



**EFFECTIVENESS OF E-PUBER APPLICATION (EMPOWERED WOMEN)
WITH A HEALTH BELIEF APPROACH TO EUDAIMONIC WELL-BEING OF
MENOPAUSAL WOMEN**

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ABSTRACT

Menopause is not a disease, but a condition that affects women's lives. Menopause is a physiological thing for women because of changes in estrogen hormones. Changes in estrogen hormones that occur make menopausal women easily anxious, have difficulty sleeping, dyspareunia, lose self-confidence, or eudaimonic well being. This condition will affect the quality of life in menopausal women. This study aims to determine the effectiveness of the E-Puber Application (Empowered Women) with a Health Belief Approach to the Eudaimonic Well Being of Menopausal Women. The design of this study used quasi-experiment with control group involving 100 samples of menopausal women. Sample selection was carried out using a simple random sampling technique and using the Eudaimonic Well Being Questionnaire (QEWB) and data analysis was carried out using an independent t-test. The results of the study showed that the p value = 0.008 (p value <0.05) which means that there was a significant difference in the Eudaimonic Well Being variable after getting the E-Puber application. The E-Puber application with a Health Belief approach is used as an effort to prevent psychological problems experienced by menopausal women, in the form of digitalization so that it can improve Eudaimonic Well Being and increase existing potential.

Keywords: application; empowered women; eudaimonic well being; health belief; menopause

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INTRODUCTION

Menopause is a natural process that will be experienced by every woman and cannot be avoided in various ways. Some women consider the arrival of menopause to be scary and cause concern in itself. The worries that arise start from the thought that she can no longer play the role of a woman who is normal, unhealthy, not fit, and no longer attractive to her partner (Listiana, 2022). This excessive worry will make a woman feel unprepared and difficult to go through menopause (Daulay & Siregar, 2013). Some of the physical symptoms that accompany menopause include a feeling of heat in the face and neck (*Hot Flashes*) and the upper part of the chest, excessive sweating, difficulty sleeping, skin irritation, vaginal dryness, fatigue, headaches, and heart palpitations (Simangunson et al., 2021) (Effectiveness et al., 2019). The changes that occur during menopause are also accompanied by several psychological symptoms such as being more irritable, feeling depressed, restless, nervous, feeling lonely, impatient, concentration disorders, feeling tense, anxious, and even depressed during menopause (Trisetiyaningsih et al., 2023).

Changes experienced during menopause will cause changes in *Eudaimonic well being* so that it has an indirect impact on the quality of life of women (Refado & Diantina, 2018). The majority of women do not understand the changes that occur during menopause (Listiana et al., 2022). In the previous study, it was found that 55.3% of women had a low level of

knowledge related to menopause (Rostami-Moez et al., 2023)(Noviyanti & Wahyudi, 2017). *Eudaimonic well being* or confidence with potential and happiness is a form of realization and achievement full of the individual's ability to accept his past with all advantages and disadvantages (*self acceptance*), also able to show an independent attitude (*autonomy*), able to build positive relationships with others (*positive relation others*), can control the environment, can control the environment (*Environmental Mastery*), have a purpose in life (*purpose in life*), and able to develop his or her personality (*Personal Growth*) (Waterman et al., 2010). The confidence and happiness of a woman who enters the menopause transition period (age 40 - 65 years) can be seen from how menopausal women accept their own situation, their ability to foster positive relationships with others, control the surrounding environment well, there is satisfaction in living life, realize the potential or ability in themselves to become a person who continues to grow and develop well (Nisa et al., 2017)(Kurniawan & Yani, 2021)(Diyu & Satriani, 2022).

Menopausal women who experience physical and psychological changes have not received much information about the problems experienced during menopause in their area, so it is necessary to update the strategy in efforts to provide education and monitor this sense of trust or increase the sense of empowerment during menopause with an educational application that utilizes technology. The application created is called the E-Puber application. The E-Puber application was created to facilitate obtaining health information about menopause symptoms and motivation to increase the sense of well-being, self-confidence or eudaimonic well-being in menopausal women.

METHOD

This study is a quasi-experimental research with *a pretest-posttest design with control group design*. The sample of this study is menopausal women in Kumpulrejo village, Kaliwungu. Respondents had previously received an explanation of voluntary participation and signed informed consent. This research lasted for four weeks with the help of ten enumerators, where the enumerators in this study were cadres of Kumpulrejo village who had previously been given training in the use of the E-Puber application.

The respondents in this study were divided into two groups: 50 intervention groups and 50 control groups with inclusion criteria aged 49-59 years, having gadgets, being able to operate gadgets, being able to read, and being cooperative. *The Eudaimonic Well-Being pretest* was carried out after the respondents were willing to participate in the intervention group and the control group. In the intervention group, menopausal problems were given management by using the E-Puber application on the respondent's smartphone, then accompanied by a numerator to be given directions related to the use of the application, respondents in the intervention group were able to use the application every day. In the control group, respondents were given management of menopause problems by being given leaflets (empowered women) that could be read every day. *The posttest assessment of the Eudaimonic Well-Being level* was carried out in the fourth week after all interventions were completed. The data collection tool used in this study is *the Eudaimonic Well-Being (QEWB)* questionnaire which refers to self-confidence and increased potency in menopausal women. The results of the validity test on the eudaimonic well-being questionnaire obtained r results $> r$ table (0.0361) and from 21 statements there were 19 valid statements. The researcher's reliability test used *Cronbach's alpha*. In the Eudaimonic well-being questionnaire, the results were that r *alpha* (0.866) $> r$ table.

RESULT

Table 1
Characteristics and Homogeneity Test of Respondent Intervention Group and Control Group

Characteristics	Intervention group		Control group		Total		P Value
	f	%	f	%	f	%	
Age							
49-55	30	60	24	48	54	54	0.141
55-59	20	40	26	52	46	46	
Education							
Tidak Sekolah	3	6	0	0	3	3	0.230
SD	7	14	5	10	12	12	
SMP	15	30	10	20	25	20	
SMA	25	50	35	70	60	60	
First of menopause							
45-46	28	56	30	60	58	58	0.143
47-48	22	44	20	40	42	42	

Table 1 above shows that the results of the homogeneity test of all homogeneous data, this is shown by the results of a p value of >0.05 of the characteristics of the respondents based on age with a p value of 0.141, based on the education level of p value of 0.230 and based on the age of first menopause with a p value of 0.143. Based on age, the intervention group averaged 49-55 years old (54%) while the control group averaged 56-59 years (46%). Based on the level of education, the intervention group with high school graduates was 25 women (50%), while the control group with high school education was 35 (70%). Based on the first age, menopause averaged at the age of 45-46 with the number of 56% in the intervention group and 60% in the control group, respectively.

Table 2.
Eudaimonic well-being rate of respondents in the intervention group and control group (n=100)

Variable	Group	N	Before/After	Mean	SD	Difference
<i>Eudaimonic well being</i>	Intervention	50	Before	5,37	1,301	2,91
			After	8,28	1,379	
	Control	50	Before	4,73	1,448	2,12
			After	6,85	0,971	

Table 2 shows the distribution of data *Eudaimonic well being* respondents in the intervention group and control group before and after being given the E-Puber application. The results of the analysis were obtained that *Eudaimonic well being* Each respondent in each intervention and control group had different mean values. Both groups experienced an increase, but the intervention group experienced a higher increase in value than the control group, which was 2.91.

Table 3
Eudaimonic Well-Being Difference Test in the intervention group and control group

Variable	Group	N	Difference	SD	P
<i>Eudaimonic Well Being</i>	Intervention	50	2.91	1,608	0,008
	Control	50	2.12	1,648	

Table 3 shows the difference in knowledge improvement from the provision of E-puber application with the health belief approach for the intervention group and using the lecture method in the control group, giving the result that there is a difference in the level of *Eudaimonic Well Being* between the intervention group and the control group. The intervention group had a higher difference than the control group, with a score of 2.91 (SD=1.608). The results of the independent t-test obtained the result that the value of $p=0.008$

(p value <0.05) which means that there was a significant difference in the increase in knowledge variables after obtaining the E-Puber application with the *health belief*.

DISCUSSION

Characteristics of Respondents

Age of Respondents

Age is one of the factors that can affect a person's level of knowledge, with increasing maturity of a person's age, there will be changes in aspects and psychology. In general, physical growth in a person consists of four categories of change, namely changes in size, changes in proportion, loss of old characteristics, and the emergence of new characteristics. These changes occur due to the maturation of organ function. As for the psychological or mental aspect, it occurs because a person's level of thinking becomes more mature and adult so that the ability to capture information can be better. (Asifah & Daryanti, 2021). Based on the results of the descriptive analysis of respondents' ages, the intervention group and control group were dominated by the intervention group of 49-55 years (54%) while the control group was 56-59 years old (46%). This shows that the average age of menopause is in the range of 49-55 years. Based on the results of the study, it was shown that the age range of 51-55 years of women experienced a decrease in estrogen hormone levels, so that women would experience symptoms such as *hot flushes*, sleep disturbances, skin changes, and psychological problems (Alwi, 2021). Based on the results of research Asmaradana regarding women's perceptions in facing menopause, it is stated that age affects a person's ability to understand and mindset. The broader and more age, the broader and more knowledge and perceptions of women in facing menopause, because at an age there is a lot of experience and maturity of the soul.(Asmaradana, 2021)

Education

The ability possessed by a person can be influenced by educational factors, therefore ability has a very close relationship with education. Where by having a high education, the person is expected to have wider abilities. So that a person has a great desire to utilize knowledge, skills and education in interacting with the environment. Because the results of education participate in forming a person's thinking patterns, perception patterns and attitudes in decision making. With education and knowledge, it encourages the will that is aimed especially at menopausal mothers. (Salvia et al., 2022). Based on the results of the descriptive analysis of the characteristics of the respondents' education level, it was shown that the average level of education of menopausal women, namely high school, in the intervention group was 25 women (50%), while the control group with high school education was 35 (70%). Education is synonymous with high knowledge, although education is not a variable that directly affects the management in overcoming welfare problems or *eudaimonic well-being*. Notoatmojo emphasized that higher education will make it easier for a person to receive information, perspectives, and ways of thinking (Alharti, 2021). The results of Djik's research convey that the level of education affects the way a person receives information (Djik, 2018).

The First Age of Menopause

The results of the descriptive analysis of the average age of first menopause occurred at the age of 45-46 with the number of 56% in the intervention group and 60% in the control group, respectively. The son's research related to factors that affect menopause, namely nutritional status, childbirth history (Siregar, 2018). The most meaningful factor is the history of childbirth with a value of $p < 0.001$ (Khadilkar, 2019). It is estimated that in the last 100 years the menopausal age has shifted to a younger age, this is due to an increasing history of

childbirth (Khatoon, 2018). Lamtumiari said in the results of his research, that the average age of menopause is 45-50 years old (Lamtumiari, 2018). The age of menopause is still related to the age of giving birth, it is said that the older she gives birth, the older she enters menopause. Research conducted by Beth Israel Deacores Medical Center in Boston revealed that women who still give birth over the age of 40 will experience older menopause. This happens because pregnancy and childbirth will slow down the reproductive organ system. It will even slow down the aging process of the body (Apriliyeni & Rohmah, 2024)

Eudaimonic Well-Being Levels Before and After Being Given the E-Puber Application with a Health Belief Approach in the Intervention Group and Control Group

The results of the statistical test showed the distribution of *Eudaimonic Well-Being* data in the intervention and control groups before and after being given the E-puberty application. The results of the analysis showed that *the Eudaimonic Well-Being* of each respondent in each intervention group and the control group had different average values. The intervention group had a higher value difference than the control group, which was a value of 2.91 (SD=1.608). The results of the independent t-test obtained the result that the value of $p=0.008$ ($p<0.05$ value) which means that there was a significant difference in the *Eudaimonic Well-Being* variable after obtaining the E-Puber application. In addition to the above results, this study also obtained the results that there was a change in the response pattern in respondents to the *Eudaimonic Well-Being* variable which consisted of 6 indicators, namely self-discovery, potential development, awareness of the meaning of life, self-confidence, active socialization, and enjoying life. Before being given the E-Puber application, many respondents had difficulty answering the 6 indicators. However, after being given the E-Puber application, it was found that the respondents were able to answer these indicators correctly. The results of this research are in line with the research conducted (Yunanto, et al, 2017) which states that knowledge of PJP bystander can be increased by using *the mobile application* method when compared to traditional methods. Jenson (2017) also added that *mobile applications* provide their own attraction for their users because of the various features provided. This method will provide stimulation to the user to learn actively, unlike the traditional method that depends on the presenter. There are several advantages to using a mobile application. Sharples et al, (2015) stated that *mobile applications* have the advantage of being user-centric, so that they can build cognitive abilities that are in accordance with the goals to be achieved.

The E-Puber application used by researchers has the same characteristics as the research above, which consists of writing, pictures. These features can make it easier for respondents to increase or make a positive sense of *Eudaimonic Well-Being* in menopausal women. In this study, respondents who were given the E-Puber application had a higher average posttest score than the group of respondents who were only given health education using traditional methods. This can happen because in the provision of health education using traditional methods, respondents are only centered on the giver of material with less interesting media. In contrast to the group of respondents who were given health education using the E-Puber application. In this group, which is hereinafter called the intervention group, respondents have the opportunity to learn to use an application in which there are various interesting features such as writing, pictures and is new for respondents so that respondents are tricked to find out the content in the application, besides that respondents have the opportunity to practice what is in the application.(Zaheer et al., 2018).

One of the nursing theories that is suitable for use in improving *Eudaimonic Well-Being* or welfare in menopausal women with health education is *the health belief model* theory. There

are several domains in the theory, one of which is *the perceived seriousness/severity* domain. This domain speaks of an individual's belief in the severity or seriousness of the disease. Meanwhile, the perception of seriousness is often based on health information or knowledge. It is possible that this comes from a person's belief that the squeeze of a disease or affects his or her life in general (Jones & Bartlett, 2013). The increase in the sense of *Eudaimonic Well-Being* in respondents through the E-Puber application with a health belief approach is expected to increase the seriousness of respondents in their perception of health and happiness when facing menopause.

The results of the above study are supported by research by Yunanto et al., (2018), which stated that the posttest results after CPR training using a mobile application showed an increase in skill scores. This is in line with research by Jenson & Forsyth, (2017) which stated that in addition to knowledge, skills will also increase if the training method is given by utilizing innovative technology. When viewed from the perspective of human physiological processes, learning methods that utilize technology and consist of imaginary audio effects will increase the activation of the frontal and parietal cortex in the human brain. The effect is that it will trigger cognitive stimulation and can strengthen the memory of someone who has studied the material. The use of technology used to conduct education has the effect of increasing memory in the human brain. Increased activation in this part of the brain will trigger cognitive stimulation and can strengthen the memory of someone who has studied something. This method also has advantages, including that respondents can focus on using the application that has been installed on their smartphone and can also practice anywhere and anytime, making it very easy for respondents to do so. (SARTIKA et al., 2022). Based on the results of the descriptive analysis and theoretical study above, it can be seen that the E-Puber application has a role in improving the health and happiness experienced so that it is able to produce a sense of *Eudaimonic Well-Being* or confidence and increase the potential of the respondents.

CONCLUSION

Based on the results of the descriptive analysis and theoretical study above, it can be seen that the E-Puber application has a role in improving the health and happiness experienced so that it is able to produce a sense of *Eudaimonic Well-Being* or confidence and increase the potential of the respondents with a value of $p=0.008$ (p value <0.05) which means that there is a significant difference in improvement after getting the E-Puber application with a *health belief approach*.

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