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Emotional Freedom Techniques for Reducing Anxiety and Cortisol Level in Pregnant Adolescent Primiparous

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Abstract

Anxiety during pregnancy in primiparous mother will be a hard burden because of the immature both psycologic and reproductive organs which can increase the risk of maternal mortality, infant mortality, prolonged childbirth, LBW, postpartum depression, etc. An effort to minimize the anxiety is the implementation of EFT (Emotional Freedom Techniques) during the third trimester.

This research purposed to assess the effectiveness of EFT to decrease anxiety in facing childbirth. This research used the quasi-experimental pre-test and post-test method of treatment and control. The treatment was done during the third trimester, started and followed for 3 months ie month 7th, 8th, 9th. The EFT was implemented every month then continued independently by the mother, until before childbirth process. The research instrument used TMAS (Taylor Manifest Anxiety Scale) and cortisol blood test. The subjects were 38 respondents consisted of 19 interventions and 19 controls.

Result with paired t-test, TMAS1,2,3, each stage got significant difference, pre and post blood cortisol level p = 0.0001. Linear regression analysis on TMAS p = 0.001 and R^2 = 0.57, whereas blood cortisol level p = 0.004 and R^2 = 0.43. This analysis proved EFT contributed significantly 57% to lower anxiety levels and 43% to lower blood cortisol level, indirectly affected the readiness to face childbirth process.

Abstrak

Kecemasan selama kehamilan pada ibu primipara akan memberatkan kondisi bayi dalam kandungan karena secara psikologis kejiwaannya belum siap dan organ reproduksi belum sempurna yang dapat meningkatkan risiko dalam persalinan dan merupakan salah satu faktor penyebab kematian ibu, bayi, partus lama, BBLR, depresi postpartum, dll. Upaya meminimalisasi kecemasan ini dilakukan dengan metode EFT (Emotional Freedom Techniques) selama trimester ketiga.

Tujuan penelitian untuk mengetahui efektivitas EFT terhadap penurunan kecemasan dalam menghadapi persalinan. Penelitian ini menggunakan metode quasi eksperimen pre test dan post terhadap perlakuan dan kontrol. Perlakuan dilakukan selama trimester III, dimulai dan diikuti selama 3 bulan yaitu bulan ke-7, 8, 9. EFT dilakukan setiap bulan dan dilanjutkan secara mandiri oleh ibu, sampai menjelang persalinan. Instrumen penelitian menggunakan TMAS (Taylor Manifest Anexity Scale) dan pemeriksaan darah kortisol. Subyek penelitian 38 responden, terdiri atas 19 intervensi dan 19 kontrol.

Hasil penelitian dengan uji paired t-test, TMAS1,2,3, setiap tahapannya didapatkan perbedaan bermakna yaitu kortisol darah pre dan post p=0,0001, analisa regresi liniear TMAS p = 0,001, dan R^2 = 0,57; serta kortisol darah p=0,004 dan R^2=0,43. Analisa ini membuktikan EFT berkontribusi 57% menurunkan tingkat kecemasan dan 43% dalam menurunkan kortisol darah secara signifikan yang secara tidak langsung berpengaruh terhadap kesiapan menghadapi persalinan.

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INTRODUCTION

Health Profile of West Kalimantan 2014 had recorded that maternal mortality was quite high of 151 per 100,000 in West Kalimantan. One of the factors that cause the maternal mortality was the indication of the increasing of adolescent marriage in age of 12-19, that was equal to 104 per 1000. It was the highest in Indonesia while national average was 48 per 1000. In Pontianak City adolescent age 12-19, 30% of them have been married. It indirectly contributed to maternal and infant mortality. This condition became more complex when the mother was depressed and anxious (Bowen, 2008; Giardinelli, 2012).

Anxiety during pregnancy in primiparous mother will be a hard burden because of the immature both psycologic and reproductive organs which can increase the risk of maternal mortality, infant mortality, prolonged childbirth, LBW, postpartum depression, etc (Oxonrn, 2010; Prawirohardjo, 2011, Qiao,2012). Some studies had prooved that psicological condition would affect the anxiety and pain level in reproductive cyclus like menstruation, pregnancy and chilbirth (Utami, 2016; Rizal, 2016).

Anxiety in pregnant women, if not treated seriously, can affect the physical and psychological, both in the mother and fetus in the womb. Mothers who experience anxiety signals through the HPA (Hypolate Pituitary and Adrenal) axis that can release stress hormones, such as Adreno Cortico Tropin Hormone (ACTH), cortisol, catecholamines, 8-Endorphin, growth hormone (GH), proklatine and luteinizing hormone (LH) / Follicle Stimulating Hormone/ FSH (Aktan, 2012).

Various efforts to minimize the anxiety of primiparous mothers performed in health services such as counseling, pregnancy exercise conducted under the guidance of the instructor. This sometimes makes the mother bother to arrange time to come to the healthcare service (Aktan, 2012). In order to minimize the anxiety experienced by adolescent primiparous mother is by giving knowledge and practical skills of EFT method (Emotional Freedom Techniques) so that it can be done under the guidance of instructor or can be done independently at home and not bound by time with maximum result.

EFT is one of the therapeutic methods to relieve or heal emotional and physical problems by performing tapping at certain points of meridian on the face and hands with prayers affecting the HPA,

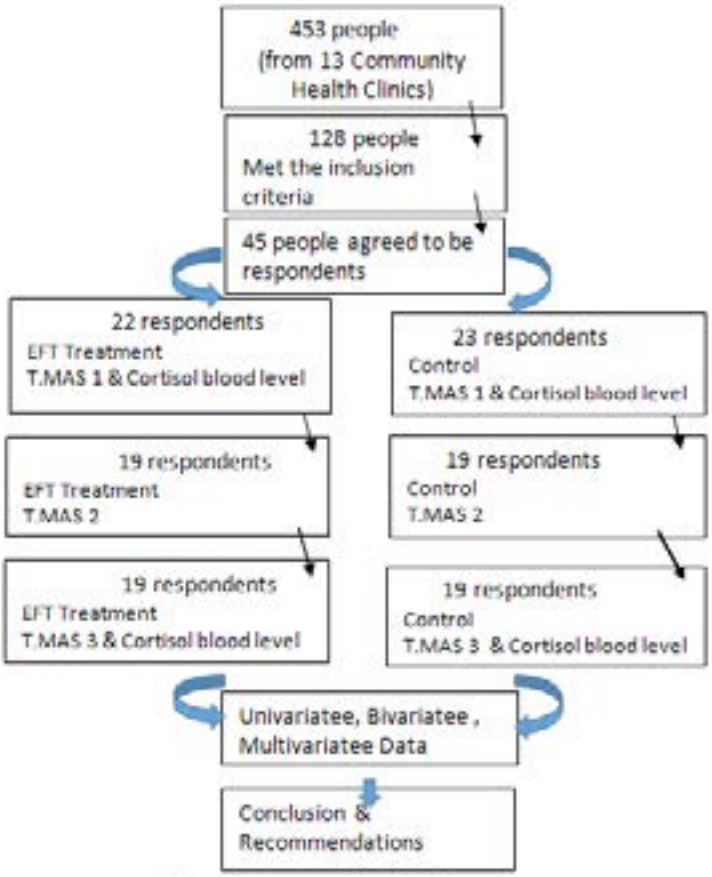

Figure 1. Research Flowchart

reducing exposure of ACHT hormones and Cortisol so that clients become calmer and more confident (Salas et al, 2011).

METHODS

This was a quantitative research with quasi-experimental approach. Treatment was done for 3 times in the third trimester, that was the beginning of month 7,8,9. Pretest and posttest were assessed with TMAS (Taylor Masurement Anxiety Scale) and blood cortisol level in the 7th and 9th month.

The study involved 13 senior midwives from 13 community health clinics (*Puskesmas*) as research assistants. They served as both EFT practitioners and blood cortisol sample takers. This study had been done in February until December 2016.

The study area covered 5 sub-districts, namely Pontianak City, West Pontianak, Southeast Pontianak, East Pontianak, North Pontianak. The population was the 453 adolescent primiparous mothers which were recorded in the health clinics (*Puskesmas*) in 2016.

There were 128 people who met the inclusion criterias as respondents, but only 45 people who agreed to sign the informed concent. The 45 people were taken as the respondents. This study had 38 people as respondents in the end of the experiment because it lost 7 people consisted of 3 people got premature childbirth, 2 people did not want to take the blood and 1 person lost without any information. Data were analized with paired t-test, independent t-test and multivariate linear regression.

RESULTS AND DISCUSSION

Based on the research that had been done on 38 adolescent primiparous mothers who received EFT treatment and control, distribution of age and education were depicted in Table 1. The lowest age in the treatment group was 14 and the highest was 19 with an average age of 17.8 years. It was equivalent to the control group with the lowest age was 16 and the highest age was 19 with an average age was 17.9. Homogeneity test to both groups resulted p = 0.89 (homogeneous significanse) which was stated that both groups are the same in the value of age averange. The lowest education level in the treatment group was Elementary School and the highest was Senior High School. It was equivalent to the control group. Homogeneity test to both groups resulted p = 0.92 (homogeneous significanse) which was stated that both groups are the same in the distribution of education level.

Comparison of anxiety was done in 3 stages that showed in Table 2. Table 2 was a series of paired t-test on anxiety variables at ages 7, 8, and 9 months in both groups whose overall results could be significantly explained as follows: T.MAS 1 and T.MAS 2 (7 to 8 months) test, the first stage on EFT treatment group with anxiety increase was not significant (p = 0.15) compared with control with significant anxiety increase (p = 0.002). Stage two, T.MAS 2 to T.MAS 3 (8 to 9 months). In the treatment and control group both experienced changes, in the treatment group, the anxiety level tended to decrease (p = 0.01). In the control group tended to increase. (p = 0.005). The third stage of T.MAS 1 to T.MAS 3 (7 to 9 months), pre and post test, both groups experienced a change in anxiety level, treatment group tended to decrease their anxiety level (p = 0.003) and control group tended to increase their anxiety (p = 0.0001). All stages of anxiety levels are illustrated in Figure 2.

Figure 2 proved the decrease in anxiety in the treatment group and on the contrary there is an increase in anxiety in the control group.

The comparison of blood cortisol level between pretest and posttest in both treatment and control group was showed in Table 3. On the treatment group, the blood cortisol level was from 21.8 mmg to 2.9 mg mean that there was a statistically significant increase of 0.1 (p = 0.085) compared to the control group from 21.8 to 25.9 (p = 0.0001), which proved that in the treatment group, the blood

Table 1. Frequency Distribution of Respondent's Characteristics

Characteristic of Respondent		Treatment n=19	Control n=19
Age	Age 14-15	1	0
	Age 16-17	1	1
	Age 18-19	17	18
Education level	Elementary	4	5
	Junior High	7	10
	Senior High	8	4

Table 2. Comparison of anxiety

Stage	Test	Treatment	Control
Stage One	T.MAS 1	17.5±3.4	17.1±5.6
	T.MAS 2	15.8±4.3	19.9±4.0
	Deviation	-1.7	2.8
	p	0.15	0.002
Stage Two	T.MAS 2	15.8±4.3	20.0±4.0
	T.MAS 3	13.6±4.6	22.2±2.9
	Deviation	-2.2	2.2
	p	0.01	0.005
Stage Three	T.MAS 1	17.4±3.5	17.1±5.6
	T.MAS 3	13.6±4.6	22.2±2.9
	Deviation	-3.8	5.1
	p	0.003	0.0001

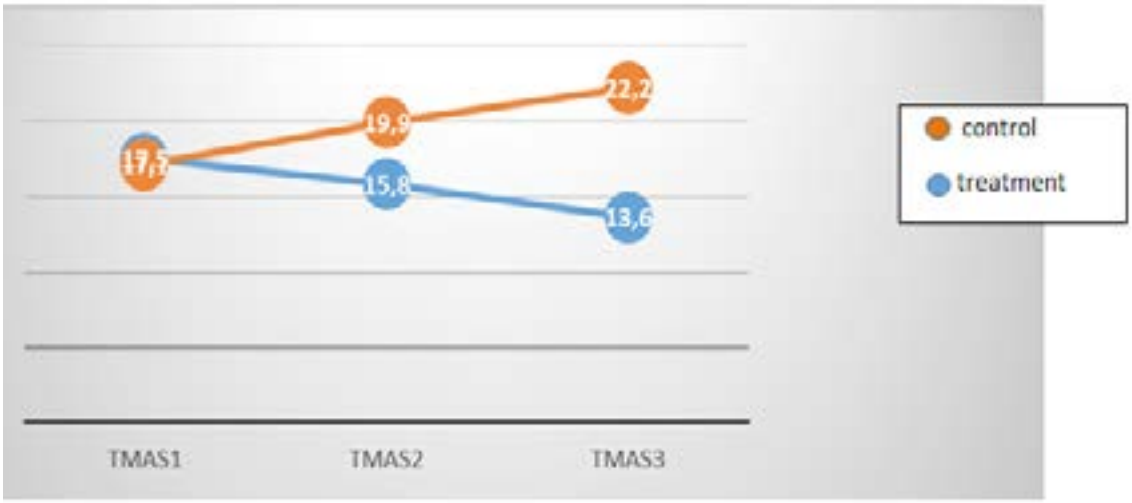

Figure 2. Graphics of Anxiety Level Changes T.MAS 1,T.MAS 2 and T.MAS 3

Table 3. comparison of blood cortisol level between pretest and posttest in both treatment and control group

Variable	Cortisol 1 (pretest)	Cortisol 2 (posttest)	Deviation	*p*
	Mean±SD	Mean±SD		
Treatment	21.8±3.5	21.9±3.0	0.1	0.085
Control	21.7±6.3	25.9±5.9	4.2	0.0001

cortisol tended to persist as compared with the blood cortisol tended to increase. As illustrated in the graph of Figure 3. Figure 3 showed that in the treatment group the blood cortisol level tends to be stable compared to the blood cortisol level in control group which tends to increase.

The analysis used linear regression to determine the effect of EFT treatment, on anxiety and blood cortisol level. First, the level of anxiety T.MAS 1 to T.MAS 2, $p = 0.002$, $R^2 = 0.36$. It meant EFT treatment and other variables contribute 36% to decrease in anxiety levels. As well as T.MAS 2 to T.MAS 3, increasing to 51%, and T.MAS 1 to T.MAS 3 by 57%. As for pretest and posttest on blood cortisol

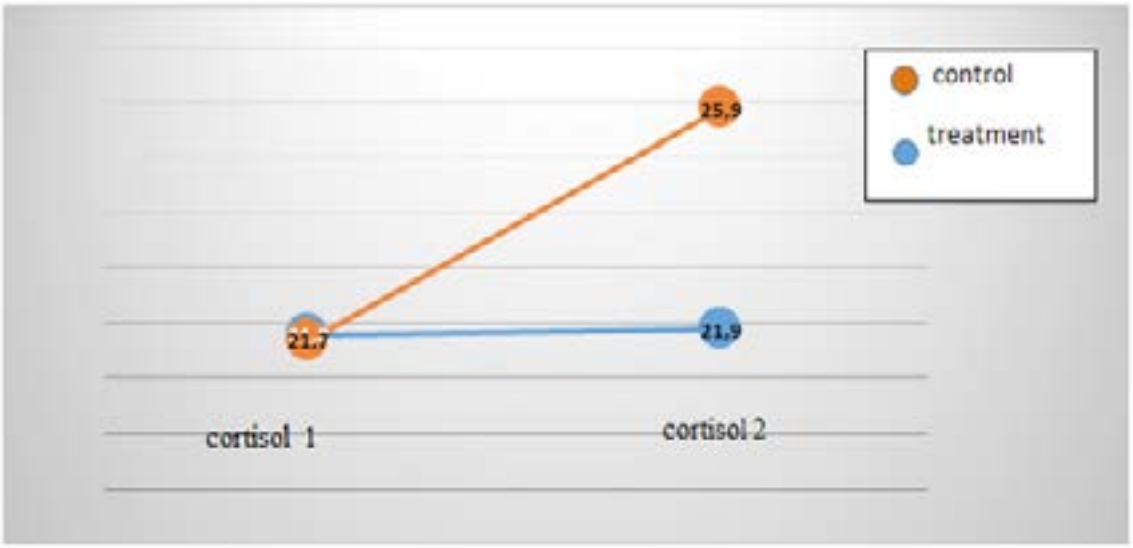

Figure 3. Graphic of blood cortisol level on pretest dan posttest of both treatment and control groups

level by 43%. See Table 4.

Many factors that cause anxiety during pregnancy especially on adolescent primiparous mothers like psychologic, not ready to be a mother, biologically immature reproductive organs (Bar-Shai, 2015; Astria, 2008). Anxiety during pregnancy has a negative impact on the mother and baby in the womb and the baby after birth, such as LBW, prolonged childbirth, premature childbirth, postpartum depression. As well as maternal and infant deaths in the womb (Blair, 2011). Several studies have been studied to reduce the risk of anxiety during pregnancy such as counseling (Astuti, 2011), breathing yoga (Salafas, 2016), and Dhikr (Maimunnah, 2011).

EFT (Emotional Freedom Techniques) is one method of reducing psychological disorders such as anxiety and stress, developed by Cary Craigh, by tapping the meridian points on the face, neck and hands along with prayer, directly affecting the HPA (Hypothalamus, Pituitary and Adrenal) in the central nervous system to balance the release of hormones in the body such as ACHT and cortisol so that indirectly can decrease the level of anxiety in every person including pregnant women (Salas et al, 2011).

The low side effects of this anxiety therapy and indirectly affect the mother to face the birth process. Referring to the results of this study based on the measurement of anxiety levels of age 7, 8 and 9 months in the treatment group tended to fall from the average of 17.4 to 13.6, p = 0.003, compared to the control from 17.1 to 22.2 p = 0.0001, an increase. Based on previous research results and pilot study, EFT is effective in reducing symptoms of psychological distress one of them is anxiety (Church & Brooks, 2013) In line with the above, Irgen et al, 2012, from 45 people who received EFT treatment, 51% decreased anxiety and depression compared with control. Agreeing with the above study, Ghamsari (2015), from 15 pregnant women who received treatment, it turned out the stess rate decreased from 35.86 to 23.86 compared to controls that tend to increase. Treatment EFT affects HPA (Hypothalamus, Pituitary, and Adrenal), indirectly affecting cortisol levels in the blood, followed from this study of pre and post test results in the treatment group from

Table 4. Linear regression analysis of T.MAS 1 to T.MAS 2, T.MAS 2 to T.MAS 3, TMAS 1 to T.MAS 3, and Cortisol 1 to Cortisol 2 changes.

Variable	p	Constants	r^2
T.MAS1 to T.MAS 2	0.002	-15.4	0.36
T.MAS 2 to T.MAS 3	0.02	41.4	0.51
T.MAS1 to T.MAS 3	0.001	2,7	0.57
Cortisol (pre & post)	0.004	40.4	0.43

21.8 to 21.9 p = 0.085, the control group increased from 21.7 to 25.9, p = 0.0001. This is in line with a study by Yuniarti (2016), on primiparous pregnant women who will give birth at midwives in Semarang that those who received SEFT (Spiritual Emotional Freedom Techniques) cortisol treatment tend to decrease. As well as a biomarker in the body against anxiety stimuli that can only be proven through blood, salivary, and urine tests (Braun, 2014).

CONCLUSION

Based on quasi-experimental research that had been done with the theme of EFT effectiveness in reducing the level of anxiety in the process of childbirth of primiparous adolescent in Pontianak City, the result as follows:

Bivariate analysis (paired t-test) proved the effect of EFT treatment on the decrease of anxiety level on pre and posttest EFT treatment (p = 0.085) and control 0.0001, blood cortisol treatment (p = 0.003) control (p = 0.0001) was significant. Multivariate analysis with linear regression proved that the association of variable treatment, age and education contributed to anxiety reduction by 57% and decreased blood cortisol level by 43%.

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