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Research article

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### Association of the mental well-being index and blood pressure in grade IV employees

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#### ABSTRACT

##### Introduction

The World Health Organization- Five Well-Being Index (WHO-5) is a valid self-administered measure to assess the mental well-being of an individual. It was reported that mental well-being was associated with decrease in the risk of cardio vascular diseases.

##### Objective

The present study was undertaken to observe the Association of the mental well-being and Blood Pressure in Grade IV Employees.

##### Methodology

Thirty male and female grade IV employees were included in the study after obtaining written informed consent. The World Health Organization- Five Well-Being Index (WHO-5) was used to assess the mental well-being. Blood pressure was recorded using digital sphygmomanometer. Data was analyzed using SPSS 20.0. Pearson correlation coefficient was used to observe the association between the variables. Data was presented as mean and SEM.

##### Results

The mean age of the participants is  $43.47 \pm 1.80$  (Mean  $\pm$  SEM). The value of R is -0.3823 for association of mental well-being and systolic blood pressure. This indicates a negative correlation, between the variables. The value of  $R^2$ ,

the coefficient of determination, is 0.1462. The value of R is -0.2198 for association between association of mental well-being and diastolic blood pressure. This indicates a negative correlation, the relationship between the variables. The value of  $R^2$ , the coefficient of determination, is 0.0483.

### Conclusion

There was negative correlation between the mental well-being and blood pressure. We recommend further detailed studies in this area to understand the association and to plan better management methods for mental well-being of the general population.

**Keywords:** Mentalwell-being; Blood pressure.

## INTRODUCTION

The World Health Organization- Five Well-Being Index (WHO-5) is a valid self-administered measure to assess the mental well-being of an individual. It was reported that mental well-being was associated with decrease in the risk of cardiovascular diseases. Hypertension was reported to be the major cause for deaths globally.[1,2] The patients effected by hypertension experience more negative emotions which leads to development of mental health diseases like depression. [4,5] Most of the times the psychological parameters are not considered when treatment is offering to these hypertensive patients. So, most of the times the depression was undiagnosed in these patients. [6, 7] A depressed patient will remain depressed throughout his life time if not managed properly. Earlier studies reported that anxiety was associated with hypertension and individuals with high levels of anxiety are at risk of hypertension.[8-10] Stress also causes repeated increased blood pressure and leads to hypertension.[11] During stress, there is increase in the secretion of epinephrine which causes vasoconstriction and elevates the blood pressure through increasing the peripheral resistance. Hence it is need of time to consider assessment of the psychological parameters and plan the management methods accordingly.

## METHODOLOGY

**Study design:** Cross-sectional study

**Study setting:** The present study was conducted at Department of Physiology, Vishnu Dental College, Bhimavaram.

### Study population

Thirty apparently healthy male and female grade IV employees were included in the study after obtaining written informed consent. Participants with any serious diseases or under any

treatment and unwilling participants were excluded from the study.

### Assessment of wellbeing

The World Health Organization- Five Well-Being Index (WHO-5) was used to assess the mental well-being. This is a standard questionnaire to assess the mental well-being. This questionnaire was available in thirty languages. The questionnaire comprises of five questions. The participants are requested to respond to the questions on a six point scale.

### Assessment of blood pressure

Blood pressure was recorded from right hand using JSB fully automatic upper arm style Blood Pressure Monitor (Model: DBP05 digital arm BP monitor).

### Ethical consideration

The study was approved by the Scientific Review Board of Vishnu Dental College, Bhimavaram. Written informed consent was obtained from all the participants after explaining the need of the study and clarifying their doubts. Confidentiality of the data was ensured.

### Data analysis

Data was analyzed using SPSS 20.0. Pearson correlation coefficient was used to observe the association between the variables. Data was presented as mean and SEM.

## RESULTS

The mean age of the participants is  $43.47 \pm 1.80$  (Mean  $\pm$  SEM). The value of R is -0.3823 for association of mental well-being and systolic blood pressure. This indicates a negative correlation, between the variables. The value of  $R^2$ , the coefficient of determination, is 0.1462. The value of R is -0.2198 for association between association of mental well-being and diastolic blood pressure.

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**Table no 1: Association of The World Health Organization- five well-being index (who-5) and blood pressure**

Parameter	Mean $\pm$ SEM	WHO-5	R	$R^2$
Systolic Blood pressure (mm Hg)	119.77 $\pm$ 1.95	61.50 $\pm$ 3.07	-0.3823	0.1462
Diastolic Blood pressure (mm Hg)	77.53 $\pm$ 1.65		-0.2198	0.0483

(Data was presented as mean and SEM)

## DISCUSSION

The present study aimed to observe the correlation between the mental well-being and the blood pressure. There was negative correlation between the mental wellbeing and blood pressure. That indicates that disrupted mental well-being leads to rise in the blood pressure and risk of hypertension. Hypertension is one of the life style diseases by which majority of the population are suffering with. Earlier studies reported that the negative emotions like anxiety, depression may leads to hypertension if not adequately managed. The studies are required to establish the relationship between the mental well-being and blood pressure, as existing studies have different types of results. Some studies reported positive correlation, where some reported no correlation and some reported negative correlation. [12-15] Another study reported that the hypertension was associated with anxiety and there was no association between the depression and blood pressure.[16] In the current study, there was negative correlation between the mental-wellbeing and blood pressure. One of the possible reasons for these conflicting results in different studies may be due to regional variations. However, it is the need of time to conduct large scale studies in this area as

hypertension is a risk factor for many cardio vascular diseases. Studies suggested that assessment of psychological measures is needed in routine clinical practice.

## CONCLUSION

There was negative correlation between the mental well-being and blood pressure. We recommend further detailed studies in this area to understand the association and to plan better management methods for mental well-being of the general population.

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