etc., it is estimated that there are two types of causes of outbreaks (common source and propagated source) involved. Various efforts were made by the government to suppress the development of Covid-19, one of which was through the vaccination program. However, this program has many obstacles as evidenced by the dropout between dose 1 (30.45%) and dose 2 (16.69%). Data on vaccination coverage in Indonesia from dose 1 is 204,600,057 (87.19%), dose 2 is 171,211,122 (72.96%), dose 3 is 63,629,385 (27.11%), dose 4 is 622,180 (42.36%). Based on this data, it shows that there is vaccination coverage for each dose. The same thing happened in the elderly group on vaccination Dose 1: 18,408,494 (85.41%), dose 2: 14,891,890 (69.09%) and dose 3: 6,731,099 (31.23%). The low vaccination coverage is a problem in itself, because we all understand that there are great benefits from vaccination to prevent symptoms of COVID-19 and further protection in the event of more severe cases of COVID-19. The results of previous studies concluded that several factors affect public acceptance of vaccination, including the many types of new vaccines and doubts about the reliability of the manufacturers, therefore it is necessary to provide easy vaccination service facilities and official recommendations from the government. COVID-19 vaccination has become a social norm and the importance of official information and intensive communication about vaccinations from the government so that people do not hesitate to join the vaccination program. Data on vaccination coverage in Central Java for the elderly from dose 1 was 3,037,727 (82.51%), Dose 2 was: 2,519,478 (68.44%), dose 3 was:1,102,060 (29.94%). The dropout, one of which is from the elderly group, especially in the elderly who are comorbid and Covid-19 survivors, some cases are delayed. In addition to comorbid factors and a history of exposure to covid-19, the elderly are vulnerable so they are at risk of being affected by immunization stress related response (ISRR). The incidence of anxiety and stress in the elderly ahead of the vaccine, also occurs in several other countries such as the UK and Turkey and it is one of the factors hindering vaccine acceptance. Vaccine anxiety and hesitation are related to negative perceptions and
distrust and various conspiracies or negative support from various parties. In this study we answered two questions:

1. What are the characteristics of the elderly who participate in the covid-19 vaccination program.
2. How are the stress levels of the elderly different before the covid-19 vaccination.

**Material & Methods**

Observational research with the elderly study population who will be vaccinating against Covid-19 in the working area of the Bojong Purbalingga Public Health Center, Central Java. Sampling using random sampling, inclusion criteria age 45–79, with a total sample of 90 respondents. The project team obtained written informed consent from respondents. The research instrument used a questionnaire with questions about the distance to the vaccination location, history of being exposed to Covid-19, transportation to the vaccination site, the presence of family as health workers and stress levels. The stress level questionnaire was adopted from various disorders containing cognitive responses (such as difficulty concentrating), physiological responses (such as shortness of breath, dry lips, excessive sweating), feelings of fear, anxiety, trust in vaccination. The instrument has been validated with a validation value between 0.50–0.92. Data were analyzed descriptively with percentages.

**Results**

Based on the Covid-19 vaccination data in Fig. 1, data from January to June 2021 results in fluctuations in vaccination coverage, this is due to the early stages of vaccination activities during the pandemic, so there are not many vaccines available, and priority is still on health workers and public servant. Table 1 shows that most of them are 45–55 years old (47.8%), 23.3% of respondents had been exposed to Covid-19, 18.9% came from families of health workers. 64.4%, transportation to the vaccination site is by motorbike with a distance of 61.1% 1–2 KM. The stress level before vaccination was mostly in the mild category (51.1%).

![Figure 1 - Vaccination Achievements January-June 2021.](image-url)
The provision of this vaccine is a form of support for the provision of vaccines and the implementation of Covid-19, both through economic recovery strategies and increased ultra-TnI and D-Dimer. Early diagnostic and supportive care are essential for elderly patients.

The results showed that the stress level in women was higher than men. Men and women are very different in responding to stress. Women will easily experience stress because women are more sensitive to a response. Women’s brains have a negative response to conflict and stress, in women conflict triggers negative hormones causing stress, anxiety, and fear. The same thing was concluded from the results of the study that gender differences were associated with side effects of vaccination and the percentage was more reported by women. Most of the reported AE (Adverse Events) occur within 1 week after the first dose. The affordability of vaccination is very good, with the highest percentage being 1-2 KM from health facilities that serve vaccinations, it is aimed at the number of respondents with the closest distance, it will accelerate the vaccination program to create herd immunity. In accordance with PERMENKES No. 10 of 2021, the central government distributes vaccines to local governments which are then forwarded to health care facilities. Various ease of vaccination, but not everyone is willing to be vaccinated shows the understanding of the public who are still doubtful about the effectiveness of vaccines in preventing the corona virus, this is as the results of research which concludes that there are doubts and vaccine rejection of several types of vaccines. The same results were concluded from the UK National Health Service’s study, showing 18.4% refused vaccination and 10% doubted the effectiveness of Covid-19 vaccination. The importance of building communication with the community by providing correct information about the Covid-19 vaccine, can reduce doubts and people’s refusal to be vaccinated.

Based on the analysis of the difference in proportions, it was found that respondents with a history of being exposed to Covid-19 or not having a history of being exposed to Covid-19 had the same stress when they were about to be vaccinated. This is due to the bad stigma of the covid vaccine circulating in the community. Fear, anxiety, and the abundance of
information through social media, not all of which can be trusted, have created a negative stigma for people associated with Covid-19, both Covid-19 patients, Covid-19 suspects, history of Covid-19 patients, and others. Health workers who treat Covid-19 patients. This is supported by the side effects of the vaccine, while the side effects felt when the vaccine was administered were nausea, cramps and even frequent drowsiness. The seriousness felt when the vaccine was known to not exist, only some informants said that if there were side effects, and there were concerns that if the vaccine had been vaccinated, it was possible that they could still get the Covid-19 virus. This is due to the transmission model of the Covid-19 virus, so even after being vaccinated, having contact with a person infected with SARS-CoV-2 substantially increases the likelihood of a positive test result for SARS-CoV-2. Even though it has been vaccinated, it is hoped that the community will continue to maintain the process because the spread of this virus is so massive, especially in people with comorbidities. The results of the study show that diabetes and hypertension are the main comorbidities that pose a risk of death in Covid-19 patients. Another study concluded that people who were not vaccinated or only partially vaccinated were more at risk of transmitting the SARS-CoV-2 virus compared to people who were fully vaccinated. The results of the study show that the incidence of stress experienced by the elderly in families who have members as health workers, although the percentage is lower than those who do not have family members of health workers, this is as the results of previous studies which concluded that anxiety is not only felt by the community, but also experienced all health workers such as doctors, nurses, midwives and other health professionals. The psychological response experienced by health workers to this infectious disease pandemic is increasing due to feelings of anxiety about their own health and the spread to their families. In addition, there are still health professions that reject valuations, in the country of Lebanon, 18% of Health workers refuse vaccination. To reduce the stress response, it is necessary to assess the feasibility of the vaccine. This is because the vaccines used are relatively new and to ensure patient safety is maintained. Assessment of a person’s health condition through screening medical history with anamnesis/interviews can screen for conditions that are not eligible for vaccines, for example someone who has comorbid hypertension or uncontrolled diabetes mellitus is not allowed to receive vaccines for patient safety. Limitations in this study, some of the respondents were exposed to Covid-19 and had families of health workers, so that it more or less affected readiness in Covid-19 vaccination activities. Further research needs to be carried out interventions in relaxation techniques ahead of vaccination, especially in advanced vaccination doses, so that the incidence of stress in the elderly can be minimized.

Conclusions

The results showed that the level of stress in the moderate category was at most in middle age by 22.2%, women 33.3% had higher stress levels than men (10%), vaccination coverage was at moderate stress levels, the highest was 26.7%, at a distance of 1–2 km. The stress level was 33.3% higher in the elderly who had never been exposed to Covid-19, compared to those who had a history of being exposed to Covid-19 (10%). Non-family health workers, 36.7% higher than families of health workers (6.7%). There is a difference in the proportion of stress levels in the elderly on the variables of age, gender, distance from the vaccine site, history of exposure to Covid-19 and family of health workers. The need for family assistance to prepare for vaccination in the elderly, besides that Health Officers are expected to provide clear information before vaccination activities, especially for the elderly to reduce stress levels.

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Authors’ contributions

The author made substantial contributions to the conception and design of the study. The author took responsibility for data analysis, interpretation and discussion of results. The author read and approved the final manuscript.

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Availability of data and materials

All data are available from the author.

Competing interests

The author declares no competing interest.
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