



International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR /Volume 6 / Issue 3 / July - Sep - 2018
www.ijamscr.com

Research article

Medical research

The combination of dark chocolate and spiritual emotional freedom technique (SEFT) towards anxiety level and blood pressure on primigravida pregnancy women

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Jl.Tirto Agung; Pedalangan; Banyumanik; Semarang

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ABSTRACT

Background

The climax of anxiety level happens on third trimester when the pregnancy is on week 32-36 due to fake and real contraction. Anxiety can be reduced by giving dark chocolate as chocolate induces comfort and calmness, while SEFT makes blood stream smooth. The combination of both therapy has never been done before. The objective of this research is to analyze the effect of combination of dark chocolate and spiritual emotional freedom technique (SEFT) towards anxiety level and blood pressure on primigravida pregnancy in Bumijawa Community Health Center working area.

Method

The design of this research was Quasi experimental using pre and post test with control group approach. The population was 256 women on primigravida pregnancy with simple random sampling was used as sampling technique. 50 gr/day of chocolate were given everyday at 16.00 and 18 points SEFT therapy was given for 20 minutes/day. Questioner was used to measure anxiety, and sphygmomanometer and oximeter were used to measure vital sign, mann whitney, wilcoxon test and linear regression test were used on statistical analysis.

Result

The result of pre-post group is $p = 0,001$ which means there is an effect of dark chocolate consumption and SEFT therapy towards anxiety level and blood pressure on primigravida pregnancy. Then wilcoxon test was used to compare groups, resulting significance level $0,000 \leq 0,05$, which means on dark chocolate and SEFT therapy group is more effective in reducing anxiety and reducing blood pressure on primigravida pregnancy.

Conclusion

A combination of dark chocolate and SEFT therapy is more affecting to reduce anxiety, to reduce blood pressure compared to dark chocolate.

Keywords: Anxiety, Primigravida Pregnancy, Blood Pressure, Chocolate Consumption, SEFT Therapy

INTRODUCTION

First pregnancy is really important for women, compared to subsequent pregnancies. On first pregnancy women tend to feel anxiety, fear, worry, mixed with happiness. Pregnant women feel anxious on their pregnancy, birth period and tiredness. The happiness occurs when neighbours and friends congratulate them and pray for their pregnancy. As the pregnancy grows old, the thought and attention of pregnant women are getting fixed on something climatic, resulting on feeling of restless and worry is getting more intensive as the pregnancy is approaching due day. The worry of approaching giving birth is ranked first of negative feelings underwent by women during pregnancy [1].

In Indonesia, during 2013 there were 107.000 pregnant women (28,7%) who felt anxious in approaching giving birth [2]. The data from Public Health Service of Tegal district shows that there were 29.833 pregnant women in 2016. Among them, there were 26.923 (90,25%) categorized as K4. In 2017, there were 29.232 pregnant women with 20.309 (69,48%) of them categorized as K4.

The causes of anxiety are threat of body, mind or mental, different wants of contrastive nature, unfulfilled needs which all lead to anxiety. Fear of something also contributes to anxiety, for instance the fear of failure in giving birth [1].

Other negative impacts of excessive anxiety on pregnant women are premature birth and even miscarriage [3]. A certain research also shows that the above condition will rise the risk of hypertension. Hypertension could lead to stroke, seizure or even death to both mother and her fetus. If this keeps happening, the mortality and morbidity number will increase [4].

To this date, pharmacological therapy, most of the time, will have side effects which are dangerous for pregnant women. The examples of drugs used on psychopharmacology therapy include anti-anxiety (anxiolytic) like diazepam, chlordiazepoxide HCL, oxazolam hydroxine HCL, and rhizome. There is also anti-depressant like fluoksetin, paroksetin, antipsychotics (proklorpezin), arisolitik (benzodipin), whose side effects for pregnant women include anorexia, nausea, diarrhea, constipation, digestive system

disorder, change of heart pulse, and the more dangerous bleeding and the lacking production of prolactin [5]. Meanwhile, non-pharmacological therapies commonly used for reducing anxiety are cognitive therapy, metacognitive therapy, efficacy therapy, yoga, and prayer [6].

A study of the use of dark chocolate to reduce anxiety level on teenagers was done by Laveda Jesylin by using HARS scale, reducing mild-anxiety of 14,8 to non-anxiety 5,9, which can be concluded as effective in reducing anxiety [7]. Another study by Laily (2016) also showed that there was a reduction of anxiety from medium-anxiety to mild-anxiety even though it was not considered effective yet as the patients still felt anxious [8].

It is also strengthened by the result of study of Kristanto and Wong Sy that pregnant women feeling anxiety will raise the level of adrenaline and norepinephrine or epinephrine and norepinephrine, causing deregulations of body biochemistry. Consuming chocolate can increase happiness and improve body condition. Some people believe that the oro-sensoric-ness of chocolate is the main factor of regulating mood, because chocolate contains phenethylamine which triggers the release of endorphine. It is also known that chocolate contains substance that can sub glutamate to reduce depression/anxiety [9, 10]

Preliminary survey done on November 6, 2017 showed that there were 1112 pregnant women in Bumijawa Community Health Center working area. Among them, 256 were on Trimester III during February – March of 2018. Then, 8 respondents were randomly chosen and later, interviewed. 5 out of 8 respondents revealed that they were feeling anxious because it was their first pregnancy and were worried of giving birth. The other 2 respondents were feeling less anxious because they said that they had read books about pregnancy. It can be concluded that there were many primigravida pregnant women on TM III who felt anxious in approaching their giving birth time. Moreover, those 8 respondents were asked about dark chocolate consumption, tap therapy on certain meridian points to regulate blood circulation, and prayer. They said they did not know the function of chocolate consumption and the knock therapy. In order to boost the reduction

of anxiety, the researcher wanted to conduct holistic care combined with dark chocolate consumption and SEFT therapy, expecting to boost the effect size and reducing anxiety level further.

METHOD

Population and Sampling

Quasi Experimental design was used in this research with pre and posttest with control group. Two groups were chosen non-randomly [11]. This design was used to find out the effectiveness of combining dark chocolate and SEFT therapy towards anxiety level, blood pressure, and heart pulse on primigravida pregnant women. The research was done on Bumijawa Community Health Center from February until March of 2018. The population was 256 respondents of primigravida pregnant women. Samples were chosen from population based on the criteria of primigravida pregnant women who were on 32-36 weeks feeling anxiety which were gathered through interview. The symptoms of anxiety are lack of sleep, digestive system disorder, bad mood, and traumatic experience. The formula of picking sample for hypothesis testing with type 1 error is (1, 96) 5%, type 2 error is (0,842) 80% [11]. Standard deviation for experimental group was 2, 34 and for the control group was 2, 01. The calculation showed that the minimum number of sample was 58. Based on the above estimation, this research was using 60 samples which were divided into experimental group and control group.

Treatment

Before conducting the research, the researcher proposed prior assessment ethics and research permit, then the similarity of perception between the researcher, the enumerator, the determination of subjects according to the inclusion criteria, divided into 2 groups, the intervention group with the provision of dark chocolate and SEFT therapy. Each member of the experimental group was given dark chocolate (50 gr) diluted in warm water of 37 C as much as 200 cc. 50 gr dark chocolate contain 3.3 mg / 50g Phenylethylamine (PEA), and amino acid tryptophan phenylalanin and tyrosine 3.75% ,14,15 mg of Flavonoid CAE/50 gr, antioxidant 6.560

unit/50 gr, Calcium (Ca) 3,21%, Magnesium (Mg) 6,74%, Iron (Fe) 2,45% [12, 13]. It was given once per day between 15.00 until 16.00 (as 1 hour of pre meal). Afterwards, respondents were given SEFT therapy of tapping on 18 meridian points for 20 minutes, each day. This was done for 14 days straight. The members control group was given the same treatment of 14 days dark chocolate consumption, excluding the SEFT therapy.

The SEFT therapy was taught by certified expert based on pre-made Standard Operating Procedure. The respondents were evaluated throughout the teaching process by the researcher.

Instrument

The instruments of this research include observation sheet which was used during direct observation on respondents to gather data about anxiety, sphygmomanometer to gather data of blood pressure, oximeter to get data of heart pulse. Questionnaire based on BAIS scale (Beck Anxiety Inventory) was used whose answers were using Likert scale of 4 points of answers. They are “not bothering at all” scoring 0, “not really bothering” scoring 1, “sometimes bothering” scoring 2, and “really bothering” scoring 3. The sum score were then used to describe how badly the anxiety was bothering the respondents on BAI scale. Score of 0-7 means non anxious, 8-15 means mildly anxious, 16-25 means medium anxious, and 26-63 means heavily anxious. The validity of Beck Anxiety Inventory (BAI) was in correlation with the level of anxiety ($r = 0,48$) [14, 15]

Data Analysis

The data of this research were analyzed by using univariate and bivariate analysis. The experimental group of dark chocolate and SEFT therapy combination and the control group of dark chocolate therapy were tested using mann whitney to see the significance of difference between pre and posttest. Wilcoxon test was then used to see the difference between the two groups (experimental and control group).

Research Ethics

The research ethics of this study was given by Health Research Ethics Committee of Semarang Health Polytechnic of Ministry of Health with

registration number No:
024/KEPK/Poltekkessmg/EC/2018. All respondents involved in this research were given appropriate information consent.

RESULT

The majority of respondent characteristics from experimental and control group are shown in the table 1.1. The average age is 24 years old. Pregnancy age average is 33 weeks. 60% of respondents are at least high school graduate. 73, 3% of them are worker.

Table 1 - frequency distribution of respondents' characteristics based on age, education, occupation, and pregnancy age in Bumijawa Community Health Center working area in 2018.

Variable	Group				p value*
	Experimental (n=30)		Control (n=30)		
	n	Average ± SD	n	Average ± SD	
Age (years old)	30	24,37± 0,999	30	24,20 ± 0,847	0,168
Pregnancy Age	30	33,27±1,337	30	33,27±1,437	0,595
Education	n	%	n	%	
Higher Education	12	40	16	53,3	
Medium and lower Education	18	60	14	46,7	0,359
Occupation	n	%	n	%	
Housewife	22	73,3	20	66,7	
Worker	8	26,7	10	33,3	0,273

Lavene test was used for testing homogeneity with $p > 0,05$. It means the data were

homogenous. It can be concluded that both groups are similar.

Table 2 – frequency distribution of respondents' characteristics based on BAI score, blood pressure on systole and diastole, and heart pulse in Bumijawa Community Health Center working area in 2018.

Variable	Group	
	Experimental	Control
Pretest		
Anxiety		
Average \pm SD	18,20 \pm 3,662	16,43 \pm 3,137
Min-max	11-25	11-22
Blood pressure on sistole		
Average \pm SD	134 \pm 3,806	133,83 \pm 3,640
Min-max	130-140	130-140
Blood pressure on diastole		
Average \pm SD	87,50 \pm 2,862	87,83 \pm 2,520
Min-max	80-90	85-90
Post Test		
Anxiety		
Average \pm SD	9,93 \pm 3,868	12,47 \pm 3,340
Min-max	5-17	7-18
Blood pressure on sistole		
Average \pm SD	115 \pm 5,085	121,83 \pm 6,757

Min-max	110-120	110-135
Blood pressure on diastole		
Average \pm SD	73 \pm 3,851	77,33 \pm 6,789
Min-max	70-85	70-90

The result of normality test on anxiety level, blood pressure on systole, and blood pressure on diastole all show the data are not normally distributed, $< 0, 05$. From table 2, we can quickly identify that the average number of anxiety level on pretest between experimental and control group does not have really big difference, averaging 2-3 points of different.

Moreover, on posttest there is a reduction of anxiety level, especially on experimental group compared to two control groups. Blood pressure both on systole and diastole remains largely the same for pretest and posttest. But, there is also more reduction of the number in experimental group compared to the control group.

Table 3 – the effect of combination of dark chocolate consumption and SEFT therapy towards anxiety level, blood pressure, and heart pulse on primigravida pregnant women (posttest) using mann whitney

Variable	Mean square	Z	p-value
Anxiety level	294,500	-2,333	0,020
Blood pressure on systole	217,500	-3,809	0,000
Blood pressure on diastole	293,000	-2,642	0,014

The result of mann whitney on posttest data shows that the average number of anxiety (0, 02), blood pressure on systole (0,000), blood pressure

on diastole (0,014). It means that there is statistically significant effect of giving dark chocolate and SEFT therapy.

Table 4 – the difference between experimental group and control group (posttest) using wilcoxon

Variable	P value-Experimental	P value- Control
Anxiety level	0,000	0,000
Blood pressure on systole	0,000	0,000
Blood pressure on diastole	0,000	0,000

From table 4, wilcoxon test shows that all numbers of anxiety level, blood pressure on systole, blood pressure on diastole are below 0,005. It can be concluded that there is significant difference between experimental group and control group.

Multivariate data analysis technique used in this study with linear regression analysis, which is used to determine the effect of variable confounding, namely: age, gestational age, education and employment on the dependent variable that is anxiety level and systolic and diastolic blood pressure.

Then the variable age, gestational age, education, and occupation showed no relationship with the value of $r = 0.00-0.25$ with $p \text{ value} > 0.05$, which means that counfounding variables do not

play a role in anxiety levels, systolic or diastolic blood pressure

DISCUSSION

The result of this research shows that there is a significant effect of dark chocolate consumption and SEFT therapy on anxiety level of primigravida pregnant women.

The reduction of anxiety level is caused by phenylethylamine and anadamine contained within chocolate to stimulate the brain to produce dophamine and release a large number of β -endorphine which induces the feeling of happiness. Another substance in chocolate is triptofan amino acid which is related to the level of serotonin in the brain¹⁶. Triptofan is a precursor serotonin

neurotransmitter which regulates mood and feelings [7, 17]

A previous research done by Laily Wahidatul Oktavia revealed that, on HARS scale, medium anxiety state was reduced to mild anxiety through giving treatment. That result gave further proof that chocolate could reduce anxiety level. The important substance within chocolate had been broken down through metabolism, enabling nerve system to manage and reduce anxiety level.

Pregnant woman having anxiety will have her level of adrenaline and noradrenaline or epinephrine and norepinephrine raised higher than normal which will cause biochemistry deregulations leading to physical tense on her body. Previous research done earlier revealed that consuming dark chocolate reduce anxiety level from mildly anxious to non-anxious. In addition, yet another research gave result from medium anxiety to non-anxiety [7].

A research conducted on respondents having anxiety on medium level was done by Puspita Dewi. SEFT therapy was given to the respondents and measured using Zung Self-Rating Anxiety Scale (ZSAS) [18]. The result, however, showed constant change of anxiety level. It is explained in the theory provided by Ahmad Faiz Zainuddin that there are 11 hindrances of successful SEFT therapy. Among those reasons are: the lack of knowledge and skill, the lack of bodily fluid (dehydration), spiritual-related hindrance (incertitude, unwillingness, less resigned, lack of focus, and lack of gratitude), psychological resistance, the feeling of indifference in doing set-up and tune-in, unidentified root of problem, lack of SEFT expert involvement, uneager to change, in need of collarbone respiration, and allergic to certain substance (which will hinder the process of SEFT therapy) [19]. In conclusion, the process of SEFT therapy requires high concentration level and seriousness in order for the anxiety level to be reduced.

In regard to this matter, the researcher ensures that the combination of dark chocolate and SEFT therapy is successful in reducing anxiety level, it is need to be noted that the giving of dark chocolate must be routine and on appropriate dosage and that the SEFT therapy must be done on high concentration and seriousness.

The result of the research showed that there was a reduction of 13, 13 from 87, 80 before treatments and 74, 67 post treatments.

Laveda Jesylin's research showed that the mean of before treatments was 88, 8 and post treatments was 77, 9. There was 10, 9 reduction. In this case, the combination of dark chocolate consumption and SEFT therapy is successful in reducing heart pulse when compared to treatments using only dark chocolate consumption. The reason is dark chocolate and SEFT therapy combination can fix blood flow dilated system (the measurement showed artery blood vessel became relaxed and, thus, accelerated blood flow) [7, 20].

The average of blood pressure on systole of experimental group is reduced from 134 (before treatments) to 115 (post treatments), meaning there is 19 reduction. Meanwhile, for blood pressure on diastole there is a reduction of 14, 5 from 87,5 mmHg to 73 mmHg between before treatments and post treatments.

The result of Laveda Jesylin's research showed the systolic pressure was 111, 9, reduced to 108,1 and diastolic pressure was 71,4 to 70,3 through treatments⁷. When feeling anxious, the blood pressure and heart pulse of pregnant women tends to rise. On pregnant women, it is considered rising if it is > 120 mmHg – 80 mmHg. The respondents were on normal blood pressure. Data collecting was not on appropriate category and chocolate was given as much as 50 gr for 3 days.

A research done in Carolina also revealed that consuming chocolate throughout 15 days can reduce blood pressure on systole and diastole on those who are healthy, young, old, or even having hypertension⁸. It is expected that the increasing of NO bioavailability, flavanol which induces inhibition of angiotensin converting enzyme and stearic acid which reduces blood pressure on diastole. Furthermore, the use of nerve stimulation through transcutaneous electricity or massage reduces the feeling of anxious and pain on SEFT therapy which in subsequence will fix or accelerate blood flow dilated system on both hypertensive and normotensive subjects [7, 21]

CONCLUSION

Statistically, there is significant effect of dark chocolate and SEFT therapy combination towards anxiety level, blood pressure on systole, and heart

pulse on primigravida pregnant women. The finding of this research can be used as alternative medicine for midwives to use in handling anxiety during pregnancy. It is suggested to consider dark chocolate inclusion in class program for pregnant women for 1 time/day and SEFT therapy for 20 minutes to reduce anxiety level and fix blood circulation problems to improve the healthiness of the mother and her baby.

ACKNOWLEDGMENTS

The authors would like to acknowledge all subjects who have participated in the study. We would also like to thank Dr. Drg. Diyah Fatmasari, MDSC, Dr.dr. Suryati Kumorowulan, M. Biotech, Mardiyono, MNS, PhD, Dr.Melyana Nurul Widyawati, S.SiT.,M.Kes for their commitment and support throughout this study, the Bumijawa Health Center which has helped the course of this study and especially to parents who have funded this research.

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How to cite this article: Fitriana Rakhimah, Diyah Fatmasari, Suryati Kumorowulan. The combination of dark chocolate and spiritual emotional freedom technique (SEFT) towards anxiety level and blood pressure on primigravida pregnancy women. *Int J of Allied Med Sci and Clin Res* 2018; 6(3): 654-661.

Source of Support: Nil. **Conflict of Interest:** None declared.