

## Correlation of Anxiety Levels in Pandemic Due to Compliance in Hypertension Treatment

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### Abstract

**Background:** Hypertension in Indonesia increases with age. People with hypertension need continuous treatments according to doctor's recommendation, if not it will cause serious complications. Medication non-adherence of hypertensive elderly caused by many factor, one of them is psychological factor. Health care visits decrease during pandemic because of the COVID-19 transmission anxiety.

**Aim:** To find out the correlation between anxiety level and medical adherence of hypertensive elderly in Kangkung Village, Mranggen during the COVID-19 pandemic.

**Methods:** The design of this study is Cross-sectional with Proportional Random Sampling approach to 96 hypertensive elderly in Kangkung, Mranggen, Demak Regency. The study was conducted by interview using Zung Self-rating Anxiety Scale and Morisky Medhical Adherence Questionnaire. Data analysis using Rank Spearman correlation test. This study has got Ethical Clearance from Health Research Ethics Committee of Faculty of Medicine of Diponegoro University.

**Results:** There is a correlation between anxiety level and medical adherence, p value = 0,005 ( $p < 0,01$ ) and the higher anxiety level will decrease the medical adherence ( $r = -0,287$ ).

**Conclusions:** Anxiety that are experienced by the elderly with hypertension correlate to their non-adherence to get its medication.

**Keywords:** Elderly; Hypertension; Anxiety; Adherence; COVID-19

### Introduction

Increasing the quality of health service and change to healthier lifestyle will lead to a rise in life expectancy of the population. This will lead to an incline in the number of senior age citizens in all around the world, including Indonesia. According to Statistics Indonesia, in 2020, senior age citizen comprises of 10.7% and is predicted to keep surging [1]. Senior age is the last stage in human life, where physiological function of the body declines. This decrease in function may create various health problems, such as hypertension [2,3].

Hypertension is the condition where blood pressure is above normal rate ( $>130/80$  mmHg) [4]. This condition is a "silent killer", where the symptoms that appear are rather diverse and often are not related and dependent on blood pressure levels. Common symptoms of severe hypertension that may appear are headaches, anxiety, heart pounding, nausea, blurry vision, chest pain, and fatigue [5].

Based on 2018 Indonesian Basic Health Research (Riskesdas), hypertension patients in Indonesia reached 34.11%, with the highest proportion found in age group of 45-75 year old and increases with age [6]. In Central Java, the prevalence of hypertension reaches

37.5% or 8,070,378 patients, with prevalence in males to be more common than females [7]. In Demak Regency, Central Java, there are 309,697 patients. However, only 27.5% checks up regularly to health facilities. Hypertension in Mranggen I Primary Health Care, is the third highest level in Demak Regency with 15,599 patients [8]. Kangkung Village, which is one of the villages under Mranggen I Primary Health Care, has a population of 7,488, with 11.1% of them are senior citizens. Hypertension (57%), joint disorders (40%), anemia (30%), and cataract (15%) are the most common diseases suffered by seniors in that area [3].

Hypertension requires constant medication per doctor's order. If not obeyed, it may cause serious complications, such as congestive heart failure, stroke, vision disorders, renal disease, even death [9-11]. Disobedience in medication are caused by internal and external factors, for instance socio-demographic, healthcare system, medication, perception of patient, knowledge, and psychology of patient [12]. Several prior studies explained that depression and anxiety can cause someone to be disobedient in anti-hypertension medication [13-18].

Anxiety is a subjective feeling which covers uneasiness, discomfort, and fear that may disrupt and inhibit activities, including health. During the COVID-19 pandemic, senior citizens visitation to health facilities decreases from 66% in 2019 to 51% in 2020 [19,20]. This is caused by fear and anxiety from senior citizens of contracting COVID-19 [21].

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was found first in Wuhan, China, in December 2019. It then spread fast throughout the world, which prompted WHO to label it as a pandemic. SARS-CoV-2 spreads from human to human through droplets and infects respiratory tract which causes Coronavirus Disease 2019 (COVID-19) [22].

Hypertension and senior age are conditions that become COVID-19 comorbid, which in turn increases the severity degree and mortality rate. COVID-19 pandemic that has been around for the past year damages the everyday life of the society. Massive disasters like this are prone to cause mental disorders, such as Post Traumatic Stress Disorder (PTSD), increase in anxiety, and other disorders [23].

Information on the high death rate due to COVID-19, increase in daily cases, and spread of false news induces fear and anxiety

that worsen the psychological condition of the society, including seniors who has chronic disease such as hypertension. In theory, psychological factor may have a role in the decrease of medical adherence of seniors with hypertension to healthcare facilities, which prompts the urgency of this research to answer the question: does anxiety in seniors with hypertension during COVID-19 pandemic relate to the degree of medical adherence?

## Methods

This research is a cross-sectional study that is conducted on July 2021 to senior citizens with hypertension in Kangkung, Mranggen, Demak Regency. Choosing of the samples are done through proportional random sampling from three regions in Kangkung Village. This research is done through direct interview with senior citizens with hypertension who has signed informed consent and fulfils inclusion criteria using Zung Self-rating Anxiety Scale to evaluate anxiety and Morisky Medical Adherence Questionnaire to evaluate medical adherence.

Inclusion criteria of this study are senior citizens with the age of  $\geq 60$  years old who has hypertension that is recorded in Mranggen I Puskesmas, able to do daily activities, and under anti-hypertension therapy. Exclusion criteria of this study are seniors who consume psychiatric drugs and seniors that are diagnosed with mental disorders.

## Results

This research includes 96 seniors with hypertension in Kangkung, Mranggen, Demak Regency, with the characteristics as follows.

## Discussions

There is a relationship between anxiety during COVID-19 pandemic with medical adherence of seniors with hypertension, where  $p < 0.01$ . This cross-tabulation result shows that patients with high anxiety level tend to be less adherent and patients with low anxiety level tend to be more adherent. Power of this relationship is on weak category with correlation category number  $\rho = -0,287$ . Direction of the relationship of these variables are inversely proportionate.

Variable	Mean ± SD	Min - Max
Age	70,06 ± 0,734	60 - 87
Duration of Hypertension	4,57 ± 0,33	1 - 17
Distance to Healthcare Facility	3,12 ± 1,92	0,6 - 8
Variable	F	%
Sex		
Male	40	41,7
Female	56	58,3
Go To Healthcare Facility Alone		
Yes	55	57,3
No	41	42,7
Types of Facility		
Primary Health Care	12	12,5
Privat Clinic	20	20,8
General Practitioner	25	26
Elderly Integrated Center	39	40,6
Lives Alone		
Yes	22	22,9
No	74	77,1
Anxiety Level		
Normal/Not Anxious	10	10,4
Mild	47	49
Moderate	39	40,6
Severe	0	0
Adherence Level		
Not Adherent	35	36,5
Low Adherence	41	42,7
High Adherence	20	20,8

Table 1: Characteristics of Sample.

Anxiety is a physiological reaction towards a situation that may impose a threat to life. Anxiety symptoms may appear individually or with other symptoms of emotional disorders. Anxiety symptoms covers affective and somatic symptoms, including symptoms on musculoskeletal, cardiovascular, respiration, gastro-intestinal, genitourinary, dermal, and central nervous systems [24]. This is in line with what majority of the respondents feel, which are fainting, feeling of down and destroyed, nightmares, and hot flashes.

Results show that there are 10.4% seniors who does not feel anxious and, according to direct interviews, do not think that COVID-19 is real. Perception is a cognitive process to translate stimulus accepted and is subjective, depending on the condition and ability of someone to process it [25]. This causes a stimulus to be translated differently across each person [26]. The perception of someone towards a disease that is not felt or threaten their lives will not cause anxiety to them [27]. The wrong perception towards the dangers or threats of a disease, the damage it could cause, and the benefits of preventing it will cause someone to not feel anxious, hence no changes in habits are made [28]. Mislead perception of a disease may be influenced by the lack of information and knowledge obtained. Some respondents did not feel anxious because they have obtained information and did prevention attempts regarding COVID-19. Constant exposure to information will increase understanding and prevention attempts towards a disease, which will lead to a decrease in anxiety [29].

Anxiety in seniors are caused from fear of contracting COVID-19. Anxiety usually appears when seniors heard information about the death rate due to COVID-19 and COVID-19 infection rate that keeps rising. Besides that, seniors who know that they are more susceptible to infection become more anxious whenever they need to go outside, especially to a crowded place, such as healthcare facility. This is in line with other studies which stated that an increase in COVID-19 cases created anxiety to themselves due to susceptibility and easy exposure of COVID-19 infection [30-32].

This study shows that majority of seniors have a low adherence level (42.7%) and not adherent (36.5%). Medical adherence is a positive behaviour shown to help cater therapeutic aims, where patients willingly follow clinical advice from doctors who took care of them [12,33]. Factors that influence medical adherence are sustainability perception, signs of taking medicines, severity

Variable	Medical Adherence Degree						p
	Not Adherent		Low Adherence		High Adherence		
	N	%	N	%	N	%	
Anxiety Levels							0,005
Normal/None	0	0	2	20	8	80	
Low Anxiety	18	38,3	22	46,8	7	14,9	
High Anxiety	17	43,6	17	43,6	5	12,8	

Table 2: Relationship of Anxiety Levels with Medical Adherence Degree.

perception, benefits perception, and inhibition perception [34]. In this study, disobedience happens due to seniors feeling scared to go to healthcare facilities because they believe that they may contract COVID-19 there. Based on several research, one of the places that has a potential for someone to contract COVID-19 is healthcare facilities, both hospitals and Puskesmas [35,36]. Fear of coming to healthcare facilities results in the decrease of medical adherence in seniors.

Respondent in this study also does not suffer from any symptoms (severity perception) which resulted in them not going on medical treatments and made them forget to check-up regularly. Severity perception is the perception of someone towards how severe their disease is, including clinical condition due to the illness and its social consequences. When someone thought that an illness as something that is not serious, that person will not undergo prevention nor curative measures [26,37].

Patients with anxiety has a relation with the decrease of medical adherence caused by the perception that they are unable to do certain things, such as adhering to a medication attempt [12]. This is also stated by several researchers who found that constant psychological pressure (anxiety) of someone contributed on their decrease in medical adherence [17,38]. Anxiety are reported to decrease someone's ability to adhere to doctor's orders on an ongoing treatment [39].

Limitation of this research is that it was only done through a certain duration (cross-sectional). Hence, a thorough investigation to evaluate adherence level cannot be done maximally. It is suggested that future research may use cohort method to follow a group from the start of a medication into a certain timeframe. Factors that may influence adherence, besides anxiety, could also be studied, such as individual, socio-demographic, and other psychological factors.

## Conclusion

Based on the study conducted, there is a correlation between level of anxiety to compliance in hypertension treatment. Elderly with hypertension tend to delay visiting Primary Health Care to get the medication because of pandemic situation.

## Ethical Approval

This study is approved ethically by Health Research Ethics Committee of Faculty of Medicine of Diponegoro University with the certificate number of 198/EC/KEPK/FK-UNDIP/VI/2021.

## Conflict of Interest

There is no conflict of interest related to the materials, methods, and findings in this study.

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## Author of Contributions

Conceptualization, Haidar Yusuf Affandy; methodology, Haidar Yusuf Affandy, Ari Budi Himawan, Natalia Dewi Wardani; software, Haidar Yusuf Affandy; writing—original draft preparation, Haidar Yusuf Affandy; writing—review and editing, Ari Budi Himawan, Natalia Dewi Wardani, Aras Utami; supervision, Ari Budi Himawan, Natalia Dewi Wardani, Aras Utami.

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